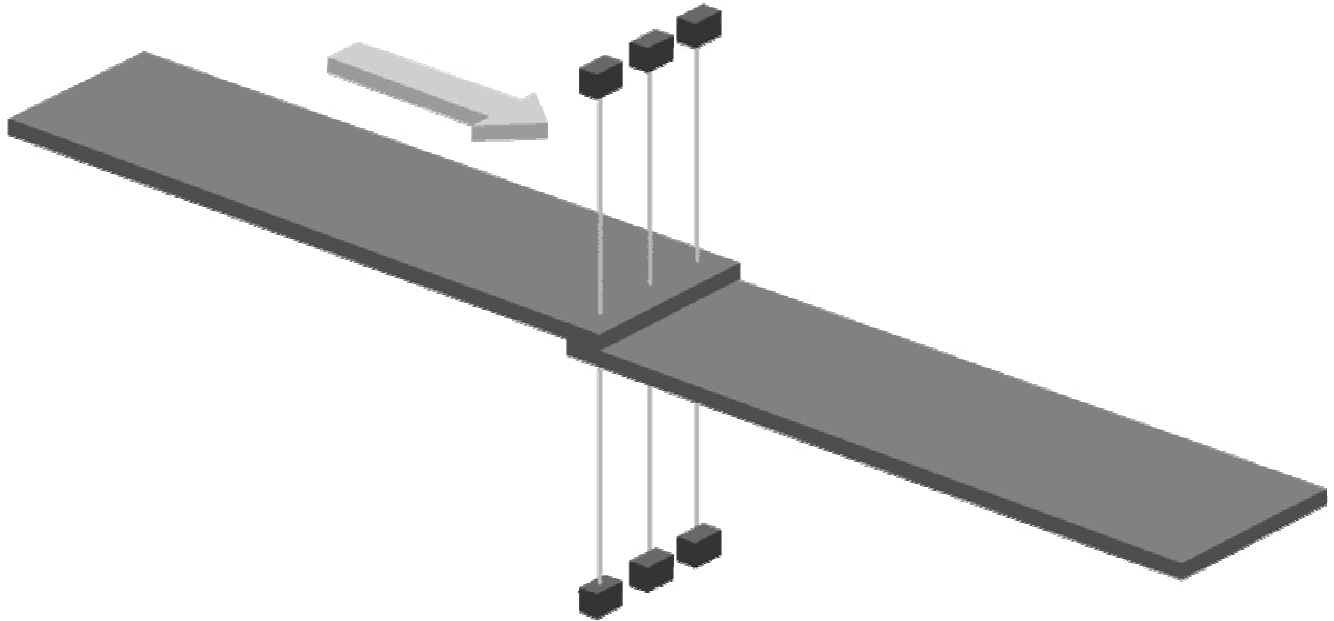




Splice Width Monitor

for Calendered Fabric Bias Cutting/Splicing Operations

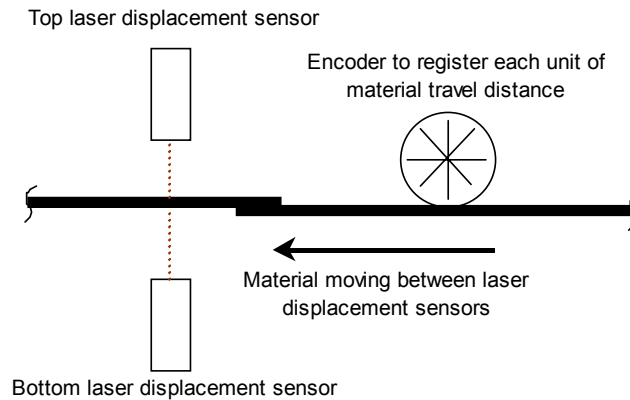


Bytewise Measurement Systems
1150 Brookstone Centre Parkway
Columbus, Georgia 31904

