OP-100R 型光学指纹头技术说明书

Specifications of OP-100R optical fingerprint sensor

感谢您选用图安信息技术制造的 OP-100R 型光学指纹采集器。OP-100R 指纹采集器具有成像面积大，一致性好等优点，且成本低廉；适用于活体指纹的按压采集。

Thank you for choosing TOOAN OP-100R optical fingerprint sensor. OP-100R fingerprint sensor has the advantages of big image-scan area, good consistency and low cost. It is suitable for acquiring live pressing fingerprints.

1. 技术参数

1. Technical specifications

1) 外形图（见图一）；
1) An overview picture (Figure 1);

2) 安装尺寸（见图二）；
2) Dimensions (Figure 2);

3) 安装方式：可垂直或水平安装；
3) Installations: can be installed vertically or horizontally.

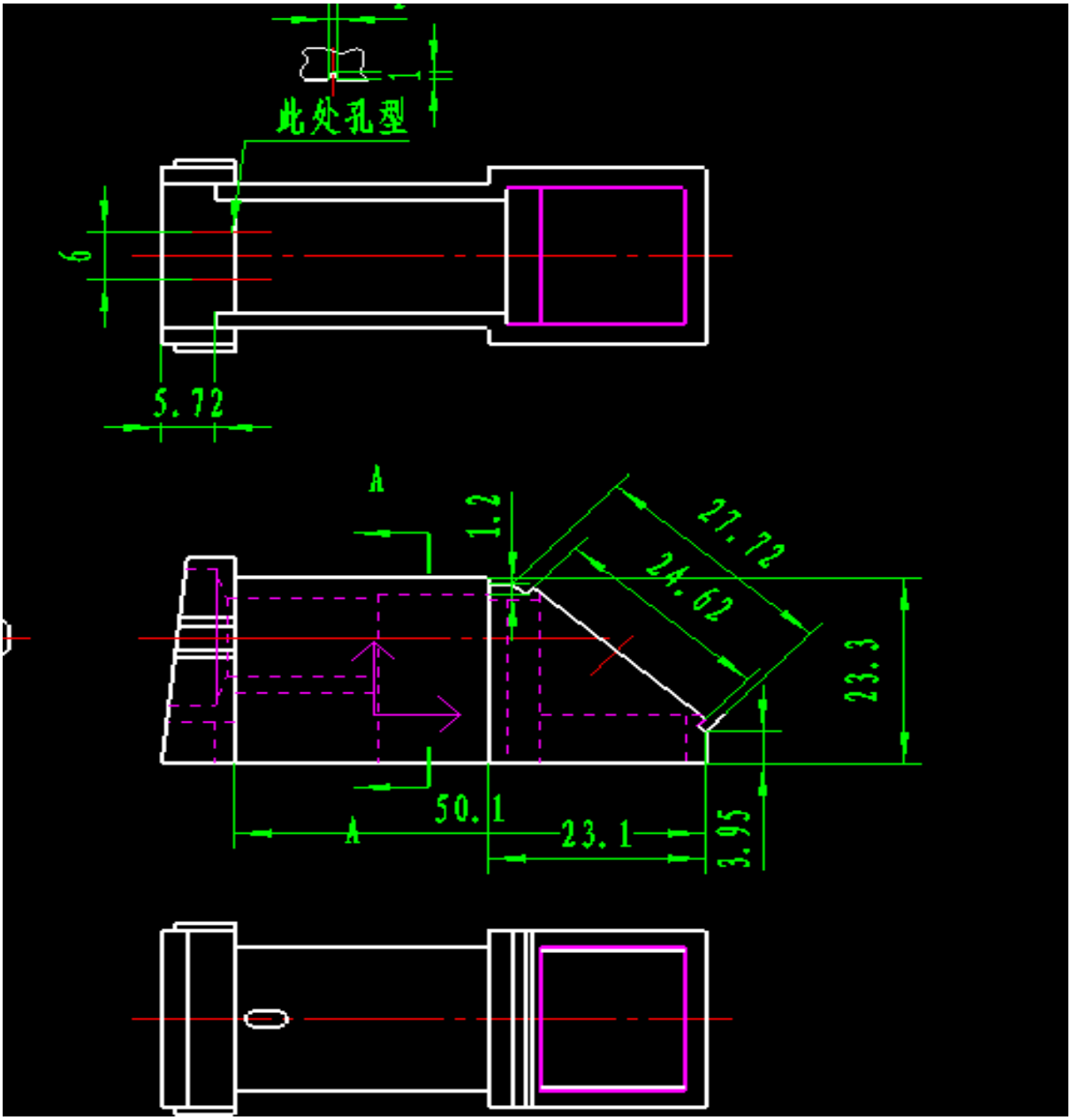
4) 光学畸变：梯形畸变；
4) Optical distortion: Trapezoidal distortion;

