



SpectraTrend® HT



measure
color
the way your
eye sees it



A dynamic approach to Color Process Monitoring and Analysis

SpectraTrend® HT takes non-contact Color and Height measurement to their highest levels, combining versatility, simplicity and performance in one easy to use compact design. SpectraTrend® HT supports implementation of today's Total Quality Management programs such as LQM, PAT, Six Sigma, DMAIC, and others that share a common goal of producing consistent product quality and reducing waste.

SpectraTrend® HT utilization can:

- Facilitate continuous monitoring of product Height to enhance Good Manufacturing Practices (GMPs) within their enterprise
- Reduce risk of color quality variation and associated costs through real-time process color monitoring
- Enhance consistency and predictability of their quality assurance approach

PRODUCT FEATURES

Versatility, Speed, Durability

- The only color spectrophotometer to provide two critical sensors, Color and Height, in one compact and easy to use design
- The only color spectrophotometer to combine high speed color measurement with an integrated sample detector for accurate color and height measurements of individual piece-parts
- The only non-contact color spectrophotometer with 'Rapidfire' illumination, measuring as many as five times per second, to provide consistent and accurate color and height measurements in high speed applications and on structured and non-homogeneous samples
- Provides Lab-to-Line correlation, minimizing confusion and ensuring that operators will see the same colorimetric values consistent with Laboratory instruments
- Large, easy to read, easy to operate integrated display
- Rugged, industrially hardened NEMA 4 / IP56 design



DESIGNED FOR

Potato Chips

extruded
plastic pieces

patties

PELLETS

cereal

DECKING
MATERIALS

BUNS

paper

cookies

Baked Goods

Fabric

metals

meat

rolls

snack foods

plastic parts

BREAD

NUTS

VINYL

CRACKERS

Frozen Goods

PRODUCT PERFORMANCE

Lab grade performance in a non-contact color measurement device

- Non-contact color measurement
- Full spectrum LED illumination
- 10 nm color resolution
- Up to 4 in. measurement distance
- On-screen height measurement with auto compensation for variation in sample distance
- Tight inter-instrument agreement and repeatability



CONNECTIVITY

Simplicity and Flexibility

- Ethernet communication simplifies installation, enabling multiple sensor connectivity to any PC on the network
- No COM ports to configure or cable distance limitations
- Option to connect via plant PLC
- Easy PC connection using HunterLab's EasyMatch® software

USER INTERFACE

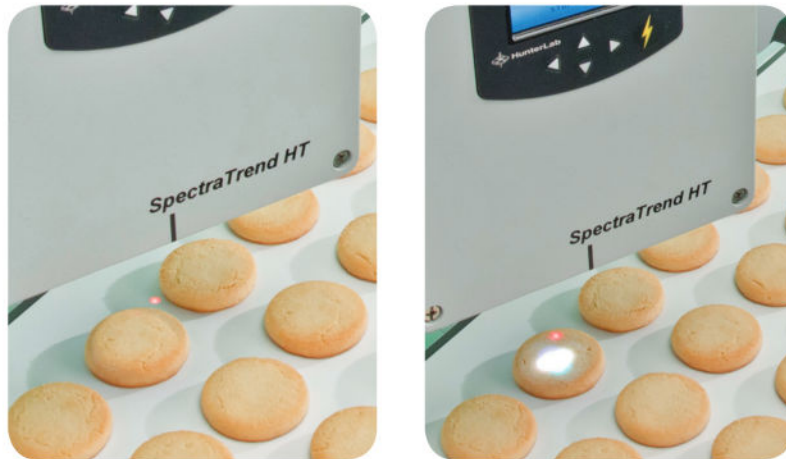
EasyMatch® Software

- Display of color and product height for each measurement, with Pass/Fail indication
- Multiple Configurable data views show as little or as much information as desired (Color Data Tables, Trend Screens, Spectral Data, Spectral Plots and Statistics)
- Customized Printed Job Reports in either summary form or full details of the color measurements
- Creation of customized templates for color data storage and display
- Ability to add notes to individual color measurements for later reference
- Automatic tolerancing based on color standard
- Definable access privileges permit creation of user groups with defined function capability, from full access manager to limited access operator levels
- Customizable Auto Export of job data to Microsoft Excel format



Intelligent Integrated Height Sensor

- Provides accurate height value of the sample
- Restricts measurements to when the product is present
- Restricts measurements to products that are within their ideal height
- Discriminates the sample from the background, such as a conveyor belt or sample dish, measuring only the sample
- Color measurements are compensated for variation in sample height



The HunterLab Advantage

The SpectraTrend® HT is backed by over 60 years of quality innovation and experience from HunterLab, the world's most trusted color quality experts.

