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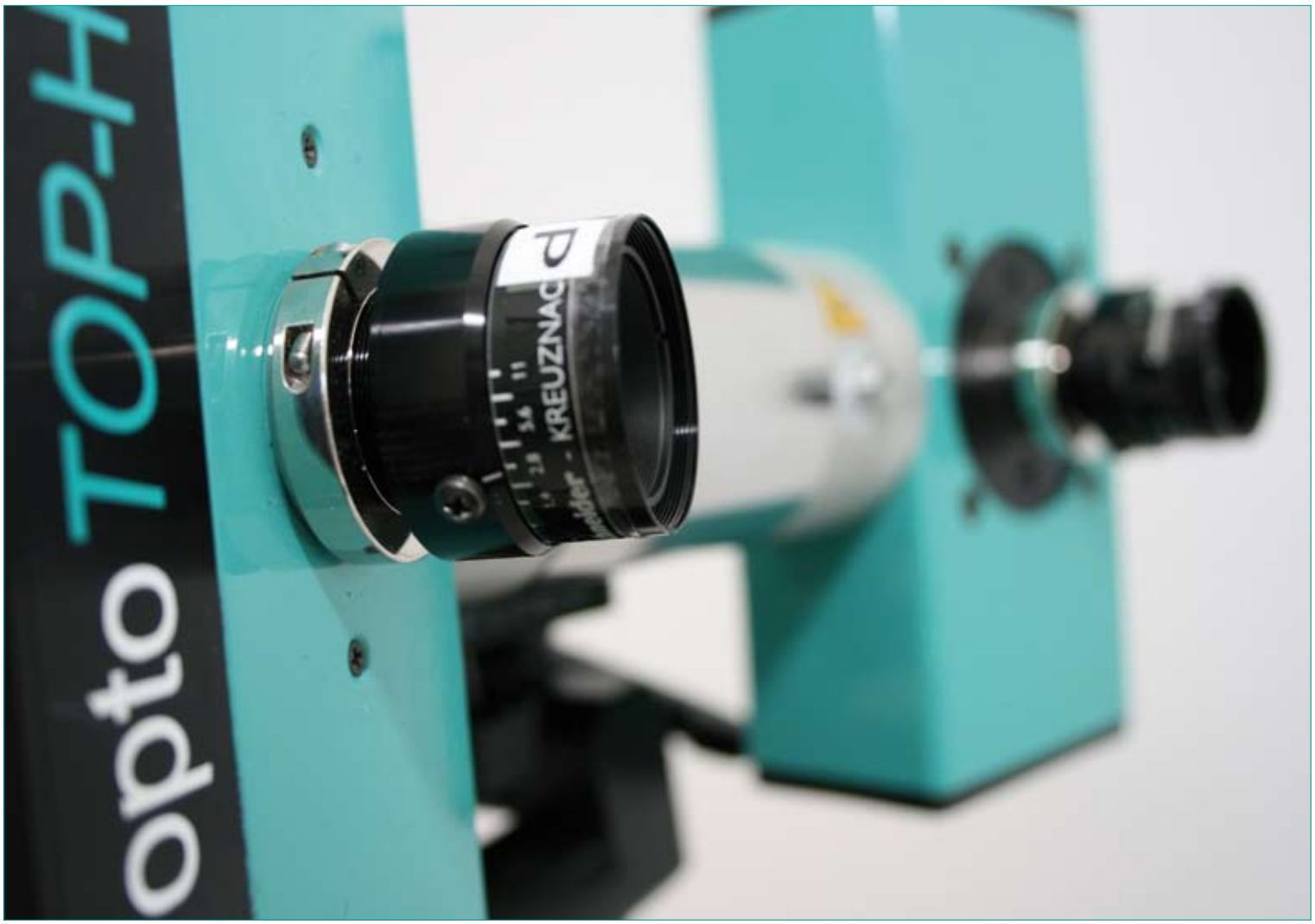
# opto*TOP*-HE

## THE HIGHEND 3D DIGITIZATION SYSTEM




**A well established system has been improved:**
The HighEnd 3D digitization system **opto*TOP*-HE** is the most advanced configuration of the well established **opto*TOP*** 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 opto*TOP*-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 mesuring 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

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## THE HIGHEND 3D DIGITIZATION SYSTEM

### 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 **opto*TOP*-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:

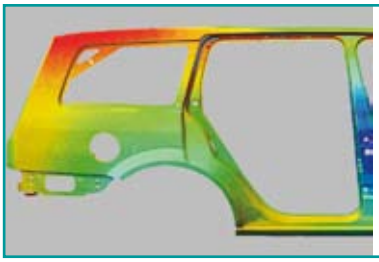
| | |
|---|---|
| **standard measuring fields:** | **50 mm to 800 mm image diagonal** |
| **extended measuring fields:** | **25 mm to 1200 mm image diagonal** |
| **measuring fields for large objects:** | **400 mm to 1700 mm image diagonal** |

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.

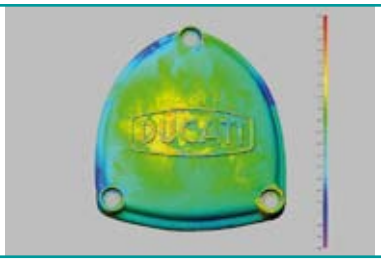
### Operation with laptop / independent from main power supply

Our HighEnd 3D digitization system **opto*TOP*-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.

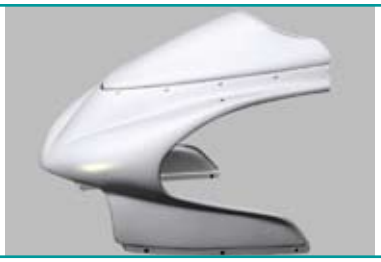
▼ Car body panel



▼ Comparison with CAD data



▼ Motorcycle wind shield



July 2007, technical data are subject to change without notice

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