

Interferometers for Glass-Scale Replacement

Sensorics Solutions

OEM Interferometers optimized for machine integration

The growing demand for high accuracy position sensing in machine tools requests cost efficient yet flexible sensors with high resolution at potentially large working ranges. Up to today, interferometry has been well known for highest accuracy but also high costs, making it unattractive for mass application.

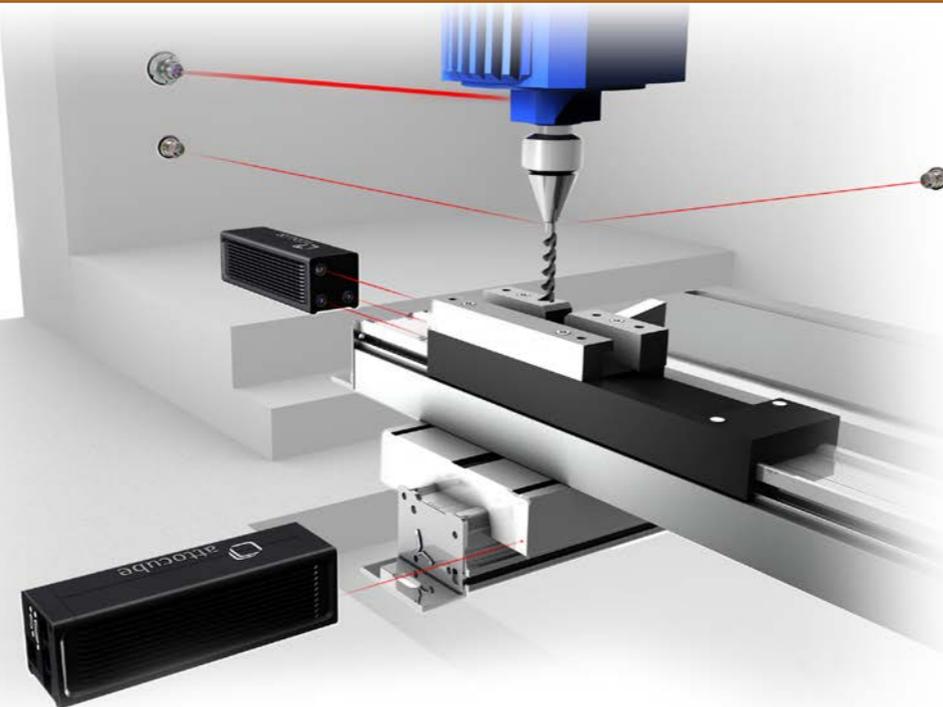
attocube's IDS3010 now solves this challenge: the ultra compact OEM interferometer is optimized for machine integration and reaches unrivaled optical performance at costs comparable to industry-wide applied glass scales. With an accuracy in the 0.0x ppm range, a bandwidth of 10MHz, latencies of 1µs or less, and a full range of industrial interfaces – there is no better sensor for your machine.

Customers can choose:

- a wide range of interfaces (analog sin/cos, digital incremental, field buses)
- various sensor head designs for environments ranging from low temperature to 400°C. sensor head diameter from 1 mm up to 15.5 mm
- distance sensor head to target from 0 mm to > 5 meters
- target velocity up to 2 m/s
- direct beam or mirror deflection
- customized housing

TYPICAL APPLICATIONS

- position sensing/control of stages in machine tool building or semiconductor industry
- increasing accuracy of conventional glass scales, e.g. for testing devices used in semiconductor inspection/backend markets



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Customized Interferometry Products

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Customized Interferometry Products

The global trend towards miniaturization causes major challenges for industrial metrology: Quality standards are increasing, requirements on accuracy and reliability are constantly rising, and failure tolerances in production processes are steadily reduced. This imposes unprecedented demands on existing measurement instrumentation: especially in quality assurance and research & development applications, instru-

ments need to provide highest precision, while offering versatile implementation options and the immediate availability of data post-processing, analysis, and storage. At attocube we work hard to make almost anything possible. Customizations are our daily business to offer you the best solution for your application.

Competitive Edge



At attocube we strive for innovation. Our cutting-edge systems deliver brand-new technologies for tackling some of the hardest challenges. With our fiber-based displacement sensing systems we offer solutions where high precision and versatile applications are needed, e.g. contactless measurements of distances and displacements, the detection of vibration amplitudes of machine components and tools, or the ultra-precise survey of rotationally symmetric parts.

Customized to Individual Needs



The existing portfolio of attocubes' sensormics solutions already includes a variety of products like ultra-compact sensor heads (\varnothing 1.2 mm) for the use in very confined spaces; versions designed for easy alignment or enabling measurements on a wide variety of materials (glass, aluminum, ceramic etc.). We can offer a wide spectrum of customizations (e.g. sensor heads, fibers, and targets, but also alternative industrial interfaces) that open up completely new applications in various fields.

Expert Support



In order to provide you the best solution for your needs, we are delighted to offer advice and support by our team of experts and skilled engineers available on the phone as well as via remote desktop sessions. We are happy to assist you on projects that may require a little extra assistance.

Smart Engineering



'Convenience despite complexity' – although most of the cutting edge systems are equipped with unprecedented features, we dedicate all of our experience to deliver user-friendly and robust solutions.

Patented Sensing Technology



Our award winning and patented fiber-based, high-sensitivity displacement sensors revolutionize the interferometric market. The sensors surpass by far the performance of other presently available interferometry systems in terms of precision and speed.

Harsh Environments



Even harsh environments such as hard radiation or high temperature (up to 450 °C) are possible for your application.

Ultra Precise In-Line Travel Property Control

Sensormics Solutions



OEM Interferometers for real-time stage guiding accuracy

In many industrial processes, motion and accuracy of motion are of utmost importance. This is true for machining processes (e.g. ultra-precision machining), wafer processing and inspection, metrology measurements, and many other applications.

For this purpose, attocube has designed a three-axis miniature laser interferometer, which provides ultra precise real-time measurement of linear target motion as well as analysis of parasitic pitch and yaw motions. If embedded in a closed loop circuitry, motion in three degrees of freedom can be controlled down to the nanometer scale.

Customers can choose:

- sensor head diameter from 1 mm up to 15.5 mm
- distance sensor head to target from 0 mm to > 1 meters
- target velocity up to 2 m/s
- direct beam or mirror deflection
- customized housing

TYPICAL APPLICATIONS

- In-line displacement, pitch, and yaw measurement
- In-line displacement, pitch, and yaw control (embedded in closed-loop circuitry)
- Multiple degree of freedom measurements in quality control for the detection and limitation of errors in production
- Tilt control between die and substrate in Flip-Chip-Bonding Systems