# RealSense Depth Module D421

Datasheet

v1.4

3D Vision in a Small Package

RealSense™ Depth Module D421 is our entry level stereo depth module designed to bring advanced depth-sensing technology to a wider audience at an affordable price point.

RealSense Depth Module D421 is the first all-in-one module integrating the D4 Vision Processor with the optical module on the same board. The RealSense vision processor D4 does all depth calculations onboard, making this a low power, platform-agnostic device.

Plug-and-play functionality and the integrated single board with the module and the D4 vision processor ensure easy setup and compatibility with popular development frameworks. RealSense Depth Module D421 is supported by the RealSense SDK 2.0 and compatible with a wide range of platforms and operating systems, including Windows, Linux, and Android.

Module D421 Main Components

- Dual IR Stereo Sensors
- Vision Processor D4
- IR Projector
- USB Connector Type-C
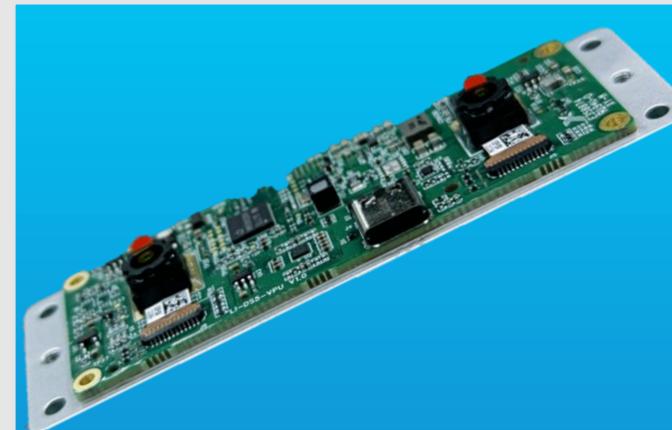
D421 Features	D421 Specifications
Depth FOV (H × V)	75°±3° × 50°±3°
Depth Resolution	Up to 1280 × 720 (Global Shutter)
Baseline	50mm
Depth Frame Rate	Up to 60 frames per second
RGB	No
IR Projector	Yes
Inertial Measurement Unit	No
Filter	IR band pass filter
Recommended Range	0.2 m to over 2m (varies with lighting conditions and resolution)
Connection Type	USB-C
Dimensions (W x H x D) Module	95 x 32 x 10.2 mm
Use Environment	Indoor/Outdoor
Operating Ambient Temperature	0ºC to 35ºC

Property	Value
Product Name	RealSense™ Depth Module D421
Technology	Active Stereo
Product Code	82635DSD421
MMID	99CLKV
Code-Manufacture Configuration Code	N50469-110
Vendor ID / Device ID	8086 / 0x1155
Baseline	50mm
Left/Right Imagers Type	Global Shutter
Typical Power	1.6W
Depth FOV HD (16:9)	75° × 50° ±3
Connector	USB Peripheral Type-C
Dimensions (Length x Height x Depth)	95 x 32 x 10.5 mm
Storage (Ambient) not Powered	Short Exposure: -40℃ - 70℃; Sustained, Controlled: 0℃ - 50℃, Humidity Temperature/ RH: 40oC / 90%
Weight (Nominal)	37.5 gr

D421 Streams

Format	Resolution	Frame Rate (FPS)
Z [16 bits] **Depth**	1280 x 720	6, 15, 30
	848 x 480	6, 15, 30, 60, 90
	640 x 480	6, 15, 30, 60, 90
	640 x 360	6, 15, 30, 60, 90
	480 x 270	6, 15, 30, 60, 90
Y8 [8 bits] **Left & Right Imager**	1280 x 720	6, 15, 30
	848 x 480	6, 15, 30, 60, 90
	640 x 480	6, 15, 30, 60, 90
	640 x 360	6, 15, 30, 60, 90
	480 x 270	6, 15, 30, 60, 90
Calibration [24 bits]	1280 x 800	15, 25
RealSense™ Self-Calibration	256 x 144	90

Compatible with SDK 2.0

RealSense Depth Module D421 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

Effective Detectable Depth Area
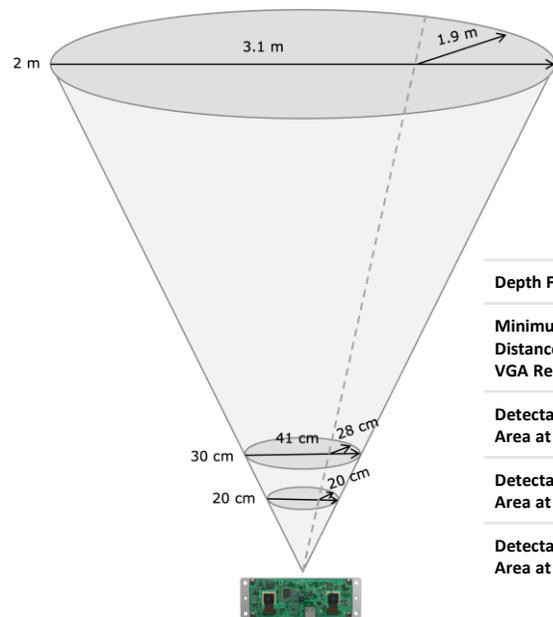
	Specification
Depth FOV (H × V)	75° × 50°
Minimum Depth Distance (Min-Z) at VGA Resolution	~20 cm
Detectable Depth Area at 20cm	25.7 x 18.7 cm
Detectable Depth Area at 30cm	41.0 x 28.0 cm
Detectable Depth Area at 2m	301.9 x 186.5 cm

