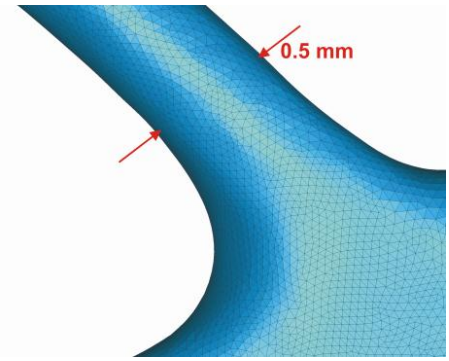
zSnapper®4M

3D Scanner with 4 MPixel resolution

ViALUX extends its product family of zSnapper® 3D Scanners by a system with 4 Million pixels resolution. zSnapper®4M is a convenient solution for the three-dimensional surface acquisition of design models, sample units, and engineering parts of any kind; it offers outstanding resolution of details. Highest precision is achieved by combining proven software algorithms of full-field, phase encoded photogrammetry with leading edge hardware technology. The user takes advantage of an easy to operate solution that offers optimal results in various applications. The point density is adaptable to the requirements of the respective task. The 3D measuring device is validated following the VDI 2634 guideline. The automatic self-calibration is traceable to national standards and can be done by any operator without the need of special skills. A calibration check is integrated in the measuring software to guarantee exact results at any time.

For the implementation of zSnapper®4M, ViALUX pursues its successful concept of dedicated DLP® Discovery™ micro mirror use for fringe projection. Large area CCD sensors provide outstanding signal to noise ratio and produce 200 Millions pixel data readings during 3 seconds of scanning time. 4 Millions independent x,y,z – coordinates are reconstructed by highly parallel processing after another 4 seconds. The monochrome blue high-power LED technology used in zSnapper® systems since 2004 is updated. zSnapper®4M takes advantage of the latest LED generation optimized for use with DLP® projection and yields highest power density by embedded phonics lattice technology. Advanced digital LED control and monitoring enables continuous thermal management for the passive fan-less cooling of the device. The result is maintenance-free operation for years.

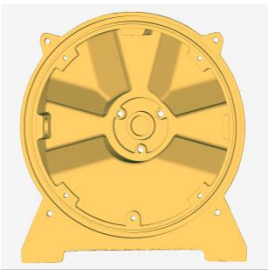
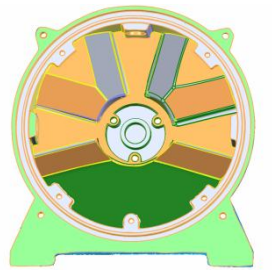
A single view scan acquires objects up to 240 mm diameter with a lateral point distance of 1/10 mm. Parts of 100x100 mm² size are still covered by 1 Million measuring points.
The device version zSnapper®4M XS features a point distance of 6/100 mm on a120x90 mm² field of view and has been introduced for scanning small and detailed objects (see figure).



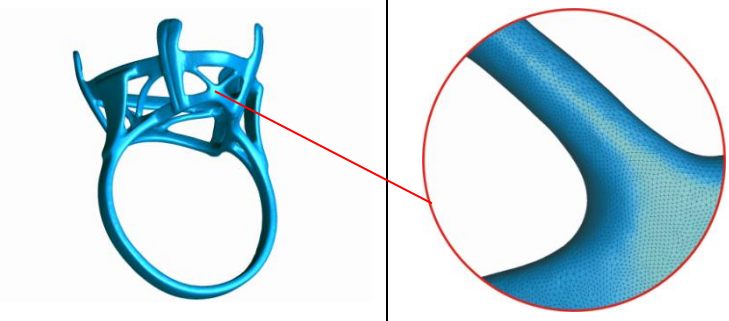
Stitching of multiple views is used to extend the measuring volume and to combine various perspective views. Generating 360°complete shapeis implemented in different ways. Using pre-defined reference targets around the object is the most comfortable option which can be applied frequently. The scanner software calculates the position of the scan unit for each snapshot and generates the global 3D model instantly. Random dots may also serve as targets; 3D snapshots are taken from all the different views needed and afterwards, the scanner software merges the partial measurements automatically. Finally, merging without any targets is realized by stitching the partial scans based upon best fit of shape as supported in the post-processing software.

Output is provided in different data formats for the further processing of the high-resolution measuring data. The measuring session is saved in a binary format (VLX3D) and can be restored completely including all settings. The open ASCII text format (PCT) can be chosen for exchange, it is directly imported by leading 3rd party software products (Geomagic, PolyWorks). The zSnapper®4M post-processing software supports the common polygon surface formats (STL, OBJ, VRML, etc.) as well as IGES curves providing a direct link to application specific software

zSnapper®4M: Pump housing Ø 240 mm

zSnapper®4M XS: Fingerring frame Ø 20 mm

Specifications

	zSnapper®4M	zSnapper®4M XS
Measuring field	240x320 mm²	120x90 mm²
Projection technology	DLP® Discovery™4100	DLP® Discovery™4100
Light source	HP LED, 540 lm, blue	HP LED, 540 lm, blue
Camera	4 MPixel CCD, 16 fps, 7.4 µm Pixel	4 MPixel CCD, 16 fps, 7.4 µm Pixel
Measuring data	4.000.000 (x,y,z) coordinates	4.000.000 (x,y,z) coordinates
Texture	8 bit grey value 4MPixel	8 bit grey value 4MPixel
Point distance	1/10 mm	6/100 mm
Accuracy	4/100 mm	1/100 mm
Data output	ASCII (PCT), STL, OBJ, VRML, IGES	ASCII (PCT), STL, OBJ, VRML, IGES
Computer	Laptop PC, Windows® 7 x64	Laptop PC, Windows® 7 x64
Interface	USB2.0, IEEE1394b	USB2.0, IEEE1394b
Power	20W@12-30V	20W@12-30V
Dimensions	230 x 130 x 115 [mm]	200 x 130 x 115 [mm]
Weight	2300 g	1700 g
Case	flight cabin dimensions	flight cabin dimensions
Operating temperature	10°C bis 40°C	10°C bis 40°C
Storage temperature	-10°C bis 50°C	-10°C bis 50°C

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