

schematic presentation of the measuring principle

### Measuring Principle

The FRT AFL is based on the principle of dynamic focusing. A movable lens is approached toward a point on the specimen until the emitted light spot of the sensor is in focus (controlled by focus detector).

While scanning an entire surface, the lens is permanently moved up and down in order to keep the focus. By measuring the relative change of the height it is possible to determine the z-height at the measured position.

### Measurement Features

- non-destructive, non-contact measurement
- high resolution and precision
- small measuring spot, high lateral resolution
- coaxial measurement, no shading effects
- high sampling rate
- integrated microscope for convenient selection of measurement position

### Technical Specifications

- measuring range: 1.5 mm
- working distance: 2 mm
- resolution z: 10 nm
- resolution x, y: 1 – 2  $\mu\text{m}$
- measuring angle: ca.  $90^\circ \pm 25^\circ$  \*1
- interfaces: RS232, analog

\*1 larger measuring angles on scattering surfaces possible

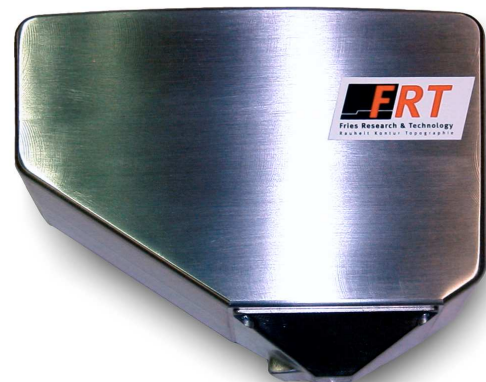
## high-resolution, fast and non-contact surface measurement

### Typical Applications

- quality assurance in automotive industry (interior, cylinders, shafts, electronics etc.)
- profile measurements of lens contours
- profile and 3D measurements roughness determination on technical surfaces (tools, cylinders, finished products etc.)
- dimension measurement of (micro-)injection molding parts
- measurement of wafer flatness
- R&D and Q&A in MEMS
- R&D and Q&A in medical technology (catheters, prostheses etc.)

### Scope of Delivery

- measuring head FRT AFL
- configurable sensor electronics with LC-display
- 2m optical fiber with plastic jacket, (optionally 20m, also with protective metal jacket)
- power cable, operating manual



FRT AFL measuring head

## Reference Customers

ASE Inc.  
Audi AG  
Ball Packaging Europe GmbH  
Bayer AG  
Beiersdorf AG  
BMW AG  
Boehringer Ingelheim microParts GmbH  
Carl Zeiss SMT AG  
DAIMLERCHRYSLER  
Dow Benelux N.V.  
EKO Stahl GmbH  
Fraunhofer-Institute  
Freescale  
Fuji Magnetics GmbH  
General Electric Plastics B.V.  
Gillette  
HILTI AG  
Hoechst Trespaphan GmbH  
Human Optics AG  
IBM  
Infineon Technologies AG  
Lexmark International, Inc.  
MAN Roland Druckmaschinen AG  
Matsushita Electric Works  
Nortel Networks Optical Components (Switzerland) AG  
Océ-Technologies B.V.  
Optische Werke G. Rodenstock GmbH  
Philips Electronics Nederland B.V.  
Robert Bosch GmbH  
Schott Glas  
SGL Carbon AG  
SIEMENS AG  
Sulzer Innotec AG  
Texas Instruments  
Universities  
Voestalpine Stahl GmbH  
Volkswagen AG  
Western Digital Fremont, Inc.

Your FRT Partner

