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# Product Specification

**BYH009V12**

**Rev. B**

**Zhuhai BOE MLED Technology Co., Ltd.**

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## Change History

- (  ) Original Specification
- (  ) Final Specification

| Rev. | Page | Modified Content Description   | Revision Date | Revision Person |
|------|------|--|---------------|-----------------|
| O    | -    | Original Design  | 2025/03/18    | Pan Fei         |
| A    | 5    | Update Thickness and Power Consumption SPEC                                      | 2025/03/24    | Pan Fei         |
| B    | 6    | Update Ambient light contrast from 10000:1 to 7200:1, because Change Test Method | 2025/04/08    | Pan Fei         |

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## 1.0 Scope of application

This specification is suitable for indoor full-color point spacing P0.9 COB before maintenance box, the following is the general product parameters, if there is special requirements, can be customized according to customer requirements.

## 2.0 Product description

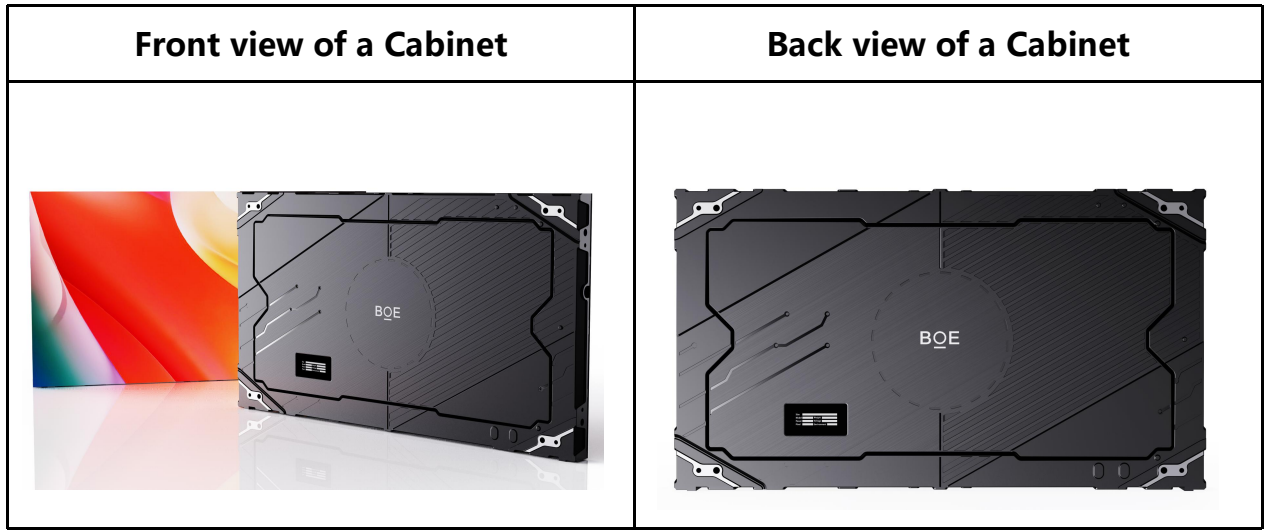
### 2.1 Product introduction

Full flip COB mini-LED technology solution, higher light efficiency, low flicker, to achieve a more environmentally friendly, healthier picture display effect, using the leading drive design and surface treatment scheme, can achieve lower power consumption and higher display contrast.

### 2.2 Product features

- 1) Display every pixel on the module unit module, using full flip R, G, B chip package, each chip is fixed on the substrate;
- 2) The display unit of the box body is a pre-maintenance magnetic suction structure, which is equipped with professional magnetic suction tools to complete installation and maintenance;
- 3) Modular structure design, simple connection, light weight, more convenient in installation and disassembly;
- 4) High contrast to achieve better display effect;
- 5) Low power consumption, energy saving and environmental protection;

### 2.3 Product pictures



|              |               |      |              |         |
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### 3.0 Product technical parameters

