

# **iHawk100R**

## **Product Specification Document**





## Revision History

Version	Revision Section	Description	Date	Note
V0.5		Update the Appearance Drawings	2022.8.11	
V0.6		Remove Proximity Sensor.	2022.8.23	
V0.7		Supplement Thread Depth on the Appearance Drawings.	2023. 3.28	

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# 1 Product Overview

The iHawk100R Module is a 3D camera based on structured light technology. This product is well-suited for applications in industries such as industrial control and consumer electronics where three-dimensional imaging is crucial. The technical solution of the product comprises three main components: optical devices, image processing hardware, and software.

On the hardware side, it provides high-precision depth maps and full high-definition color images, supporting pixel-aligned image output. On the software side, the product imposes no computational requirements on the backend platform; all depth calculations are performed within the module. Additionally, it offers customers a self-developed, cross-platform SDK supporting Android, Windows, and Linux, catering to diverse industry applications.

## 2 Specifications

### 2.1 Actual Product

The physical product is shown in the following diagram.



Figure 1: Product Physical Appearance

## 2.2 Product Specifications

Table 1: Product Specifications

Name	Specifications	
Model	iHawk100R	
baseline	40mm	
Dimensions	90x25x25 mm	
Measuring Distance	0.3-8.0m	
Depth Accuracy	±1mm@60cm	
Power Consumption	2.5W	
Interface	Type-C	
Powering Method	USB 5V	
Laser Wavelength	940nm	
working Temperature	-10°C~60°C	
Color Image	Resolution/Frame Rate	640x400@30fps
	Image Encoding Format	MJPEG
	Effective Field of View (FOV)	72°(±3°)x 50.5°(±3°)
Depth Map	Resolution/Frame Rate	640x400@30fps
	Effective Field of View (FOV)	72°(±3°)x 50.5°(±3°)
	Image Format	Raw16bit
Firmware Parameters	Supports output of color images and depth maps, enables depth and color pixel alignment. Firmware upgrades support over-the-air (OTA) updates, and the device automatically restarts after completion.	

## 3 System Components

### 3.1 Component Schematic

The front side of the product, from left to right, includes the Transmitter Module, Color Module, Receiver Module, and Metal Front Shell. The back side, from left to right, features Type-C, Metal Rear Shell, Wafer, and Dust Plug.



Figure 2: Component Schematic

### 3.2 Transmitter Module

The transmitter module generates speckle light required for the structured light system and projects it onto the target scene for measurement.

Table 2: Transmitter Module Specifications

Item	Specifications
Laser Type	VCSEL

Laser Wavelength	940nm
Field of View (FOV)	H83.1° x V56.9°
Laser Safety Class	Class 1

### 3.3 Receiver Module

The receiver module is an infrared camera that works in conjunction with the transmitter module.

Table 3: Receiver Module Specifications

Name	Specifications
Resolution/Frame Rate	640 x 400@30fps
Image Encoding Format	Raw10
Exposure Mode	Global Shutter
Field of View	H74° x V50.5°
Focusing Mode	FF
Image Distortion	<1.5%

### 3.4 Color Camera

The color camera can capture color images and serves as a complement to the features of a depth camera.

Table 4: Color Camera Specifications

Name	Specifications
Resolution/Frame Rate	up to 1920x 1080@30fps
Image Encoding Format	MJPEG
Exposure Mode	Rolling Shutter
Field of View	H88° x V56.8°

Focusing Mode	FF
Image Distortion	<1%

### 3.5 Type-C

The interface form of iHawk100R is of Type-C.

