A brand of Balluff

MATRIX VISION

### 3D Stereo Camera

# HIGH RESOLUTION 3D MACHINE VISION

**Robust and high resolution 3D stereo camera with 12 MPixels sensors and integrated projector for industrial 3D applications.**

Low system costs, quick implementation, a high flexibility in the application and a robust housing characterize the 3D Stereo Camera. With 12 million 3D data points and a 12 MPixels resolution, the camera captures every detail and does so with a frame rate of up to 9 Hz, depending on the resolution. In addition, the adjustable lenses on the cameras and integrated projector lead to optimal results, no matter in which workspace the camera is used.

Via the GigE Vision interface, own 3D applications can be created based on the camera data.

With the software library included in the scope of delivery, the 3D calculation can be automatically outsourced to a graphics card, thus increasing the camera's performance.

**Special features**

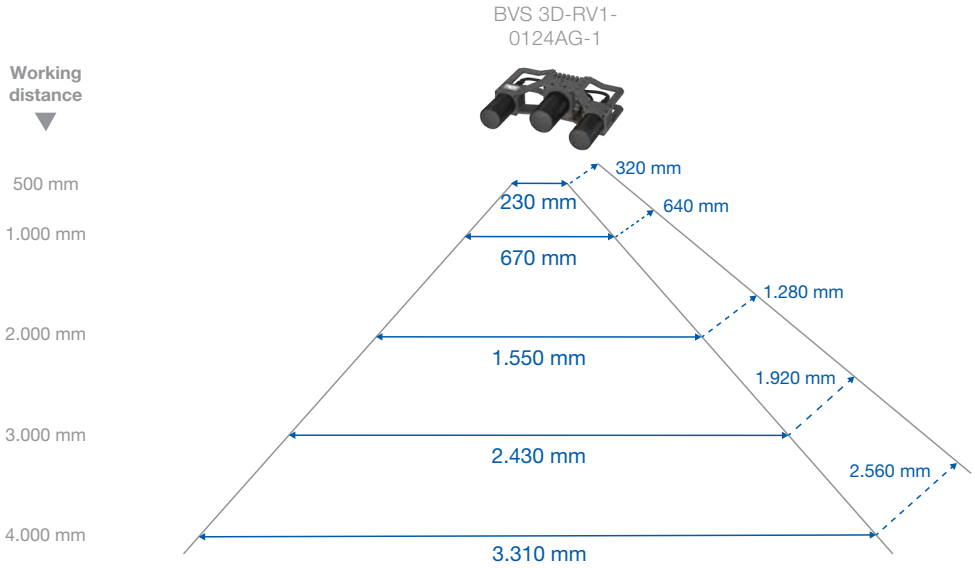
- **High flexibility in application**
  thanks to GigE Vision interface
- **Performs even in harsh environments**
  thanks to IP54 protected housing
- **Enables highly accurate 3D image processing**
  thanks to 12 MPix resolution of 3D data and 2D images
- **Optimally adaptable to your workspace**
  thanks to adjustable lenses on cameras and projector

## 3D STEREO CAMERA

| Model<br>BVS 3D-RV1- | Base distance | Focal length | Image resolution | Field of view | Depth of the measurement range[1] |
|---|---|---|---|---|---|
| 0124AG-1 | 210 mm | 16 mm | 4096 x 3008 pixels<br>(12 MPixels) | Horizontal: 47°<br>Vertikal: 35° | 0.5 m - 4.0 m |

1 The 3D Stereo Camera can measure into infinite space. However, with the stereo method the accuracy is reduced as a square of the distance; hence we recommend the above measurement ranges.

## WORKING RANGE




## FRAME RATES AND DEPTH RANGES

| | |
|---|---|
| Full depth quality @ 2.8 Hz<br>(4096 x 3008 pixels) | 0.89 m to 1.00 m<br>1.60 m to 2.00 m<br>2.18 m to 3.00 m<br>2.65 m to 4.00 m |
| High depth quality @ 4.6 Hz<br>(2048 x 1504 pixels) | 0.52 m to 1.00 m<br>0.66 m to 2.00 m<br>0.75 m to 3.00 m<br>0.80 m to 4.00 m<br>1.00 m to infinite |
| Medium and Low depth quality @ 9 Hz<br>(1024 x 752 - 683 x 502 pixels) | 0.52 m to infinite |

Examples of possible frame rates and depth ranges of the 3D Stereo Camera with Nvidia RTX 2070 graphic card and 3.4 GB of GPU memory

## RESOLUTIONS

| | |
|---|---|
| Lateral resolution | 0.4 mm at 1.0 m distance<br>0.9 mm at 2.0 m distance<br>1.3 mm at 3.0 m distance<br>1.7 mm at 4.0 m distance |
| Depth resolution | 0.1 mm at 1.0 m distance<br>0.5 mm at 2.0 m distance<br>1.2 mm at 3.0 m distance<br>2.0 mm at 4.0 m distance |
| Average depth accuracy | 0.5 mm at 1.0 m distance<br>2.0 mm at 2.0 m distance<br>4.6 mm at 3.0 m distance<br>8.2 mm at 4.0 m distance |

Resolution and accuracy of the 3D Stereo Camera in millimeters with high quality stereo matching and random dot projection on non-reflective and non-transparent objects

## OUTPUT DATA

- Camera data via GigE Vision: left and right camera image, depth image (disparity image), confidence image, error image

## ACCESSORIES

**Cable**

- Gigabit Ethernet, M12 connector, 8-pin on RJ45, X-coded, different lengths
- Connection cable, M12 connector, 8-pin on open cable end, different lengths

**Calibration plate**

- Calibration plate large, sample size 440 mm x 320 mm

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We Change Your Vision.
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