#### 3.1 mechanical parameters

|              | Item                               | Technical parameters | Remark |
|--------------|------------------------------------|----------------------|--------|
| MDL          | Pitch(mm)                          | 0.9                  |        |
|              | LED Type                           | COB 0306             |        |
|              | Resolution                         | 160*180              |        |
|              | Size(mm*mm)                        | 150*168.75           |        |
|              | The surface hardness               | 2H                   |        |
|              | Protection grade                   | IP65                 |        |
| Cabinet      | Composition of MDL                 | 1*1                  |        |
|              | Composition of Cabinet             | 4*2                  |        |
|              | Resolution                         | 640*360              |        |
|              | Size(mm*mm)                        | 600*337.5            |        |
|              | Pixel density(dot/m <sup>2</sup> ) | 1137777              |        |
|              | Thickness(mm)                      | 32.3                 |        |
|              | Weight (kg)                        | 3.4                  |        |
|              | Maintenance mode                   | Front                |        |
|              | Material                           | ADC12                |        |
| Flatness(mm) | ≤0.1                               |                      |        |

#### 3.2 Electrical parameters

| Item  | Technical parameters | Remark  |
|---|----------------------|---------|
| Average power consumption of a cabinet(W)     | 23                   | @600nit |
| Max power consumption of a cabinet(W)         | 70                   | @600nit |
| Average power consumption per square meter(W) | 117                  | @600nit |
| Max power consumption per square meter(W)     | 350                  | @600nit |
| Power supply requirements(V)                  | AC 100-240           |         |

|              |               |      |              |         |
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### 3.3 Optical parameters

| Item  | Technical parameters              | Remark                   |
|---|-----------------------------------|--------------------------|
| Single point brightness correction          | Support                           |                          |
| Single point chromaticity correction        | Support                           |                          |
| Brightness(cd/m <sup>2</sup> )              | Typ 600, 0~800Adjustable          |                          |
| Color coordinates                           | Typ 0.284 0.294, Adjustable       |                          |
| Color temperature(K)                        | Typ 9300, 2000 ~ 15000 Adjustable |                          |
| Color gamut                                 | ≥110% NTSC                        |                          |
| Horizontal Angle of view(°)                 | 160±10                            |                          |
| vertical Angle of view(°)                   | 160±10                            |                          |
| Colour cast(°)                              | 170±10                            | Δu'v'≤0.02               |
| Relative deviation of pixel center distance | ≤3%                               |                          |
| Luminance uniformity                        | ≥97%                              |                          |
| Chroma uniformity                           | Δu'v'≤0.005                       |                          |
| Ambient light contrast                      | ≥7200:1                           | 10 lux light environment |
| contrast                                    | ≥1,000,000:1                      | Darkroom L0              |

### 3.4 System parameters

| Item                | Technical parameters      | Remark |
|---------------------|---------------------------|--------|
| frame frequency(Hz) | 60                        |        |
| refresh rate(Hz)    | ≥3840                     |        |
| Drive mode          | PM Constant current drive |        |
| Grayscale (bit)     | ≥13                       |        |

|              |               |      |              |         |
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### 3.5 Packing parameters

| Item  | Technical parameters | Remark |
|---|----------------------|--------|
| MDL-Packing Size(mm)                        | 453×414×231          |        |
| Bracket module/box                          | 48                   |        |
| Bracket module/box weight                   | 8.1kg                |        |
| MDL-BOX/Pallet                              | 24                   |        |
| MDL/Pallet weight                           | 211.9kg              |        |
| MDL-Pallet Size(mm)                         | 1320×980×1044        |        |
| Cabinet-Packing Size (mm)                   | 690×360×450          |        |
| Cabinet/box                                 | 5                    |        |
| Box/box weight                              | 14.7kg               |        |
| Cabinet-box/Pallet                          | 60                   |        |
| Container - Number of Crates /Pallet weight | 201.3kg              |        |
| Cabinet-Pallet Size(mm)                     | 1160x1455x1020       |        |

### 4.0 Product interfaces

| Legend | Type                | instructions                                      |
|--------|---------------------|---|
|        | The power interface | Supply power to the cabinet, maximum current 10 A |
|        | Net gape            | Transmit the video source signal                  |

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## 5.0 Product brand

**LED Full Flip COB Display ( Full-Color )**

**BOE**

| Model: BYH009V12

| Input: 100-240VAC, 50/60Hz 10A

| Output: 100-240VAC, 50/60Hz 9A

| Dimension: 600mm × 337.5mm

BOE MLED TECHNOLOGY CO.,LTD.

Made in China

35mm

70mm

|              |               |      |              |         |
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## 6.0 Reliability test specification and method

Meet the following test conditions without functional defects.