5) 分辨率：最小 400DPI，最大 600DPI；
5）Resolution (DPI): Minimum 400DPI, and maximum 600DPI;

6) 成像面积：可用图像面积为 14.5mm×18mm；
6) Imaging area: effective image area is 14.5mm × 18mm;

7) PDF 文档 HV7131R (见附录)。
7) PDF documents HV7131R (see appendix).

图一(Figure 1)



图二(Figure 2)

2. 使用说明

2. User's guide

2.1 连接

2.1 Connection

2.1.1 连接线类型

2.1.1 Types of connecting cables

FPC 连接电缆，脚间距 1.0mm，有同侧和异侧两种使用模式，需在定制时声明。

The FPC connecting cable has 1.0mm pin pitch. It can be mounted on the same-side of the cable (the exposed connectors on both ends of the cable) or on flipped side of the cable; customer can specify this option when ordering them.

OP-100R-R：异侧电缆

OP-100R-R: Same side cable.

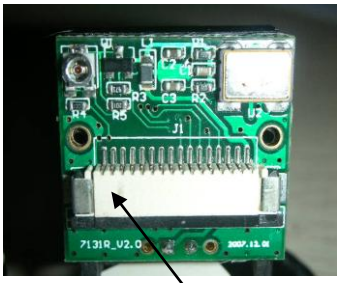
OP-100R：同侧电缆 (exposed connectors are on the side of the cable)

OP-100R：Flip side cable (exposed connectors are on different sides of the cable)

2.1.2 连接线定义（见图三）

2.1.2 Definition of connecting cable (Figure 3)

Pin 1 of OP-100R



Pin 1 of OP-100R-R

图三 （Figure 3）

管脚定义如下

Definition of pins

1～8：D0~D7	
9：SDA	10：SCLK
11：VSYNC	12：VCLK
13：HSYNC	14：LED_CTRL
15：GND	16：VCC

第 14 脚的 LED_CTRL 定义为指纹头背光控制端：加高电平则指纹头背光被点亮，低电平或悬空指纹头背光熄灭。输入电流<2mA。

Pin 14, LED_CTRL, is used to control the illumination of the LED backlight for the scanning sensor.

