

Color Controller E-820

COLOR GUIDE

For use with the following color copiers:
Ricoh Aficio Color 6513
Gestetner CS213d
RexRotary CS813d
nashuatec CS513d
infotec 7513
Savin SDC413
Lanier 5813



About the Documentation

This manual is part of a set of Color Controller E-820™ documentation that includes the following manuals for users and system administrators:

- The *Quick Start Guide* summarizes the steps for configuring the E-820 and printing. It also describes how to access the online documentation.
- The *User Software Installation Guide* describes how to install software from the User Software CD to enable users to print to the E-820, and also describes setting up printing connections to the E-820.
- The *Configuration Guide* explains basic configuration and administration of the E-820 for the supported platforms and network environments. It also includes guidelines for setting up UNIX, Windows NT 4.0/2000, and Novell NetWare servers to provide printing services to users.
- The *Printing Guide* describes the printing features of the E-820 for users who send jobs from their computers.
- The *Color Guide* provides information on managing the color output of the E-820. It explains how to calibrate your copier and take advantage of the EFI Fiery ColorWise® color management system, as well as features in ColorWise Pro Tools™.
- The *Fiery Color Reference* addresses concepts and issues associated with managing color output of the E-820 and outlines key workflow scenarios. In addition, it offers information on printing color documents from popular Microsoft Windows and Apple Mac OS applications.
- The *Job Management Guide* explains the functions of the job management utilities, including EFI Command WorkStation™ and EFI Fiery DocBuilder Pro™, and how you can use them to monitor and control jobs on the E-820. This manual is intended for an operator or administrator, or a user with the necessary access privileges, who monitors and manages job flow, performs color calibration, and troubleshoots problems that may arise.
- *Release Notes* provide last-minute product information and workarounds for some of the problems you may encounter.

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Introduction

This manual explains how to manage color output on the Color Controller E-820, and provides information on calibration and color profiles.

This manual is part of a set of documentation that includes manuals for users and system administrators. The other manuals should be available at your site—refer to them for a complete description of your Color Controller E-820.

NOTE: The term “E-820” is used in this manual to refer to the Color Controller E-820. “Aero” is used in illustrations throughout this manual to represent the E-820.

About this manual

This manual is organized to supply you with key information about managing the color output of your E-820.

- [Chapter 1](#) describes the E-820 print options and how to get the best color results.
- [Chapter 2](#) covers various methods of calibrating the E-820.
- [Chapter 3](#) takes you through the features of ColorWise Pro Tools. ColorWise Pro Tools include Profile Manager, used to manage color profiles on the E-820, and Color Editor, which allows you to customize simulation and output profiles. This chapter also describes Spot On, which allows you to define CMYK equivalents for spot colors.
- [Appendix A](#) provides information about color measurement instruments, available as separately purchased options.
- [Appendix B](#) describes the Simple ASCII File Format (SAIFF), which can be used to import toner density measurements from measurement devices.
- The *Fiery Color Reference* Glossary defines words in bold—for example, **output profile**—that appear throughout this manual. Color terms and concepts such as “color space,” “spot color,” “gamut,” and “source profile” are used throughout this manual. If you are new to desktop color, or if any terms are unfamiliar, check the Glossary.

Key features of ColorWise

ColorWise is the **color management system (CMS)** designed and built into the E-820 and designed to provide both casual and expert users with the best color output for a variety of purposes. The ColorWise default settings provide great out-of-box color from many Windows and Mac OS applications. This allows casual users to achieve good quality output without knowing about or changing any color settings on the E-820.

For consistent color, calibrate the E-820 on a regular basis. ColorWise Pro Tools include a simple-to-use calibrator, which allows you to calibrate using either the scanning unit that is part of the copier or an optional **spectrophotometer** or **densitometer** (see Chapter 2).