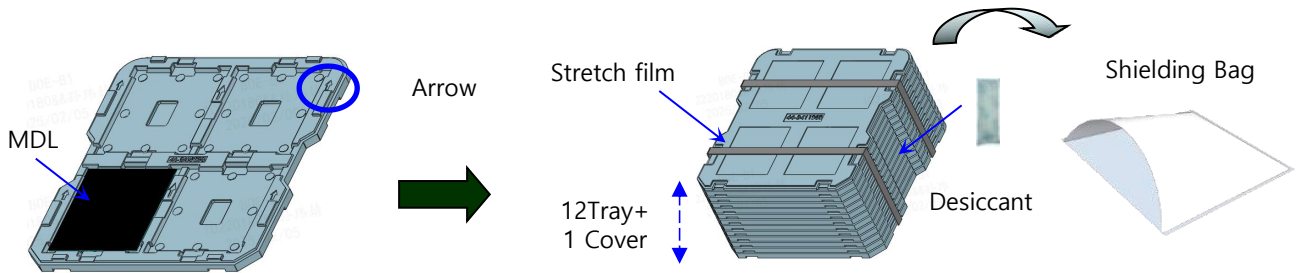
| Item                       | test conditions   |
|----------------------------|---|
| <b>HTS</b>                 | 60 °C, 120 hrs  |
| <b>LTS</b>                 | -40 °C, 120 hrs   |
| <b>THO</b>                 | 50 °C, 90%RH, 120hrs  |
| <b>LTO</b>                 | -10 °C, 120hrs  |
| <b>HTO</b>                 | 50 °C, 120hrs   |
| <b>TST</b>                 | -20°C/30min~60°C/30min , 100cycle   |
| <b>Packaging vibration</b> | 5~200Hz , 0.82G , X/Y 30min , +Z 1hr  |
| <b>Packaging drop</b>      | H: 400mm, Bottom surface, 4 edges, one for each   |
| <b>Safety testing</b>      | Grounding resistance: As specified in 2.6.3.4 of GB 4943.1-2011; As specified in 5.7.2 of SJ/T 11141-2017;<br>Current to floor drain: As specified in 5.1.6 of GB 4943.1-2011; As specified in 5.7.4 of SJ/T 11141-2017;<br>Electric strength: As specified in 5.2 of GB 4943.1-2011; As specified in 5.7.5 of SJ/T 11141-2017. |

|              |               |      |              |          |
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## 7.0 Packaging solution

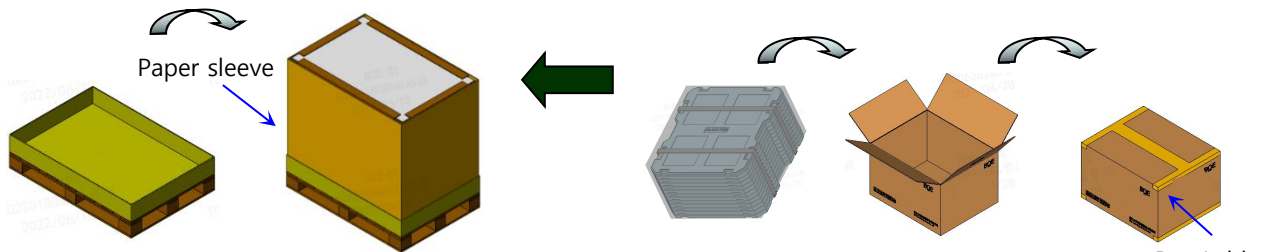
BOE will provide standard shipping containers to Customer unless customer specifies its packaging information. The packing method and label information are as follows.

