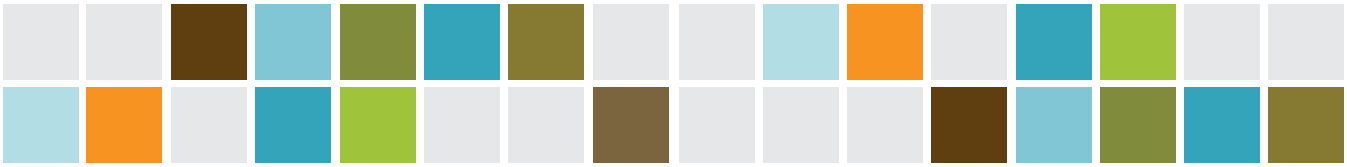
# SpectroEye

x-rite PANTONE®

Spectrophotometer/Densitometer



## The simplest and most accurate method for measuring color and density.

### Simple. Quick. Reliable.

SpectroEye combines the ultimate in measurement accuracy with exceptional ergonomics and user-friendliness. This handheld, portable spectrophotometer offers all the colorimetric functions needed to accurately measure and control special colors, along with all the densitometric functions needed to quickly and easily monitor and control color on-press.

### Delivering Highest Measurement Accuracy

With the internal high spectral resolution of 3.3nm, SpectroEye detects even the smallest color deviations. SpectroEye is equipped with ring illumination, so that the positioning direction of the spectrophotometer is not critical. This is crucial when measuring on uncoated substrates. The white reference tile is integrated into the device to ensure optimum measurement accuracy at all times, allowing automatic calibration without user intervention.

### Tailored Models for Maximum Productivity

The SpectroEye portfolio provides the broadest range of solutions to match your specific needs. No matter which SpectroEye you select, you can be assured that it will deliver ideal quality control to produce accurate color on-press and reduce pre-production waste.

## SpectroEye LT

An affordable, entry-level solution that delivers the primary functions required for process control at the press. SpectroEye LT supports all the densitometric functions from density to trapping, as well as the CIE L*a*b* function. It is the ideal device to check CMYK prints according to ISO standards. SpectroEye LT can easily be upgraded to SpectroEye through the purchase of a software access code. Also available in small aperture (SA). (see at bottom for SA description)

## SpectroEye

Ideal for customers who print CMYK and spot colors, and who track systematic process control. Also for use in QA and ink mixing. Measures standard control bars utilizing 4.5mm aperture.

## SpectroEye SA

For customers who have smaller control elements, SpectroEye SA is equipped with an aperture of 3.2mm designed specifically for reading patches as small as 3.5mm. With the identical accuracy of SpectroEye, SpectroEye SA offers customers who work with smaller control elements the option for unparalleled quality control, representing an incredible increase in production power. SA also available for SpectroEye LT.

# SpectroEye

## Printing Process Checks

SpectroEye is the ideal tool to help you reduce waste and machine stoppages. It offers all the same functions you've been performing with your densitometer – density, trapping, dot gain, and much more. In addition, the time saving auto-function automatically recognizes the measuring function that was selected and shows the corresponding values for density, color trapping, or dot gain.

SpectroEye is able to fully analyze special colors at a densitometric level in a single measurement. Nothing stands in the way of using both conventional densitometers and SpectroEye together. SpectroEye lets you change the density standard at the press of a button, thus making it compatible with your existing densitometer.

- Densitometric functions
- Densitometric measurement of special colors
- BestMatch functionality

## Accurate Ink Color Analysis

Ensuring that the correct special colors are always available can be a challenging job. SpectroEye lends a hand by taking precise spectral measurements to ensure that incoming goods meet the specification, and that the right formula is prepared during the ink mixing process. SpectroEye can even be a part of a complete ink formulation system, with the addition of X-Rite's InkFormulation software.

SpectroEye offers a broad array of color spaces and color difference equations, including the CMC, FMC II, and dE*2000 color difference equations for the CIE L*a*b* color system to ensure a perfect match to your standard procedures for instrumental color control. Color differences can be displayed at the press of a button - either graphically or numerically – allowing for quick and easy analysis. To further speed data collection and analysis, measured samples can be automatically associated with the closest reference.

**Getting a Fix on Color Behavior:**

How do I calculate the metamerism index of two colors as quickly as possible? SpectroEye tests the metamerism with three pre-definable test illuminants. All you need to do is measure the two colors concerned.

- Colorimetric functions
- Color difference equations
- Metamerism
- Absolute and relative dye strength
- White and yellow indices

## Comprehensive Quality Control

SpectroEye is the right assistant for quality control inspections for both incoming and outgoing goods. It helps you achieve and maintain the most stringent quality standards - from raw materials to finished product.

Colorimetric and densitometric functions, as well as color difference equations will assist you in all phases of preparation, production, and inspection. But SpectroEye offers you even more: the absolute and relative dye strength functions ensure that purchased inks contain the correct amount of pigment or dye. Various measurements and calculation methods for white and yellow standards help you ensure that paper quality is consistent.

