DEPTRUM
光鉴科技

Deptrum® Pisca MIPI

Product Specification

V0.1 - 2026/09/30

1 Revision History

Version	Description	Date	Author
V0.1	Initial release	2026/09/30	Hu Tao



Figure: Figure: Product render (front view)

2 Product Overview

Product Introduction	Product Features
The Deptrum® Pisca MIPI series depth cameras capture the 3D structure of objects and spaces using underwater stereo 3D imaging. With an integrated high-performance ISP and depth engine, they output raw stereo color images and depth images. Combined with a multimodal AI recognition model, they enable intelligent	• RGB-D reconstruction based on underwater stereo technology • Adaptive illuminator • Supports 3 – 100,000 lux operating illuminance • Multimodal AI recognition model supporting

underwater perception, accurately detecting and localizing pool debris, steps, drain covers, and other objects. In addition, the Pisca 2000 fuses point cloud, IMU, stereo, and optical-flow data to deliver 3D pool mapping and localization.	leaves, drain covers, pool lights, accumulated sand/gravel, steps, and more • Supports RGB-D 3D mapping • Supports SLAM **Application Scenarios** • Underwater robot recognition and obstacle avoidance • Underwater robot 3D mapping and navigation

3 Core Specifications

Pisca MIPI Specifications		
Module Parameters	Module Dimensions	120 × 30.5 × 26.3 mm
	Baseline	70 mm
	Interface	MIPI, 2-lane or 4-lane compatible
	Operating Temperature	0℃ ~ +40°C
	Operating Humidity	0% – 95% RH, non-condensing
	Operating Illuminance	3 – 100,000 lux (with external illuminator)
	Power Supply Requirement	> 1 A @ 5 V DC
	Power Consumption	Average < 1 W (illuminator off)
	IMU	Integrated high-performance IMU, > 200 Hz, hardware-synchronized with the cameras
Image Performance	Depth Data Format	Raw 16-bit

	Depth Range	20 cm – 1 m
	Depth Accuracy	< 10% @ [20 cm, 1 m]
	Depth Resolution / Underwater FOV	⩾ 640 × 480 / H70° × V55° (±3°)
	RGB Data Format	RGB888
	RGB Resolution / Above-water FOV / Underwater FOV	⩾ 640 × 480 / H101° × V75° / H70° × V55° (±3°)
AI Algorithm Performance	Debris Detection	Detects leaves and accumulated sand/gravel; outputs a flag and four boundary-point (x, y, z) coordinates
	Obstacle Avoidance	Detects drain covers; outputs a flag and four boundary-point (x, y, z) coordinates
	Step Recognition	Recognizes steps; outputs a flag and four boundary-point (x, y, z) coordinates
	Escalator Recognition	Recognizes escalators; outputs a flag and four boundary-point (x, y, z) coordinates
	Recognition Rate	⩾ 90% for leaves, accumulated sand/gravel, drain covers, steps, and escalators
	Compatible Pools	Tile and cement pools; typical area < 100 m^2. Low-texture pools require an auxiliary vision module
	Image Overlap Rate	< 1%
	Visual Odometry	< 3% @ 1 m RPE
Firmware Performance	Firmware Update	Remote OTA supported
	Log System	Remote log upload supported