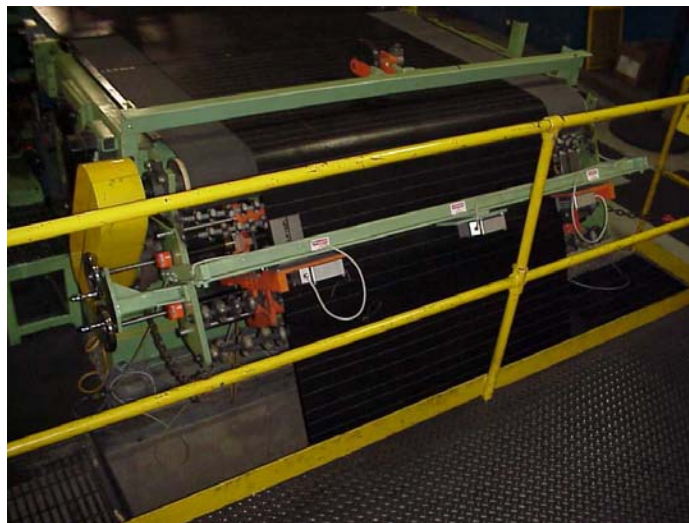
(706) 323 5142

Byte-wise Splice Width Monitor

Operational Overview



The Splice Width Monitoring System is an on-line system that provides continuous, precise width measurement of overlap splices for fabric calendered material. Six (6) Selcom laser triangulation sensors are mounted as pairs (3-channel system), measuring the splice at both edges and the center of the calendered material. The laser sensors monitor the material thickness and look for instances where the material thickness exceeds a user specified threshold for a specified duration. The thickness of the material is measured by a micro-controller at each “tick” (electrical pulse) of a rotary encoder. The encoder tracks the movement of the material using either a friction coupled following wheel or a conveyor roller. The linear distance over which the material thickness exceeds the user defined threshold is then reported as the overlap splice width for each channel.



Above: Production Installation on Automatic Fabric Bias Cutter/Splicer

Bytewise Splice Width Monitor

Major system components include:

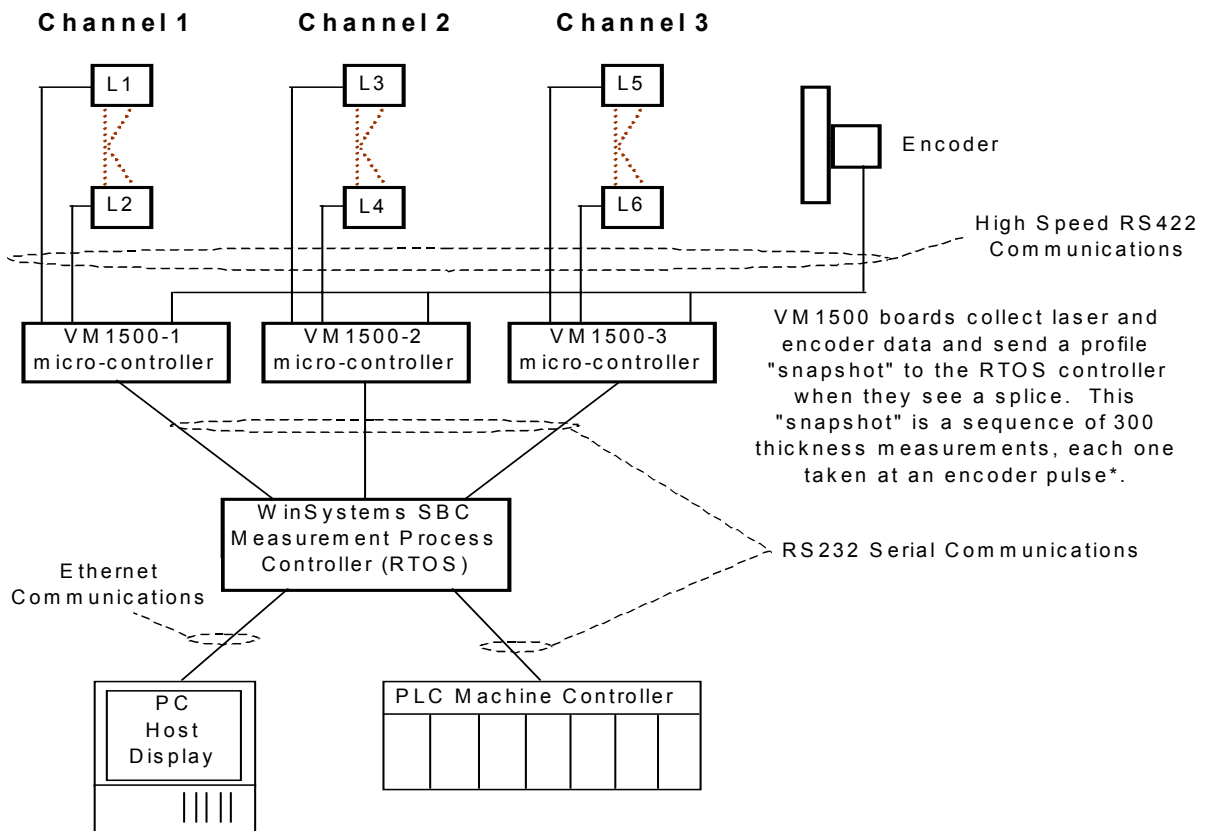
- 1) A 24"x36"x8" Control Panel containing a Win Systems Industrial Process Controller Board, three (3) VM1500 Laser Data Collection Boards, power supplies, circuit breaker, and necessary terminal blocks
- 2) Six (6) Selcom SLS5000/35 laser triangulation sensors
- 3) Optical encoder w/ 4096 count resolution
- 4) PC workstation for running host configuration software and displaying and logging splice width results. The host software communicates with the Win Systems Industrial PCB in the Control Panel through its Ethernet Connection

