

Deptrum® Pisca 2000

Product Specification

V0.2 - 2026/08/28

1 Revision History

Version	Description	Date	Author
V0.1	Initial release	2026/06/30	Hutao
V0.2	Updated parameters and module description	2026/08/28	Hutao

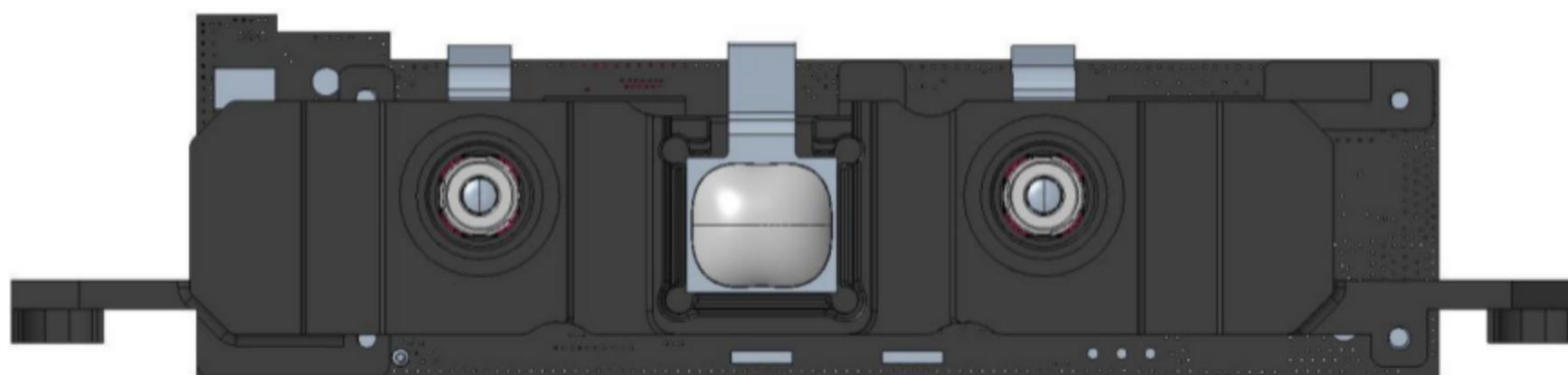


Figure: Product Rendering

2 Product Overview

Product Introduction The Deptrum® Pisca 2000 series depth camera uses stereo 3D imaging to capture the three-dimensional structure of objects and scenes. Combined with a multimodal AI recognition model, it enables intelligent underwater perception, accurately recognizing and localizing pool debris, steps, and drain covers. In addition, by internally fusing point-cloud, IMU, stereo, and optical-flow data, the Pisca 2000 enables 3D mapping and localization in pools. System Requirements Fully self-contained compute; no host-side compute required.	Product Features • RGBD reconstruction based on underwater stereo vision • Adaptive fill-light technology • Supports illuminance range of 3 ~ 100,000 lux • Multimodal AI recognition model supporting leaves, drain covers, pool lights, sand/gravel piles, steps, etc. • Supports RGBD 3D mapping • Built-in SLAM Application Scenarios • Underwater robot recognition and obstacle avoidance • Underwater robot 3D mapping and navigation
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3 Core Specifications

Pisca 2000 Specifications		
Module Parameters	Module Dimensions	138.9 mm × 32 mm × 23.59 mm

	Baseline	5 cm
	Interface	UART, USB 2.0*2
	Operating Temperature (Underwater)	0°C ~ +40°C
	Operating Humidity	0% ~ 95% RH, non-condensing
	Operating Illuminance	3 ~ 100,000 lux
	Power Supply	12 V ~ 36 V wide-voltage input; > 0.5 A @ 20.4 V
	Power Consumption	Average power consumption (host device) Avg < 3 W (white LED off); Avg < 7.5 W (white LED on)
Imaging Performance	Depth Data Format	Raw 16
	Depth Range(Underwater)	20 cm ~ 1 m
	Depth Accuracy(Underwater)	<5% @ [20 cm, 1 m]
	Depth Resolution / Underwater FOV	$\geq 640 \times 480 / H70^\circ \times V55^\circ (\pm 3^\circ)$
	RGB Data Format	RGB888
	RGB Resolution / Above-water FOV / Underwater FOV	$\geq 640 \times 480 / H101^\circ V75^\circ / H70^\circ \times V55^\circ (\pm 3^\circ)$
AI Algorithm Performance	Debris Detection	Supports detection of leaves and sand/gravel piles, outputting a flag and four boundary corner coordinates (x, y, z)
	Obstacle Avoidance	Supports detection of inner drain covers, outputting a flag and four boundary corner