Digital versions of the most popular color guides - PANTONE, HKS, and DIC - have been created especially for SpectroEye. They allow you to confidently check special colors with ease. You can even store personal libraries containing frequently used references.

- Colorimetric functions
- Densitometric functions
- Color difference equations

## BESTMATCH™ – Easily adjust the color of ink on-press

Before you remix that ink, try the unique BestMatch functionality of SpectroEye. BestMatch will quickly and easily determine if you can get a satisfactory match on-press. BestMatch lets you know if you can get a close match to your reference color by adjusting the ink thickness (offset printing) or concentration (flexo and gravure printing) on-press.

You get density information for both reference and sample, as well as recommendations on how to adjust the ink to get the best match – all from a single display. There is no need for a computer or special software. SpectroEye helps you keep the color of your inks on target, even before you can see visible color shifts.

- Applicable for spot colors & process colors
- Colorimetric and densitometric information
- Indicates closest match to reference color
- Adjusts recommendations to increase or decrease density
- All BestMatch information shown on a single display
- Quick interpretation for go/no-go decisions
- Check ink color during press make-ready and during print run

## Grows with Your Needs

As your needs expand, your SpectroEye can too. Simply order the functions you need, and activate them by entering an access code into your SpectroEye.

## Ease-of-Use and Ergonomics

SpectroEye features a large graphics-capable display that shows functions in easy-to-understand menus. Functions are selected by navigating the menus with the control wheel and pressing the measuring key with the palm of your hand – allowing one-handed left or right operation.

Precise positioning and exact measurements are guaranteed with SpectroEye. In addition to it being extremely easy on the wrist, simply position the measurement aperture on the color you want to read, press the measuring key, and the measuring head extends to take accurate measurements every time.


**ISO STANDARD (Fogra Process Standard, Gracol G7) SUPPORT:**

Using the density values you know and trust, the pass/fail indicator provides color measurements (dE) which conform to the ISO 12647-2 standard. You can also utilize the BestMatch function to determine whether modifying the ink film thickness or adding transparent white will achieve a sufficiently accurate match to the reference color. The rapid assessment of color quality saves considerable time and money. X-Rite provides the ISO Standard database as a free download from xrite.com.

**Tracking the Job:**

Documenting jobs from start to finish is critical to helping you maintain quality standards. SpectroEye lets you record and store all the data for each job – from first reference, with its attached tolerances and measurement conditions, through the last sample. Together with ColorQuality™ software, SpectroEye allows you to prepare jobs on your computer, download them to SpectroEye, execute the measurements offline, and upload all measurements of a job for detailed quality inspections, traceability, and documentation (ISO 9000).

## SpectroEye Connectivity

**IntelliTrax Integration:** The IntelliTrax automatic scanning system scans the color bar of a typical press sheet in 15 seconds and instantly reports measurement results on-screen, allowing quick and precise adjustments to color as needed. SpectroEye spot measurements correlate with IntelliTrax automatic scanning systems to maximize press-side color control, productivity, and profitability during make-ready and production.

**CxF Workflow:** The SpectroEye is integrated in the Color Exchange Format (CxF) workflow. Data created by designers (with the i1, for example) can be loaded into SpectroEye for quality assurance during the printing process. With the free CxF loader tool, CxF data can be dragged and dropped into the SpectroEye device.

**NetProfiler2:** This optional tool allows you to maintain instrument quality, uptime, and reliability at your facility. NetProfiler2 certifies the measurement performance of each SpectroEye used in the production process on a regular basis – ensuring that each instrument is always running at peak accuracy. By minimizing the variance between color measurement data – either from one instrument to the next, or from one year to the next, NetProfiler2 is able to remove an important variable that can negatively impact the color reproduction process.

**Software Compatibility:** SpectroEye is fully supported by many applications, such as InkFormulation, ColorQuality, KeyWizard and others.

- **InkFormulation:** SpectroEye is fully integrated with this system for accurate ink mixing, from the smallest printer's kitchen to the most sophisticated ink manufacturer's lab. InkFormulation 5 is the software of choice for fast, accurate recipe creation, storage, approval, and retrieval.
- **ColorQuality:** ColorQuality makes consistent color quality verifiable, and quality control measurable. The proof of your quality standards is provided by the printout of the clearly organized record. Trends, CIE L*a*b*, spectral values, and statistics can be viewed at-a-glance. ColorQuality Lite comes free with SpectroEye so that you can store a job and analyze your measurement data on your computer.
- **KeyWizard:** Included with SpectroEye, KeyWizard software allows you to transfer the measurement data to any Windows application (e.g. Excel)