### 7.1 Module packaging scheme



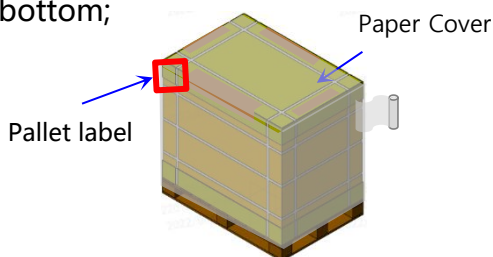
-Place 4 MDL flat on the Tray, the display facing up, MDL arrow pointing in the same direction as Tray.  
4 MDL/Tray

-Stack the Tray in 12 layers (straight stacking), place 1ea Cover on top, and then use stretch film to fix it as a whole. Place the entire stack in the Shielding Bag and put 1ea desiccant in it, and vacuum it.  
48 MDL/Shielding Bag



-Place 1 pcs paper cover on the pallet; Place 4 layers of boxes, with 6 boxes arranged in 2 rows and 3 columns on each layer;  
-Use a paper sleeve to cover the entire pallet from top to bottom;

-Place the product flat into the box;  
-Using the "H" shaped seal the Box, and paste the Box label at the Mark of the Box.  
48 MDL/ Box



-Cover the top of the entire pallet with 1pcs Paper Cover;  
-Place paper corner in the length and width directions;  
-Wrap with more than 3 layers of wrapping film  
-Use packing tape to pack horizontally and vertically in a "井" shape.  
24 Box/Pallet, 1152 MDL/Pallet

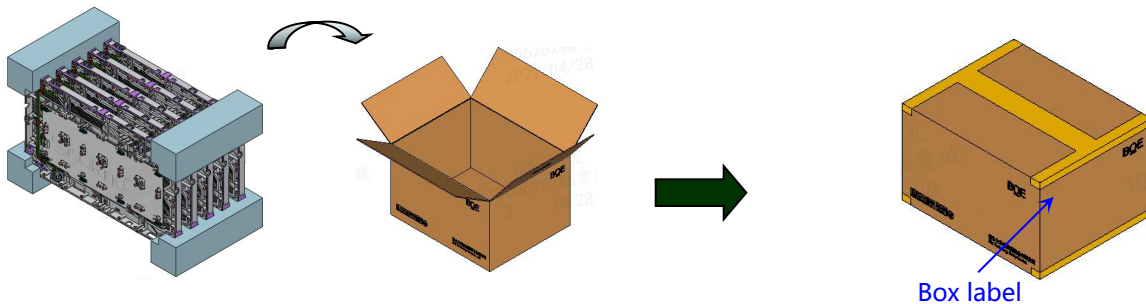
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## 7.2 Module packaging label

