

Deptrum[®] Libra 2000

Product Specification

V0.1 - 2026/09/30

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1 Revision History

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



Product rendering (front view)

2 Product Overview

Introduction

The Deptrum® Libra 2000 series depth camera acquires the 3D structure of objects and spaces using binocular 3D imaging technology. With a built-in high-performance ISP and depth engine, it outputs raw binocular RGB images and depth images. Meanwhile, based on binocular images and IMU data together with the SLAM SDK, it enables obstacle avoidance and navigation & positioning for lawn-mowing scenarios on a single hardware platform.

System Requirements

Depth computation is fully self-contained on the module, requiring no host-side computing power. The SLAM SDK runs on the host device with a compute requirement of $< 1.5 \times A55$ @ 15 fps.

Product Features

- High-performance binocular dense depth reconstruction
- Supports adaptive fill-light technology
- Supports 0 ~ 100,000 lux illuminance range
- Supports integrated binocular visual SLAM algorithms

Applications

- Lawn mower obstacle avoidance & SLAM applications
- Commercial robot obstacle avoidance

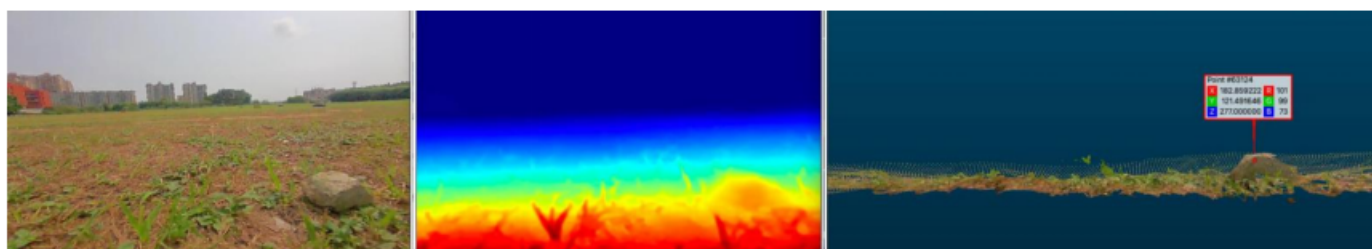
3 Core Specifications

Libra 2000 Product Specifications

Module Parameters	Overall Dimensions	132 × 55.69 × 46.93 mm
	Baseline	70 mm
	Interface	MIPI, compatible with 2-lane or 4-lane
	Operating Temperature	-20°C ~ +60°C

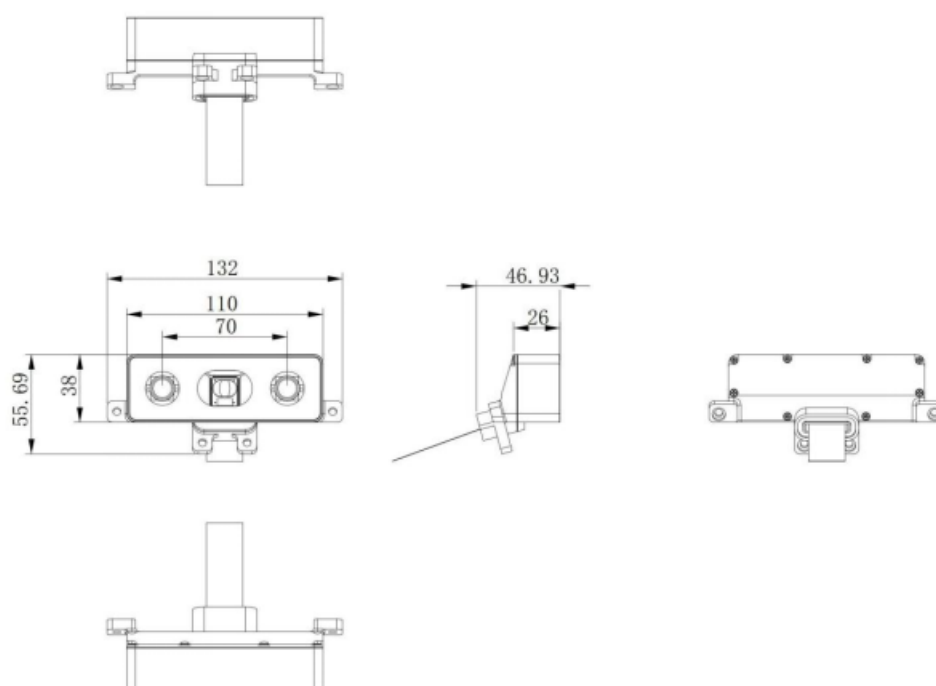
	Operating Humidity	0% ~ 95% RH, non-condensing
	Operating Illuminance	3 ~ 100,000 lux
	Power Supply Requirements	> 1.2 A @ 5 V DC
	Power Consumption	Average power consumption < 1 W (fill light off)
	Protection Rating	IPx6 waterproof
	IMU (optional)	Optional high-performance IMU, > 200 Hz, hardware-synchronized with the cameras
Image Performance	Depth Data Format	Raw 16
	Depth Range	15 cm ~ 2 m
	Depth Accuracy	< 1 cm @ 0.15 ~ 0.5 m; < 2% @ 0.5 ~ 1 m; < 3% @ 1 ~ 2 m
	Depth Resolution / Frame Rate	640 × 540 @ 10 fps
	RGB Data Format	YUV
	Left/Right RGB Resolution / Frame Rate / FOV	≥ 1,280 × 1,080 / 30 fps / H115° × V99° (± 3°)
	Obstacle Recognition Accuracy	≥ 5 cm @ 1 m
Firmware Capabilities	Firmware Upgrade	Remote OTA supported
System Compatibility	System Compatibility	Armv8

