

Experion MX Fiber Orientation Measurement



Experion MX will help improve your business performance in today's challenging economic environment. This fully integrated quality control and process knowledge system provides superior visibility into the papermaking process while it simplifies your operational efforts and is easy and cost effective to maintain and service. Improve paper quality, reduce raw material, energy, services and maintenance costs, and increase production efficiency with a package of solutions that provides the lowest total lifecycle cost available – Experion MX.

Fiber Orientation Angle and Anisotropy Measurement

Honeywell's fiber orientation angle and anisotropy measurement analyzes fiber orientation angle by capturing images of a moving paper sheet surface. The image control unit inside the sensor module controls both the camera and the illumination unit for the best possible image quality for varying machine speeds. The camera and illumination are on the same side of the sheet. The captured image is analyzed with a proprietary algorithm, producing a numerical value for fiber orientation angle, anisotropy, Max/Min Ratio and MD/CD Ratio. This functionality is executed inside the sensor module. Analyzed information then available in the Experion MX quality system for display, profiling and trending. Captured images and the complete angle distribution polar histogram are also reported in the system.

The sensor is available in two versions: Model 4803-1 for single sided and Model 4803-2 for dual sided measurement.



Features

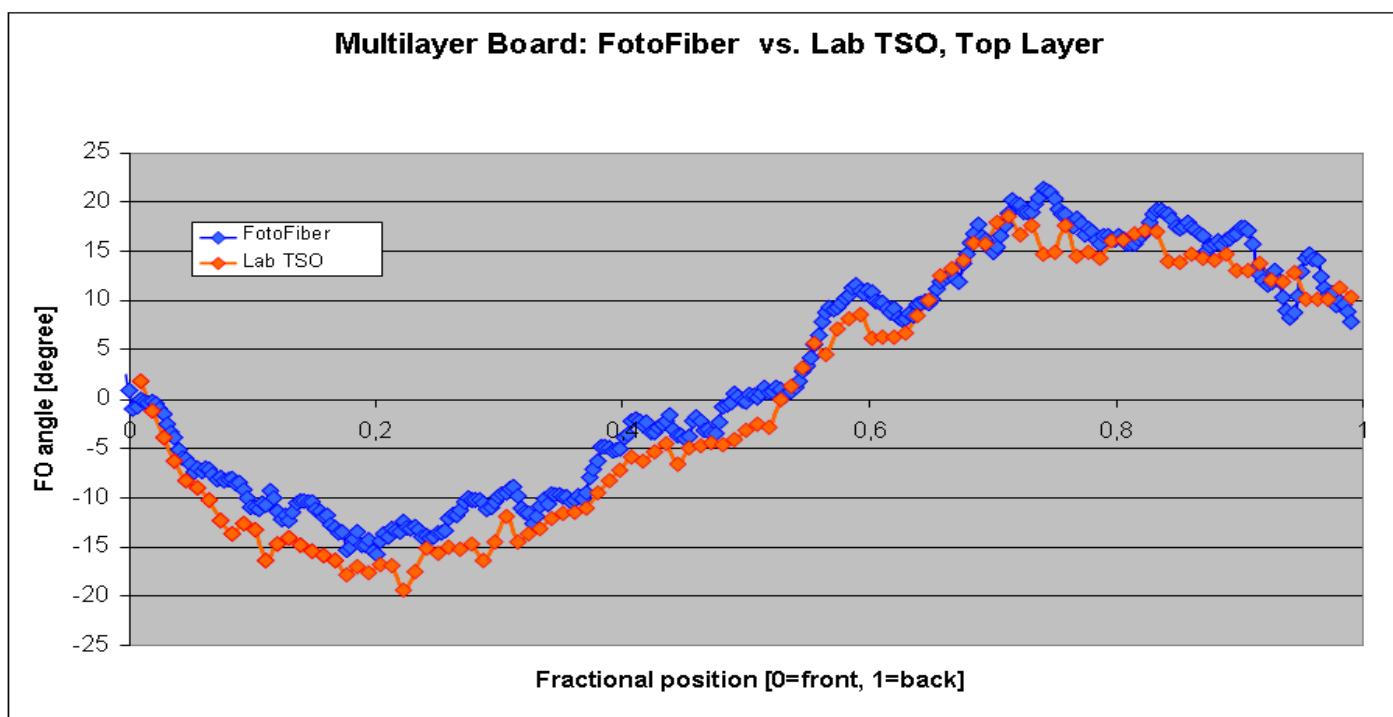
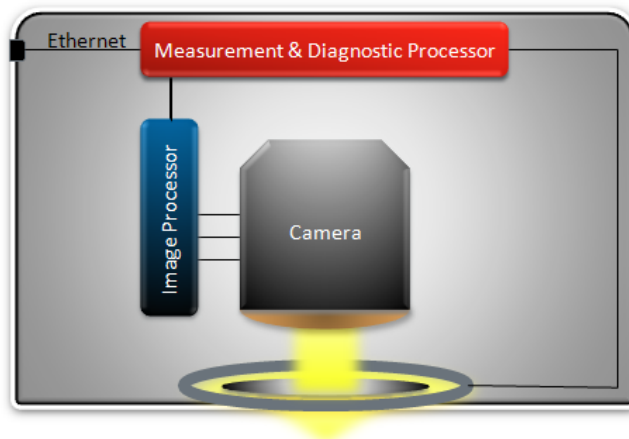
- Sensor module optics and illumination automatically adjust to different machine speeds for the best image quality.
- The effect of dust and dirt buildup on image quality is mitigated online.
- Standard sensor module design allows installation in any free slot inside the measuring head.
- For dual-sided applications, model 4803-2 is designed to operate in the same space in the head on opposite sides of the sheet.
- There are no moving parts in the sensor, which minimizes maintenance and ensures a long life.
- Trending and profiling capability is available for all measured variables.
- The latest captured images and corresponding polar plots of the orientation angle distribution are available for operator observation.

