

Sensatus Technologies Corp.



FMS 8000 Series Fiber Monitoring System Precise On-Line Process & Quality Monitoring

- Measurement Capabilities
 - Denier measurement
 - Diameter measurement
 - Coefficient of variation
 - Interlace
 - Two levels of defect classification
- Process Applications
 - Spinning
 - Spin draw
 - BCF
 - Texturing
 - Draw texturing
- Yarn Applications
 - Apparel
 - Industrial
 - Carpet
 - Multifilament
 - Monofilament
- Relative Monitoring Capabilities
 - Bulk
 - Spin finish
 - Additives
 - Heat history
 - Internal Structure

Description

The FMS8000 Series Fiber Monitoring System includes highly sensitive, non-contact sensors and advanced FiberTrack™ software for precise, comprehensive on-line monitoring in fiber production and processing.

A complete FMS8000 Fiber Monitoring System incorporates sensors, interface controllers, and FiberTrack™ Software operating on your computer.

The sensing technology is unique among textile sensors today, and provides sensitivity to most of the process variables. The sensor itself incorporates a microprocessor to allow highspeed operation in excess of 16,000 measurements per second. To assure accurate operation without requiring off-line calibration, the sensors include a solenoid lifter to perform zerolevel calibration on the fly.

The interface controller serves as a high-performance power supply for the sensors, and acts as a high-speed communication bus between the sensors and the FiberTrack™ software. The controller is housed in a rugged stainless steel housing.

FiberTrack™ software is an easy-to-use package that allows you to customize the sensors' performance to your exact application. In addition, it provides on-screen real time monitoring of each threadline, as well as data files that are ready to import into applications such as Microsoft® Excel® for analysis and graphing.

FMS8000 Benefits

Optical Density Technology

Benefit: The FMS8000 Series sensors measure optical density and convert this directly to denier. Process changes which alter the optical density will be reported as changes in denier. The FiberTrack™ software detects and reports their individual electronic signatures.

Applications: On-line detection of changes, including denier, diameter, bulk, twist, internal structure, filament migration, spin finish, and wetting. Problems such as pump abnormalities, spin finish pump failure, quench and temperature induced defects are detected.

Precise Fiber and Yarn Measurement

Benefit: Accurately measures product deviations caused by process variations. User defined defect levels trigger only when the defect falls outside acceptable tolerances.

Applications: On-line measurement of defects in denier or diameter.

Automatic Calibration

Benefit: The sensors automatically calibrate on-line. No down time is required for calibration.

Application: Continuous accurate, reliable data collection and defect detection.

Digital Microprocessor in Each Sensor

Benefit: Local processing provides high sampling rate, for reliable measurement and detection. Long cable runs do not suffer from loss of data signal quality.

Application: No data is lost from multiplexing, and efficient data collection is made from different extruder locations.

High Speed Sampling- over 16,000 samples per second

Benefit: Allows detection of fiber and yarn faults smaller than 6 mm long at yarn speeds to 6,000 meters per minute.

Application: Fast on-line detection of short and long defects such as slubs, tension surges and lack of finish uniformity.

Software Provides Two User Defined Defects

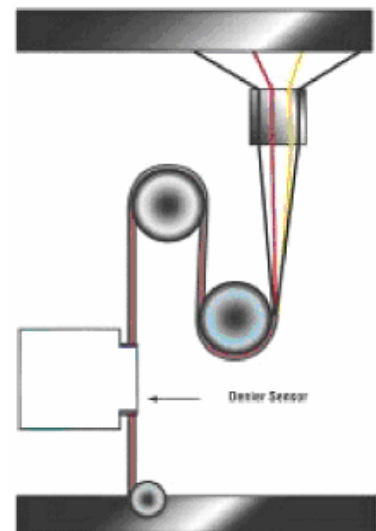
Benefit: Allows the user to customize the defects to meet the exact application requirements. Two defect levels allow for short and long defects. FiberTrack™ software displays the average, minimum, and maximum denier for each threadline, in addition to the % CV. This helps in determining existing quality and characteristics of the fiber or yarn before making process changes.

Application: Allows easy evaluation of the process and the effects of specific process changes in fiber and yarn quality.

FiberTrack™ Real Time Reporting and Data Analysis Software

Benefit: No special computers are required. Data is presented in real time so you can detect problems as they occur. FiberTrack™ software operates on standard personal computers. This permits you to determine the system set-up and reporting functions that meet over all plant IS requirements and to still meet budgetary requirements.

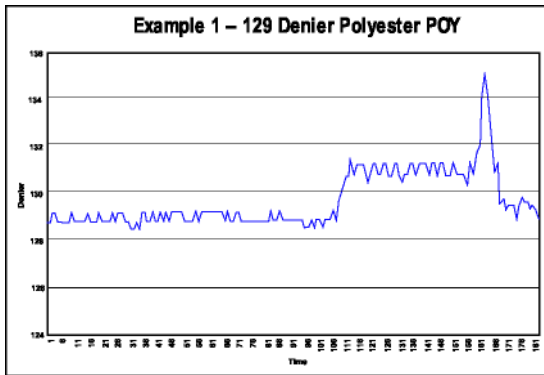
Application: Total system compatibility and capability with existing plant systems.