		coordinates (x, y, z)
	Step Recognition	Supports inner step recognition, outputting a flag and four boundary corner coordinates (x, y, z)
	Pool Ladder Recognition	Supports pool ladder recognition, outputting a flag and four boundary corner coordinates (x, y, z)
	Recognition Rate	Leaves, sand/gravel piles, drain covers, steps, pool ladders $\geq 90\%$
SLAM Performance	Supported Sensors	Pisca 2000 (stereo + IMU), Pisca 1500 (optical flow)
	Applicable Pools	Tile, concrete, and similar pools; typical area $< 100 \text{ m}^2$
	Map Overlay Error	$< 1\%$
	Visual Odometry	$< 3\%$ @ 1 m RPE
Network Performance	Network Module	Wi-Fi 6, dual-band 2.4 GHz / 5 GHz
Firmware Performance	Firmware Upgrade	Remote OTA supported
	Logging System	Remote log reporting supported
Platform Compatibility	Platform Compatibility	Armv8 Linux, RTOS, bare-metal MCU

4 Module Dimensions & Structure

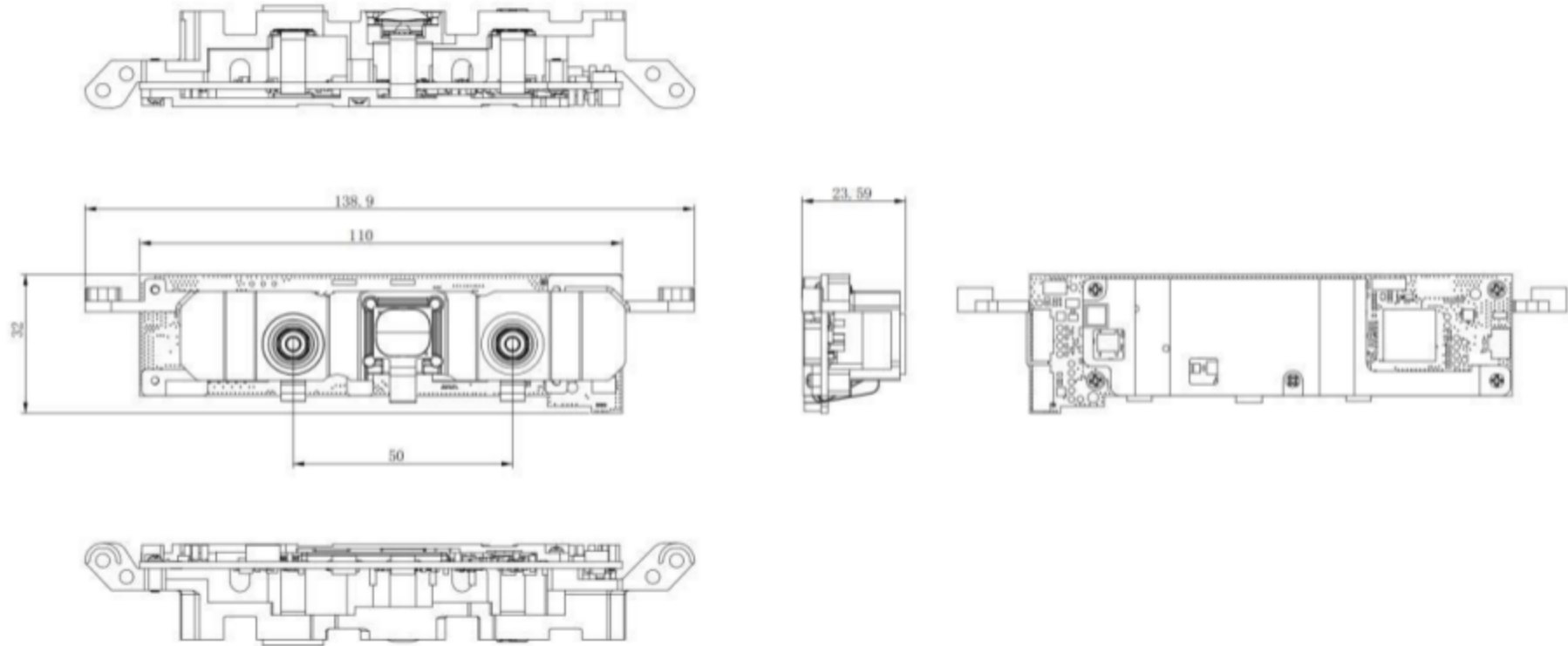


Figure: Module Structure Diagram

4.1 Module Description

The Pisca 2000 module consists of a housing, left/right RGB cameras, a fill-light illuminator, and a cover glass. Its compact structure is well suited for integration into underwater robot platforms.