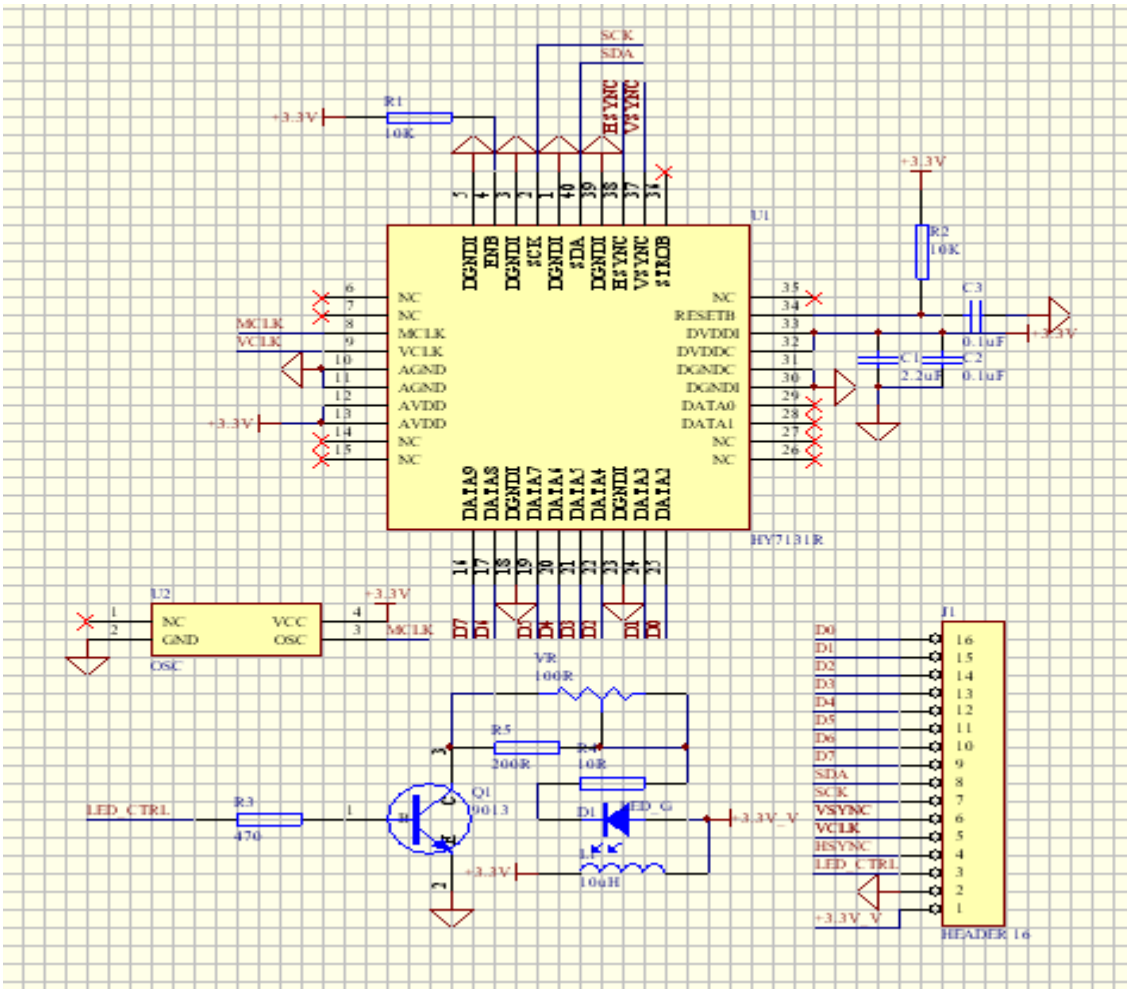
If HIGH (power-supply voltage level) is applied this pin, the LED backlight is on.

If this pin is grounded or it is left open, the LED backlight is off.

The input current to this pin should be < 2mA.

2.1.3 内部原理图

2.1.3 The schematic of the sensor module



2.2 成像

2.2 Formation of an image

图 5 是一张典型的栅格图，原始的栅格间距是 2mm 等间距。

Figure 5 is a typical grid chart; the original spaced grids are 2mm uniformly.