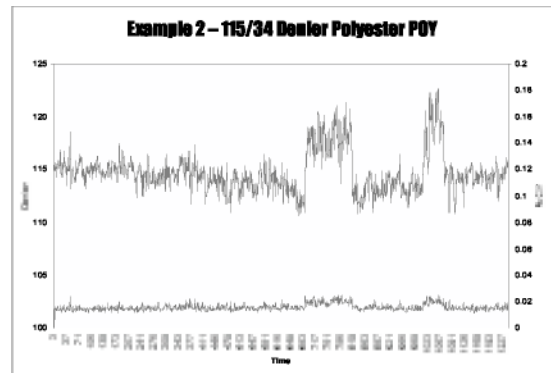
FMS8000 Application Examples

During operation, FiberTrack™ software provides a real-time display of the readings, very similar to the graphs shown below. After the run is complete, FiberTrack™ writes the information to a data file, which is easily imported into Microsoft® Excel®. The graphs below are actual test results generated by this method.

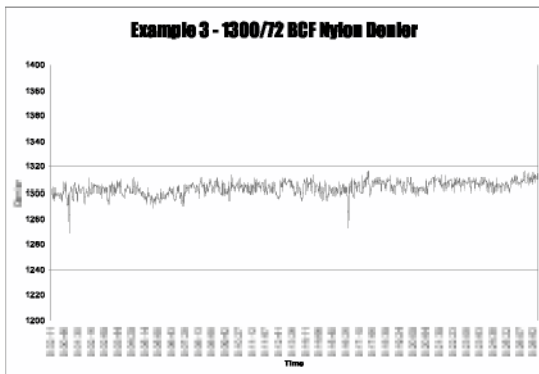
- Example 1 – 129/50 Denier Polyester POY**
 The first jump in average denier occurred when one filament migrated to this threadline. The spike to the right of this occurred when two filaments migrated to this threadline briefly.



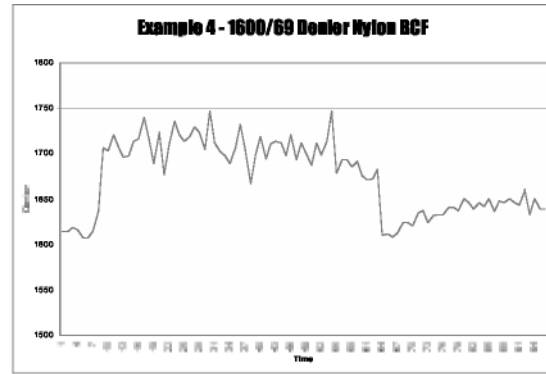
- Example 2 – 115/34 Denier Polyester POY**
 Sensor measurements reflect relative viscosity change during product changeover.



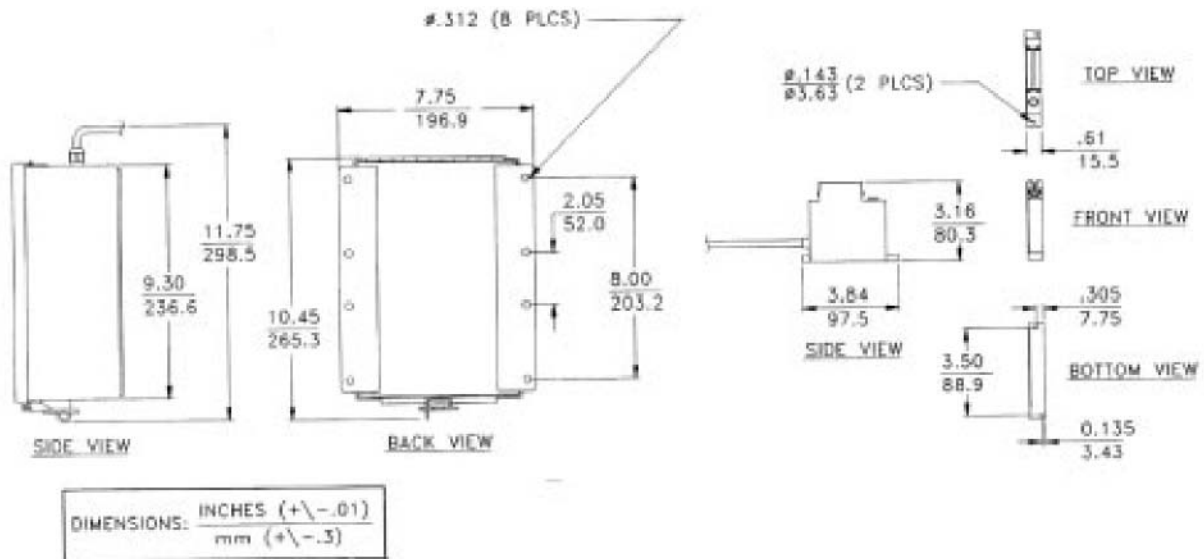
- *Example 3 – 1300/72 Denier Nylon BCF**
 Sensor detected the denier change induced by tension during the automatic doff cycle.



- * Example 4 – 1600/69 Denier Nylon BCF**
 Sensor detected a bulk level change caused by a change in the heater block temperature.



FMS8000 Dimensional Drawings



Fiber Monitoring System

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