3.1 Output Image Description



Output image examples (left: undistorted left/right images; middle: depth map; right: SDK point cloud)

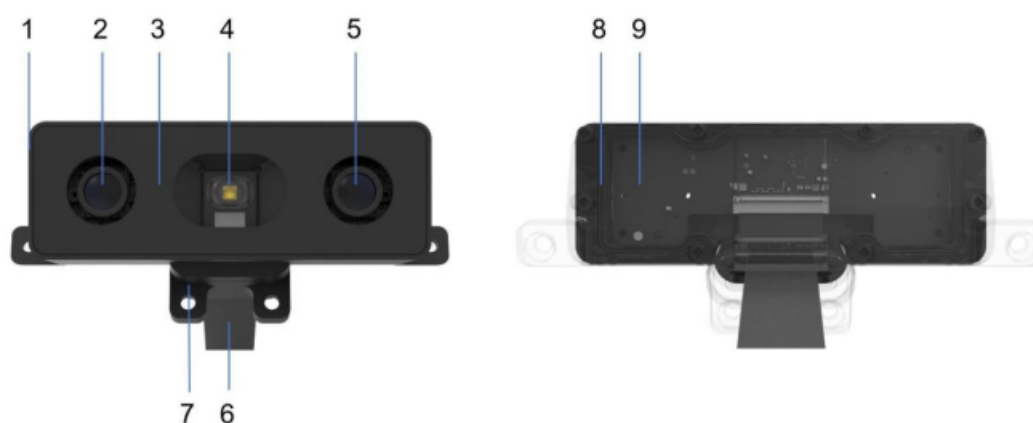
4 Module Dimensions & Structure



Module dimension drawing ($132 \times 55.69 \times 46.93$ mm)

4.1 Module Description

The Libra 2000 module consists of the enclosure, right RGB camera, cover glass, LED fill-in illuminators, left RGB camera, FPC, rear housing, sealing gasket, and PCBA. With IPx6 waterproof capability, it suits obstacle avoidance and SLAM applications in outdoor and semi-outdoor scenarios such as lawn mowers and commercial robots. The module dimensions are $132 \times 55.69 \times 46.93$ mm; refer to the 3D drawings for the detailed stack-up design.



Module layout diagram (numbered components correspond to the system components table)

System Components	No.
Enclosure	1
Right RGB Camera	2
Cover glass	3
LED	4
Left RGB Camera	5
FPC	6
Rear housing	7
Sealing gasket	8
PCBA	9

5 Environment & Reliability

Item	Parameter	Specification
Operating Environment	Temperature	-20°C ~ +60°C
	Humidity	0% ~ 95% RH, non-condensing

	Illuminance	3 ~ 100,000 lux
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 develop with the Deptrum Stream SDK, which supports Windows / Linux / Android platforms and x86_64 as well as ARMv7 / ARMv8 architectures, with specific optimizations for embedded platforms. Refer to the documentation bundled with the SDK for details.

8 Disclaimer

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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 arrangements

10 Precautions

- Do not heat this product with any other heat source.
- Do not drop or impact this product, to prevent damage to internal components and accuracy degradation; improper handling may damage internal components.
- 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 extended use; this is normal. Thermal dissipation can be applied on the back of the module.
- Do not store the module in high-temperature, high-humidity environments, to prevent accuracy degradation or depth-reconstruction failure.