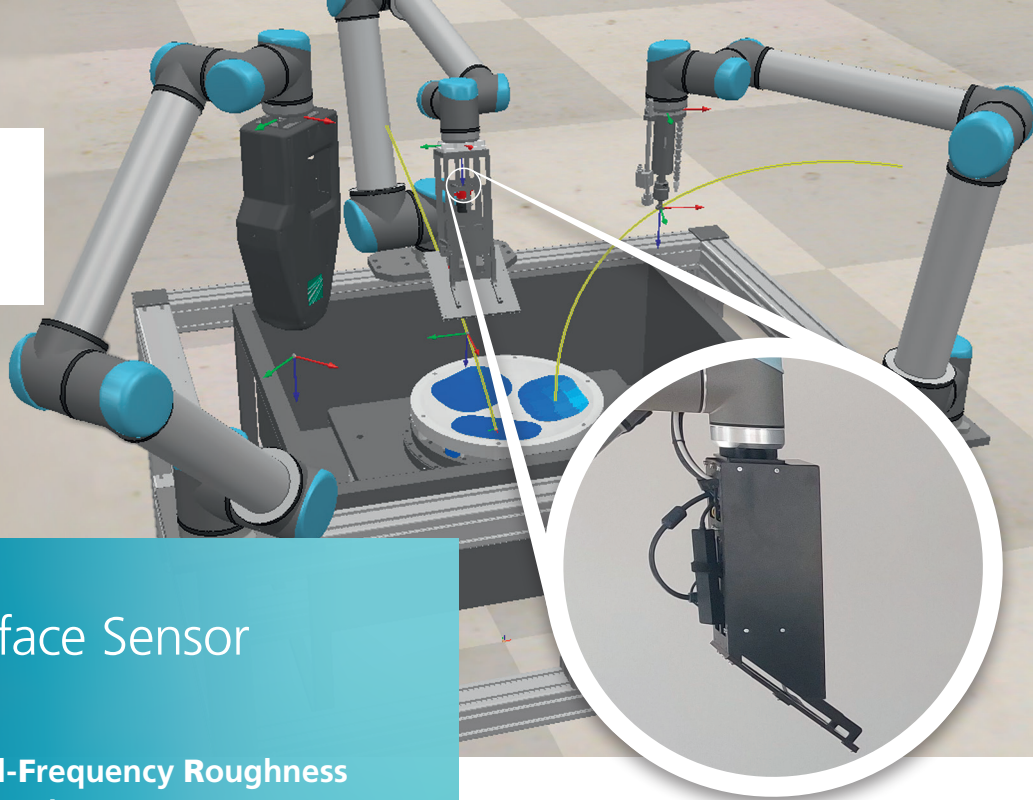


Flexible Optical Surface Sensor

Measurement of Mid-Spatial-Frequency Roughness
of High-Performance Metal Optics



Flexible Optical Surface Sensor

Measurement of Mid-Spatial-Frequency Roughness of High-Performance Metal Optics

Cover and top: Robot-sensor integration ready for swarm-based manufacturing in use (cover) and concept with detail of the goSURFmsfr optical sensor (top)

Applications

- Monitoring machining marks of diamond machining
- Quality check and defect detection
- Optical detection of machining marks
- Measuring **mid-spatial-frequency** roughness
- Integrated manufacturing and evaluating of high-performance mirrors
- Integrated fabrication and testing of metal optics
- Inspection of smartphone displays

Measuring principle

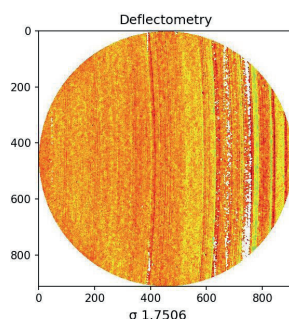
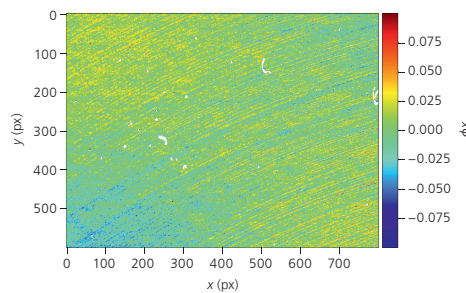
- Phase measurement, deflectometry
- Gradient-based surface reconstruction

Features

- Low-cost components, low power consumption
- Adaptable to different optic sizes
- Insection of flat and free-form optics
- Robot mounted full-surface scan
- Ready-to-use robot-mounted sensor device
- Ready-to-use software interface for integration into your own software environment
- Provide result plot for live feedback
- Generate full-surface scans

System Parameters

- Field of view: from 10 mm to 50 mm²
- Scanning speed: up to 500 mm²/sec
- 2D image resolution: 4032 × 3040 pixels
- Spatial resolution: < 20 μm
- Sensor weight: 1 kg
- Power supply: 5 V/24 V
- Network-based ZeroMQ software interface for machine integration



Above and left: msfr result plot

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