

PRODUCT DATASHEET

3D.SwivelScan



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Product Line - Sensor Systems



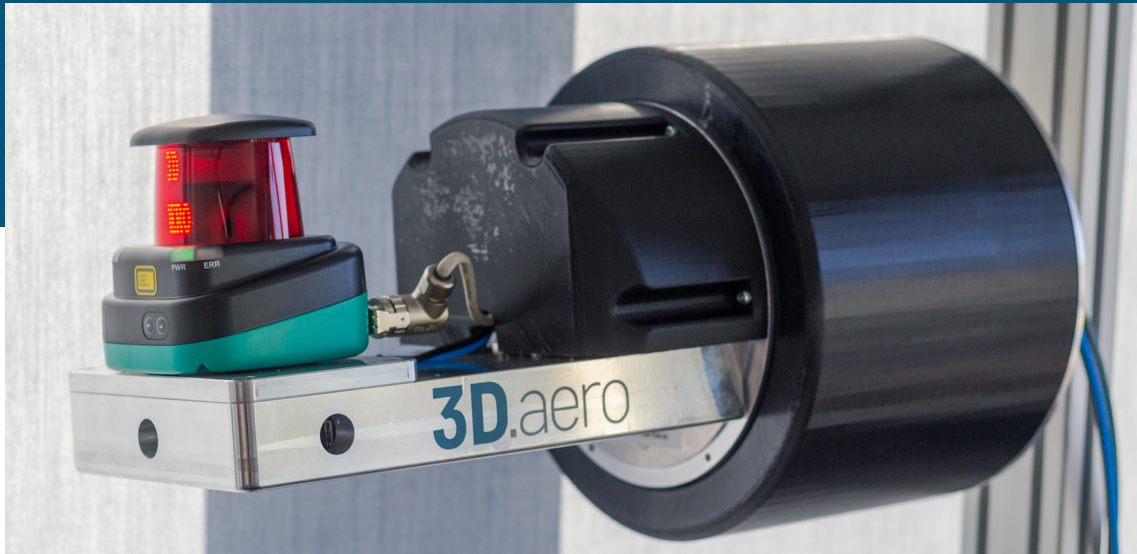
Introduction

3D.SwivelScan is a system that combines 3D-measurements with the corresponding color information to create the so-called PXL+ data.

By using a 360° LiDAR scanner paired with three 2D-cameras, the dimensional measurement data can be supplemented with true color information to make the 3D-data even more expressive. A swivel axis for the scanner allows for spherical scanning volumes of up to 60 m in diameter.



Advantages

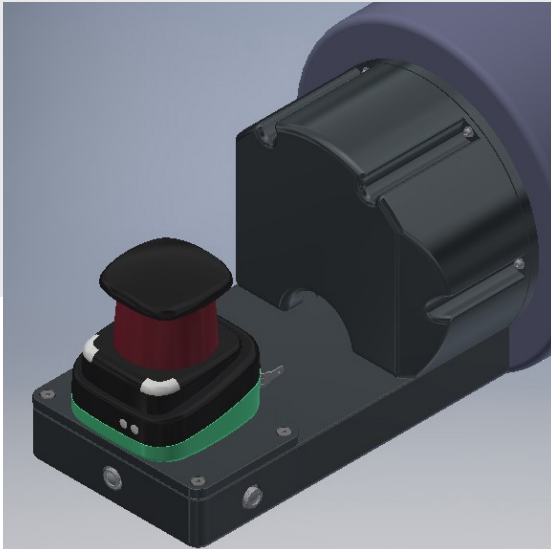


- Rotating 3D-LiDAR Sensor for precise position measurement
- Spherical measurement volume of up to 60 m diameter
 - Paired with three integrated color cameras
 - 270° range due to holding device
 - 185° pivot position
 - ± 5 mm resolution
 - mm-scale measurement data
- In-house calibrated sensor unit – ready to use
- Very high horizontal and vertical angular resolution
- Eye-safe laser used for measurement
- Optional: ATEX 2 Certificate for application in explosion risk environments
- Ethernet
- 24 V