| Item              | Box Label  | Pallet Label  |                  |      |                  |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
|-------------------|--|---|------------------|------|------------------|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|---|---|----|------|--|--|---|------------------|---|--|--|--|--|---|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|----|----|--|------------------|------|--|---|--|--|--|--|--|
| Picture           |  |   |                  |      |                  |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
| Code instructions | <p>Label Size: 110mm*56mm<br/>Instructions:<br/>                     ①FG - CODE before 11<br/>                     ② Number of products loaded in Box (full Box "48", less than the actual number of inkjet code)<br/>                     ③ The coding rules of Box ID are shown in the following figure<br/>                     ④ Box Packing date, please refer to the chart for the format<br/>                     ⑤ FG-code last four + product grade<br/>                     ⑥RoHS Mark<br/>                     ⑦ Bar code: 128 code, the content is consistent with "SERIAL NO"</p> | <p>Label Size: 100mm*80mm<br/>Instructions:<br/>                     ①FG - CODE before 11<br/>                     ② No. of products fully loaded on pallets (full Pallet "1152", dissatisfaction pallets code according to the actual number)<br/>                     ③Packing date, format refer to the chart (time in 24h)<br/>                     ④Pallet ID, the code rules are as follows<br/>                     ⑤ FG-code last four digits + product grade + level correction number<br/>                     ⑥Barcode: size 39, the contents are the same as "PALLET"</p> |                  |      |                  |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
| Encoding rules    | <table border="1"> <thead> <tr> <th>序列号</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>代码</td> <td>*</td> <td>*</td> <td>*</td> <td>2</td> <td>0</td> <td>*</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>描述</td> <td colspan="3">产品尺寸</td> <td>年</td> <td>月 (1-9, X, Y, Z)</td> <td colspan="5">序列号, 32进制 起始值 "00001" (0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U")</td> </tr> </tbody> </table>   | 序列号   | 1                | 2    | 3                | 4   | 5 | 6 | 7 | 8  | 9  | 10 | 代码 | * | * | * | 2 | 0 | * | 0 | 0 | 0 | 1 | 描述 | 产品尺寸 |  |  | 年 | 月 (1-9, X, Y, Z) | 序列号, 32进制 起始值 "00001" (0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |  |  |  |  | <table border="1"> <thead> <tr> <th>序列号</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> </tr> </thead> <tbody> <tr> <td>代码</td> <td>2</td> <td>0</td> <td>2</td> <td>0</td> <td>*</td> <td>*</td> <td>*</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>描述</td> <td colspan="2">年份</td> <td>月 (1-9, X, Y, Z)</td> <td colspan="2">产品型号</td> <td colspan="6">序列号, 32进制 起始值 "001" (0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U")</td> </tr> </tbody> </table> | 序列号 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 代码 | 2 | 0 | 2 | 0 | * | * | * | 0 | 0 | 0 | 0 | 1 | 描述 | 年份 |  | 月 (1-9, X, Y, Z) | 产品型号 |  | 序列号, 32进制 起始值 "001" (0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |  |  |  |  |  |
| 序列号               | 1  | 2   | 3                | 4    | 5                | 6   | 7 | 8 | 9 | 10 |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
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| 描述                | 产品尺寸   |   |                  | 年    | 月 (1-9, X, Y, Z) | 序列号, 32进制 起始值 "00001" (0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
| 序列号               | 1  | 2   | 3                | 4    | 5                | 6   | 7 | 8 | 9 | 10 | 11 | 12 |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                  |   |  |  |  |  |   |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |                  |      |  |   |  |  |  |  |  |
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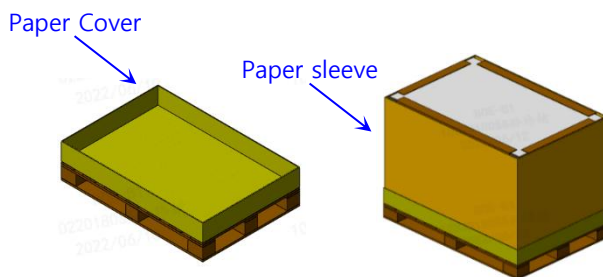
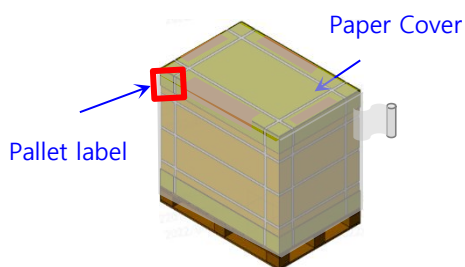
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### 7.3 Cabinet packaging scheme



-Place 2ea EPE Cushion flat inside the BOX; And then put 5ea cabinet, keeping the direction consistent; Finally, add 2ea EPE Cushion.  
 5 Cabinet/BOX

-Using the "H" shaped seal the Box, and paste the Box label at the mark place of the Box.  
 5 Cabinet/BOX


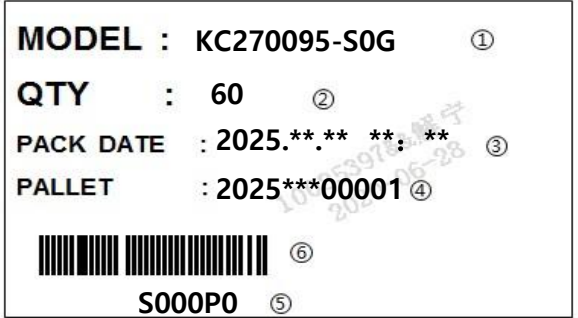


-Cover the top of the entire pallet with 1pcs Paper Cover;  
 -Place paper corner in the length and width directions;  
 -Wrap with more than 3 layers of wrapping film;  
 -Use packing tape to pack horizontally and vertically in a "#" shape.  
 12 Box/Pallet, 60 Cabinet/Pallet

