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## **P1.86 MODULE SPECIFICATION**

Specification model: HLT-P1.86-RGB-SMD

Specification description: PH1.86 Indoor surface mount three-in-one

Module structure: Light drive in one

Lamp Bead Specification: 1515

### **一、The Main Technical Parameters**

**Technical parameter: ( T=25℃)**

| Project                |   | Parameters  | Remarks |
|------------------------|---|---|---------|
| Basic parameters       | Pixel pitch                                   | 1.86mm  |         |
|                        | Pixel structure                               | 1R1G1B  |         |
|                        | Pixel density                                 | 289050/m <sup>2</sup>                                   |         |
|                        | Module resolution                             | 172 (W) *86 (H)   |         |
|                        | Module size                                   | 320mm*160mm   |         |
|                        | Cabinet size                                  | 640*480mm/640*640mm Customized                          |         |
| Optical parameters     | Single point brightness and chroma correction | Have  |         |
|                        | White balance brightness                      | ≥700cd/m <sup>2</sup>                                   |         |
|                        | Color temperature                             | 3200K—9300K adjustable                                  |         |
|                        | Horizontal viewing angle                      | ≥140°   |         |
|                        | Vertical viewing angle                        | ≥120°   |         |
|                        | Visible distance                              | ≥2.5m   |         |
|                        | Brightness uniformity                         | ≥97%  |         |
|                        | Contrast                                      | ≥3000:1   |         |
| Processing performance | Signal processing bits                        | 16bits*3  |         |
|                        | Grayscale                                     | 65536   |         |
|                        | Control distance                              | Network cable:100m, optical fiber:10km                  |         |
|                        | Drive mode                                    | High gray scale constant current source driver IC       |         |
|                        | Control method                                | Category 5e twisted pair network cable (less than 100m) |         |
|                        |   | Multi-mode optical fiber(100m~500m)                     |         |
|                        |   | Single-mode optical fiber(500m~10Km)                    |         |
|                        | Video playback capability                     | 4K ultra-high definition images                         |         |
|                        | Scanning method                               | 43/1scan  |         |
|                        | Input signal mode                             | AV/CVBS/VGA/DVI/HDMI/SDI/DP                             |         |
|                        | Frame change frequency                        | ≥60HZ   |         |
|                        | Refresh rate                                  | ≥3840HZ   |         |
|                        | Control method                                | Synchronize/Synchronous asynchronous                    |         |
|                        | Brightness adjustment range                   | Stepless adjustment from 0 to 100                       |         |
| Usage parameters       | Continuous working time                       | ≥72Hours  |         |
|                        | Typical life span                             | 100, 000 Hours  |         |
|                        | Protection level                              | IP43  |         |
|                        | Range of working temperature                  | -20 ℃ to 60 ℃   |         |
|                        | Working humidity range                        | 10 %- 80% RH no condensation                            |         |
|                        | Storage temperature range                     | -20 ℃ to 60 ℃   |         |
| Electrical parameters  | Operating Voltage                             | DC:4.2-5V   |         |
|                        | Power supply requirements                     | AC: 220× (1±10%) V、50× (1±5%) Hz                        |         |
|                        | Maximum power consumption                     | 650 W/m <sup>2</sup>                                    |         |
|                        | Average power consumption                     | 230 W/m <sup>2</sup>                                    |         |

## 2. Materials and schematic diagram

- ◆ Good heat dissipation performance, arbitrary splicing, seamless splicing
- ◆ 3840 refresh rate, high grayscale
- ◆ Total black light, high contrast
- ◆ No fan, silent
- ◆ Seamless splicing and quick installation



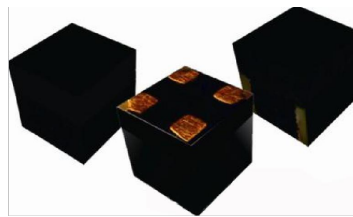
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## Product information

### ◆ LED light

We use high-end chip-packaged LED lights from world-renowned manufacturers to provide customers with a variety of choices. At the same time, the service life and display quality of the display are fully guaranteed.

SMD full color 2020/1515/1212/1010 series: full black body



### ◆ Driver IC

It adopts high refresh rate, high grayscale constant current driver IC from the world's leading manufacturers, with excellent driving performance, stable and reliable.

### ◆ PCB board

The multi-layer circuit design is used to ensure uniform current distribution on the light panel and good heat dissipation, prevent color blocks from appearing under low grayscale conditions, and enhance anti-electromagnetic interference capabilities.

