RealSense Depth Camera D555

Datasheet

v1.1

Depth Camera D555 Specifications

3D Computer Vision Powered Over Ethernet

The RealSense™ Depth Camera D555 is the first camera powered by the new RealSense Vision SoC V5. V5 is a small low power vision SoC with industry leading stereo disparity processing and motion estimation, Vision DSP optimized for computer vision and best-in-class Image Signal Processor (ISP) IPU7.

The ISP IPU7 enhances the RGB with Geometric Distortion Correction (GDC) and Temporal Noise Reduction (TNR).

D555 introduces Power over Ethernet interface. This is an addition to the D400 product family with USB and GMSL/FAKRA interfaces. Ethernet interface is typically used in robotics, retail and restaurant market segments.

This depth camera is composed of the long range global shutter D450 optical module with IMU.

D555 is supported by the Intel RealSense SDK 2.0 using Data Distribution Service (DDS), allowing ease of integration and backward compatibility to the product over Ethernet.

Minimum System Requirements: Host supporting Ethernet, PoE PSE (Power can also come from the USB port).

System Components

The RealSense Depth Camera D555	For D450 Optical module specifications, refer to datasheet
Host System Supporting PoE	D555 is platform independent and can be connected to any platform supporting PoE or Ethernet with power over USB, including Intel platform, NVIDIA platform and more.
Host System Ethernet Port	Gigabit Ethernet 1000BASE-T (1) Jumbo frame size, 9000 bytes, supported (2)
Ethernet Cable	Category 6 (Cat6) or above with RJ45 connector
PoE Switch/Router/ Injector	Minimum requirements: • PoE standard IEEE802.3at 15W or higher • Gigabit Ethernet 1000BASE-T ports (1) • Jumbo frame size, 9000 bytes, supported (2)
USB Cable (optional)	For Power over USB, and HW Sync

Features

Use Environment	Indoor/Outdoor
IP Grade	IP65
Depth Technology	Active Stereo
Image Sensor Technology	Global Shutter; 3 µm x 3 µm pixel size
Depth Field of View (FOV), H x V	HD 16:9 87° × 58° (±3°)
Depth Output Resolution & Frame rate	Up to 1280 × 720. Up to 60 FPS.
Minimum Depth Distance (Min-Z)	26cm (VGA)
RGB Resolution	Up to 1280 × 800. Up to 60 FPS.
RGB Field of View (FOV), H x V	90° × 65° (±3°)
Operating Case Temperature	-20°C to 50°C

D555 Camera Main Components

Camera Module	RealSense Depth Module D450
Vision Processor Board	RealSense Vision SoC V5 Board 1
Interface	Ethernet and USB (for production line & debug)

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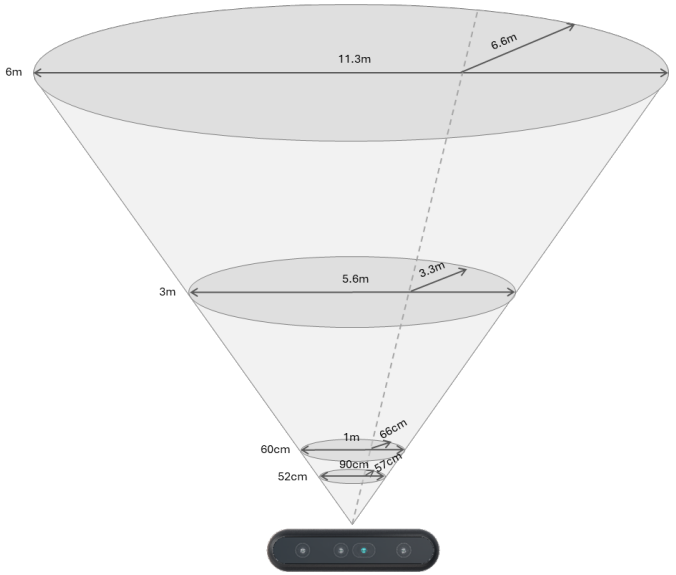
RealSense
D555 Datasheet v1.1

Property	Value
Product Name	RealSense Depth Camera D555
Technology	Active Stereo
Product Code (Box)	IVS110DSD555
Product Code (Multi Pack)	IVS110DSD555MP
MMID Box/Multi Pack	99CD06/99CD07
Code-Manufacture Configuration Code	N38334-200
Vendor ID / Device ID	8086 / 0x0B56
Baseline	95mm
Left/Right Imagers Type	Global Shutter
Typical Power	3.5W
Connectors	RJ45 (USB 3 for debug and production line)
Dimensions (Length x Height x Depth)	167 mm × 42 mm × 48 mm
Storage (Ambient) not Powered	Short Exposure: -40°C - 70°C; Sustained, Controlled: 0°C - 50°C, Temperature/ RH: 40oC / 90% (non-condensing)
Weight (Nominal)	337 gr