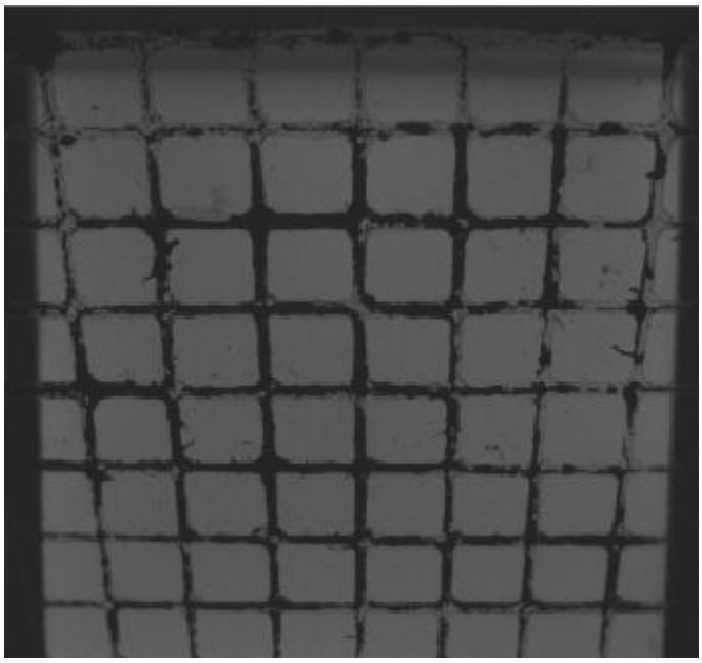


图 5 (Figure 5)

2.3 畸变和纠正

2.3 Distortion and correction

2.3.1 畸变

2.3.1 Distortion

畸变为梯形畸变，上大下小的梯形畸变。图像成像上下倒置的图像，脊线为黑色。

The distortion is a trapezoidal one. The upper area of the image is bigger, and the lower area of the image is smaller. The image is upside down, and the ridge line is in black.

原始图像在棱镜表面的成像位置如图 7，即黄色区域为可成像区域，其他区域不成像。

The original image position through the prism surface is given in Figure 7, where only the yellow area can be imaged, and the rest area cannot be imaged.

2.3.2 纠正

2.3.2 Correction

单位图像的畸变模型：12mmX12mm 正方形图像，成像为倒置的等腰梯形，等腰梯形的比例为： 底边:底边:高=75:60:58

The unit image distortion model is given as follows: For 12mm*12mm square, its image is an inverted isosceles trapezoid. The ratio of isosceles trapezoid is Length-of-bottom: Length-of-top: Height = 75:60:58

用户使用时可根据自己的需要进行适当的缩放，以达到需要的分辨率。

The users can scale the image for their own needs to in order to achieve the desired resolution.

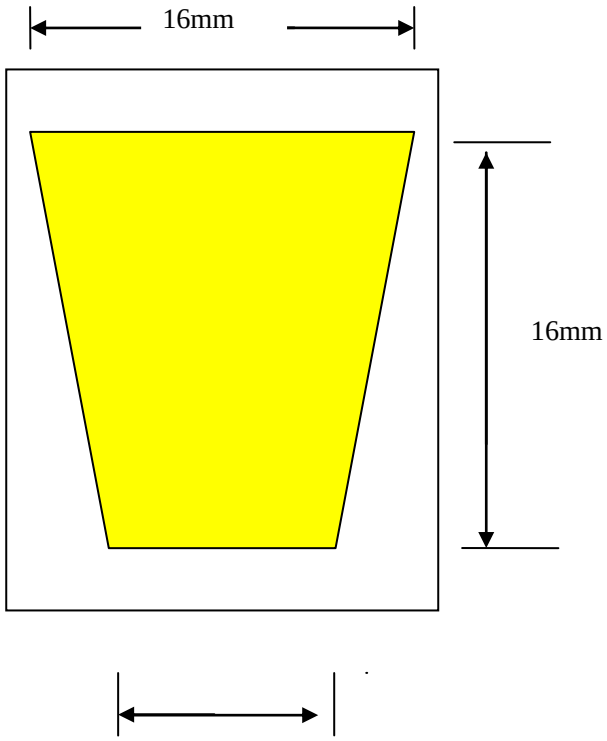


图 7 (Figure 7)

3. 注意事项
3. Notes

1) 电缆线长度≦30CM 同侧
1) Cable length ≦ 30cm for same-side-mounting cable.
2) 固定指纹头支架，前后都有支架，前部固定不应非常紧，防止棱镜挤碎。
2）There are fixing holders in the front of and in the rear of the fingerprint sensor. The front holder should not be over tightening in order to avoid to break the prism.