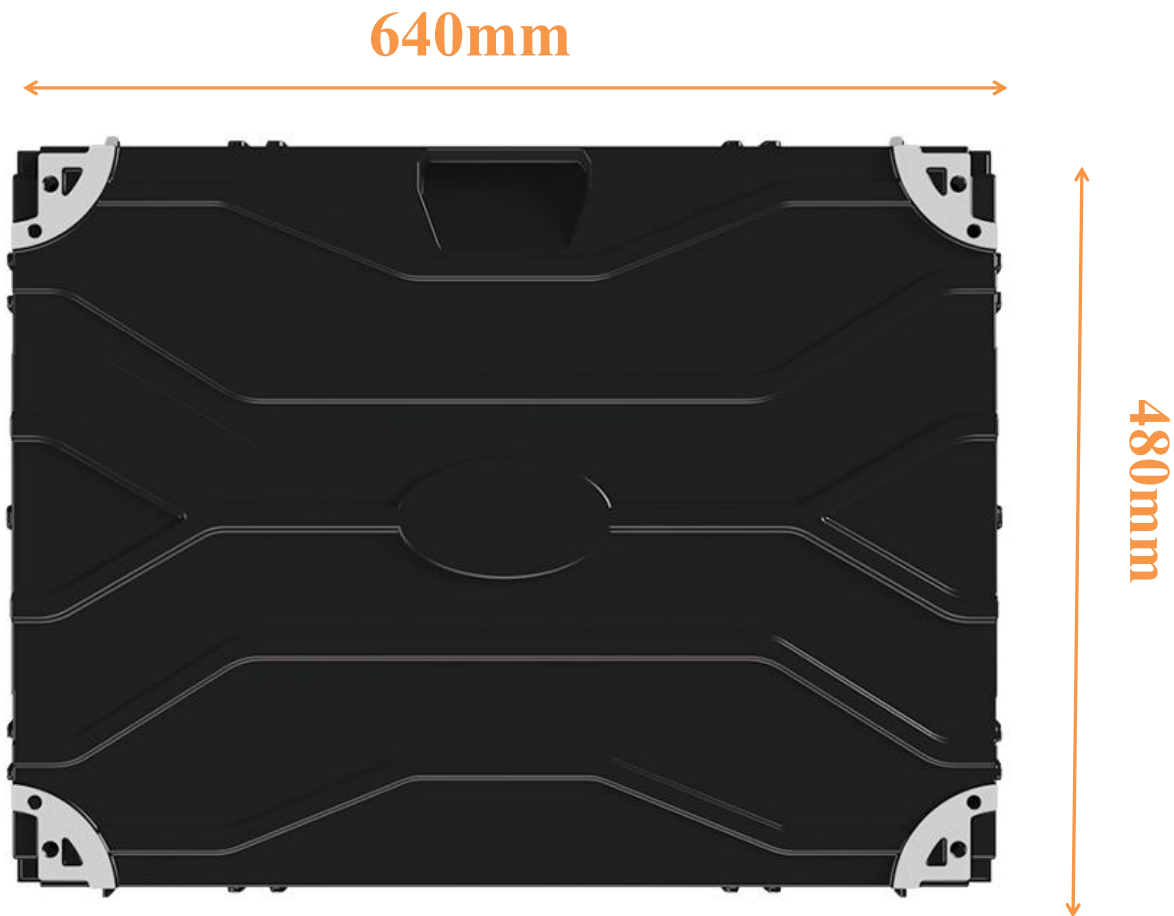
The boards are made from high-quality manufacturers in the industry: Shengyi, Jiantao (KB), etc.

### ◆ Drive and control

Each module is controlled by an independent control card, which has higher integration, stronger stability, better display effect and high refreshed, dedicated 14BIT high grayscale, high refresh drive constant current IC, unique blanking circuit, protects LED, prevents surge

leakage; supports system multi-channel redundant backup, module point-by-point chromaticity correction, and double power supply backup.

