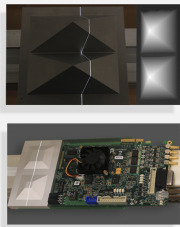




# Easy3DLaserLine

3D laser line extraction and calibration library



## At a Glance

- Single and Dual Laser Line Extraction into a depth map
- Convenient and powerful 3D calibration for laser triangulation setups
- Compatible with the Coaxlink Quad 3D-LLE frame grabber

## Benefits

### Easy3DLaserLine Description

- With Easy3DLaserLine, you will be able to implement a high-precision calibrated laser line triangulation setup.
- Easy3D is required for all 3D developments and is included in the Easy3DLaserLine license.

### 3D Laser Line Extraction into a depth map

Easy3D generates a depth map from a series of images that contain a laser line projected on the inspected object. Each pixel of the resulting depth map contains the position of the laser line in the image. Several extraction modes are supported as well as various filters. The software line extractor is fully compatible with the hardware implementation in the Coaxlink Quad 3D-LLE frame grabber.

### Dual laser line extraction

Supported by software and hardware implementations, the dual laser line extraction process reduces the effect of occlusions. Occlusions occur when some parts of the objects are not lit by any laser. Using two lasers with different angles reduces these undefined areas. The object-based calibration included in Easy3DLaserLine allows combining the acquired data into a single calibrated point cloud.

### Calibration

Some processing can be performed directly on a depth map. However, most 3D measurements need distortion-free data and metric representations, therefore calibrating the laser triangulation setup is required. Easy3D computes a calibration model applied to depth maps to transform them into calibrated 3D point clouds.

This calibration model is based on the depth map of a reference object, acquired using the laser triangulation setup that requires calibration.

**Developed with the support of the DG06 Technology Development Department**

## Applications

### Machine Vision for the Electronic Manufacturing Industry

- PCB inspection

- LED inspection
- Connector inspection

### Machine Vision for the General Manufacturing Industries

- Checking dimensional accuracy
- Assembly inspection
- Object positioning for pick and place machines

### Machine Vision for the Food Inspection Industry

- Food inspection and sorting

## Specifications

### Software

|                          |  |
|--------------------------|--|
| Host PC Operating System | <ul style="list-style-type: none"> <li>• Open eVision is a set of 32-bit and 64-bit libraries that require a processor compatible with the SSE2 instruction set.</li> <li>• Deep Learning Bundle is only available in the 64-bit Open eVision library.</li> <li>• Open eVision can be used on the following operating systems:             <ul style="list-style-type: none"> <li>– Windows 10 (32- and 64-bits)</li> <li>– Windows 8 (32- and 64-bits)</li> <li>– Windows 7 (32- and 64-bits)</li> </ul> </li> <li>• Since Open eVision 2.6, discontinued support of:             <ul style="list-style-type: none"> <li>– Windows Vista 32-bits Service Pack 1</li> <li>– Windows XP 32-bits Service Pack 3</li> <li>– Windows Embedded Standard 2009 32-bits</li> </ul> </li> <li>• The Open eVision installer does not allow installation on virtual machines.</li> <li>• Minimum requirements:             <ul style="list-style-type: none"> <li>– RAM: 8 GB</li> <li>– Display size: 800 x 600. 1280 x 1024 recommended.</li> <li>– Color depth: 16 bits. 32 bits recommended.</li> <li>– Between 100 MB and 2 GB free hard disk space for libraries, depending on selected options.</li> </ul> </li> </ul> |
|--------------------------|--|

### Ordering Information

|                            |  |
|----------------------------|--|
| Product code - Description | <ul style="list-style-type: none"> <li>• 4186 - Open Easy3DLaserLine for USB dongle</li> <li>• 4236 - Open Easy3DLaserLine for PAR dongle</li> <li>• 4286 - Open Easy3DLaserLine for soft-based licensing</li> </ul> |
| Optional accessories       | <ul style="list-style-type: none"> <li>• 6512 - eVision/Open eVision USB Dongle (empty)</li> <li>• 6513 - eVision/Open eVision Parallel Dongle (empty)</li> </ul>  |



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