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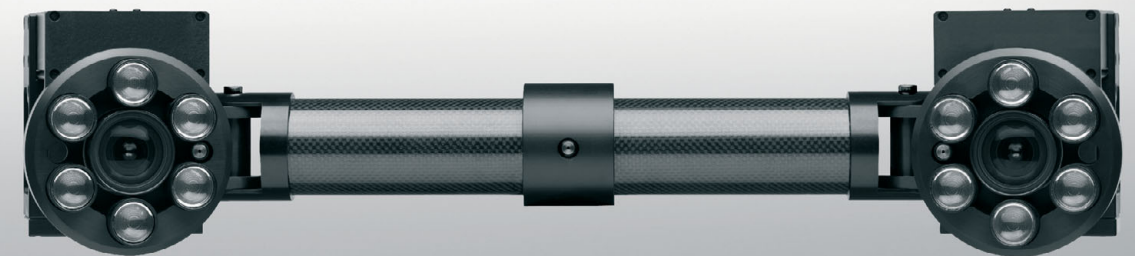
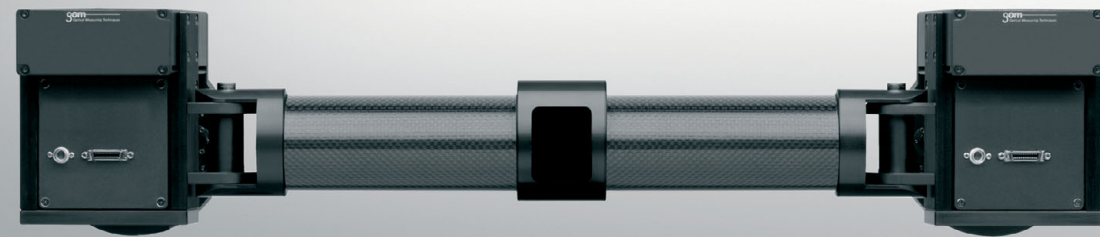
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# PONTOS



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## Dynamic 3D Analysis

Deformation Analysis on  
Components and Assemblies

**gom**  
Optical Measuring Techniques

# PONTOS

## Dynamic 3D Analysis

Modern product development demands a better understanding of the dynamic component behavior. This requires an efficient component development of just a few iteration cycles. For the measuring technology to be used, this means that in addition to high absolute accuracies, numerous measuring points and an efficient practical handling are required.

In contrast to conventional displacement measuring systems, the PONTOS system reduces the measuring procedure to a fraction of the time. In addition, the understanding of the measuring results is visually supported by an animated representation.

## Results

The dynamic measuring system PONTOS provides for any number of measuring points information about:

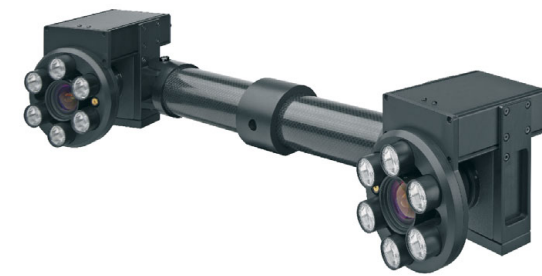
- 3D Coordinates
- 3D Displacements
- Deformation
- Speed
- Acceleration

These results are presented in versatile manners and are available to export as ASCII datasets. Due to a visualization of the recorded camera images combined with diagrams, the component behavior can be analyzed easily and in an intuitive manner.

## Measuring Tasks

The easy handling of the robust measuring system allows its use directly on-site with the component to be measured in its natural installation position and environment. Complex measuring tasks in the automotive industry as well as in the aerospace industry can be solved easily and fast.

- Complex motion analysis
- Component deformation
- Mode shapes
- Relative motion
- Gap size changes
- Flush