### **Cabinet: 640\*480mm A Alloy Die Casting Cabinet (Front maintenance)**



#### **I Cabinet Features**

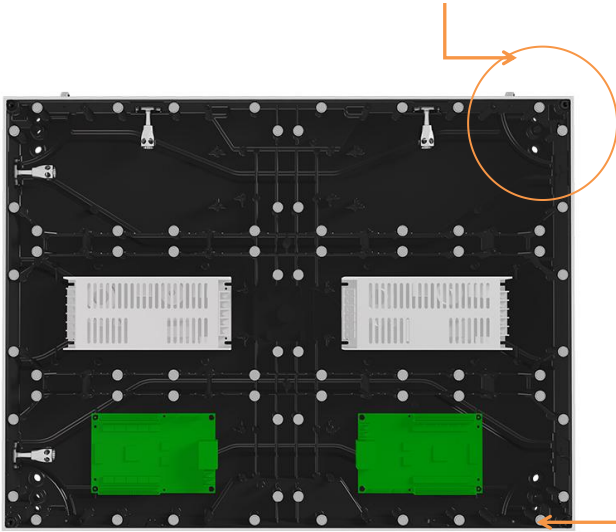
1. Fast cooling---excellent heat dissipation performance to protect the modular circuit .
2. Anti-interference---special anti electromagnetic interference function .
3. Hard connection installation---the module will light up as soon as it is pasted .

- 4.Easy installation---installed by quick lock for 20s only .
- 5.High precision---seamiess splicing though CNC machining .
- 6.High universality---can be processed according to module drawing,used for indoor .
- 7.Easy to maintain---cabinet can be removed from steel structure in front .
- 8.High cost-effective---large-scale production,complete prduction &supply chain.



|                        |  |
|------------------------|--|
| Size                   | W640*H480*D50(mm)  |
| Weight                 | 4.3kg  |
| Module                 | P2.5/P2/P1.86/P1.667/P1.538/P1.25                                    |
| Material               | Aluminium alloy  |
| Installation           | Lifting, fixed installation  |
| Use of the environment | Indoor IP30  |
| Included accessories   | Fast lock, handle, system/power installation plate, connecting piece |
| Cabinet color          | Black,silvery  |