ColorWise features let you modify printing results. Depending on your particular needs, you can:

- Set the behavior of **CMYK** printing to emulate **DIC**, **Euroscale**, and **SWOP** offset press standards.
- Match PANTONE and other **spot colors** for the best match when printed using four-color press conditions or when printed using presses with extra, custom plates.
- Select a **color rendering dictionary** (CRD), also called a rendering style, for **RGB** printing. CRDs allow for rich, saturated printing of **presentation graphics**; smooth, accurate printing of photographs; and relative or absolute colorimetric rendering for specialized needs.
- Define the source of incoming RGB color data for better screen matching and provide for better color conversion of RGB data with no source information.
- Define whether RGB data is converted into the full gamut of the copier or whether it is first converted into the gamut of another device, such as a press standard. This feature is very helpful for making one device behave like another. It is also useful for evaluating the appearance of the RGB file under different printing conditions without having to reprocess the RGB data each time.

ColorWise color management (ColorWise) offers an open color architecture, letting users customize the E-820 to meet new printing needs as they arise. ColorWise supports **ICC profiles**, which are industry standard color profiles that describe the color behavior of a device. Downloading ICC profiles to the E-820 enables the E-820 to simulate a custom press (or another copier), as well as accurately print colors from a particular monitor or a scanner. In addition, you can create customized ICC profiles for the copier.

ColorWise also lets you use any **Status T** densitometer by importing data in a standard file format (see [Appendix B](#)). In this case, it is important to note that the quality of the instrument used will determine the quality of the **calibration**.

Chapter 1: E-820 Color Management

The first part of this chapter describes the options available from the **ColorWise** color management system and explains how to customize the color settings for your particular needs. It provides descriptions of the preset ColorWise default settings and covers additional options for users who need to customize ColorWise.

Beginning on [page 1-17](#) is a detailed explanation of what a **PostScript** Level 2 or 3 printer driver does, as well as information on the capabilities of various printer drivers and instructions for setting color options with the PostScript drivers for Windows and Mac OS computers.

Managing color on the E-820

To modify E-820 printing behavior, do any of the following:

- Select ColorWise options for an individual print job using menus that appear in the printer driver.
- Select most ColorWise options as server defaults from the Color Setup application in ColorWise Pro Tools (see [page 3-36](#)). Defaults can also be set from E-820 Setup or from the Control Panel, as described in the *Configuration Guide*. These defaults will apply to all subsequent print jobs unless you override them.
- Select some ColorWise options, particularly default **ICC profile** settings and calibration options, from ColorWise Pro Tools. These options include default Simulation Profile (see [page 1-9](#)), Simulation Method (see [page 1-10](#)), Appear in Driver as (see [page 3-7](#)), default Source Profile (see [page 1-7](#)), RGB Separation (see [page 1-8](#)), and associated calibration set (see [page 2-4](#)).

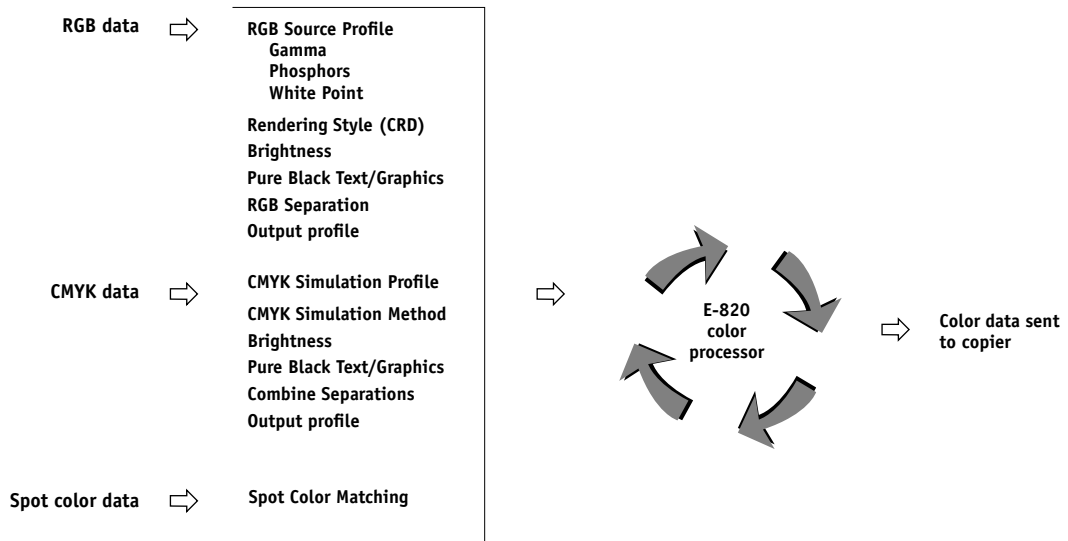
Applications can generate color data for the E-820 in many different **color spaces**. The most common type of color data produced from **office applications** is RGB, while prepress applications generally produce **CMYK** data. Desktop applications can also generate **spot colors**, such as PANTONE colors. To complicate matters, a single page may contain a mix of RGB, CMYK, and spot colors. The E-820 lets users control the printing of these mixed-color documents with features that apply specifically to RGB, CMYK, or spot color data.