-Place 1pcs paper cover on the pallet; Place 2 layers of boxes, with 6 boxes arranged in 2 rows and 3 columns on each layer;  
 -Use a paper sleeve to cover the entire pallet from top to bottom;  
 12 Box/Pallet, 60 Cabinet/Pallet

|                   |                       |           |                            |                  |
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## 7.4 Box packing label

| Item                            | Box Label  | Pallet Label  |   |   |                     |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
|---------------------------------|--|---|---|---|---------------------|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|---|---|----|------|--|--|---|---------------------|---|--|--|--|--|--|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|----|----|--|--|--|---------------------|------|--|---|--|--|--|--|
| <p><b>Picture</b></p>           |   |   |   |   |                     |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| <p><b>Code instructions</b></p> | <p>Label Size: 110mm*56mm<br/>Instructions:<br/>① FG - CODE before 11<br/>② Quantity of products loaded in Box (full Box "5", less than the actual number of inkjet code)<br/>③ The coding rules of Box ID are shown in the following figure<br/>④ Box Packing date, please refer to the chart for the format<br/>⑤ FG-code last four + product grade<br/>⑥ RoHS Mark<br/>⑦ Bar code: 128 code, the content is consistent with "SERIAL NO"</p>   | <p>Label Size: 100mm*80mm<br/>Instructions:<br/>① FG - CODE before 11<br/>② No. of products fully loaded on pallets (full Pallet "60", dissatisfaction pallets code according to the actual number)<br/>③ Packing date, format refer to the chart (time in 24h)<br/>④ Pallet ID, the code rules are as follows<br/>⑤ FG-code last four digits + product grade + level correction number<br/>⑥ Barcode: size 39, the contents are the same as "PALLET"</p> |   |   |                     |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| <p><b>Encoding rules</b></p>    | <table border="1" data-bbox="292 1680 771 1854"> <tr> <th>序列号</th> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> <tr> <th>代码</th> <td>*</td><td>*</td><td>*</td><td>2</td><td>0</td><td>*</td><td>0</td><td>0</td><td>0</td><td>1</td> </tr> <tr> <th>描述</th> <td colspan="3">产品尺寸</td> <td>年</td> <td>月<br/>(1-9, X, Y, Z)</td> <td colspan="5">序列号, 32进制<br/>起始值 "00001"<br/>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U")</td> </tr> </table> | 序列号   | 1 | 2 | 3                   | 4   | 5 | 6   | 7 | 8  | 9  | 10 | 代码 | * | * | * | 2 | 0 | * | 0 | 0 | 0 | 1 | 描述 | 产品尺寸 |  |  | 年 | 月<br>(1-9, X, Y, Z) | 序列号, 32进制<br>起始值 "00001"<br>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |  |  |  |  | <table border="1" data-bbox="806 1680 1378 1854"> <tr> <th>序列号</th> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td> </tr> <tr> <th>代码</th> <td>2</td><td>0</td><td>2</td><td>0</td><td>*</td><td>*</td><td>*</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td> </tr> <tr> <th>描述</th> <td colspan="4">年份</td> <td>月<br/>(1-9, X, Y, Z)</td> <td colspan="2">产品型号</td> <td colspan="5">序列号, 32进制<br/>起始值 "001"<br/>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U")</td> </tr> </table> | 序列号 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 代码 | 2 | 0 | 2 | 0 | * | * | * | 0 | 0 | 0 | 0 | 1 | 描述 | 年份 |  |  |  | 月<br>(1-9, X, Y, Z) | 产品型号 |  | 序列号, 32进制<br>起始值 "001"<br>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |  |  |  |  |
| 序列号                             | 1  | 2   | 3 | 4 | 5                   | 6   | 7 | 8   | 9 | 10 |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| 代码                              | *  | *   | * | 2 | 0                   | *   | 0 | 0   | 0 | 1  |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| 描述                              | 产品尺寸   |   |   | 年 | 月<br>(1-9, X, Y, Z) | 序列号, 32进制<br>起始值 "00001"<br>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| 序列号                             | 1  | 2   | 3 | 4 | 5                   | 6   | 7 | 8   | 9 | 10 | 11 | 12 |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| 代码                              | 2  | 0   | 2 | 0 | *                   | *   | * | 0   | 0 | 0  | 0  | 1  |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |
| 描述                              | 年份   |   |   |   | 月<br>(1-9, X, Y, Z) | 产品型号  |   | 序列号, 32进制<br>起始值 "001"<br>(0-9, A-Z, 不包括字母 "I" "O" "Q" 和 "U") |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |    |      |  |  |   |                     |   |  |  |  |  |  |     |   |   |   |   |   |   |   |   |   |    |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |    |    |  |  |  |                     |      |  |   |  |  |  |  |