Installation hole for front maintenance connecting piece

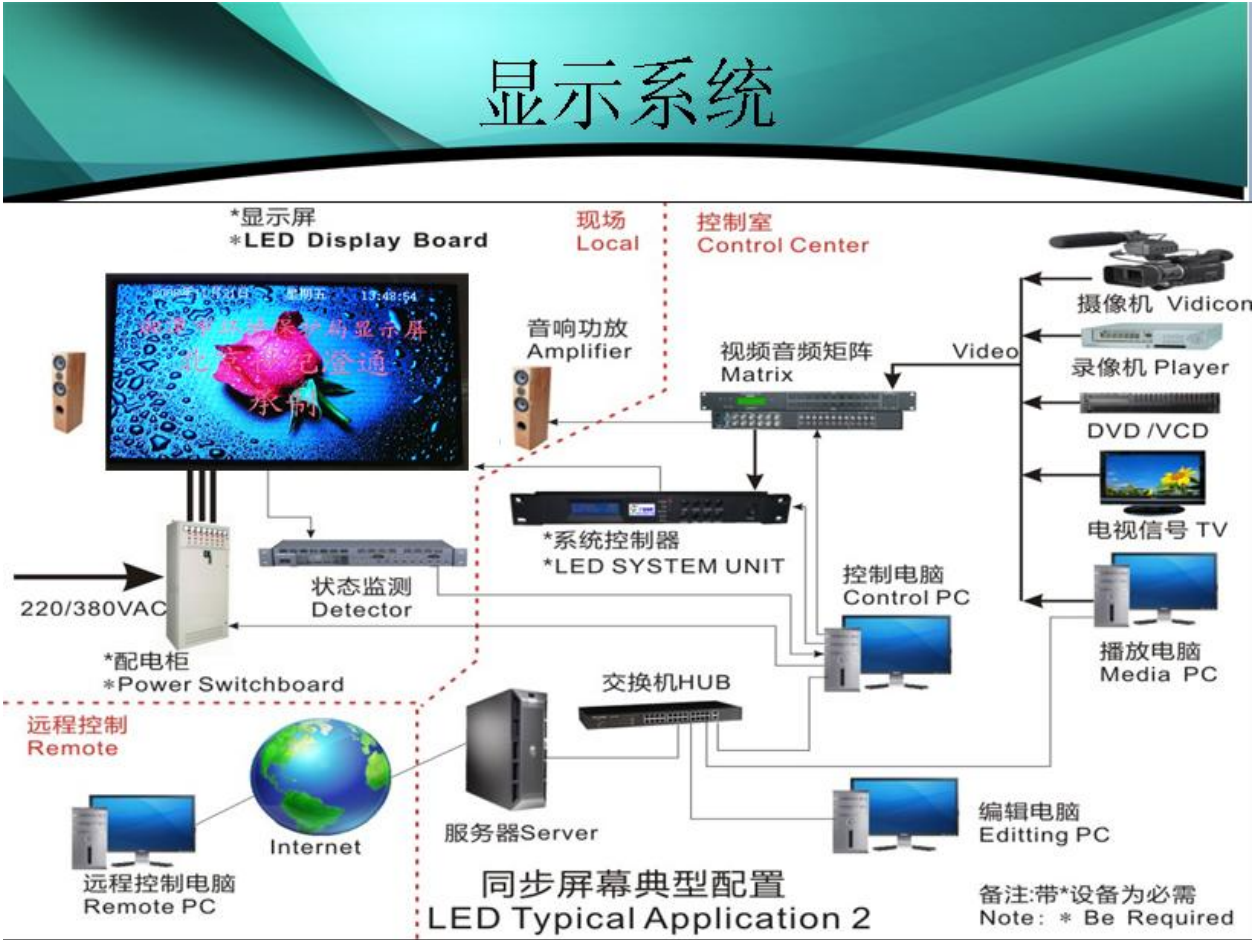


Front maintenance magnet

### Related Products

- 1.PCB Board:P2.5/P2/P1.86/P1.667/P1.538/P1.25
- 2.Suite Size:320mm\*160mm
- 3.Flight Case: 5PCS cabinet in one case,6PCS cabinet in one case
- 4.Hanging beam: one beam holds 1PCS cabinet
- 5.Power Supply: 200W-5V 40A, 400W-5V 80A
- 6.Power Connector: 20A 3\*2.5      National standard

### System control topology diagram



Reliability experiment

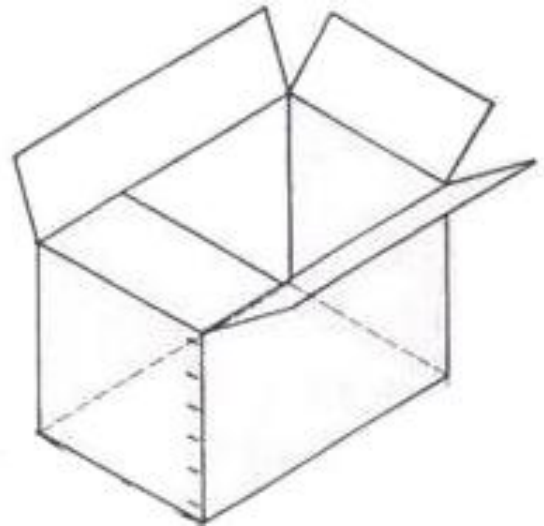
| Category                 | Experimental items       | Reference standards   | Experimental conditions  | Duration       | Acceptance criteria |
|--------------------------|--------------------------|-----------------------|--|----------------|---------------------|
| LED Luminous tube        |                          |                       |  |                |                     |
| Environmental experiment | Temperature cycle        | JESD22-A104-A         | -40℃～25℃～100℃～25℃<br>30 minutes,5 minutes,30 minutes,5 minutes | Loop 100 times | 0/50                |
|                          | Thermal shock            | JESD22-A106           | -40℃～100℃<br>30 minutes,30 minutes                             | Loop 100 times | 0/50                |
|                          | High temperature storage | JIS C 7021 (1977)B-11 | Ta=60℃ RH=90%  | 1000 hours     | 0/50                |



|                                  |                                  |                         |   |            |      |
|----------------------------------|----------------------------------|-------------------------|---|------------|------|
| Lifespan experiment              | Normal temperature life test     | JESD22-A108-A           | Ta=25℃<br>Test conditions: when powered on and lit  | 1000 hours | 0/50 |
|                                  | High temperature life experiment | JESD22-A101             | Ta =85℃ RH=85%<br>Test conditions: when powered on and lit  | 1000 hours | 0/50 |
| Mechanical vibration experiment  | Mechanical vibration             | MIL-STD-883 Method 2007 | 20G minutes,20 to 2000Hz<br>4 cycles, 4 minutes.Each,X,Y,Z  | ----       | 0/50 |
| <b>LED Finished unit box</b>     |                                  |                         |   |            |      |
| Environmental storage experiment | Low temperature storage test     | GB2423. 2               | After storage for 4 hours at $(-40\pm 2)$ °C and recovery at room temperature for 4 hours, the display mode and uniformity are normal with no abnormalities and no out-of-control points.       | 8 hours    | 0/50 |
|                                  | High temperature storage test    | GB2423. 2               | After storage for 4 hours at $(60\pm 2)$ °C and recovery at normal temperature for 4 hours, the display mode and uniformity are normal with no abnormalities and no out-of-control points.      | 8 hours    | 0/50 |
| Aging experiment                 | Normal temperature aging test    |                         | Ta=25℃<br>72 hours of non-stop power on and display playback  | 72 hours   | 0/50 |
|                                  | High temperature aging test      | GB2423. 2-89            | Under the conditions of $(40\pm 2)$ °C, power on for 8 hours and perform inspections every hour. The display mode and uniformity are normal with no abnormalities and no out-of-control points. | 8 hours    | 0/50 |
| Mechanical vibration experiment  | Mechanical vibration             | GB6587. 4-86            | Vibration frequency is 5HZ-55HZ-5HZ, amplitude 0.19mm, 5 minutes  | 5 hours    | 0/50 |

