



Using the Right Tool for the Right Job

(Or musings on use of i1 Solutions versus spectrodensito/photometers in the pressroom)

As the global leader in color science and technology, X-Rite offers the industry's widest range of color measurement instruments – colorimeters, densitometers, spectrodensitometers and spectrophotometers. While the commonality between many of our instruments is to measure color, each has its own particular use case and they are not easily interchangeable. Each X-Rite instrument has been designed and optimized to precisely meet the needs and requirements of specific applications and markets. Choosing the right tool for the right job is crucially important. After all, wouldn't a dentist be ill advised to use a hammer drill instead of a dental drill on his patients' teeth?

To the untrained or novice user of color management tools, the differences between instruments may seem subtle at first. In the printing world choosing the wrong instrument can have very detrimental repercussions. A color management instrument designed for pre-press applications such as the i1, should not be used in the pressroom for a number of reasons, and conversely using a 500 Series device or SpectroEye for prepress applications would present different, but equally pressing issues.

Distance between instrument and paper surface

As the accuracy of a color measurement instrument is completely dependent on having the correct distance between the measurement head of the device and the paper surface, minimal divergences from this optimal distance can lead to huge color deviations in measurement results. The i1 Solutions family has been designed to measure in contact or in tenths of a millimeter above the paper surface. For pre-press applications, where users need to measure inkjet prints on proofing papers, this offers the best possible solution. However, if you use an i1 in the pressroom where measurements have to be taken on thick, wet ink films - in an environment where paper dust and fibers are everywhere - the results are bound to be inaccurate. In an effort to avoid soiling the delicate optics of an i1Pro, users would need to measure away from the substrate and would be unable able to respect the correct distance required between the instrument's head and the paper for precise results.

Third party rulers and bearings commonly sold for the i1Pro can also be a source of errors, as many of them are not within the specifications required for obtaining correct measurement results. X-Rite press-room instruments like our scanning family EasyTrax and IntelliTrax, in addition to our press-room color handhelds have been designed specifically to allow for wider distances between the measurement head and the paper surface to avoid contamination of the optics with ink and paper-dust. To ensure the highest level of precision, the mechanical designs are much more complex for these instruments than those of our prepress instruments.

Minimum Patch Size

Another big difference between pre-press and pressroom color measurement instruments is the scanning technology on which they are built. The i1 Solutions family is based on patch recognition technology (operating on color deviations between the patches), whereas pressroom scanning instruments measure at the actual position of the measurement head instead.

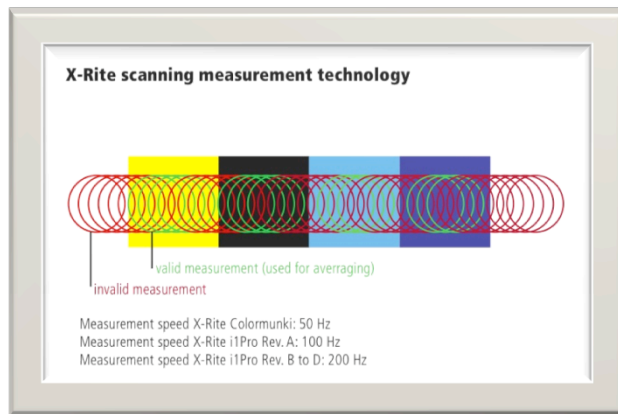


Fig.: Scanning technology based on patch recognition used for the i1Pro

Different scanning technologies, together with the difference of power in the illumination modules, account for the variations in patch size requirements. The patch recognition technology used in the i1Pro requires a minimum of 10 x 10 mm patches, which is ideal for targets to generate ICC profiles. With an i1iO automated scanning table patch size can be reduced to 6 x 7mm. However, pressroom applications require much smaller patch sizes, hence X-Rite's pressroom instruments are designed to measure patch sizes of 3.8x4 mm (EasyTrax) or even down to 3 x 2 mm (IntelliTrax). These high-end pressrooms instruments use the most appropriate scanning technology and illumination modules for this purpose. Should users try to use an i1Pro to measure patch sizes smaller than the required 10x10 mm, they are bound to achieve inconsistent or faulty measurements.

Available Filters

The instruments in the i1 Solutions family offer NoFilter and UVcut filter modes. These filter modes perfectly meet the requirements of prepress environments, where measurements are taken on proofs with ink films that are relatively thin and mostly dry. In order to conform to the ISO 12647-2 standard pressroom quality assurance requirements, a polarization filter is recommended (ex: by PSO) to perform density and dot gain (tone value increase) measurements in the pressroom. Here again the design of the illumination modules available in pressroom instruments makes a significant difference to the measurement results. The i1Pro - whose illumination is powered via USB - does not have enough power to make use of a polarization filter, which ultimately limits its available output capability. In comparison, pressroom instruments are directly attached to an electrical power source (110v or 220v), thereby giving them far more power to utilize polarization filters to reduce the glossy effects of a thicker, wet ink sample during measurement, ultimately giving more accurate pressroom measurement results.

Color Expertise

X-Rite's color experts are always available to assist you with any of your color questions or printing workflow needs. To find out more, visit xrite.com or contact your local X-Rite sales and service center.