

Deptrum[®] Aurora 930

Product Specification

V1.0 - 2026/09/30

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1 Revision History

Revision	Description	Date	Revised by
V1.0	Official release	2026/09/30	Hu Tao



Product Rendering (front view, without mounting wings)

2 Product Overview

Product Introduction

The Deptrum® Aurora 930 series depth camera captures the 3D structure of objects and scenes based on 3D structured light technology, and fuses the RGB image from the RGB camera with depth data to provide users with convenient and efficient 3D perception.

The Aurora 930 camera is designed on the speckle structured light principle. Equipped with a high-performance depth processing chip and a high-performance ISP, it outputs high-quality RGB, IR, and depth images.

System Requirements

Windows / Linux / Android are supported. Depth map computation is performed inside the camera module, with no special computing power requirements for the back-end platform.

Product Features

- Low power consumption, compact size, high cost performance
- Depth / IR image: 640 × 400 @ 12 fps
- RGB image: 640 × 400 @ 12 fps
- RGB / IR / Depth aligned stream
- All three images support an illumination range of 3 ~ 80,000 lux
- Temperature drift compensation ensures high-precision depth quality at all temperatures

Applications

- AI + 3D camera
- Robot obstacle avoidance
- Volume measurement
- Door locks and access control

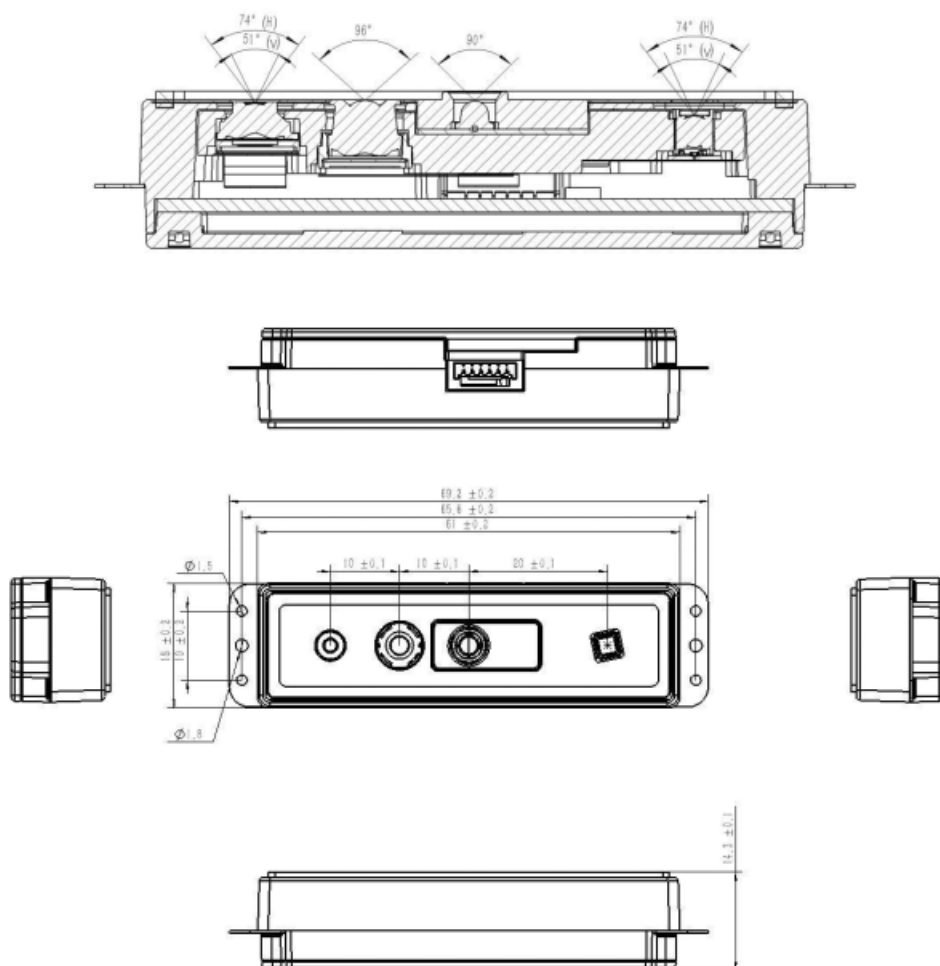
3 Core Specifications

Aurora 930 Specifications

Module Parameters	Overall dimensions	61 × 18 × 14.3 mm (without mounting wings)
	Baseline	40 mm
	Interface	USB 2.0 Wafer connector