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1-2 E-820 Color Management

E-820 color management generates CMYK data to be sent to the copier.

The following diagram illustrates the print options in the E-820 color management process that affect color data conversions. You access these print options when you send a print job to the E-820. Most of these options and settings are described in subsequent sections of this chapter.



RGB **Source Profile** is the only color option that applies strictly to RGB color data. The other options that affect RGB color also affect the more rarely used Lab, XYZ, and other calibrated color spaces.

NOTE: For users who are familiar with PostScript 3 color, RGB Source Profile affects all CIEBasedABC color spaces (if the source space is RGB). If you send CMYK data to the E-820 in CIEBasedDEFG format, for example, by choosing PostScript Color Management in Adobe Photoshop, the E-820 Rendering Style selection—which normally affects only RGB data—will also affect this CMYK data.

You can specify settings for the following options via print options when you send a job to the E-820. Some can also be set as defaults by the administrator during E-820 Setup or using ColorWise Pro Tools. Settings specified via print options override the

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1-3 Managing color on the E-820

defaults. Some options are available only with the Fiery Graphic Arts Package, which is available as a separately purchased option.

E-820 color print option	What it does
Color Mode CMYK/Grayscale or Print Mode (Windows 98) Standard Color/Expert Color/Grayscale	Specifies the output color space of the job. Select CMYK, Standard Color, or Expert Color for a full-color document.
Combine Separations On/Off	Specifies whether to print separated CMYK data as a single, four-color composite document (see page 1-5). If you have the Fiery Graphic Arts Package, you can combine an unlimited number of spot color separations along with the CMYK separations.
Rendering Style Photographic/Presentation/Relative Colorimetric/Absolute Colorimetric (Default set at Setup)	Applies a E-820 color rendering dictionary (CRD) to RGB data (see page 1-6), or to any incoming data with a PostScript source color space definition, including CMYK.
Brightness 85% Lightest to 115% Darkest	Performs a color adjustment on all color channels to make the printed output lighter or darker.
RGB Source Profile EFIRGB/sRGB (PC)/Apple Standard/Other/Source 1-10/None (Default set at Setup or with ColorWise Pro Tools)	Applies an RGB source space definition to RGB data (see page 1-7). If you choose the Other setting, you can specify particular settings for Gamma, Phosphors, and White Point. See the corresponding options in this table. This option, along with Gamma, Phosphors, and White Point, only affects DeviceRGB or calibrated RGB color spaces.
(Other) Gamma 1.0/1.2/1.4/1.6/1.8/2.0/2.2/2.4/2.6/2.8/3.0	Applies the specified gamma value to the RGB source space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.
(Other) Phosphors Hitachi EBU/Hitachi-Ikegami/NTSC/Radius Pivot/SMPTE/Trinitron	Applies the specified phosphor (monitor type) information to the RGB source space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.
(Other) White Point 5000 K (D50)/5500 K/6500 K (D65)/7500 K/9300 K	Applies the specified white point value to the RGB source color space definition (see page 1-7). To use this print option, you must choose Other as the RGB Source setting.