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## 8.0 Precautions for product use

| Item                                   | Parameter  |
|--|--|
| <b>Operating temperature range(°C)</b> | Ambient temperature: -10°C ~ 40°C; Other temperature range need to add temperature control equipment; Working process lamp surface temperature ≤60°C, temperature exceeding the standard need to increase the temperature control equipment;   |
| <b>Storage temperature range(°C)</b>   | Ambient temperature: -40°C ~ 55°C; Over 30°C needs cooling treatment; Heating treatment is required when the temperature exceeds -20°C;  |
| <b>Operating humidity range(RH)</b>    | Environmental humidity: 10 ~ 85%RH. If the humidity exceeds the standard, the environment should be dehumidified before normal use.  |
| <b>Storage humidity range(RH)</b>      | Ambient humidity: 10-60% RH. If the humidity exceeds 60% RH, dehumidification is required.   |
| <b>Overdue storage processing</b>      | The product can be used normally only after aging for 6 hours after it is stored in the box for more than one month or the power is off for more than 48 hours after it is unpacked. Aging mode: Full bright brightness set 10%1hrs, full bright brightness set 30%1hrs, full bright brightness set 60%2hrs, Full bright brightness set 80%1hrs, full bright brightness set 100%1hrs (gradually aging of brightness) |
| <b>Dust</b>                            | No protection level. Should not be exposed to more dust in the environment, such as studio decoration, transformation, etc., the display box for special protection.   |
| <b>Corrosion resistant gas</b>         | Corrosive gases In the air containing salt or acid gas, resulting in corrosion of electronic components, crystal leakage and other phenomena.  |

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| Item  | Parameter   |
|---|---|
| <b>Protection against electromagnetic radiation</b> | Do not install the module in an environment where the electromagnetic radiation or radio frequency radiation exceeds 5V/m of the electric field   |
| <b>anti-static</b>                                  | Avoid damage to electronic devices caused by static electricity and human body caused by leakage in damp environment  |
| <b>shockproof</b>                                   | The display screen should be installed on a solid and reliable mounting structure without strong vibration.   |
| <b>Away from the water</b>                          | The protection level of indoor products is low. Water conductivity may cause short circuit and damage to circuit components. Therefore, keep away from water source   |
| <b>Personal injury</b>                              | The mounting Angle and height of the module shall be appropriate, and the sharp edges and corners shall be packed to prevent the damage of the hard shell to the human body   |
| <b>Safety requirements</b>                          | Ensure the stability of the power supply system and maintain the harmonics of frequency, voltage, and current. When connecting multiple LED display boxes, the metal shell and the metal frame of the LED display must be grounded together. The grounding resistance of the entire LED display system must be less than 1 ohm, and the ground leakage current to the LED display must not exceed 5% of the input current. The anti-electric strength shall meet the provisions of SJ/T 11141-2017 General specification 5.7.5 for light-emitting diode (LED) displays. |

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| Item         | Parameter  |
|--------------|--|
| <b>other</b> | The surface of the screen body shall not be wiped with other organic solvents except alcohol, but can be wiped with pure water and fine dust-free cloth;The surface of the screen body does not need to be touched directly by hand, and rubber gloves are required for disassembly. |

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## 9.0 Product usage instructions

### 9.1 Guiding principles :

- 1) Ensure that the display is installed on the basis of reading and understanding the user manual;
- 2) Under no circumstances shall the company's products be repaired by unauthorized personnel of the factory;
- 3) The installation foundation must be firm, such as no subsidence, tilt or falling phenomenon, and the environment should not be overweight, radioactive, polluted, corrosive or poisonous gas phenomenon;
- 4) All components can only be provided by the original factory or suppliers certified by the original factory;
- 5) Do not repair or replace components without the consent of the original manufacturer;
- 6) Please operate under the guidance of the product manual. If you have any questions, please contact the company.

### 9.2 Safety instruction :

- 1) Personnel:

When working at height, protective measures should be taken. Workers should wear qualified safety helmets, safety belts and other necessary personal safety equipment.

A single LED display box is about 3.4KG. It is necessary to pay high attention to personal safety during operation. The tools and materials used are strictly forbidden to throw.