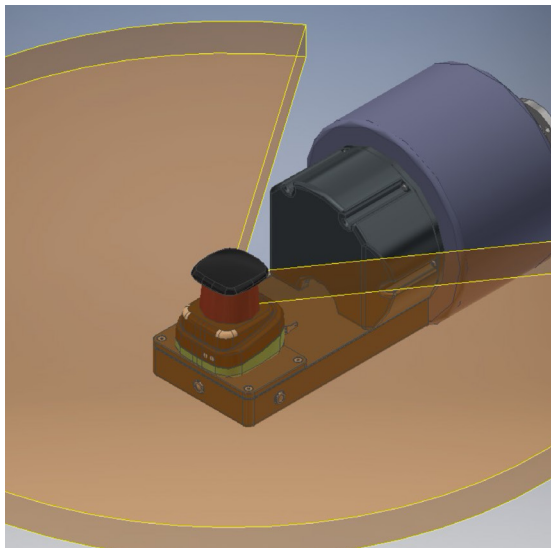


Applications

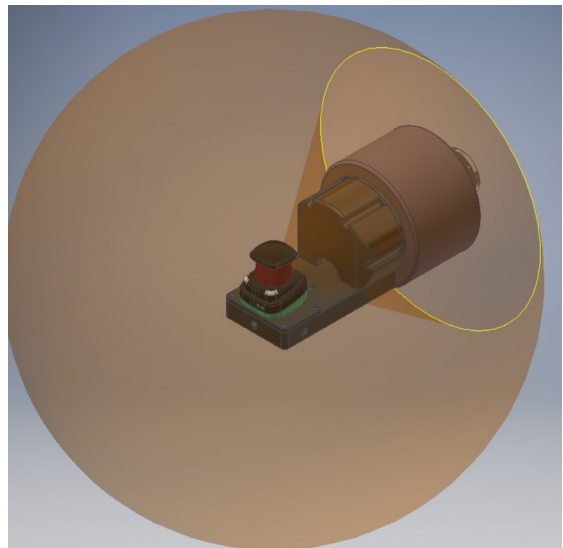
- Capturing big measurement volumes large structure measurement
- Large scale metrology, i.e. aircraft side panels
- Component presence control
- Component identification and localization
- Geometry check