With an unmatched reputation for delivering the right solution for any challenge, HunterLab tailors products and technologies for every color measurement need and budget offering the broadest range of color measurement solutions in the industry.

For more information go to www.hunterlab.com
or contact your local HunterLab representative.

- **Optional Accessories available**

SPECIFICATIONS

SpectraTrend® HT

MEASUREMENT

Measurement Principle:	Dual-beam spectrophotometer
Geometry:	0°/ 30° typical
Spectrophotometer:	Sealed optics; 256-element diode array; high resolution concave holographic grating
View Diameter:	25.4 mm (1 in) (at 3.5-inch from sensor window)
Specular Component:	Excluded
Spectral Range:	400 nm - 700 nm
Spectral Resolution:	< 3 nm
Effective Bandwidth:	10 nm equivalent triangular
Reporting Interval:	10 nm
Photometric Range:	0 to 150 %
Light Source:	Full spectrum, balanced solid state LED system
Flashes per Measurement:	5-6 flashes
Lamp Life:	5 years typical
Minimum Interval between Measurements:	1 second
Height Resolution:	1 mm or 0.1 in
Working Range:	65 mm - 115 mm (2.5 in. - 4.5 in.)

PERFORMANCE

Inter-Instrument Agreement:	$\Delta E^* < 0.30$ CIE L*a*b* (Avg) on BCRA II Tile Set
Colorimetric Repeatability: (20 Readings)	$\Delta E^* < 0.05$ (Max)/0.03 (Avg) CIE L*a*b* on white tile

Firmware

Data Views:	Color Data, Color Difference Data, Tristimulus Color Plot, Spectral Data, Spectral Difference Data, Spectral Plot, Spectral Difference Plot
Other Features:	Pass/Fail, Average Multiple Readings
Illuminants:	A, C, D50, D55, D65, D75, F2, F7, F11
Observers:	2° and 10°
Color Scales:	CIE L*a*b*, Hunter Lab, CIE L*C*h, CIE Yxy, CIE XYZ
Color Difference Scales:	$\Delta L^*a^*b^*$, ΔLab , ΔL^*C^*H , ΔL^*C^*h , ΔYxy , ΔXYZ
Color Difference Indices:	ΔE^* , ΔE , ΔC^* , ΔC and ΔE CMC
Indices and Metrics:	E313 Whiteness Index, Tint, E313 Yellowness Index, D1925 Yellowness Index, Y Brightness, Z%, 457 nm Brightness, Baking Contrast Units, Colorant Strength (Average and Single Wavelength), Gray Change, Gray Stain, dc^* , dc , Metamerism Index, Shade Number
Data Storage:	As Standard - 250 spectral or tristimulus with Pass/Fail tolerances as Working, Physical, Numeric and Hitch
Languages:	Chinese, English, French, German, Italian, Japanese, Spanish

Physical / Electrical

Sensor Dimensions:	Height: 24 cm (9.3 in.) Width: 20 cm (7.8 in.) Depth: 11 cm (4.3 in.) Weight: 4.5 kg (9.9 lbs)
Support Unit Dimensions:	Height: 25.4 cm (10 in.) Width: 20.3 cm (8 in.) Depth: 16.5 cm (6.5 in.) Weight: 6.75 kg (15 lbs)
Display:	7.1 cm x 5.4 cm (2.8 in. x 2.1 in.) backlit color LCD
Interface:	Ethernet (RJ45)
Power:	100 to 240 VAC, 47 to 63 Hz
Operating Environment:	0° to 50°C (32° to 122° F), 10 % to 90 % RH, noncondensing
Storage Environment:	-20° to 65°C (-5° to 150° F), 10 % to 90 % RH, noncondensing
Standard Accessories:	• Calibrated instrument white tile • Certificate of Traceability • Black glass • Green diagnostic tile • Calibration Box • 20 m Ethernet Cable • 10 m Sensor Power & DIO Cable • Crossover Adaptor • SpectraTrend HT User guide

For more information, please contact HunterLab at 703-471-6870, sales@hunterlab.com or visit www.hunterlab.com