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INDUSTRIAL PRODUCT DATASHEET

Orbbec Gemini 305 3D Camera

The Orbbec Gemini 305 is a compact stereo depth camera designed for close-range robotic vision.

SKU	UPDATED	PRICE
100021460	2026-11-27 07:32:45	$249.00(Excl. VAT)



Overview



The Orbbec Gemini 305 is a compact stereo depth camera designed for close-range robotic vision. Its lightweight 68 g, 42 × 42 × 23 mm body provides a 4–100 cm+ operating range, depth output up to 1280 × 800 at 30 fps, global-shutter color imaging, IP54 protection, and power and data through a single USB Type-C connection. It is ideal for robot wrist mounting, object recognition, grasping, and other space-constrained vision applications.

Key Features

01 **Close-Range Depth Sensing - An operating range of 4-100 cm+ and a recommended range of 7-50 cm, built for near-field robot vision.**

02 **Stereo Vision - Two stereo cameras output depth data together with color images, with an 18 mm baseline and spatial precision of 1% or better (1280 x 800 at 50 cm, 90% x 90% ROI).**

03 **High-Speed Imaging - Depth up to 1280 x 800 at 30 fps (848 x 480 at 60 fps) and global-shutter color up to 1280 x 800 at 60 fps, with a depth field of view of H 88 degrees x V 65 degrees.**

04 **Compact and Payload-Friendly Design - A 42 x 42 x 23 mm housing weighing 68 g, small and light enough for space-constrained and payload-sensitive installations.**

05 **Synchronization and Triggering -**

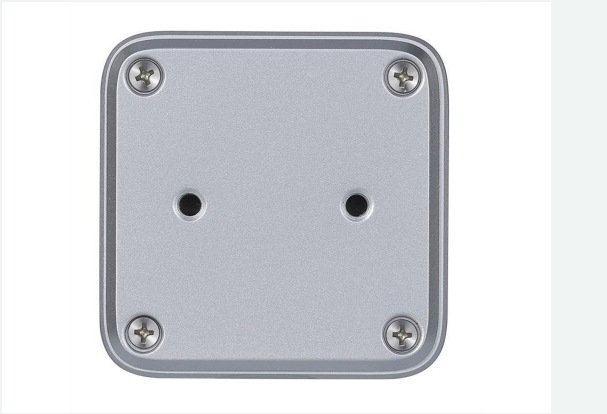
Supports multi-camera synchronization plus software and hardware triggers.

06 **Single-Cable USB Type-C Connection - One USB Type-C cable supplies both power (5 V DC, 700 mA or more) and data; USB 3.0 is recommended for full bandwidth. IP54 rated when a protected USB cable is connected and secured.**

Product Gallery









Applications

- **Robot Wrist Mounting and Eye-in-Hand Vision:** The compact, lightweight Orbbec Gemini 305 can be mounted directly on a robotic arm or wrist for close-range 3D perception. As the camera moves with the arm, it can observe the gripper workspace and occluded areas that fixed or head-mounted cameras may not see, reducing visual blind spots. By capturing the distance, position, and orientation of nearby objects and continuously updating depth information during approach, it helps the robot refine its trajectory and grasping angle for more accurate and reliable manipulation.
- **Object Recognition and Robotic Grasping:** With stereo depth and global-shutter color imaging, the Gemini 305 supports 3D object recognition, pose estimation, point-cloud capture, and depth-guided grasping. Its recommended 7–50 cm working range makes it well suited to manipulation tasks close to the gripper.
- **3D Perception with Orbbec SDK v2 and ROS 2:** Depth and color streams enable 3D perception, point-cloud generation, and depth-to-color alignment in Orbbec SDK v2 and ROS 2 workflows. Windows and Linux platforms, including Jetson and ARM64 systems, are supported.
- **Viewer example: point cloud and depth-to-color alignment**
- **The Gemini 305 requires Orbbec SDK v2; SDK v1 does not support this model. Reference documents:**
- **Seeed Studio Wiki: Orbbec Gemini 305 3D Camera**
- **Orbbec Gemini 305 product page and datasheet**
- **Orbbec SDK v2 and Orbbec Viewer downloads**
- **Choose the Right Orbbec Gemini Camera:** Compare the key specifications and choose the depth camera that best fits your working range, environment, connectivity, and robotic application.

Parameter	Gemini 2	Gemini 335Lg	Gemini 336	Gemini 305
Best For	General-purpose robotic vision and SLAM	Industrial robots, AMRs, and long-cable deployments	Outdoor robots and challenging lighting	Robot wrist mounting and close-range grasping
Depth Technology	Active Stereo IR	Active and Passive Stereo Vision	Active and Passive Stereo Vision	Passive Stereo Vision
Recommended / Ideal Range	0.15m - 10m	0.25–6 m	0.26–3 m	7–50 cm
Operating Range	0.15–10 m	0.17–20 m+	0.10–20 m+	4–100 cm+
Depth Resolution	Up to 1280 × 800 at 30 fps	Up to 1280 × 800 at 30 fps; 848 × 480 at 60 fps	Up to 1280 × 800 at 30 fps	Up to 1280 × 800 at 30 fps; 848 × 480 at 60 fps
Color Resolution	Up to 1920 × 1080 at 30 fps	Up to 1280 × 800 at 60 fps	Up to 1920 × 1080 at 30 fps	Up to 1280 × 800 at 60 fps
Color Shutter	Rolling shutter	Global shutter	Rolling shutter	Global shutter
IMU	Supported	Supported	Supported	—
Connection	USB 3.0 Type-C	GMSL2/FAKRA-Z and USB mode	USB 3.0 Type-C	USB 3.0/2.0 Type-C
Ingress Protection	Not specified	IP65	IP5X*	IP54*
Dimensions	90 × 25 × 30 mm	124 × 29 × 36 mm	90 × 25 × 30.7 mm	42 × 42 × 23 mm
Weight	98 g	164 g	99 g	68 g
Key Advantage	Wide-range, general-purpose 3D perception	Secure GMSL2 connection, up to 15 m transmission, and industrial protection	IR-pass filter for more stable depth in glare, shadows, and strong outdoor light	Ultra-compact design with optimized near-field depth sensing

Resource Links

- https://www.seeedstudio.com/Orbbec-Gemini-305-p-7053.html

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