Programming Languages & Wrappers
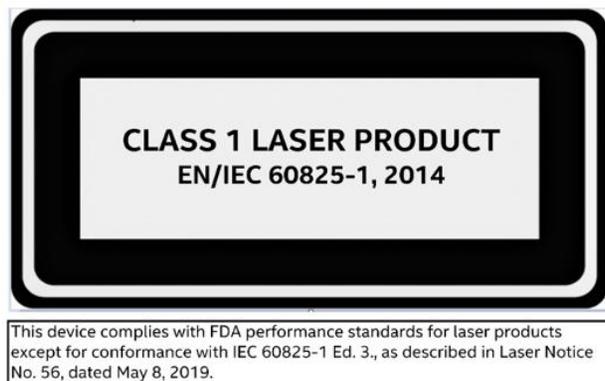
Regulatory Compliance

This product is classified as a Class 1 Laser Product under the EN/IEC 60825-1, Edition 3 (2014) (2014) internationally.

This product complies with FDA performance standards for laser products except for conformance conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated May 8, 2019.
2019.

U.S. FDA accession number: 2412019

CLASS 1 LASER PRODUCT
EN/IEC 60825-1, 2014

This device 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.

FC (FCC) C E Canada UK CA

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

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

VCI KC (RCM)

Ecology Compliance

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

D421 Screw Mounting/End Mounting

The stereo depth module incorporates screw holes for the module mounting. The module should be mounted on a large flat heat sink or a heat dissipating flat structure element. The module can be mounted either by the 2 threaded holes in the middle with M3 screws (#3 in the figure below) or the 4 corner non-threaded holes with nut fasteners (#4 in the figure below). The recommended torque should not exceed 5Kgf*cm.
Ensure to calibrate the module using OEM calibration (check link).
Please contact customer support for module assemble assistance.
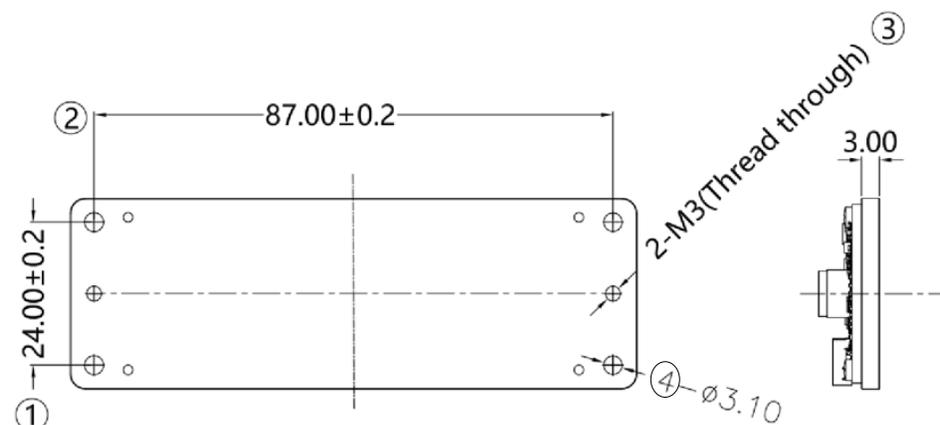
The depth origin X-Y coordinates are the X-Y centre of the left imager.
The Depth module D421 origin reference from the left centre hole to the left imager centre is 18.5mm.
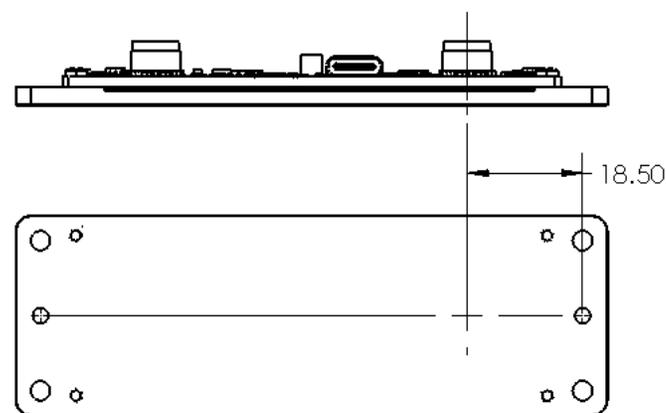
Depth Module D421 Specifications Additional Information

RealSense

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