Platform Compatibility	Platform Compatibility	Armv8 Linux, RTOS, bare-metal MCU

4 Module Dimensions & Structure

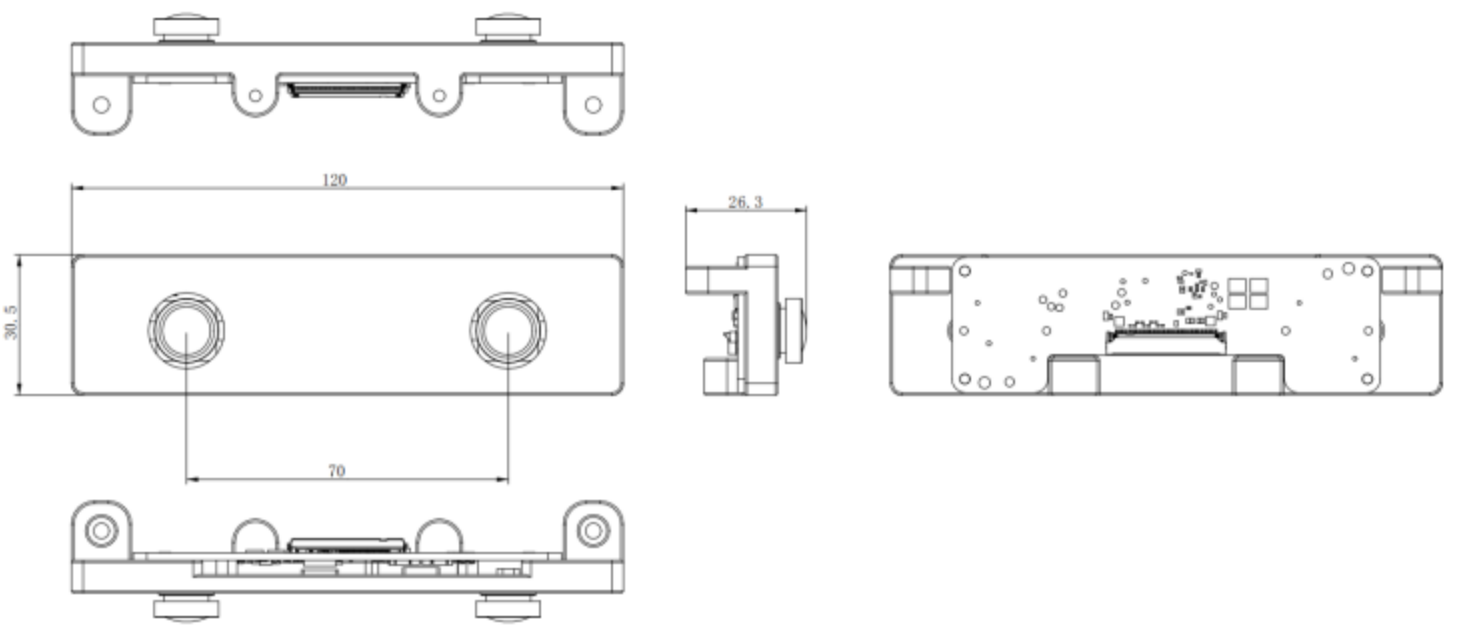


Figure: Figure: Module dimensions (120 × 30.5 × 26.3 mm)

4.1 Module Description

The Pisca MIPI module consists of a camera bracket, right RGB camera, cover glass, left RGB camera, PCBA, and ZIF connector. Module dimensions are 120 × 30.5 × 26.3 mm; refer to the 3D drawing for stack-up details.

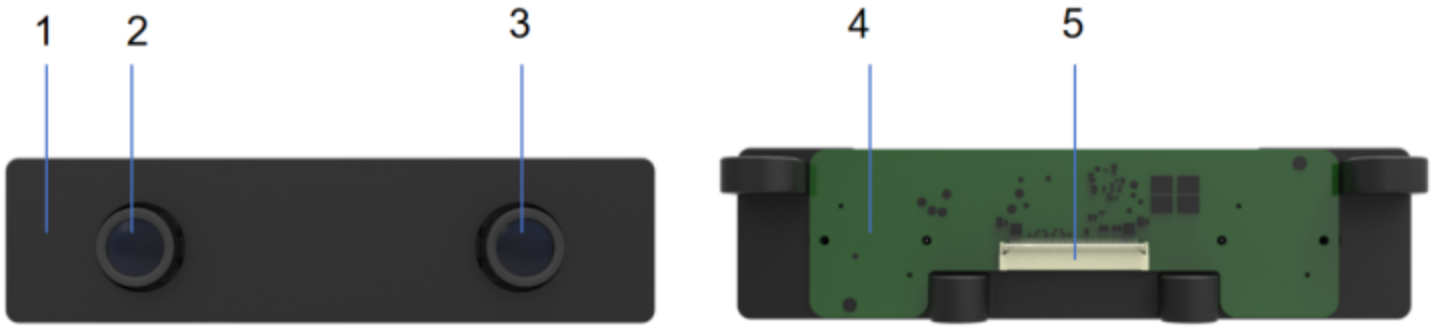


Figure: Figure: Module components (numbers correspond to the system component table)

Component	No.
Camera Bracket	1
Right RGB Camera	2

Left RGB Camera	3
PCBA	4
ZIF Connector (MIPI)	5

5 Environment & Reliability

Item	Parameter	Specification
Working Environment	Temperature	0℃ ~ +40°C
	Humidity	0% – 95% RH, non-condensing
	Illuminance	3 – 100,000 lux (with auxiliary illuminator)
Storage Environment	Temperature	-40°C ~ +65°C
	Humidity	10% – 90% RH, non-condensing

6 Certification

Item	Specification
Environmental Compliance	RoHS 2.0

7 Software Development

Customers can use the Deptrum Stream SDK for secondary development. The SDK supports Windows/Linux/Android platforms with x86_64 and ARMv7/ARMv8 architectures, and includes specific performance optimizations for embedded architectures. For detailed usage, please refer to the documentation included with the SDK.

8 Disclaimer

The device application information and other similar content described in this publication are provided for your convenience only and may be superseded by updates. It is your responsibility to ensure that your application complies with technical specifications. Shenzhen Deptrum Technology Co., Ltd. makes no representations or warranties of any kind, whether express or implied, written or oral, statutory or otherwise, regarding this information, including but not limited to warranties of its use, quality, performance, merchantability, or fitness for a particular purpose. Deptrum shall not be liable for any consequences arising from the use of this information. Without written approval from Shenzhen Deptrum Technology Co., Ltd., Deptrum products shall not be used as critical components in life support systems. Under Deptrum's intellectual property protection, no license shall be implied or otherwise transferred.

9 Technical Support

You can obtain support through the following channels:

- Email support: Please send your questions to support@deptrum.com
- FAE support: Please contact our sales team for FAE support information

10 Precautions

- Do not heat this product with other heat sources.
- Do not drop or impact this product to prevent internal component damage and accuracy degradation; improper operation may cause internal component damage.
- Do not attempt to modify or disassemble this device in any way to avoid module damage and accuracy degradation.
- The module may heat up after prolonged use, which is normal. Heat dissipation can be applied to the back of the module.

- Do not store the module in high-temperature and high-humidity environments to prevent accuracy degradation or depth reconstruction failure.