

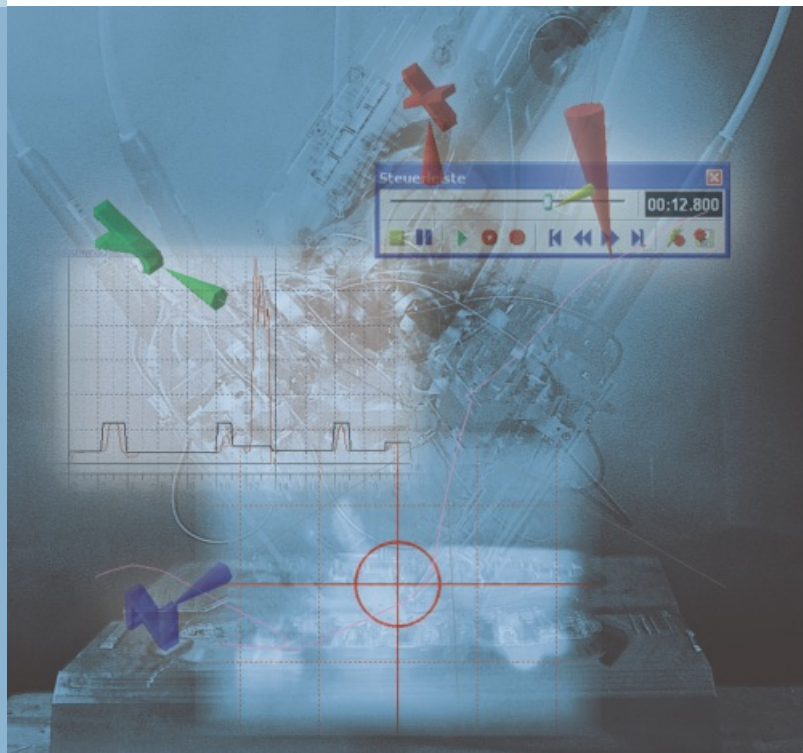
# Photon

industrial laser applications



## FokusMonitor®

Process data visualisation and acquisition  
for 3D laser material processing



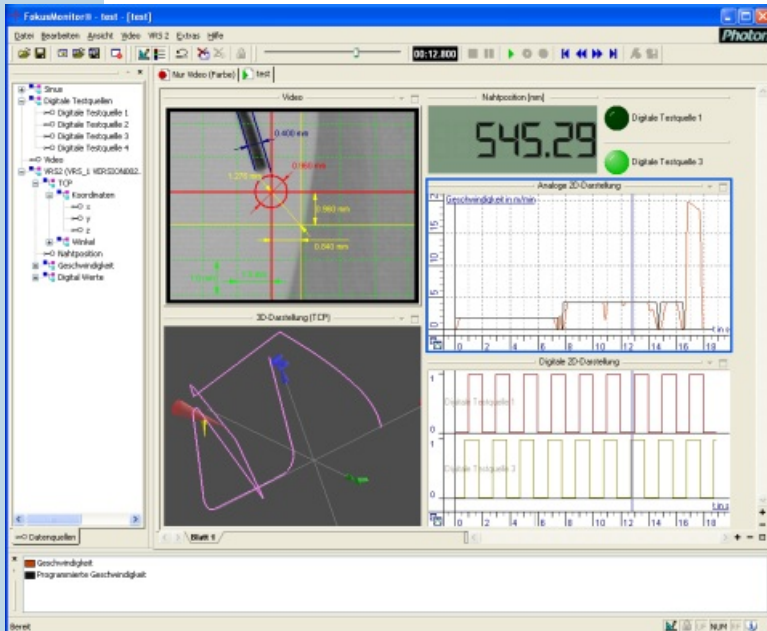
## Everything in hand

The Photon group offers the entire value-added chain of industrial laser applications with high performance lasers. Our vast technical know-how, custom-tailored solutions and products have already been appreciated by such blue-chip clients as Audi, BMW, DaimlerChrysler, Deutsche Bahn, Krauss-Maffei, Krone, MAN, Nissan, Siemens, Deutsche Telekom, Volkswagen, Volvo and other satisfied clients.

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Universal process data acquisition system for 3D laser material processing

The robot guided processes in modern 3D laser material processing are running very fast and are depending on many parameters. The FokusMonitor is an indispensable tool for realtime monitoring and recording all important process parameters including the correct position of the laser working head.



The FokusMonitor is an universal process data acquisition system. It allows the synchronous acquisition of video data, analogue data and digital signals. The FokusMonitor offers various visualizations and an export function to process the data with external systems.

The modular design of the FokusMonitor allows an optimal adaption to the specific requirements of the facility. The basis software allows the playback of process files on any PC. The VideoMonitor extends the FokusMonitor with four video inputs. The DataMonitor adds a fieldbus connection or eight analogue inputs, four digital inputs and four digital outputs. The plug-ins of the RobotMonitor series realises a connection to various robot controllers. With a RobotMonitor it is possible to acquire the robot position data (coordinates, velocities, accelerations).

The LimitMonitor offers extended features for quality management. It allows the monitoring of analogue signals and comparison with nominal values. Limit violations can be signalled to external devices. With the FokusWizard the FokusMonitor system becomes a full featured, contact-free, 6D offline teach system.

## The problem

- The laser focus is invisible
- The laser focus is small and requires high positioning accuracy
- The working distance is not observable
- Positioning control is impossible with high robot velocities
- Deviations of nominal values are not observable
- Its very difficult to observe the start time and the length of digital signals
- No correlation between events and the position on the part

## The solution: FokusMonitor®

- ▶ Visualises the laser focus
- ▶ Visually enlarges the laser focus and therefore simplifies the robot programming
- ▶ Uses a visible light beam to visualise the working distance
- ▶ Recording function gives the possibility to analyse the real position
- ▶ Recording and visualisation of the process data shows deviations
- ▶ Recording and visualisation of the process data enables exact monitoring of digital signals
- ▶ 3D-view of the robot path shows the correlation between events and the position on the part

## Overview of functions

- Synchronous acquisition, recording and playback of video images, analogue and digital signals
- Various possibilities of visualisation:
  - Video view with several embedded tools (e.g. crosshair) and measurement function
  - 2D-view for analogue and digital data
  - 3D-view for the robot path
- Flexible automation mechanism for facility integration
- Intuitive, simple user interface
- 19" rack mounted industrial PC system

**Photon**  
Laser Engineering

Photon Laser Engineering GmbH  
Staakener Straße 23  
13581 Berlin  
Telefon +49 (030) 36 40 88 - 0  
Telefax +49 (030) 36 40 88 - 30  
LE@PhotonAG.com  
www.LE.PhotonAG.com