Description

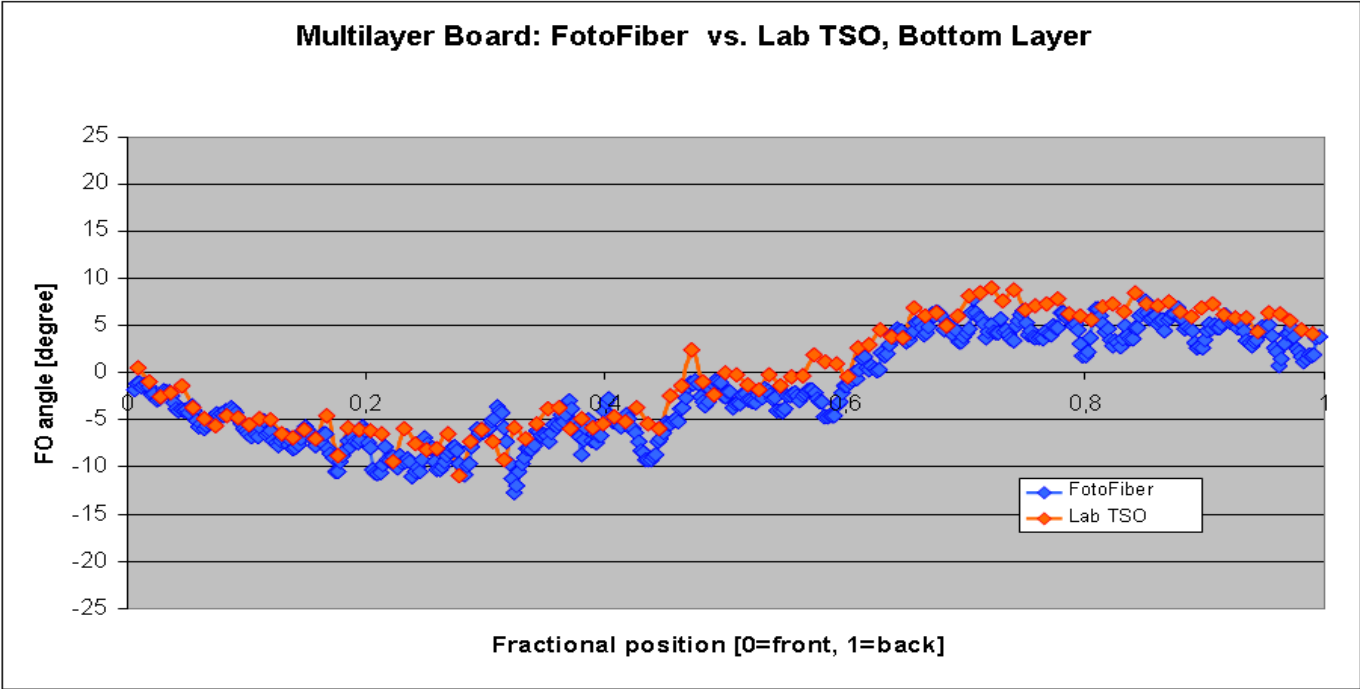
The fiber orientation angle and anisotropy measurement is designed for online use in hostile paper machine environments. Fast image capture allows machine speeds up to 2,000 m/min without reduction of analysis accuracy. The sensor automatically adjusts illumination and imaging parameters for varying speeds. Intelligent operating algorithm mitigates the effect of uneven illumination, ambient light and dirt/dust buildup.

The measurement provides surface fiber orientation angle, anisotropy, MD/CD orientation ratio and Max/Min orientation ratio analysis derived from captured image using a proprietary algorithm. It reports trends and profiles for these analyzed variables.

The Experion MX system displays the latest captured surface image with overlaid fiber orientation angle distribution as polar plot to operator for inspection. Overview display shows an additional polar plot for fiber orientation angle distribution which is updated at a higher rate than the image



Operating principle of the Honeywell fiber orientation angle measurement



Online surface fiber orientation angle profile comparison to lab TSO angle on multilayer board. Online measurement reported top and bottom layer orientation angle profiles, while layers were attached to each other. Top and bottom layers were then separated from CD strip for lab analysis.

Specification: Experion MX Fiber Orientation Measurement - Models Q4223-5, Q4223-52

Category	Model Q4223-51, -52 Specification	
Measurement range	Fiber Orientation Angle	Range +90 to -90 Deg
	Anisotropy	Range 0 to 1
	MD/CD orientation ratio	Range 0,5 to 2
	Max/Min orientation ratio	Range 1 to 2
Measurement area	10 x 10 millimeters	
Measurement speed	10 hz	
Maximum ambient temperature	See measuring head enclosure specifications	
Machine speed range	0 – 2000 m/min	

More Information

For more information on Honeywell's Experion MX Fiber Orientation Measurement visit www.honeywell.com/ps or contact your Honeywell account manager.

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