

Committed to excellence



Intel® RealSense™ Stereo Depth



## PRODUCT OVERVIEW Q4/2021

intel.  
**REALSENSE™**  
BEVISENSE™





# Intel® RealSense™ Stereo Depth Technology

## Bringing 3D vision to devices and machines that only see 2D today

Stereo Depth Cameras enable devices to see, understand, interact with, and learn from their environment. The onboard Intel® RealSense™ Vision Processor D4 performs all the depth calculations on the camera, allowing for low power, platform agnostic devices. Stereo image sensing technologies work both indoors and outdoors in a wide variety of lighting conditions and can also be used in multiple camera configurations without the need for custom calibration.

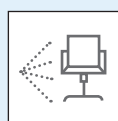


Experience the world in 3D with the Intel® RealSense™ products, available from stock at Rutronik. Based on Stereo image sensing technology, the Intel® RealSense™ Cameras provide a solution for a wide range of different applications. Supported by Intel's open-source SDKs, it's fast and easy to build your future vision solution.

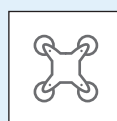
Discover endless possibilities of cutting edge Intel® RealSense™ technology. Adding computer vision to your project, whatever it is, will elevate it to the next level. Here are some application examples accelerated by Intel® RealSense™ solutions.



Robotics



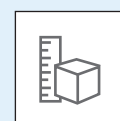
3D Scanning



Drones



People  
Tracking



Object  
Measurement

# Depth Cameras

## Intel® RealSense™ D400 series



Designed for easy setup and portability, Intel® RealSense™ D400 series cameras feature high depth resolution and include active infrared (IR) stereo with standard or wide field of view. For high-precision applications, choose the D415 with rolling shutter. If your application is fast-moving or outdoors, select either the D435 or D435i camera which feature a global shutter. For longer range applications, the D455 features wide field of view and global shutter on the depth and RGB sensors.



|                                     | D415  | D435 / D435i                             | D455   |
|-------------------------------------|---|--|--|
| Depth Technology                    | Active IR Stereo  | Active IR Stereo                         | Active IR Stereo   |
| Technology                          | Rolling Shutter   | Global Shutter                           | Global Shutter   |
| Depth FOV <sup>1</sup> (H x V)      | 65° × 40°   | 87° × 58°                                | 87° × 58°  |
| Depth Resolution                    | up to 1280x720  | up to 1280x720                           | up to 1280x720   |
| Depth Accuracy <sup>2</sup>         | <2% at 2 m  | <2% at 2 m                               | <2% at 4 m   |
| Depth Frame Rate                    | Up to 90 fps  | Up to 90 fps                             | Up to 90 fps   |
| RGB Sensor Technology               | Rolling Shutter   | Rolling Shutter                          | Global Shutter   |
| RGB Sensor Resolution               | 2 MP  | 2 MP                                     | 1 MP   |
| RGB Frame Rate & Resol.             | 1920 × 1080 at 30 fps   | 1920 × 1080 at 30 fps                    | 1280 × 800 at 30 fps   |
| RGB Sensor FOV <sup>1</sup> (H x V) | 69° × 42°   | 69° × 42°                                | 90° × 65°  |
| IMU                                 | —   | — / Yes                                  | Yes  |
| Min-Z at Max Resolution             | ~45 cm  | ~28 cm                                   | ~52 cm   |
| Ideal Range                         | .5 m to 3 m   | .3 m to 3 m                              | .6 m to 6 m  |
| Main components                     | D415 Depth Module<br>D4 Vision Processor                                | D430 Depth Module<br>D4 Vision Processor | D450 Depth Module<br>D4 Vision Processor                                 |
| Dimensions (L x D x H)              | 99 mm × 20 mm × 23 mm   | 90 mm × 25 mm × 25 mm                    | 124 mm × 26 mm × 29 mm   |
| Connectors                          | USB-C* 3.1 Gen 1*   | USB-C* 3.1 Gen 1*                        | USB-C* 3.1 Gen 1*  |
| Mounting Mechanism                  | 1/4"-20 UNC thread mounting point, 2x M3 thread mounting points, Tripod |  | 1/4"-20 UNC thread mounting point<br>2x M4 thread mount. points   Tripod |
| Use Environment                     | Indoor/Outdoor  | Indoor/Outdoor                           | Indoor/Outdoor   |

<sup>1)</sup> measured +/-3° of stated value    <sup>2)</sup> measured as out of the factory