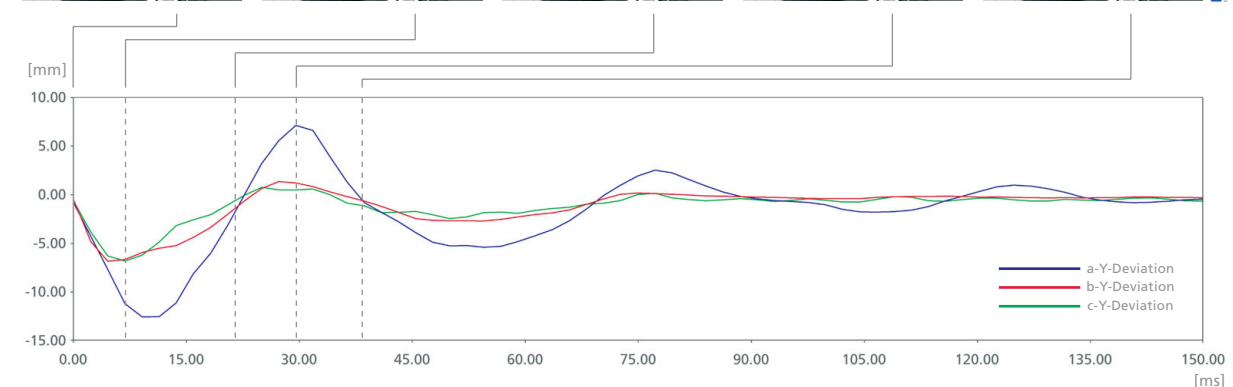
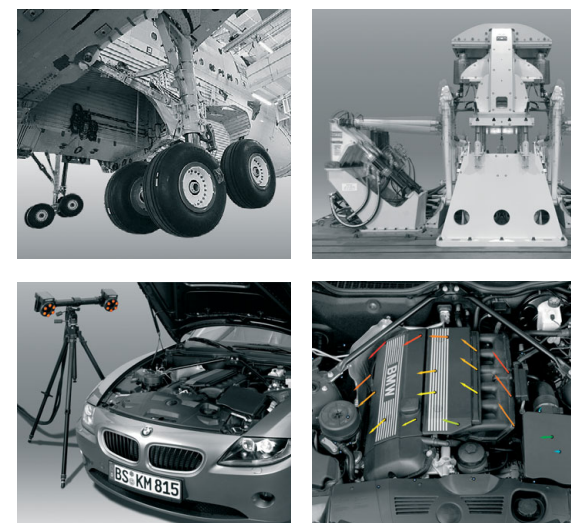
## Applications

PONTOS replaces conventional displacement measuring systems and accelerometers. Independent of the structures to be measured, displacements and deformations are captured rapidly in a non-contact manner.

- Door/hood slam
- Dynamic behavior of components
- Component position in windtunnel
- Deformation measurement of aerodynamically loaded structures
- NVH
- Drop tower tests
- Verification of simulations

## Properties

- Simple specimen preparation
- Ultra-light measurement targets
- Frame rates independent of the number of the captured markers
- Customized triggering of the image acquisition
- Recording of analog signals
- Insensitivity to ambient conditions, such as vibrations and light changes
- Easy adjustment to different measuring areas and tasks



## The optical accelerometer: Dynamic displacements and deformations are captured in a non-contact manner

From different directions, two cameras observe extremely light measuring targets which were applied to the object's surface in advance. Based on the previously determined calibration and the high-resolution images, the 3D coordinates of the measuring points are automatically calculated with subpixel accuracy taking into account the camera positions, the ray intersections and the lens distortions. Several of such recorded images allow for calculating the displacement of each measuring point.

With the help of numerous images recorded in high-speed, complex motions are captured as well. Due to the large number of measuring targets which are recorded simultaneously, the system allows for a precise analysis of object deformations during harmonic and stochastic processes.

The results are presented by means of color vector graphics, diagrams, in the 3D view and by freely definable labels. Superimposing the measuring results with camera images supports the user in analyzing the component's behavior. All representations can also be presented as animations. Customizable reports provide for a time-effective creation of measuring reports. For repeated measurements the entire evaluation and the creation of the measuring report can be carried out automatically at the push of a button.



Technical Data	
System Configurations	2 M / 4 M / HS
Sensor Dimensions	typ. 700 x 200 x 140 mm <sup>3</sup>
Weight	7 kg
Camera Resolution (2M)	1600 x 1200 pixels
Camera Resolution (4M)	2048 x 2048 pixels
Camera Resolution (HS)	1280 x 1024 pixels
Frame Rate	500 Hz at 1280 x 1024 pixels 1000 Hz at 1280 x 512 pixels ...
Measuring Volume	typ. 0.5 x 0.4 m <sup>2</sup> up to 2.5 x 2 m <sup>2</sup>
Accuracy	0.01 to 0.05 mm
Measured markers	unlimited numbers
Power Supply	110 or 240V AC
Computer	P4M Notebook or 64 bit PC
Transport Case	800 x 400 x 230 mm <sup>3</sup>