	Depth accuracy	8 mm @ 1 m
	Depth precision	3 mm @ 0.5 m; 7 mm @ 1 m
	Working distance	15cm ~ 300 cm
	Operating temperature	-10°C ~ +55°C
	Operating humidity	0% ~ 95% RH, non-condensing
	Operating illuminance	3 ~ 80,000 lux
	Power supply	5 V $\pm$ 10%, 1.5 A
	Power consumption	Overall power consumption Avg < 1.6 W
	ESD rating	Contact discharge $\pm$ 4 kV, air discharge $\pm$ 8 kV
	RE rating	Complies with GB 9254 Class B
	Safety	Class 1 laser safety
Image Performance	Depth data format	Raw 16
	Depth resolution / frame rate / FOV	640 $\times$ 400 / 12 fps / H70° $\times$ V48° ($\pm$ 3°)
	RGB data format	NV12
	RGB resolution / frame rate / FOV	640 $\times$ 400 / 12 fps / H70° $\times$ V48° ($\pm$ 3°)
	IR data format	Raw 8
	IR resolution / frame rate / FOV	640 $\times$ 400 / 12 fps / H70° $\times$ V48° ($\pm$ 3°)
Firmware Capabilities	Firmware upgrade	Supports USB online upgrade
	Warm-start latency	< 300 ms
System Compatibility	System compatibility	Linux / ARMv8 / ROS / ROS2 / Windows / Android

4 Module Dimensions & Structure

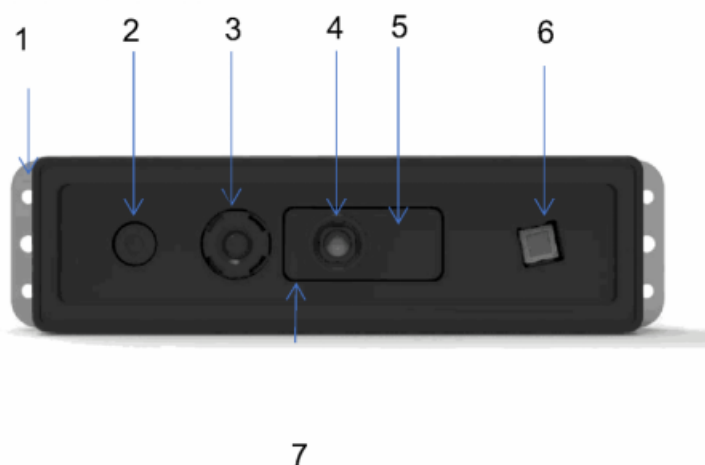


Module dimension drawing (L61 × W18 × H14.3 mm, excl. mounting wings; the upper figure shows the FOV cross-section of each component)

4.1 Module Description

The Aurora 930 module consists of mounting wings (steel plate), an IR camera, an RGB camera, an IR fill-in illuminator, a silicone sleeve, a dot projector, and a USB Wafer connector. The compact structure facilitates integration into host devices. Structural dimension data and images may vary slightly with specific product configurations; please refer to the actual

product. The product's 3D drawing includes the safety FOV; please refer to the camera's 3D drawing for stacking design. The camera module dimensions are L61 × W18 × H14.3 mm (without mounting wings).



Module Layout Diagram (numbers correspond to the System Components table)

System Components	No.
Mounting wing - steel plate	1
IR Camera (Infrared Camera Module)	2
RGB Camera (RGB Camera Module)	3
Infrared Illuminator (IR fill-in illuminator)	4
Silicone sleeve (detachable, replaceable as needed)	5
Dot projector	6
USB Wafer connector	7

5 Module Electrical Requirements

5.1 PIN Definition

PIN NO.	Name	Type	Description
1	VBUS	Power	5 V power input
2	VBUS	Power	5 V power input
3	D+	I/O	USB 2.0 D+
4	D-	I/O	USB 2.0 D-
5	GND	Power	Power ground
6	GND	Power	Power ground

5.2 Interface Definition



USB 2.0 Wafer interface definition (with PIN 1 position mark)

6 Environment & Reliability

Item	Parameter	Specification
Operating environment	Temperature	-10°C ~ +55°C
	Humidity	0% ~ 95% RH, non-condensing
	Illuminance	3 ~ 80,000 lux
Storage	Temperature	-30°C ~ +70°C

environment	Humidity	Relative humidity: 10% ~ 95%, non-condensing
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7 Certification

Item	Specification
Laser eye safety	Class 1 laser safety
Environmental certification	RoHS