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## 5.Packing



Note: 7 unit module packed in one carton box      using imported high-quality cartons.

## Reminder of matters needing attention

### Usage environment

1. This product is an indoor display screen;
2. Avoid use in high temperature, high humidity, high acid/alkali/salt environments;
3. Keep away from flammable items, gases and dust;
4. The normal operating ambient temperature of this product is  $-20\sim 50^{\circ}\text{C}$ , and the optimal ambient temperature is  $-10\sim 40^{\circ}\text{C}$ ;
5. The storage temperature is  $-30\sim 60^{\circ}\text{C}$ , avoid storage in high temperature, high humidity, high

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acid/alkali/salt environment; keep away from flammable items and gas storage;

6. Avoid strong collisions and collisions with sharp objects during transportation;

## **Operate**

1. This product is powered by DC +5V (operating voltage: 4.5~5.2V). AC power supply is prohibited; the power terminals are prohibited from being connected reversely;
2. If this product is faulty during the warranty period, please send it back to our company for repair, or perform repairs under the guidance of our after-sales personnel;
3. When disassembling/installing the product, be sure to operate carefully to avoid tools hitting the product;
4. Lightning protection and anti-static work should be done during operation and use; the box and steel structure should be grounded;
5. During use of this product, the power cannot be turned on and off continuously. The two operations should be separated by at least 1 minute;
6. This product cannot be turned off for a long time. It is recommended to use it once every half month and power it on for 4 hours. In a high-humidity environment, it is recommended to use it once a week and power it on for 4 hours.
7. This product does not allow playing the highest brightness all-white picture for more than half an hour. It is recommended to play mainly dynamic videos;

## **Clean**

To clean the surface of the module, please use a soft-bristled brush and brush gently. It is prohibited to use any liquid substance to clean the surface of the LED module,

otherwise the SMD LED may be damaged.

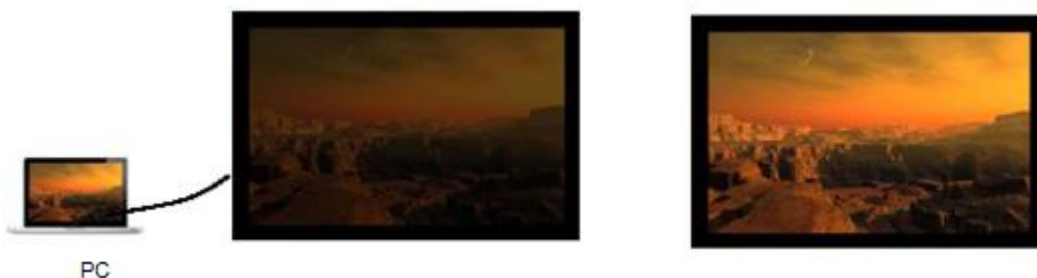
## Moisture-proof and storage requirements

1. After opening the package, SMD LED products must be stored in an environment with a temperature  $<30^{\circ}\text{C}$  and a humidity  $<60\%$ .

2. If the screen has not been used for more than 3 days, the preheating lighting method needs to be used every time the screen is lit: 30%-50% brightness is preheated for 4-8 hours, and then adjusted to normal brightness (80%-100%) lights up the screen body to eliminate moisture so that there is no abnormality during use.

3. If the screen has not been used for more than 7 days, the preheating lighting method must be used every time the screen is lit: 30%-50% brightness is preheated for more than 12 hours, and then adjusted to normal brightness (80%-100%) lights up the screen to eliminate moisture so that there is no abnormality during use.

The operation process is as follows: Lights up during preheating      normal use



LED screen normal brightness

➤ More than 3 days, LED screen (30%-50% brightness) preheating for 4-8 hours

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➤ More than 7 days, LED screen (30%-50% brightness) preheating for more than 12 hours

※ : Note: Our company will continue to upgrade and improve existing products. If the specifications change, we will notify you separately.

The right to interpret models and technical indicators belongs to our company.