Measurement Systems for the Tire Industry -
Green Tire Uniformity

Off-Line Profilometer
Off-Line Profilometer SL (PSL)
On-Line Profilometer (OLP)
Ply Splice Monitor
Ply, Belt, and Extrusion Width Monitor
Profile360 for Apex Extrusion
Green Tire Uniformity (GTU)
Circumferential Treadwear Imaging System (CTWIST)
Bead-to-Bead Profile Measurement System (B2B)
Tire Identification System
Green Tire Uniformity

Inspect Green!

Tire Building is the most complex operation in the tire factory. Multiple components are centered, applied, spliced, turned-up, inflated, and stitched. Component stock variations combine with machine variations to produce green tires with variations in radial runout, tread snaking, lateral runout, and splice quality. Green tires with the largest variations invariably produce tires with the worst cured tire uniformity and balance performance.

The Green Tire Uniformity System utilizes the CrossCheckHD™ Line Laser Sensor to scan green tires at any stage of production. The GTU Software has a suite of viewing and analysis tools for assessing all aspects of the green tire uniformity. The system is available in two configurations - portable and fixed.

The portable tripod-mounted version can be moved from drum-to-drum, and from machine-to-machine. This provides a way to thoroughly study the carcass, belt/tread package, and final shaped green tire for radial and lateral runout, tread snaking, and splice quality. This can be used by the Set-Up Technician to verify the TBM set-up, and can be used by the Uniformity Engineer to troubleshoot tires with uniformity problems.

The fix-mounted version provides a means to perform 100% inspection at any drum for any parameter. This is useful for understanding the population characteristics of green tire runouts and to alarm when limits are exceeded.

System Characteristics

- Start scan from keyboard
- Start scan from relay contact
- Scan with encoder count
- Scan number of profiles
- Scan from encoder start/stop
- View runout color map
- View 3D image
- View circumferential waveform
- View lateral waveform
- View harmonics
- Filter data
- Rotate data
- Crop data
- Radial runout caliper
- Lateral runout caliper
- Tread splice caliper
- Width caliper
- Set pass/fail limits
- Subtract layers
- Export caliper waveform as .csv
- Export point cloud as .csv
- Portable system includes sensor, notebook PC, and carry case.
- Fix-Mounted System includes sensor, PC, and PLC interface module
Software

All-in-one software: Create automatic measurement calipers with a single click, visually inspect 3D topography maps, easily align portable sensor on green tire, export data to 3rd party software, automatically trigger new measurements and much more.
### Specifications

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<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Input Voltage</td>
<td>110-240 VAC</td>
</tr>
<tr>
<td>Power Usage</td>
<td>50 W</td>
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<tr>
<td>Operating Temperature</td>
<td>32 - 104°F (0 - 40°C)</td>
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<tr>
<td>Sensor Sample Rate</td>
<td>700 Hz</td>
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<tr>
<td>Laser Classification</td>
<td>660 nm Wavelength; lila (CDRH); 3R (IEC)</td>
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<td>Interfaces</td>
<td>Telnet</td>
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<td>PLC Input for Triggering</td>
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<td>Incremental Encoder Input</td>
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