

3D Creator FreeScan handheld Scanner for 3D digitizing

The 3D Creator FreeScan is based on the optical infrared system 3D Creator and a free movable scanner unit on which four or more infrared emitters are placed. Through the integration of the line scanner with the 3D Creator, it is possible to get three dimensional values from the scanned surface and use them directly for 3D inspection with CAD comparison, reverse engineering and other kind of analysis tasks. For taking the values, the scanner unit can be freely moved by hand in the large working space without any mechanical restrictions.



FreeScan I (Knotenpunkt Scanner)



FreeScan II (Kreon Scanner)

System concept

On the housing of the scanner unit there are placed at least four infrared emitters which are flashing all three milliseconds. The sensor unit receives the infrared signals and can exactly define the 3D position of the handheld scanner unit or touch probe, which are moved in the large working space of the 3D Creator. By using a dynamic calibration the scanner and the 3D Creator are operating in the same coordinate system. The scanner unit and the 3D Creator are synchronized with a joint trigger signal so each scanner line is combined with the according X,Y,Z coordinates. These values can be directly transferred into one of several possible application packages which are running with the 3D Creator.

System configuration

The integrated 3D Creator FreeScan system is build of the sensor and the control unit of the 3D Creator. Integrated with a scanner unit on which a minimum number of four (4) or a maximum number of twelve (12) infrared emitters are placed. The synchronisation is realized through a special trigger signal which can be generated either by the 3D Creator or by the scanner depending on the preferred configuration. The scanner unit and the control unit are both connected with USB line to the PC or Notebook. All application packages are running on the PC or Notebook. The system can additionally be used which the free movable touch probe.

Systemvariations

The 3D Creator FreeScan is available with two different free movable handheld scanner units. The 3D Creator FreeScan I with the Knotenpunkt Scanner "Shapetracer" and the 3D Creator FreeScan II with the Kreon Scanner "Zephyr KZ 50". The "Shapetracer" is especially usable for Reverse Engineering and quick inspections tasks. The "Zephyr KZ 50" shows best results by inspections of products based on different materials. Both system versions are compared in the following table.

product description	3D Creator FreeScan I	3D Creator FreeScan II
Scanner module	Knotenpunkt Shapetracer	Kreon Zephyr KZ 50
Scan frequency	48.000 Punkte/Sek.	30.000 Punkte/Sek.
System accuracy	+/- 200µ	+/- 100µ
System working space	4 x 2 x 3 m	4 x 2 x 3 m
Probe accuracy	+/- 100µ	+/- 100µ
Scanner accuracy	+/- 20µ	+/- 6µ
Scanner line	40 mm	50 mm
min. Scanner distance	70 mm	100 mm
Weight	230 gr	350 gr
Dimensions	100 x 68 x 50 mm	150 x 55 x 70 mm
Laser class	2M	II
add-on features	Customised interfacing	Indicator for optimal scan distances

Software

The 3D Creator FreeScan systems have interfaces with leading application software packages. There are comprehensive solutions for reverse engineering tasks independent if the data comes from a scanner unit or from a touch probe. Additional software solutions cover the complete working spectrum from the point cloud treatment up to the design of polygon triangles or from surface reconstruction up to the 3D inspection tasks with CAD model comparison. Most software products offer direct interfaces to the major CAD systems. All the results can be placed in special designed reports or transferred into the company computer network.



Product features

- touch less and tactile solutions on one common system base
- exact 3D positions in the large working space of 4 x 2 x 3 m
- ergonomically working with free movable scanner or probe
- modular system for easy transport
- compact size of the hand held scanner units
- easy to install and to use
- integrates software solutions for Geomagic, PointMaster, 3D Reshaper, PolyWorks

Reverse Engineering

3D digitizing

3D measurement

3D inspection with CAD comparison

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