

opto *TOP-HE*

THE HIGHEND 3D DIGITIZATION SYSTEM



A well established system has been improved:

The HighEnd 3D digitization system **optoTOP-HE** is the most advanced configuration of the well established **optoTOP** system, which has been sold several hundred times world-wide during the recent years, thus being one of the most successful topometrical 3D-metrology systems.

The most important features of **optoTOP-HE** at a glance:

- ❑ the patented MPT-projection unit allows an extremely fast data acquisition of just about 1 sec
- ❑ a digital camera with 1384 x 1036 pixels and digital zoom guarantees highest resolution and accuracy
- ❑ the spectrum of standard measuring ranges was enlarged again; now measuring fields between 30 mm and 1700 mm (image diagonal) are available
- ❑ a carbon-fibre structure guarantees an optimal thermal and mechanical stability
- ❑ customer specific sensor configurations with measuring fields between a few mm² up to 5 m² are available
- ❑ the customer can realise all measuring ranges by changing the objectives and/or the sensor bases
- ❑ the **re-calibration** of the sensor by the customer can be realised within a few minutes, this guarantees high accuracy at any time
- ❑ the reduced sensor weight allows the integration into various positioning systems, e.g. robots or CMMs

optoTOP-HE

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Technical Data

Image Processing	
Host computer	Core™2 Duo, ≥ 2 GHz, ≥ 2 GB RAM, ≥ 60 GB HD, Open-GL Graphic adapter, DVD writer
Image data interface	IEEE 1394 (FireWire®)
Operating system	Windows XP
Measurement software	OPTOCAT for Windows, 3D-Alignment
Data interface	ASCII, BRE, STL*, PLY*, VRML*
* detailed specification on inquiry	

Sensor	
Principle of operation	Miniaturised Projection Technique
Light source	100 W halogen
Sensor weight	1.5 - 2.5 kg
Imaging	High resolution digital camera
Digitizing	1384 x 1036 pixels
Operating distance	from approx. 50 mm
Min. depth resolution	2 µm
Acquisition time	< 1 s

Options	
Camera	high resolution camera with 6.6 MegaPixels
Host computer	Laptop
Software options	3D-PostProcessing, 3D-EdgeDetection
Special FOV	on inquiry
Special configurations	Multiple field sensors, True colour systems

The **optoTOP-HE** system supports the most important measuring and navigation strategies for optical 3D sensors:

- the complete sensor integration into positioning systems, e.g. robots or CMMs
- matching by means of index marks and reference spheres
- alignment by means of object geometry
- combination with photogrammetric and stereometric metrology systems
- navigation by means of realtime-tracking-systems

Independently from the measuring strategy a best-fit orientation of all measuring data can be achieved by an additional alignment based on the surface geometry of the measured object.

Standard Measuring Fields

We offer the following measuring fields with a triangulation angle of 30 degrees:

standard measuring fields:	50 mm to 800 mm image diagonal
extended measuring fields:	25 mm to 1200 mm image diagonal
measuring fields for large objects:	400 mm to 1700 mm image diagonal

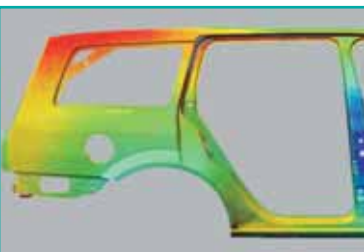
This measuring ranges are realised by changing the objectives and/or the sensor bases. Detailed information of all combinations possible can be found in the data sheet.

Operation with laptop / independent from main power supply

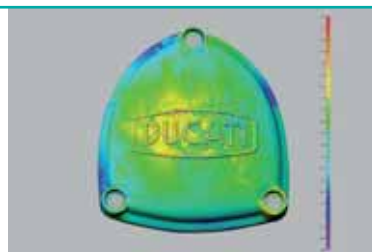
Our HighEnd 3D digitization system **optoTOP-HE** takes advantage of an advanced high resolution digital camera, which is directly connected with the host computer via IEEE-1394-interface. This allows the use of any arbitrary PC - especially a laptop - which offers this interface without integrating additional frame grabbers or I/O-cards.

The new control unit of the sensor may be driven independently from the main supply; thus the complete system is suited for mobile application.

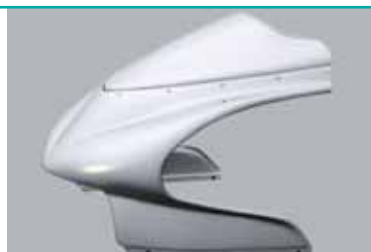
▼ Car body panel



▼ Comparison with CAD data



▼ Motorcycle wind shield



July 2007, technical data are subject to change without notice

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