

ZEISS COMET Pro AE Product Information



ZEISS COMET Pro AE

ZEISS COMET Pro AE Sensor

At the heart of the ZEISS AIBox and ZEISS AIBox flex digitization systems is the next-generation 3D sensor ZEISS COMET Pro AE for faster and more precise measurements. The sensor features an impressive combination of high-end technologies for quick and precise automated 3D digitization.

ZEISS COMET Pro AE Feature	15
	 Adaptive projection ILC - Intelligent Light Control automatically adjusts the amount of light projected onto the respective object surface. Increased measuring speed because no manual adjustments to the measuring parameters or time-consuming workpiece preparation are required. Possible to scan mixed-material surfaces with just a single capture. Automatically configured exposure time Automatic real-time configuration of the exposure time in line with the measurement mode and surface further increases ease-of-use, identifying and compensating for unwanted external factors such as vibrations or ambient light. High-resolution camera More precise 3D data with 16 megapixel camera: for digitizing filigree structures and identifying tiny details such as scratches. Fusion of 3D data and edge illumination captures - patented technology
Sensor technology	 The ZEISS COMET Pro AE consists of two industrial grade high-resolution cameras, a high quality projector and supplemental light sources. No less than three technologies are integrated in the sensor: Fringe projection. For 3D data acquisition, structured light technique with extremely bright blue LED light source is used, the projector uses Digital Fringe Projection technology. The integrated Intelligent Light Control (ILC) adapts the projected amount of light to the respective object surface to enhance data quality. Edge detection. A set of light sources applied to the sensor allow edge detection for precise feature measurement. Additionally, an innovative method to achieve significantly improved structure resolution is implemented. Photogrammetry. A high-resolution camera for photogrammetry is integrated for large-volume measurements.
Set-up	The sensor is built to be applied on an industrial robot.
Triangulation angle	Fixed triangulation angle between camera and projector of 20 ° to ensure efficient and accurate measurements.
Teaching	 Automatic setting of exposure time for fringe projection, marker measurement and edge detection. Automatic detection of negative influences on the measurement like vibrations and changes of ambient illumination. Self-check of all relevant sensor functions

Technical data

Camera resolution	 Fringe projection: 16 Megapixel, resolution of 4896 x 3264 Photogrammetry: 29 Megapixel
Scanning speed	LowRes (2448 x 1632): 1.9 s HighRes (4896 x 3264): 3.5 s Measurement speed up to 4.6 MP/s.
Measurement volume	550 x 370 x 400 mm ³
Point distance	114 µm
Working distance	570 mm The sensor is equipped with laserpointers to visualize the optimum measuring distance.
Calibration procedure	Automated calibration routineRecalibration is only necessary if the ambient conditions have changed

Technical data - Sensor hardware

Weight	16.5 kg
Casing	Robust aluminum housing for industrial applications.
Dimensions	490 x 310 x 270 mm ³
Protection rating	Protected against objects with diameter \geq 2.5 mm.
Power supply	Power pack suitable for worldwide usage.
Max. cable length	Up to 30 m

Ambient conditions

Temperature monitoring	The system temperature is actively monitored.
Operating temperature range	10 42 °C
Temperature window for measurement operation	Temperature at which calibration was performed \pm 4 K
Storage temperature	-15 60 °C
Relative air humidity range	080 %

Software

Supplied software	 ZEISS colin3D is used for data acquisition, cutting, smoothing, mesh generation and visualizing deviations via error map. (mandatory software)
	 ZEISS CALIGO is optionally supplied for complex inspection tasks.
Mesh generation	The ZEISS colin3D software generates STL meshes. For mesh generation, triangles are aligned along the curvature.
Import formats	CATIA V4/V5/V6, Pro/Engineer, SolidWorks, ACIS, CGK, IGES, JT, OBJ, PLY, STEP, STL, Autocad, CADDS & CAMU, I-DEAS, MEDUSA, Strässle EUKLID, Robcad, Parasolid, Unigraphics, VDA, VRML 2.0
Export formats	AC, STL, OBJ, IGES, CGK, ASCII
Matching of patches	 To align the patches in a global coordination system, 3 methods are supported: Free matching No need for markers or targets if the scanned object has sufficient structure. Tie-point matching Markers are used to align patches on unstructured, flat test objects like an engine cowling. Photogrammetry Alignment of patches without overlap or on large test objects via pre-measured coded markers.
Accessories	
IT hardware	Workstation Windows 10 64-bit
Transport case	Compact, rugged carry case with rollers and form cut padding for easy transport to any location.

The suitcase is air-freight-capable.

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