

# Web Width Measurement

Documentation

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Web width measurement provides real-time monitoring of material width during converting, extrusion, and coating operations. Roll-2-Roll Technologies offers non-contact, high-accuracy width measurement sensors that continuously monitor web width with  $\pm 0.1$ mm precision. Unlike manual tape measurements or narrow-field sensors, our wide-area sensors track both edges simultaneously—even when the web wanders or oscillates—providing 100% measurement coverage for quality control and process optimization.

## The Challenge: Manual Measurements and Sensor Limitations

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Traditional width measurement methods create safety risks and quality blind spots:

- **Manual Tape Measurements:** In blown film extrusion, operators use tape measures to check layflat width—a dangerous practice near moving machinery that provides only periodic spot checks, not continuous monitoring.
  - **Narrow Sensor Windows:** Standard sensors with 10-20mm viewing areas lose the edge during web wander, creating measurement gaps that allow off-spec material to pass undetected.
  - **Contact Methods:** Mechanical measurement devices can damage delicate webs and fail on sticky or hot materials.
  - **No Data Logging:** Without continuous measurement data, manufacturers cannot prove compliance to customers or identify process trends.
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## The Solution: Continuous, Non-Contact Width Monitoring

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Roll-2-Roll width measurement systems use two sensors (or one ultra-wide ODC sensor) to continuously monitor both edges of the web, calculating width in real time.

### How It Works

1. **Dual-Edge Detection:** Sensors mounted on either side of the web detect both edges simultaneously
2. **Real-Time Calculation:** The controller computes width by subtracting one edge position from the other
3. **Continuous Logging:** Width data is logged at up to 500 Hz for 100% quality coverage
4. **Automatic Alerts:** Tolerance violations trigger alarms before off-spec material reaches the winder

**Key Advantage:** Wide viewing areas (up to 960mm per sensor) track both edges even during significant web wander, ensuring no measurement blind spots.

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## Key Benefits

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- **Eliminate Manual Measurements:** Replace dangerous tape measurements with continuous automated monitoring
  - **100% Quality Coverage:** Every meter of web is measured, not just periodic spot checks
  - **Real-Time Tolerance Monitoring:** Detect width deviations before off-spec material is wound
  - **Traceability & Compliance:** Timestamped width data provides proof of quality for customer audits
  - **Process Optimization:** Identify trends in width variation to optimize die gap, bubble pressure, or coating parameters
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## Applications by Industry

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- **Film Extrusion (Blown & Cast)** — Monitor layflat width to control bubble diameter or die gap adjustments
  - **Battery Manufacturing** — Measure electrode coating width to ensure anode/cathode overlap tolerances
  - **Coating & Laminating** — Monitor coating width to verify coverage and detect edge beading
  - **Slitting Operations** — Measure slit lane widths simultaneously (multi-web monitoring)
  - **Nonwovens** — Track width on porous spunbond and meltblown webs
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## Related Solutions

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- **Edge Detection** — High-precision edge position measurement
- **Center Guiding** — Guide webs by detecting both edges
- **Thread Counting** — Count and measure individual threads