

## VeriColor® Spectro

### Affordable Non-Contact Color Spectrophotometer

Improve quality control and reduce operating expense with this cost-efficient, in-line non-contact color measurement solution that provides absolute spectral and colorimetric data for process control. Easy to set up and manage, the system enables color control in real time to contain and eliminate color problems without disrupting production.



## VeriColor Spectro Advantages

- **High Spectral Resolution.** True 31-band spectrophotometer provides absolute color data across the visible spectrum at 10 nm intervals
- **Industrial Hardened.** Lab-grade performance in a robust industrially hardened design, NEMA 4 / IP67 rated, that withstands shock, vibration and thermal variation
- **Patented Technology.** Allows accurate in-line capture of color data in the presence of depth variation and dramatic changes in ambient light
- **Flexible.** System interfacing for PC or PLC based operations
- **Intuitive.** Includes easy to use windows based Set-Up and Monitoring Software with real-time visual monitoring and trending graphics

### Features

Non-Contact Spectrophotometer

Dual Beam, 31 Channel

Ambient Light Rejection

Industrially Hardened Design

4" Measuring Distance

Insensitivity to Depth of Measuring Field

0 – 50° (32 – 122° F) C Operating Temperature Without Environmental Enclosure

Minimal Maintenance Required

Communication: RS 232 and RS 485, PLC, Discreet i/o

Log-File Access

Visual On-line Monitoring and Trending

### Advantages

100% in-line real time color measurement

Provides absolute L\*a\*b\* values with a high degree of spectral resolution

Not sensitive to incandescent, fluorescent or sodium light, the system provides accurate, repeatable measurements under normal lighting conditions

NEMA-4 / IP67 rated for liquid and dust contaminants and withstands shock and vibration

Further distance from moving parts on manufacturing line.

Tolerant of depth fluctuations of +/- .25 inch, surface curves and irregularities

Allows positioning further upstream in the process

Reliable design provides consistent performance without involved maintenance routines or constant adjustment.

Flexible communication

Easy to view and maintain data functionality

Detect and correct before running off out of spec product

### Benefits

Non-contact, nondestructive color measurement

High degree of inter-instrument repeatability and color accuracy

No need to change plant lighting or install baffling to shield the systems sensor from light

Provides opportunity for use in a wide variety of applications and industries.

Provides flexibility in mounting on-line and reduces opportunity for damage to instrument or substrate.

Eliminates the need for stabilization roller in continuous run applications

Detect color change early in the process, reduce scrap costs.

Reduced maintenance costs long term, less downtime. Preventative maintenance involves simply keeping the sensor lenses clean and a monthly calibration.

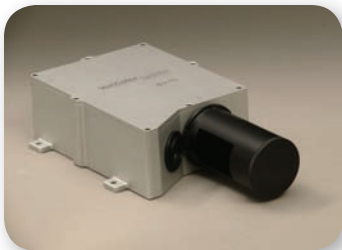
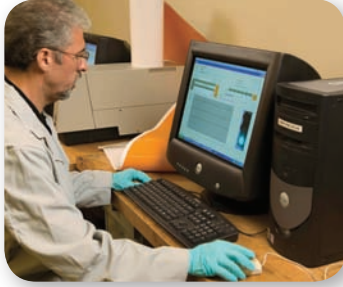
Ability to connect and communicate in multiple communication architectures.

Provides historical production documentation and comparison to standards with simplified trend analysis and reporting

Reduce scrap cost at production start up and during the production

## VeriColor Spectro Benefits

- Monitor, control and log color during production — in-line, real time
- Analyze and contain color problems — make corrections without stopping production
- Minimize scrap cost — detect and correct before generating excessive waste
- Insure consistent color quality, all the time



*Easy Calibration*

### Performance Specifications

Title	Description
Warm-Up Time	2 – 3 minutes typical at 23° C (73.4°F)
Measurement Time	750 ms
Cycle Time	1 sec. (time interval between measurements)
Ambient Light Rejection	3000 Lux
Short Term Repeatability	0.03 avg, / 0.05 max $\Delta E_{ab}$ (20 measurements at 3 sec. intervals on a white ceramic tile)
Long Term Repeatability	0.15 avg, / 0.20max $\Delta E_{ab}$ (over the calibration interval)
Inter-Instrument Agreement	0.30 avg., 0.5 $\Delta E_{ab}$ max. based on 12 BCRA Series II tiles
Calibration Interval	Validation recommended – 30 days / 50,000 measurements (whichever comes first) More frequent verifications may be required if cleanliness of the system is not maintained.
Measurement Range	0 to 150% Reflectance
Spectral Range	400 nm to 700 nm
Spectral Interval	10 nm measured, 10 nm output
Product Life	5 years minimum
LED Life	>10,000,000 measurements
Operational Random Vibration	IEC 60068-2-64 - 1g rms 20-2000 Hz.
Operational Shock	IEC 60068-2-27 - 30 g amplitude 11 ms duration any axis



## General Specifications

Title	Description
Instrument Type	Spectrophotometer
Geometry	0/30° , 30/0° (results based on 0/30°)
Monochromator	Dual beam, 31 channel
Light Source	Full System LED
Measurements Size	1" at 4" nominal to measuring surface
Measuring Distance	4" nominal to measuring surface
Acceptability to Variation in Depth of Measuring Field	+/- 0.20 inches (maximum 0.2 ΔE)
Operating Temperature Range	0 - 50°C (32 - 122°F) (performance based on 10 – 50°C (50 – 122° F))
Operating Humidity Range	0 - 85% relative, non-condensing
Storage	-20°C – 70° C (4 F – 158 F)
Operating Voltage	24 volt DC +/- 2.0 v
Communication I/O	RS-232,RS-485, PLC discreet
Functional Size	3" x 6" x 9"
Weight	2.81kg (6.2lbs)
Mounting Requirements	Manual Fixture
Enclosure	Designed to meet NEMA 4 /IP67



## Environmental

Title	Description
Usage	Indoor Only
Altitude	2000 m
Pollution Degree	2
Over Voltage	Category II

## Safety Compliance

Title	Description
Underwriters Laboratories	UL 61010-1
Canadian Standards Assn.	CSA 22.2 No. 1010.1-92
International Electrotechnical Committee	IEC (EN) 61010-1

## System Components

- VS-410 VeriColor Spectro Spectrophotometer
- Calibration tube
- Interface cables
  - 5 meter RS 232
  - 5 meter PLC
- Windows-based setup and monitoring software
- Operation manual

## Options

- 1, 3, or 10 meter extension cables
- Environmental enclosure (PN# VS410-801), includes
  - Enclosure
  - Mounting hardware
  - Water/oil separator
  - Air line (3.05m)
- Mounting stand (PN # VS410-800), includes:
  - Stand with X, Y, Z and angular measurement control
  - Tree light with Red, Amber and Green LED visual displays

### X-Rite: Your source for accurate color. On time. Every time.

X-Rite is a world leader in providing global color control solutions for manufacturing and quality management requirements. We lead the industry in offering service options to ensure uninterrupted performance of all X-Rite products. Training and educational resources are available globally and online for both new and experienced users to optimize their color measurement capabilities.

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