TORONTECH

NON-CONTACT COLOR SPECTROPHOTOMETER - ONLINE COLOR SENSOR

Real-time color measurement without touching the surface

This non contact spectrophotometer is designed for continuous, high-precision color monitoring in production environments. It uses a 45/0 optical geometry (45° circular illumination and 0° viewing angle) to accurately measure surface color without direct contact.

The built-in automatic calibration system eliminates manual adjustment, maintaining consistent performance over time. It is ideal for online color quality control of wet films, coatings, and other sensitive materials.

Key Features

- Suitable for inline color inspection in real-time processes
- Non-contact measurement distance: 5 mm
- Aperture size: 21 mm
- Repeatability: dE*ab ≤ 0.02
- Inter-station variation: dE*ab ≤ 0.25

This online spectrophotometer helps ensure uniform color across batches while reducing downtime and human error.

APPLICATIONS

Application Scenarios

The non contact spectrophotometer is engineered for seamless integration into automated production lines across a wide range of industries:

- Anodization
  The online spectrophotometer monitors surface color during the anodizing process to maintain consistent aluminum finishes.
- Coating
  During wet paint application, the non contact spectrophotometer ensures even color coverage before curing or drying.
- Papermaking
  Enables high-speed paper color monitoring without disrupting production, helping maintain quality in real time.
- Automotive Spraying Line
  Detects paint variation on car bodies directly on the spray line, reducing color mismatches with automated online spectrophotometer support.
- Textile Production Line
  Tracks fabric color consistency during dyeing and finishing, ensuring accurate color from start to finish.
- Plastic Production Line
  Provides inline color control for films, sheets, and molded parts. The non contact spectrophotometer continuously checks product color during extrusion and forming.

Non-Contact Color Spectrophotometer - Online Color Sensor

Product Detail Diagram

This non contact spectrophotometer is built for industrial-grade performance and easy integration into automated lines. The diagram below highlights the key components and hardware features:

- **Display Screen:** Shows live L*, a*, b* color data for visual confirmation during production.
- **Non-contact measurement** Includes USB-C, Ethernet, and industrial multi-pin connectors to support data transfer and connection to control systems.
- **Installing Caliber Plates / Testing Ports**: Interchangeable testing ports allow flexible use with different materials and measurement requirements.
- **Fixed Screw Interface:** Ensures the online spectrophotometer is securely mounted for stable and accurate readings.
- **Online Color Quality Control:** Multiple non contact spectrophotometers can be deployed across the production line to provide comprehensive, multi-point color monitoring.
- **Non-Contact Measurement:** The device operates at a 5 mm distance from the surface, avoiding contact with sensitive materials and reducing wear, contamination, or distortion risks.

Display Screen

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Interface, power switch

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Installing caliber plates/testing ports

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Fixed screwinterface

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Online Color Quality Control

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Non-contact measurement

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FEATURES

- The dual-path spectral spectroscopy method for color measurement offers fast speed, high accuracy, and excellent repeatability.
- Capable of measuring multiple color indicators: reflectivity, CIE-Lab, LCh, Luv, XYZ, Yxy, Hunterlab, etc. Refer to the parameters for details.
- Waterproof and dustproof with a protection level of IP66.
- Supports multiple communication modes including RS232, RS485, USB, Ethernet port, and analog signal.
- Utilizes LED light sources for a longer lifespan.

- Supports internal calibration to ensure high stability of the instrument.
- Comes with powerful PC data management software as standard.

TECHNICAL SPECIFICATIONS

Model	TT-NCS60	TT-NCS62	TT-NCS66
Appearance color	Black	Silver	Silver
Screen	/	Yes	Yes
Repeatability	dE*ab≤0.1	dE*ab≤0.05	dE*ab≤0.02
Inter station difference	/	/	dE*ab≤0.25
Measurement indicators	2 types	27 types	27 types
Evaluate light sources	3 types	37 types	37 types

Technical parameter			
Model	TT-NCS60	TT-NCS62	TT-NCS66
Measurement structure*		45/0	
Measurement repeatability**	dE*ab≤0.1	dE*ab≤0.05	dE*ab≤0.02
Inter station difference***	/	/	dE*ab≤0.25
Display Accuracy	0.01		

Technical parameter			
Measurement/ lighting aperture	Φ8mm/Φ21mm		
Measurement indicators	CIE-Lab,XYZ	Spectral reflectance, CIE-Lab, CIE-LCh, HunterLab, CIE-Luv, XYZ, Yxy, RGB, chromatism(ΔE*ab, ΔE*cmc, ΔE*94, ΔE*00), whiteness(ASTME313-00, ASTME313-73, CIE□ ISO2470/R457, AATCC, Hunter, Taube Berger Stensby), Yellowness(ASTMD1925, ASTME313-00, ASTME313-73), Black(My, dM), Colorfastness to staining, Color fastness, Tint(ASTME313-00), Color density CMYK(A, T, E, M)	
Light source conditions	A,C,D65	A,B,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF,U30,U35,DLF,NBF,TL83,TL84,ID50,ID65,LED-B1,LED-B2,LED-B3,LED-B4,LED-B5,LED-BH1,LED-RGB1,LED-V1, LED-V2	
Lighting Source	Full band balanced LED light source		
Viewing Angle	2°□ 10°		
Compliant with standards	CIE No.15, ISO7724-1, ASTME1164, DIN5033 Teil7		
Spectral method	Nano spectral devices		Grating
A Sensor	Silicon optical array devices		Dual column high-precision CMOS array sensor
Wavelength Interval	10nm		
Wavelength Range	400-700nm		
Reflectivity measurement range	0-200%		
Reflectivity resolution	0.01%		
Measurement and Observation methods	Visual		
Calibration	Intelligent automatic calibration		

Technical parameter			
Accuracy assurance	Ensure that the first level measurement is qualified		
Time	SINGLE 110ms		SINGLE50ms
Measurement Interval	1s		
Interface	USB□ 485□ 232□ external trigger, Analog signal output, Ethernet		
Screen	/	Full color screen, 3.5 inches	
Light source lifespan	1 million times in 10 years		
Language	/	English and other	
Non-contact distance	5mm		
*45 ° angle circular lighting/0 ° angle reception **Measure the standard deviation of the whiteboard 30 times at 5-second intervals after calibration ***BCRA series II 12 color palette measurement average			

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TORONTECH.com

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