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2) Products:

All products in the process of transportation or storage, must be well protected and packaged firmly, no excessive external pressure on the product;The product should not be in contact with rain water before or during installation, and should be operated in a dry and clean environment.All parts should not be trampled, knocked or dropped. Please follow the instructions when moving or handling the product. Combustible: Keep combustible away from the device. A lot of energy is converted to heat when the equipment is running. Equipment operation requires a certain amount of air flow to avoid heat to endanger safe operation. Therefore, proper ventilation must be provided, and air conditioning must be installed at the rear of the equipment when necessary.

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### 3) Install:

When installing and disassembling the bracket, magnetic suction tools are needed and vertical screen body is disassembled.

At the same time, attention should be paid to the surrounding edge of the bracket, and not bump against the edge of other brackets;

Wear rubber gloves when installing and removing the bracket;

When installing the bracket, it is recommended to install it from the bottom of the middle of the screen body, to the left and right, and place the bracket above;

After installation, clean the surface of the screen with clean cloth and water, not with other solvents.

### 4) Power:

Power supply and distribution cabinet shall be provided according to power consumption, all distribution systems shall be enclosure protected and conform to local circuit safety standards;

The power distribution system is installed near the display screen, and the power line and data line can not be pulled or damaged;

Check whether the local input voltage to the screen matches the screen power supply. Before connecting the power cable, ensure that the Settings are correct.

Do not attempt to install damaged wires, replace them with new ones;

When the display is energized, the instant current is relatively large, choose the appropriate air switch, such as D type air switch.

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5) Grounding:

The display screen must be grounded by a separate grounding cable.

6) Use process Note :

The display screen should not be subjected to excessive external pressure or collision, otherwise it will be damaged;

When cleaning the surface of the display screen, please follow the guidelines.

Only soft dust-free cloth can be used in the cleaning process.

Disconnect the power supply before removing the display screen;

The design of all installation accessories only applies to the installation and connection of this LED display;

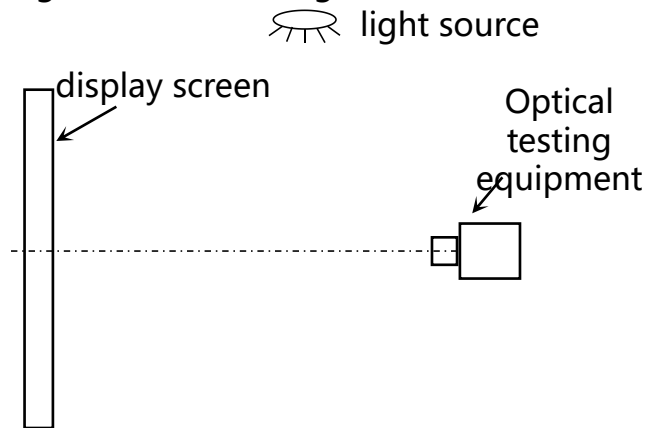
Do not modify or copy any component. The display uses special materials and manufacturing procedures to achieve component strength; Always follow the installation instructions and consult the factory if you have any questions about safety applications. The manufacturer shall not be liable for any consequences arising from incorrect, incomplete, irresponsible or unsafe use of the installed system.

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## 10.0 Appendix

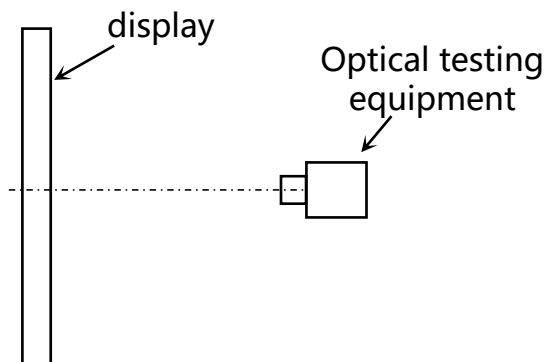
### 10.1.1 Ambient light contrast test method

- Place the display screen and testing equipment as shown in the diagram;
- The illumination in the normal direction of the display screen is 10lx;
- Test the white picture brightness of display screen L255 and L0;
- Calculate  $\text{contrast} = \text{brightness (L255)} / \text{brightness (L0)}$



### 10.1.2 Contrast test method

- Place the display screen and testing equipment as shown in the diagram;
- Set up a dark room environment;
- Test the white picture brightness of display screen L255 and L0;
- Calculate  $\text{contrast} = \text{brightness (L255)} / \text{brightness (L0)}$ .



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## 10.2 Product plan structure drawing