3D.SwivelScan Sensor
System on rotating mount



Stationary sensor creates a circular
measurement plane

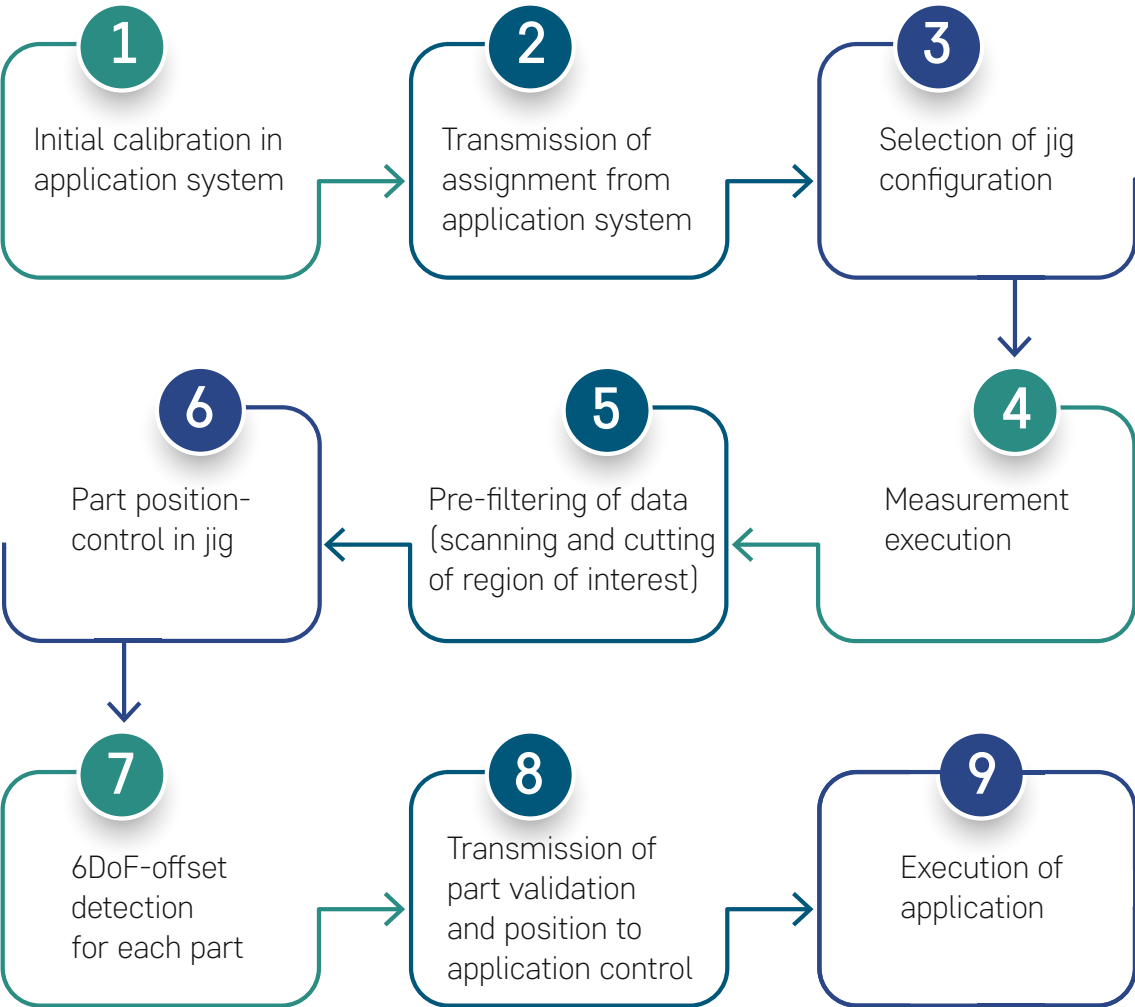


Swivel-motion of the base transforms
measurement plane to spherical
measurement volume



Process Information

As soon as the component to be inspected enters the measurement volume of the PXL+ sensor, the part is immediately measured. The 3D-measurement data combined with the color camera information of the scan delivers the basis for the following process steps. When the component data is completely captured, the system starts to analyze the given information on the part. The system compares the given CAD Data of the component to be inspected, to identify deviations from the desired quality. This can be accomplished by the usage of Artificial Intelligence (AI) for the data processing steps. Any deviations in shape, color or dimensions can then be calculated, tracked and given as the inspection results. The different process steps are described in detail in the boxes below.



Important

Product Information

Clasification	Specification	Descriptrion
Sensor	Dimensions (L x W x H) Weight Light source (Wavelength)	490 x 260x 260 mm 8 kg Laserdiode, infrared (905 nm)
Part Specifications	Max. Diameter Max. Weight Surface Condition	Within measurement volume (30-60m sphere) No limitations Non- reflective surface required
Measurement requirements	Measurement Volume	0,1 to 30 / 60 m depending on Sensor Variant
Inspection Performance	Scan Rate Resolution Angular Resolution	10 to 50 times per second 1 mm 0,007°
Data	Measured Data	3D pointcloud paired with color data
Certificates	Explosion safety	ATEX2 Conformity as configuration option





We offer off the shelf solutions for various use cases as well as individual „out of the box“ solutions.

Available Configurations

The PXL+ system 3D.Swivelscan combines LiDAR sensor technology with color cameras. This allows to generate high resolution 3D surface data that can be enriched with the corresponding color information. PXL+ supports the inspection and visualization of parts in a 3D environment. This leads to more efficiency in component localization, identification and subsequent process steps. Combined with our 3D.OS operating system, the system can reach its fully optimal potential.

3D.SwivelScan is available in several configurations regarding different combinations of functionality. The system is available in the simple 3D LiDAR sensor measurement configuration without the additional color camera information. This configuration only consist of the LiDAR sensor combined with the rotation axis. The enhanced configuration offers the addition of cameras to enhance the 3D data with color information.

Optionally, the sensor system can also be built with an ATEX 2 certificate to ensure the safe usability in explosion hazardous environments.



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