# SpectroEye

## Functions and Technical Specifications

| | | SpectroEye LT | SpectroEye | Options |
|---|---|---|---|---|
| **Measurement Functions** | Colorimetry | CIE L*a*b*, CIE L*C*h (a*b*), ΔE* CIELAB | CIE L*a*b*, CIE L*C*h (a*b*), Δ E* CIELAB | CIE XYZ, CIE xyY; CIE L*u*v*, CIE L*C*h (u*v*), ΔE CIELUV;LABmg, LCHmg, ΔEmg; Hunter Lab, ΔE Hunter Lab; RxRyRz |
| | Special color deviation formulas | optional | ΔE*2000, ΔE*94, ΔE CMC, ΔE FMCII, | Metamerism |
| | Densitometry | Density, All densities (Grey Balance), Dot gain, Dot area, Trapping, Contrast, Print characteristic, Auto Function | Density, All densities (Grey Balance), Dot gain, Dot area, Trapping, Contrast, Print characteristic, Auto Function | Printing plate, Greyness, Hue error |
| | Spectrum | optional | Reflection spectrum | Density spectrum |
| | Special functions | optional | Best Match | |
| | Color guides | optional | PANTONE PLUS SERIES FORMULA GUIDE Solid Coated & Solid Uncoated | DIC Color Guide; HKS E, K, N and Z |
| | Dye Strength | optional | optional | Absolute (K/S) and relative (K/S) |
| | White- and Yellowness | optional | optional | Whiteness CIE, Whiteness ASTM E313, Whiteness Berger, Whiteness Stensby,, ISO Brightness R457, Yellowness ASTM E313, Yellowness ASTM D1925, Tint CIE |
| | Security | optional | optional | Setting protection, Multi user |
| **Software** | KeyWizard | included | included | |
| | NetProfiler 2 | | optional | |
| | Color Quality | | Basic version incl., Full version optional | |
| | InkFormulation | | optional | |
| **Measurement Conditions** | White base | Absolute, relative | | |
| | Illumination types | D50, D65, A, C, D30…D300, F1…F12 | | |
| | Standard observers | 2°, 10° | | |
| | Density standards | ISO Status A, ISO Status E, ISO Status I, ISO Status T, DIN 16536, DIN 16536 NB, SPI | | |
| **Measurement Technology** | Spectral analysis | Holographic diffraction grating | | |
| | Spectral range | 380nm to 730nm | | |
| | Physical resolution | 10nm (internal resolution: 3.3nm) | | |
| | Measurement geometry | 45°/0° ring optic, DIN 5033 | | |
| | Measurement aperture | 4.5mm or 3.2 mm (selectable upon order) | | |
| | Light source | Gas-filled tungsten, type A illumination | | |
| | Physical filters | No (incandescent lamp light), Polarized, D65 (Approximated daylight), Optional UV cutoff | | |
| | Measurement time | Approximately 1.5 sec | | |
| | Measurement range | Density DIN 16536: 0.0D–2.5D | | |
| | Inter-instrument agreement | Typical 0.3 ΔE* CIELAB, or 0.15 ΔE CMC(2:1) average based on 12 BCRA tiles (D50, 2°) | | |
| | Linearity | ± 0.01D | | |
| | Short-term repeatability | 0.02 ΔE* CIELAB (D50, 2°), mean value of 10 measurements every 10 seconds on white | | |
| | Density repeatability | Density DIN 16536 (Repeatability ±0.01D):<br>No Filter 0.0D–2.5D, Yellow 0.0D–2.0D<br>Pol Filter 0.0D–2.2D, Yellow 0.0 D–1.8D | | |
| | Filter wheel | Electronic selection of filter | | |
| | White calibration | Automatic on integrated white tile | | |
| | Instrument check | Automatic check of the spectral calibration | | |
| | Density filter recognition | Manual and automatic | | |
| | Average | Averaging for multiple measurement values | | |
| | Color detection | Manual and automatic assignment of samples to references | | |
| **Data Interface** | Serial data interface | RS232C with Baud rate: 300 to 57,600 | | |
| **Power Supply** | Power supply | NiMH battery pack, nom. 7.2V, 1300 mAh | | |
| | AC adapter requirements | 85 VAC to 270 VAC, 47 Hz to 63 Hz | | |
| | Charge time | Approximately 3 hours, automatic disconnection | | |
| | Charge status | Automatic capacity checking and display | | |
| | Measurements per charge | Approximately 3000 | | |
| **Mechanical Data** | Physical dimensions | 24.5 cm length, 8.3 cm width, 8 cm height (9.6 x 3.3 x 3.2 in) | | |
| | Weight | Approximately 990 g, (2.18 lb) | | |

*Training & Education from X-Rite*

Do you need help to ensure your team gets the most out of the instruments in your workflow? Whether you prefer to learn in a classroom, online or at your own facility, Color Experts from X-Rite can help. Are you interested in obtaining ISO print standards certification? An X-Rite G7- or PSO-Certified Trainer can come to your facility to work with your staff hands-on to set up, train and qualify your team. For more information, please visit xrite.com.

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L7-423 (07/10)