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E-820 color print option	What it does
RGB Separation Output/Simulation	Determines which CMYK color space your original RGB data will be separated into—CMYK for the copier (Output) or CMYK for a specified simulation (Simulation) (see page 1-8). It is important to note that when RGB Separation is set to Simulation, RGB colors are affected by CMYK Simulation Profile and CMYK Simulation Method.
CMYK Simulation Profile SWOP-Coated/DIC/Euroscale/ Simulation 1-10/Match Copy/None (Default set at Setup or in ColorWise Pro Tools)	Adjusts CMYK color data to simulate an offset press standard or a custom color gamut defined at your site. The Match Copy setting bypasses E-820 calibration to match a copy made from the copier glass. Choosing None bypasses simulation (see page 1-9). NOTE: Some of the Simulation settings have slightly different names depending on the model of copier.
CMYK Simulation Method Quick/Full (Source GCR)/Full (Output GCR) (Default in Setup or ColorWise Pro Tools)	Quick simulation applies one-dimensional transfer curves that adjust output density only. The Full simulations apply colorimetric transformations that adjust hue as well as output density (see page 1-10).
Paper Simulation No/Yes	Adjusts color output to compensate for the white point value of the paper stock used. For example, newsprint has a darker white point than white bond paper. This option is only available as part of the Fiery Graphic Arts Package.
Output Profile	The output profile is applied to all data in the print job (see page 1-11). User-defined output profiles can be downloaded to the E-820 using ColorWise Pro Tools (see Chapter 3).
Pure Black Text/Graphics On/Off (Default in Setup)	The On setting optimizes the quality of black text and line art output. (see page 1-11).
Black Overprint On/Off (Default in Setup)	The On setting overprints black text and text/graphics placed on colored backgrounds. Overprinting colored backgrounds eliminates white gaps and reduces halo effects or misregistration of colors. The On setting automatically activates the Pure Black Text/Graphics option (see page 1-11).
Black Overprint Style Text/Text & Graphics	Specifies whether black overprinting should apply to text only or to both text and graphics. For this option to take effect, the Black Overprint option must be set to On (see page 1-12).

E-820 color print option	What it does
Spot Color Matching On/Off (Default in Setup or ColorWise Pro Tools)	The On setting enables E-820-defined matching of spot colors to their best CMYK equivalents. If you have the Fiery Graphic Arts Package installed, you can use Spot On to manage and edit these spot color matches (see page 3-21). Off instructs the E-820 to match color output to a CMYK combination specified by the source application for the document (see page 1-13).
Image Smoothing Automatic/Off/On	The On setting enhances the print quality of low-resolution images.
Toner Reduction On/Off	This option minimizes the amount of toner used on a printed job. For more information, see page 1-14 .
Halftone Screen Contone/Newsprint/Application Defined/ User Defined1-3	This option specifies how to simulate a halftone screen for your job. This option requires the Fiery Graphic Arts Package. For more information, see page 1-14 .
Dithering Auto/Text/Photo	This option specifies the best dithering method to use, based on what you are printing. Auto applies the best method automatically.
Auto Trapping On/Off	This option specifies whether to use trapping. This option requires the Fiery Graphic Arts Package.

Detailed explanations of how these and other settings affect your print jobs are provided in subsequent sections of this chapter.

Combine Separations

The Combine Separations setting specifies how to print separated CMYK data. If you have the Fiery Graphic Arts Package option, you can combine an unlimited number of spot color separations along with the CMYK separations. The Combine Separations options are:

- **Off** prints each separation individually.
- **On** combines separations as a single, composite-color document, and constrains the settings of the following print options: Color Mode (CMYK), Rendering Style (None), Pure Black Text/Graphics (Off), Spot Color Matching (Off).

For information about using the Combine Separations option with applications, see the *Fiery Color Reference*.

Rendering styles

The Rendering Style option specifies a CRD for color conversions. You can modify the Rendering Style option to control the appearance of images, such as prints from office applications or RGB photographs from Adobe Photoshop. The E-820 lets you select from the four rendering styles currently found in industry standard ICC profiles.

