

FRAUNHOFER INSTITUTE FOR APPLIED OPTICS AND PRECISION ENGINEERING IOF





- 1 3D sensor head.
- **2** 3D point cloud of a technical object.
- 3 Detecting and measuring geometric objects in space with live 3D data analysis.

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INLINE 3D SENSOR FOR REAL-TIME APPLICATIONS

Measurement Principle

- Triangulation-based 3D measurement system with active illumination
- High-speed projection of aperiodic sinusoidal fringe patterns
- Synchronous image acquisition of two high-speed cameras and one color camera

Exemplary Applications

- Real-time measurement for quality assurance
- Machine vision for industrial robots, e.g. pick and place applications
- Production and assembly monitoring on versatile objects
- Safety technology in industrial areas
- Detection of people's poses, gestures, or facial expressions for human-machine interaction
- Machine interior monitoring
- Interactive training systems

Features

- Spatial measurement of moving objects
- Real-time computation of high-resolution 3D point clouds with color information
- Comparison with reference models (CAD)
- Further processing with established 3D
- analysis tools (e.g. HALCON & geomagic)
- Eye-safe due to incoherent projection

System Parameters

- Sensor size: 300 x 190 x 100 mm³
- Measurement field: up to 1 x 1 m²
- Optical power: ~4.5 W
- Pattern projection rate: 360 Hz
- 3D frame rate: 36 Hz

Our Offer

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- Realization of custom-specific real-time 3D measurement systems
- Execution of various 3D measurement tasks