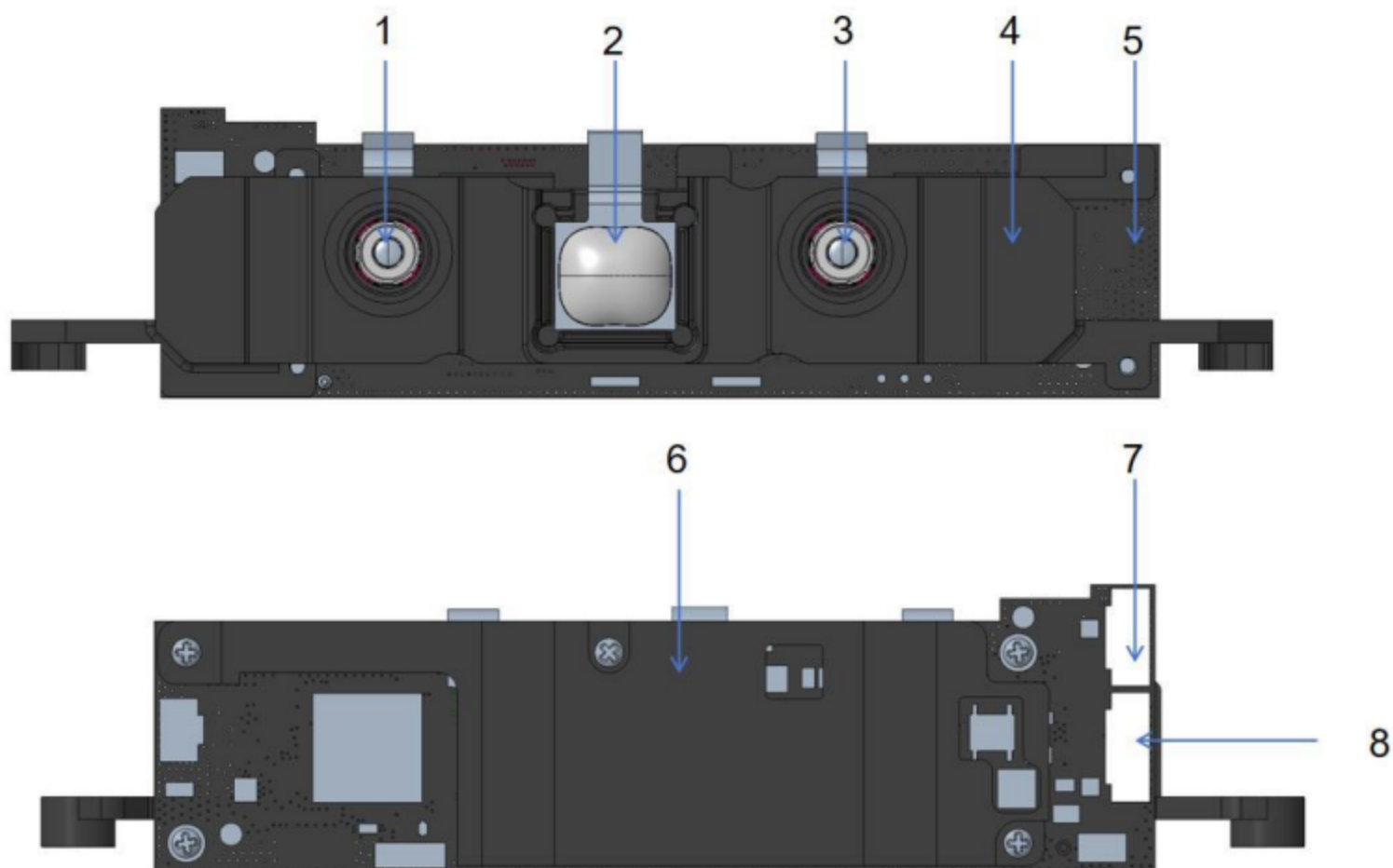


Figure: Module Layout Diagram

System Components	No.
Right RGB Camera	1
LED Illuminator	2
Left RGB Camera	3
Bracket	4
PCBA	5
Heat-Dissipation Rear Cover	6
Wafer1 (MCU UART) ¹	7
Wafer2 (USB 2.0 *2)	8

5 Environment & Reliability

Item	Parameter	Specification
Working Environment	Temperature	0°C ~ +40°C
	Humidity	0% ~ 95% RH, non-condensing
	Illuminance	0 ~ 100,000 lux
Storage Environment	Temperature	-40°C ~ +65°C
	Humidity	10% ~ 90% RH, non-condensing

6 Software Development

¹The Pisca 2000 provides two wafer connectors: one is a UART for communication with the chassis MCU, and the other is 2 × USB 2.0. One USB port connects to the optical-flow module, and the other can connect to a host PC for R&D debugging.

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.

7 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.

8 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

9 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.