**ORDER**  
Intel® RealSense™  
DEPTH CAMERAS  
at RUTRONIK

**D415** (Retail)  
82635ASRCDVKHV

**D415** (Bulk)  
82635ASRCDVKMP

**D435** (Retail)  
82635AWGDVKPRQ

**D435** (Bulk)  
82635AWGDVKPMP

**D435i** (Retail)  
82635D435IDK5P

**D435i** (Bulk)  
82635D435IDKMP

**D455** (Retail)  
82635DSD455

**D455** (Bulk)  
82635DSD455MP

**Retail:** Package contains camera, USB cable and Tripod | **Bulk:** Package contains only the camera





# Depth Modules

For the integration of Intel® RealSense™ technology into higher volume products, depth modules can offer the best compromise between price and flexibility. Multiple different configurations are offered to better suit your needs and product requirements. Designed for easy system integration, all modules feature an imaging sub-system with stereo sensors. When paired with an Intel® RealSense™ Vision Processor, depth data can be output via USB to any platform.



|                                    | D415                            | D430                            | D450                            |
|------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Depth Technology</b>            | Active IR Stereo                | Active IR Stereo                | Active IR Stereo                |
| <b>Technology</b>                  | Rolling Shutter                 | Global Shutter                  | Global Shutter                  |
| <b>Depth FOV (H x V)</b>           | 65° x 40°                       | 87° x 58°                       | 87° x 58°                       |
| <b>Depth Resolution</b>            | 1280x720                        | 1280x720                        | 1280x720                        |
| <b>Depth Frame Rate</b>            | Up to 90fps                     | Up to 90fps                     | Up to 90fps                     |
| <b>RGB Frame Rate &amp; Resol.</b> | 1920 x 1080 at 30 fps           | -                               | 1280 x 800 at 30 fps            |
| <b>Interface</b>                   | 50-pin Board to Board Connector | 50-pin Board to Board Connector | 50-pin Board to Board Connector |
| <b>Dimensions (L x D x H)</b>      | 83.7mm x 10mm x 4.7mm           | 70.7mm x 14mm x 10.53mm         | 119.5mm x 17.4mm x 10.53mm      |

## ORDER

Intel® RealSense™  
**DEPTH MODULES**  
 at RUTRONIK

**D415** (Bulk)  
 82635DSASRCPRQ

**D430** (Bulk)  
 82635DSAWGPRQ

**D450** (Bulk)  
 82635DSD450

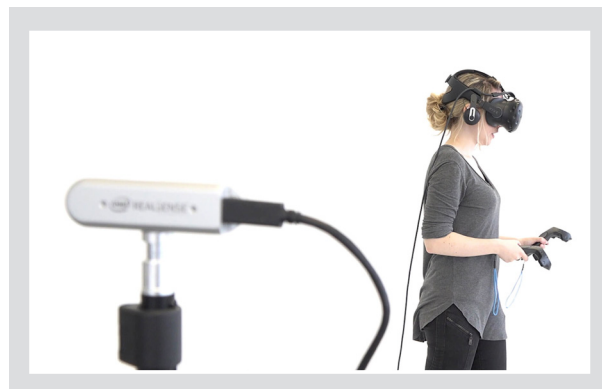
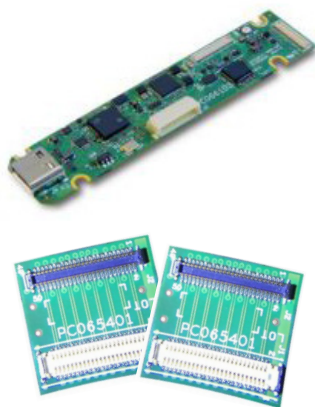
*Also available: Phased-out Depth Modules [D410](#) and [D420](#)*

## Recommended Accessories

D415 & D430 - Intel® RealSense™  
 Vision Processor D4 Card  
 82635DSASMDLPRQ

D450 - Intel® RealSense™  
 Vision Proc. D4 Board V3  
 82635DSASICBDIF

Intel® RealSense™  
 D400 Interposer Rigid  
 82635DSITR50P



## Intel RealSense SDK 2.0

Intel® OpenVINO™ integration  
 Fast and easy data integration tool  
 Open Source cross platform library

### More information can be found here

<https://www.intelrealsense.com/sdk-2/>  
<https://dev.intelrealsense.com/docs>  
<https://github.com/IntelRealSense>

intel  
**REALSENSE™** with

**OpenVINO™**

### Operating Systems

- ✓ Windows
- ✓ Linux
- ✓ mac OS
- ✓ Android

### Programming Languages

- ✓ Python
- ✓ C/C++
- ✓ C#/.NET
- ✓ Node.js

### Frameworks and Wrappers

- ✓ ROS
- ✓ OpenNI
- ✓ PCL
- ✓ LabVIEW
- ✓ OpenCV
- ✓ MATLAB
- ✓ UnrealEngine4
- ✓ Unity