Functional Measurement Specs

- Encoder Resolution 0.10 mm (0.004")
- Splice Width Accuracy +/- 0.15mm (0.006")
- Splice Width Repeatability (1 SIGMA) 0.15 mm (0.006")

The above measurement specs are based on material line speed of 1 m/sec (3 ft/sec). A faster laser (32kHz sampling frequency) may be required if line speeds are much greater than 1m/sec.

Data Flow / Processing



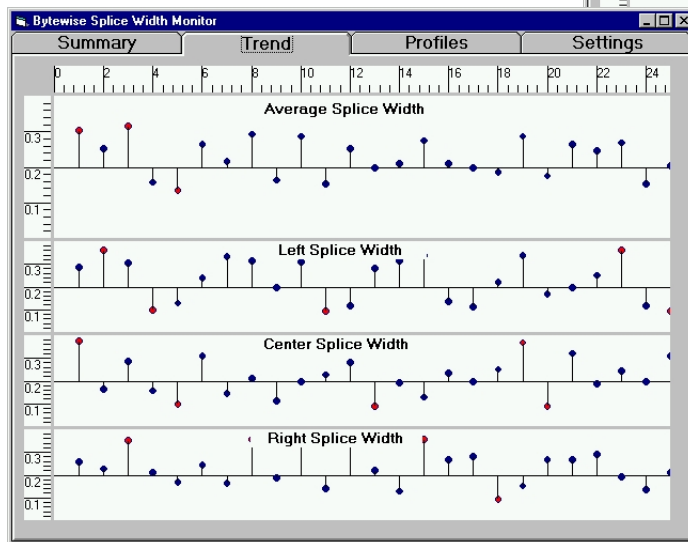
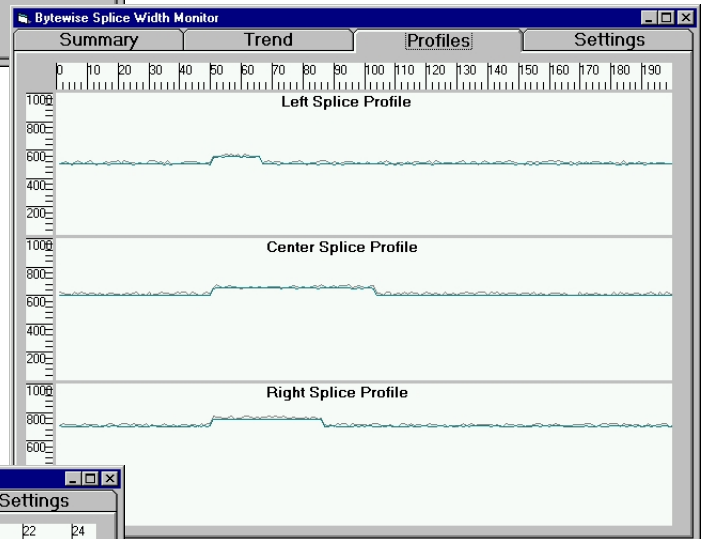
Byte-wise Splice Width Monitor

Software Display & Analysis



➤ Real-time display of overlap splice width and trend data for each of 3 channels and the average of all channels

➤ Overlap splice width profile display for quick visual detection of open or excessive splice



➤ On-line monitoring provides splice width trend over time for process control