FDM Series

www.fionec.com

Measuring in the Smallest of Spaces

Where High-Speed Meets Dimensional Accuracy

Fast and accurate

The precision sensor technology of the FDM series achieves measurement rates of up to 50 kHz and enables high-resolution non-contact measurements even in confined installation spaces. For roughness measurements, the sensors operate significantly faster than comparable tactile methods. Automatic signal optimization ensures stable and consistent measurement results even on heterogeneous surfaces.

Automated 100% Inpection

Configurable interfaces allow seamless integration into automated manufacturing processes – close to production, inline, or machine-integrated. Measurement data is available directly for comprehensive quality assurance and process monitoring.

The FDM Fiber Optic Distance Measuring Systems

In industrial manufacturing, reliable measurement data is essential for functionality, design, and quality. The fiber optic measurement systems of the FDM series support non-contact inspection of distance, form, and surface features, even in demanding geometries. With diameters starting from 50 µm, the miniaturized probes can access even the smallest cavities and microstructures. For efficient quality assurance in production environments.

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fionec
fiber optic sensor technologies

Technical Data

FDM-1

High precision

Measuring Range	80 µm
Distance-Equivalent Noise	< 15 nm
Diameter of Measurement Probe	from 50 µm

FDM-2

Large Measurement Range

Measuring Range	1 mm
Distance-Equivalent Noise	< 100 nm
Diameter of Measurement Probe	from 50 µm

General Specifications

Measurement Principle	Low-Coherence Interferometry
Measurable Materials and Surfaces	Glass, metal, ceramic, plastic, etc. – transparent, reflective, or matte
Min. measurable inner ⌀ or gap width	from 0.1 mm
Measurement Direction	axial (0°), angled (45°- 90°)
Measurement Frequency	up to 50 kHz (depending on the measurement object)
Multi-Point Measurement	Supports parallel or sequential readout of multiple probes
Software	FDMControl (Control Software) / Fiometrics (Analysis Software)
Programming Interfaces	API, DLL
Configurable System Interfaces	Trigger IN, Gate IN, Trigger OUT: TTL 5V, Ethernet
Power Supply	100–240 V AC, 50/60 Hz

FDM-2

Surface Scanning of a Lens Array

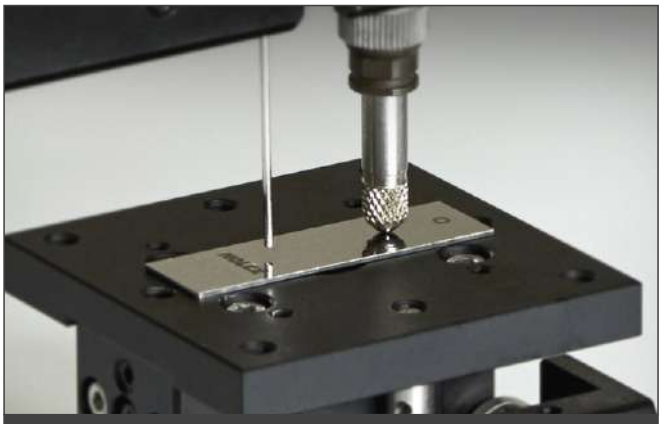
We develop tailor-made solutions for a wide range of applications and requirements. Feel free to contact us.

Applications

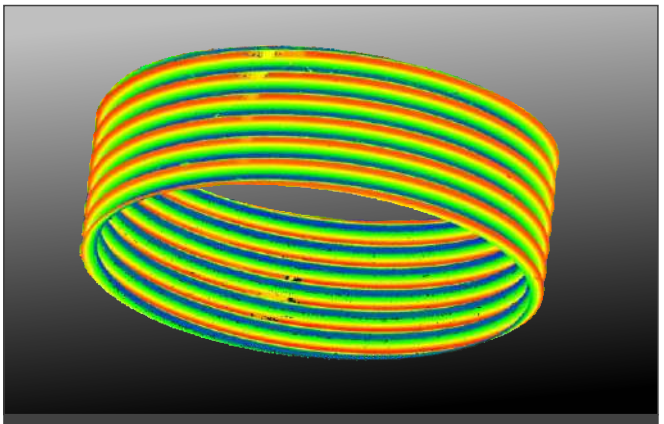
Your Advantages

FDM-1 and FDM-2 are particularly suitable for applications in industrial precision manufacturing. Difficult-to-access surface structures and confined installation spaces can be inspected flexibly and non-contact using the miniaturized probes.

✓ Measurements in confined spaces such as microbores or gaps
✓ Characterization of surface roughness and waviness
✓ Measurement of form and position tolerances, e.g. roundness, flatness, straightness, and parallelism
✓ Precise position detection for the alignment of components and tools, including multi-probe configurations
✓ Measurement of optics, optical components, and forming tools
✓ Measurements in scanning mode, e.g. for 3D representation of freeform surfaces
✓ Measurement of expansion, drift, wear, and vibrations on precision and machine tools
✓ Integration into measuring instruments, inspection systems, or industrial equipment



Roghness Measurement on Steel Gauge



High-Resolution 3D Scanning of Fine Thread

Over 15 Years of Sophisticated Fiber Optic Technology

fionec has been developing, manufacturing and marketing innovative fiber optic measuring systems and components since 2007. We provide a complete and integrated range of services, from the development of customized measuring concepts and algorithms, simulations and contract measurement projects to the construction, adaptation and distribution of fiber optic measuring probes and optical fibers.

Our sophisticated miniature measuring probes are unrivaled in the high-tech industry, allowing us to maintain the technological leadership in high-precision measurements of tight or hard-to-access spaces and of delicate surface structures. Flexible and modular systems architecture, freely adaptable configurations and integrated interfaces enable us to provide customized measuring systems. For sophisticated measuring tasks and reliable quality assurance in the precision and ultra-precision manufacturing sector.