

Akion Interference fringe analyzer: IFM

Toumei Giken's interference fringe analyzer can be measured more accurately by quantifying and visualizing the surface accuracy of the polished surface and the transmitted wavefront accuracy of the optical element from the interference fringe image observed by the laser interferometer. It is an easy product that is useful for improving quality control.

The newly developed IFM is compatible with the latest OS, measurement accuracy is improved by introducing a new algorithm, and it has an analysis function that meets various needs. It is an interference fringe analysis device that is easy to operate and can be used by anyone. We also support retrofit (improved old model), which is equipped with IFM on your interferometer.

◆ Interference fringe analyzer: IFM

The screenshot shows the IFM software interface with several key components labeled:

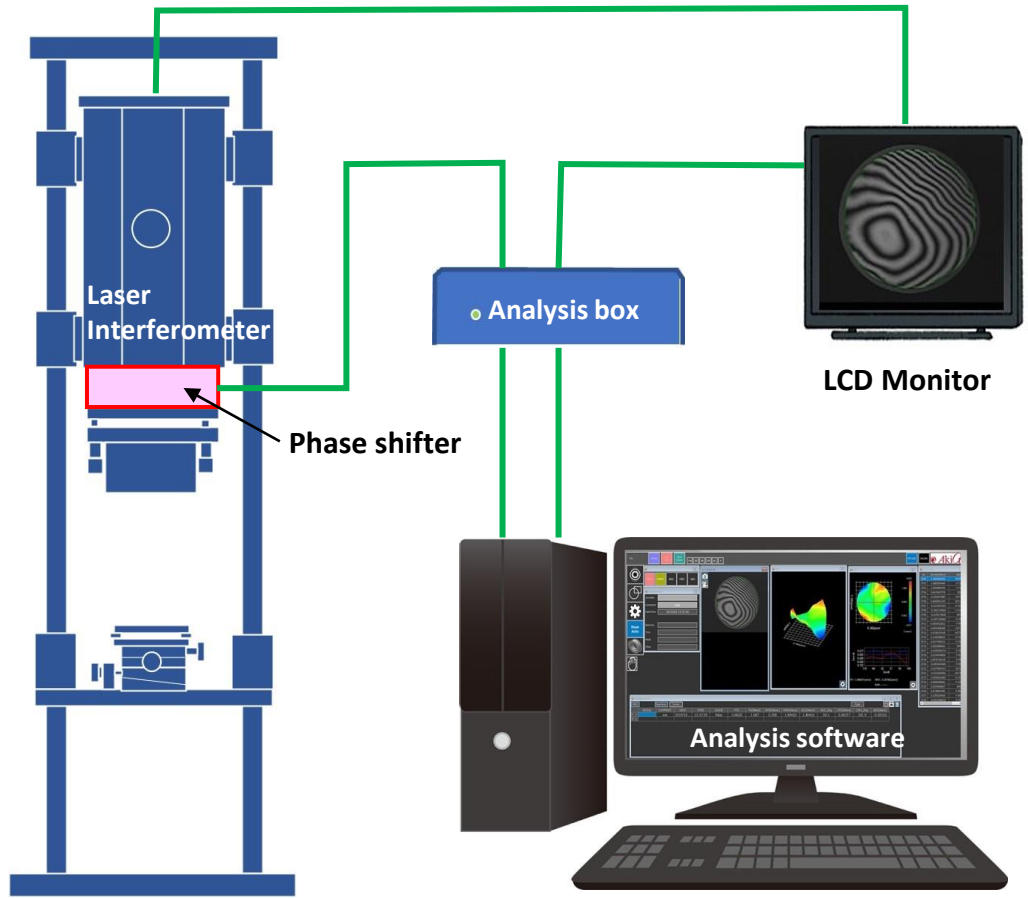
- Operation icons:** A vertical toolbar on the left containing icons for Start measurement, Manual setting of mask, Various detailed settings, Switch to Auto/Manual, and Phase Shifter Calibration.
- Storage of measurement data, etc.:** A menu option at the top.
- Selection of each window display ON / OFF:** A row of checkboxes for different analysis windows.
- Print output of analysis screen:** A printer icon at the top.
- Switching between OnLine / OffLine mode:** A toggle switch at the top right.
- Analysis windows:**
 - Aberration remove window:** Shows a 2D fringe pattern.
 - Interference fringe window:** Shows a 2D fringe pattern.
 - 3D measurement wave surface window:** Shows a 3D surface plot.
 - 2D measurement wave surface window:** Shows a 2D contour map.
 - Zernike window:** Shows a table of Zernike coefficients.
 - Topics display window:** Shows a table of measurement results.
 - Analysis result window:** Shows a detailed table of analysis results.

[Main features of IFM]

We have developed and renewed a new interference fringe analysis device based on the opinions and requests of dozens of users.

- Measurement work can be easily performed even by beginners by operating with icons.
- Improvement of phase connection accuracy by introducing image processing technology
- Addition of various analysis functions
 - Zernike coefficients: Can be analyzed with both Fringe Zernike and Standard Zernike coefficients
 - Cartesian coefficient: Analysis in Cartesian coordinate system and aberration removal are possible
 - Analysis with user-defined functions: Arithmetic functions such as Zernike, PV, Coma, Power, etc.
 - Phase data calculation function: Various analyzes such as averaging processing, two-sphere method, and three-plane method are possible.
 - Automatic removal function for abnormal images (dust, scratches)
- PV value, RMS value, Seidel aberration (spherical surface / coma / ass), 3D (bird's eye view), 2D (contour map), IRR (Irregularity), RSI (Rotationally Symmetric as well as cross-section analysis Analysis conforming to ISO10110-5 of Irregularity) is also possible
- Equipped with an auto-calibration function, enabling strong analysis against disturbances such as vibration and air fluctuations.

◆ Interference fringe analyzer IFM system example



Components	IFM fringe analysis software
	Phase shifter
	Analysis box: AK-CB1 (for phase shifter driver / image input / output)
	PC, PC rack
Analysis items	PV value, RMS value, bird's-eye view, contour map, cross section, Seidel aberration
	ISO compliant : IRR (Irregularity) ,RSI (Rotationally Symmetric Irregularity)
	Polar coordinate system: Fringe Zernike coefficient (36 terms), Standard Zernike coefficient (45 terms)
	Cartesian coordinate system: Cartesian coefficient (7 terms)
	User-defined functions, frequency analysis, etc.
Camera	Standard: 640 x 480 pixel (* Please contact us for support for custom-made cameras.
Camera gradation	10bit
Power supply	AC100V 50/60Hz 500W