E-820 rendering style	Best used for	Equivalent ICC rendering style
<p>Photographic—Typically results in less saturated output than presentation rendering when printing out-of-gamut colors. It preserves tonal relationships in images.</p>	<p>Photographs, including scans and images from stock photography CDs.</p>	<p>Image, Contrast, and Perceptual</p>
<p>Presentation—Creates saturated colors but does not match printed colors precisely to displayed colors. In-gamut colors such as flesh tones are rendered well; similar to the Photographic rendering style.</p>	<p>Artwork and graphs in presentations. In many cases, it can be used for mixed pages that contain both presentation graphics and photographs.</p>	<p>Saturation, Graphics</p>
<p>Relative Colorimetric—Provides white-point transformation between the source and destination white points. For example, the bluish gray of a monitor will map to neutral gray. You may prefer this style to avoid visible borders when <i>not</i> printing full-bleed.</p>	<p>Advanced use when color matching is important, but you prefer white colors in the document to print as paper white. It may also be used with PostScript color management to affect CMYK data for simulation purposes.</p>	<p>Relative Colorimetric</p>
<p>Absolute Colorimetric—Provides <i>no</i> white point transformation between the source and destination white points. For example, the bluish gray of a monitor will map to a bluish gray.</p>	<p>Situations when exact colors are needed and visible borders are not distracting. It may also be used with PostScript color management to affect CMYK data for simulation purposes.</p>	<p>Absolute Colorimetric</p>

RGB Source Profile

The RGB **source profile** setting allows you to define the characteristics of the RGB data in your document so that the appropriate color conversion can occur on the E-820. Commonly used monitor color spaces are available from the driver and from the ColorWise Pro Tools Profile Manager. In addition, for special needs you can use ColorWise Pro Tools to download custom monitor or scanner profiles.

When you specify a setting other than None for the RGB Source Profile, the E-820 overrides **source color space** definitions or profiles that other color management systems may have specified. For example, if you specified a ColorSync System Profile on your Mac OS computer, the RGB Source Profile setting overrides it. In cases where you do *not* want this setting to override another specified source color space, choose the None setting.

When you specify a setting other than None for the RGB Source Profile—since the color space definitions are overridden—the prints from the E-820 will be consistent across platforms. The E-820 RGB Source Profile options are:

- **EFIRGB** specifies an EFI-defined color space recommended for users who have no detailed information about their RGB data.
- **sRGB (PC)** specifies the industry standard definition for a generic Windows PC monitor.
- **Apple Standard** specifies the definition of all standard Mac OS computer monitors.
- **Other** allows you to specify custom RGB source settings. If you choose Other as the RGB Source setting, you can choose settings for the Gamma, Phosphors, and White Point options.
- **Sources 1-10** specify the definitions you download as RGB source profiles. For more information about downloading RGB source profiles, see [page 3-4](#).

If you are printing with the PostScript driver from a Windows computer and have two-way communication enabled, the name of each downloaded profile is represented in the RGB Source Profile setting pop-up menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded profiles appear as Source-1 through Source-10. For more information on two-way communication, see the *User Software Installation Guide*.

- **None** instructs the E-820 to allow the RGB sources you defined elsewhere, such as in the application, to be used. When you set RGB Source to None, the appearance of colors will *not* be independent of the file type. For example, RGB EPS files will look different from RGB TIFF files.

With RGB Source set to None, PostScript RGB data that contains a source color space definition is converted using the CRD specified by the Rendering Style option (see page 1-6). Non-PostScript RGB data and PostScript RGB data that does not contain a source color space definition are converted using a general **undercolor removal (UCR)** conversion method.

RGB Separation

The RGB Separation option determines how RGB colors (as well as Lab and XYZ colors) are converted to CMYK. The name of this option is meant to be descriptive, since the option defines the color spaces that will be used by the E-820 to “separate” the RGB data into CMYK values.