## 4 Structural Description

### 4.1 Structural Drawings

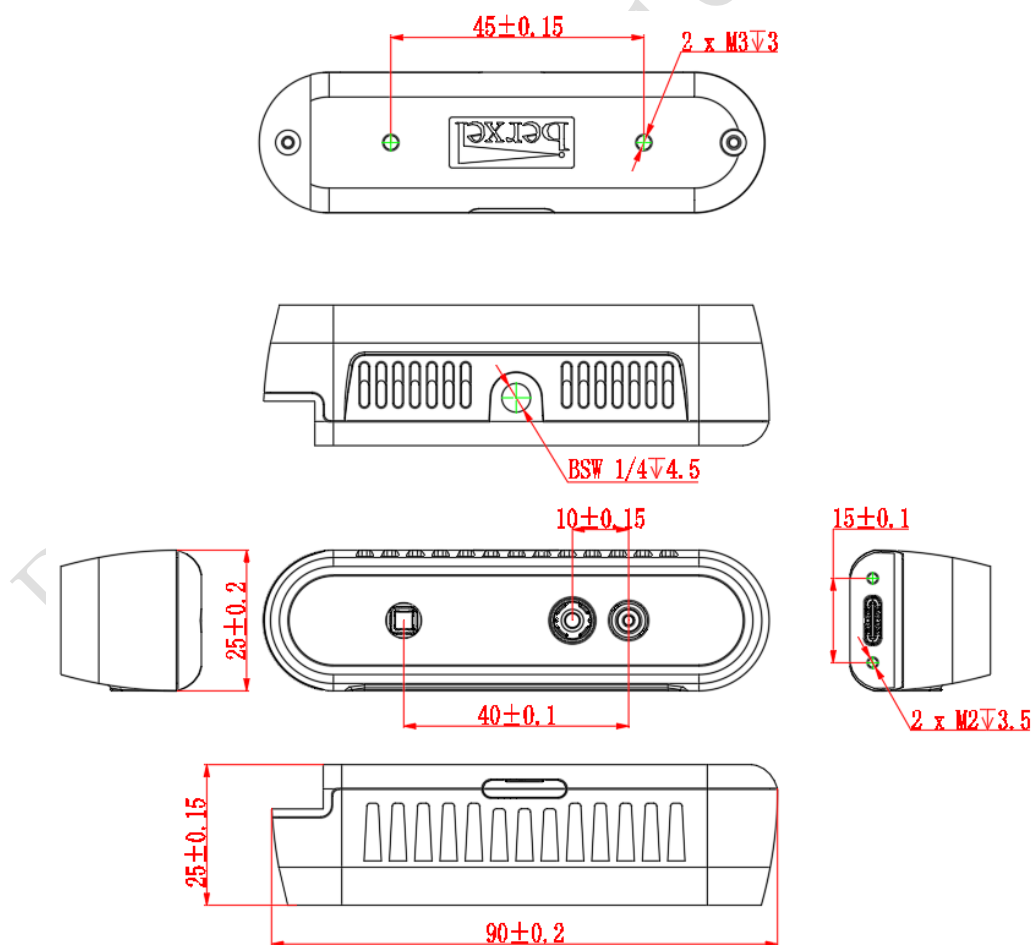


Figure 3: Structural Drawings

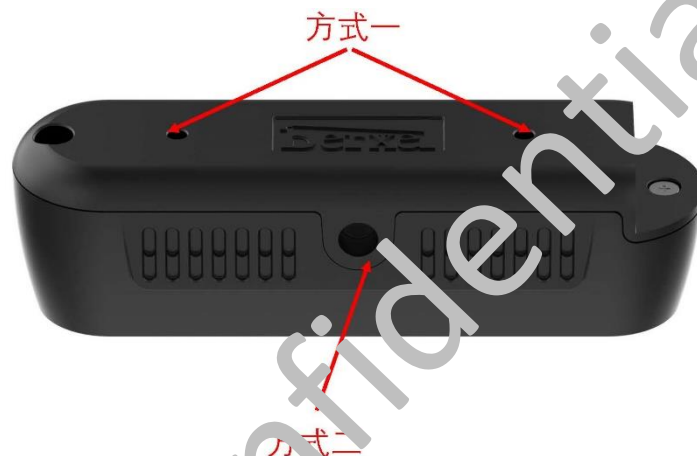


## 4.2 Installation Advice

Method 1: Secure the device by using the two M3 threaded holes on the metal rear shell (thread depth 3mm);

Method 2: Secure the device by using the 1/4 (thread depth 4.5mm) threaded hole on the metal front shell;

It is recommended to use Method 1: The device is relatively stable when fixed, minimizing the chance of vibration.



The schematic diagram of installation method is shown in Figure 4.

## 4.3 Heat Dissipation Recommendations

The iHawk100R casing itself can meet the heat dissipation requirements for standalone operation, but attention should be paid to avoiding designs that could reduce the heat dissipation effectiveness. The entire surface of the module's metal casing serves as a heat dissipation area. It is advisable to prevent the attachment or covering of insulating materials on the surface, as this can lead to a reduction in heat dissipation efficiency. If space allows, it is recommended to provide a clearance space of at least 3mm for 75% of the module's surface, which is more conducive to convective heat exchange.

# 5 Electrical Characteristics

## 5.1 Power Supply and Power Consumption

iHawk100R is powered by USB. The system peak current during the operation of the transmission module is relatively high. It is necessary to use a USB interface with a power supply capacity of up to 2A. If the power supply is below this standard, there is a possibility that the depth map may not start."

Table 7: Power Supply Parameters and Specifications

Hardware Parameters	功耗 2W, 接口 USB, 工作温度-10~60°C
Average Power Consumption	<2.5W
Average Current	<500mA
Standby Current	<150mA
Peak Current	<2A
Operating Voltage	5V

## 5.2 Reliability Standards

The reliability standards for iHawk100R are outlined in the following table. Please refer to it during the production and usage processes.

Table 8: Reliability Standards

Operating Environment	-10~60°C
Storage Environment	-20~70°C
ESD	Contact Discharge +/-4K Air Discharge +/-8KV

## 6 Software SDK Documentation

We provide SDKs for the Android, Windows, and Linux platforms. Please contact our sales representatives to obtain the latest SDK.

Table 9: Software SDK Parameters

Software Parameters	We provide a universal SDK development package, including basic APIs, sample programs, documentation, and utility software.
	2 Supports cross-platform development: Windows (Windows 7 and above), Android (Android 5.1 and above), Linux (Ubuntu 14 and above).

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## 7 Appendix:

### 7.1 Packing List

- 1、 One unit of iHawk100R module.
- 2、 One Type-C USB data cable. (If there is a need for a reinforced interface, please contact our business team to purchase a data cable with screws separately.)

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