Format	Resolution	Frame Rate (Fps)	Comment
Z [16 bits]	1280x720	5,15,30	Depth
	896x504	5,15,30,60	
	640x360	5,15,30,60	
	448x252	5,15,30,60	
Y8 [8 bits]	1280x720	5,15,30	Luminance Left and Right Imager
	896x504	5,15,30,60	
	640x360	5,15,30,60	
	448x252	5,15,30,60	
Color Raw (Bayer 10-bit embedded in 16-bit)	1280x720	15	Color Stream from RGB Camera Undistorted
YUY2 [16 bits interleaved]	1280x720	5,15,30	Color Stream from RGB Camera Undistorted
	896x504	5,15,30,60	
	640x360	5,15,30,60	
	448x252	5,15,30,60	
Calibration IR Imager Y12I [16 bits]	1280x800	15	Production and OEM Calibration

Effective Detectable Depth Area



Features	Specifications
Depth Field of View (FOV)	87° × 58°
Minimum Depth Distance (Min-Z) at Max Resolution	~52 cm
Ideal Range	60 cm to 6 m (3)
Detectable Depth Area at minZ 52cm	89.2 x 57.6 cm
Detectable Depth Area at Min Ideal Range	104.4 x 66.5 cm
Detectable Depth Area at Max Ideal Range	1129.3 x 665.2 cm

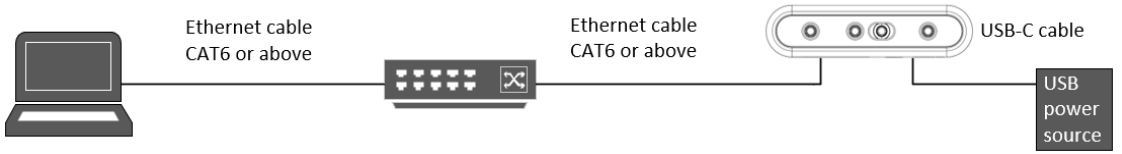
D555 System Overview – Power Over Ethernet (PoE)

Host system
Windows/Ubuntu
Gigabit or above ethernet port
Jumbo frame size 9000

PoE Switch/Router/Injector
PoE IEEE802.3at or higher
Gigabit or above ethernet port
Jumbo frame size 9000

D555
Jumbo frame size 9000

D555 System Overview – Power Over USB



Host system
Windows/Ubuntu
Gigabit or above ethernet port
Jumbo frame size 9000

Switch/Router
Gigabit or above ethernet port
Jumbo frame size 9000

D555
Jumbo frame size 9000

5V
8W peak

Compatible with SDK 2.0

RealSense Depth Camera D555 is supported by the RealSense SDK 2.0 using Data Distribution Service (DDS), allowing ease of integration and backward compatibility to the RealSense product family.

RealSense SDK 2.0

Open-source cross-platform library for all RealSense cameras and modules
Download from github

Platforms

Programming Languages & Wrappers

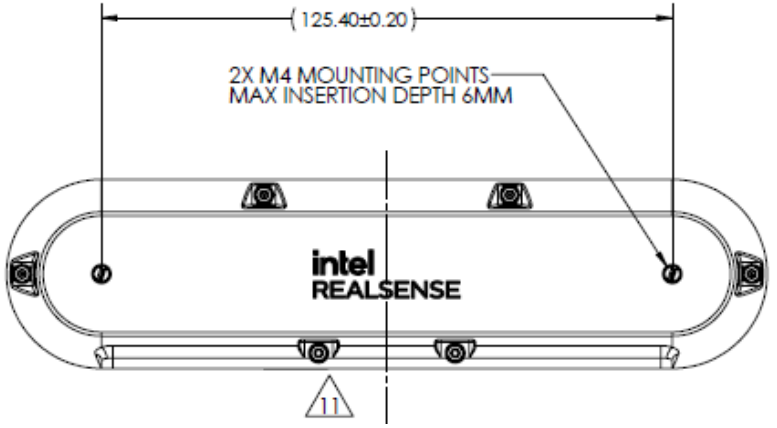
Regulatory Compliance

This product is classified as a Class 1 Laser Product under the EN/IEC 60825-1, Edition 3 (2014) internationally.
This product complies with FDA performance standards for laser products except for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated May 8, 2019.
U.S. FDA accession number: 1420260

FCC Supplier's Declaration of Conformity - 47 CFR § 2.1077 Compliance Information

Canada
CAN ICES-3 (B)/NMB-3(B)

D555 Screw Mounting/End Mounting



Ecology Compliance

Please refer to realsenseai.com/regulatory-information/ for Material Declaration Data Sheets (MDDS).
RoHS 2.0, WEEE, Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Depth Camera D555 Specifications Additional Information

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Footnotes and References

(1) If multiple cameras are connected to the same switch, the data bandwidth to the host system is shared between the cameras. To achieve the best performance, a higher data speed rate switch and a host system should be considered, like a 2.5GB, 5GB or 10GB.

(2) If the switch supports only 1500 bytes frame sizes, the camera performance is very limited, and the camera's Maximum Transmission Unit (MTU) must be reconfigured accordingly.

(3) Stereo cameras can see further but accuracy degrades with distance and varies depending on scene and lighting conditions.

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