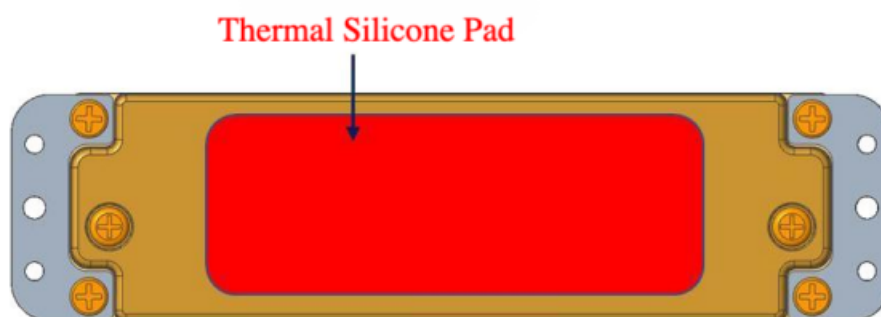
8 EMC

Item	Specification
ESD rating	Contact discharge ± 4 kV, air discharge ± 8 kV
RE emission	Complies with GB 9254 Class B

9 Thermal Design Recommendations

The Aurora 930 module generates heat during continuous operation. The host device structure must provide thermal management according to the following requirements to ensure depth accuracy and imaging performance over the full temperature range.

- Add heat conduction at the bottom of the module, e.g., with a thermal silicone pad. The pad should be compressible with low rebound force and a thermal conductivity of ≥ 3 W/(m • K). Refer to the red area in the figure below for the attachment position.



Module thermal design diagram (the red area indicates the thermal silicone pad attachment position)

- Heat is conducted from the back of the thermal silicone pad to a metal heatsink, which can be made of CNC-machined or die-cast aluminum alloy with a thermal conductivity of $\geq 90 \text{ W}/(\text{m} \cdot \text{K})$. If part of the heatsink can be exposed outside the host device for air convection, heat dissipation will be more effective.
- During module operation, the maximum temperature rise of the housing must not exceed 20°C . The red areas in the figure mark the positions where the 3D ASIC and the SoC are in closest contact with the rear housing; these two positions have the maximum housing temperature rise.

10 Protective Cover Requirements

The front protective cover of the host device must meet the following requirements:

- Protective cover material: glass.
- The light-transmitting areas of the protective cover corresponding to the dot projector, IR camera, RGB camera, and IR LED must be opened by silk-screen printing. The opening size can refer to the FOV of each component in the drawings provided by Deptrum, or, according to the actual product structure, be expanded outward by $\geq 0.5 \text{ mm}$ on each side beyond the component FOV.
- Optical transmittance: for the dot projector area, the global minimum transmittance $T_{\min} \geq 90\%$ in the $800\text{--}1050 \text{ nm}$ band; for the IR camera area, $T_{\min} \geq 90\%$ in the $800\text{--}1050 \text{ nm}$ band; for the RGB camera area, $T_{\min} \geq 90\%$ in the $400\text{--}780 \text{ nm}$ band; for the IR LED area, $\geq 90\%$ in the $800\text{--}1050 \text{ nm}$ band.

- It is recommended to apply an AF coating on the outer surface of the protective cover to prevent fingerprints and oil stains from affecting imaging performance in actual use.
- Protective cover structural dimensions: when the material is glass, the thickness must be designed within 0.3–1.0 mm; the air gap between the protective cover and each optical component must be < 0.5 mm, and the IR LED rubber sleeve must contact the inner surface of the protective cover; the flatness of the protective cover must be < 0.005 mm.
- Fingerprint and oil prevention: during module-to-host assembly, the surfaces of all optical components must be strictly protected from dust and contamination. During host device use, keep the outer surface of the protective cover clean to avoid affecting imaging performance.
- If a protective film is applied to the outer surface of the cover, cutouts must be made in the film at the window areas corresponding to the 4 components; otherwise, light transmittance and imaging performance will be seriously affected.

11 Software Development

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

12 Disclaimer

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13 Technical Support

Support is available through the following channels:

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

14 Precautions

- Do not heat this product with any other heat source.
- Do not drop or impact this product to prevent internal component damage and accuracy degradation; improper handling may damage internal components.
- Do not attempt to modify or disassemble this product in any way to avoid module damage and accuracy degradation.
- The module heats up after a period of use, which is normal. Heat dissipation can be applied to the back of the module.
- Do not store the module in high-temperature, high-humidity environments to prevent accuracy degradation or depth reconstruction failure.