The two choices available for this option determine whether RGB data is converted into the full gamut of the copier (**output**) or is first converted into the gamut of another digital printer or press standard (**simulation**). This feature is helpful for making one device behave like another for RGB data. For example, if a high-quality ICC profile is available for another print device, the copier can simulate the behavior of that device.

RGB Separation is also useful for prepress applications. For example, it lets you experiment with the appearance of an RGB scan under different press printing conditions, without having to convert the RGB data to CMYK data for each condition. When the desired printing condition is found, you can then convert the file to CMYK, using the same CMYK simulation profile you used during the experimentation.

NOTE: The RGB Separation print option should be used in conjunction with the Output Profile or CMYK Simulation Profile print options.

- **Output** converts all RGB colors into the CMYK color space of your copier (when set to the printer’s default), or a customized CMYK color space for your copier (when set to Output 1-10).

- **Simulation** converts all RGB colors into the CMYK color space for a specified simulation (make sure to select the desired simulation with the CMYK Simulation Profile print option).

CMYK Simulation Profile

The CMYK Simulation Profile print option allows you to print press proofs or simulations. This setting specifies the offset press standard or other color printing device that you want to simulate. This option affects CMYK data only.

With the Windows 9x/Me or Windows NT printer driver, you can also view an unlimited number of custom Full simulations created using ColorWise Pro Tools. On Windows 2000/XP and Mac OS computers, you can view up to 10 Full custom simulations. The number of custom simulations is limited by the disk space on the E-820.

If you are printing with the PostScript driver from a Windows computer and have two-way communication enabled, the name of each downloaded or custom profile is represented in the CMYK Simulation Profile setting pop-up menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded or custom profiles appear as Simulation-1 through Simulation-10. For more information on two-way communication, see the *User Software Installation Guide*.

The None setting sends your original CMYK data to the copier in its calibrated state, without conversions to simulate another printer. This setting is not generally recommended, unless you want to bypass the conversion by ColorWise and use another color management system.

The CMYK Simulation Profile setting you specify depends on the press standard for which the CMYK data was separated.

- For images that were separated using a custom separation (such as a separation produced with an ICC profile), choose the corresponding profile on the E-820 with the CMYK Simulation Profile setting.
- For images that were separated for **SWOP**, choose SWOP as the CMYK Simulation Profile setting.

NOTE: To properly simulate a printed image that was separated through the use of an ICC profile, the same profile must be present on the E-820. For more information about downloading ICC profiles to the E-820, see “[Downloading profiles](#)” on page 3-4.

The ColorWise Off settings send unconverted CMYK data directly to one of the two uncalibrated modes available on the copier. ColorWise Off-Gamma produces a density curve similar to that of an offset printer. ColorWise Off-Linear yields a straight line density curve. The ColorWise Off settings are designed for specific applications only. For example, Calibrator (one of the ColorWise Pro Tools) prints its patch pages using the Gamma mode. Avoid using uncalibrated modes for generic printing because other color settings and printing overrides may be incompatible.

CMYK Simulation Method

The CMYK Simulation Method lets you define your preferred CMYK-to-CMYK conversion technique.

- **Quick** applies one-dimensional transfer curves to adjust output densities in the cyan, magenta, yellow, and black channels. This technique leads to pleasant color output from your copier because pure primary colors are not “contaminated” by other **colorants**. While it is the fastest simulation method and perfect for drafts, avoid using it for final documents that will be used as press proofs. Other techniques offer more color simulation accuracy, which is expected by proofing applications.
- **Full (Source GCR)** provides a complete and accurate simulation based on colorimetric transformations. Hues are preserved, even for primary colors. The Gray Component Replacement (GCR) level that was specified in the original (source) document is also preserved. Full (Source GCR) is therefore an excellent simulation technique for the highest quality press proofing applications.
- **Full (Output GCR)** is also a complete and accurate simulation method based on colorimetric transformations. Hues are preserved, even for primary colors. With this method, the **Gray Component Replacement** (GCR) level that was specified in the original document is not preserved. Instead, all CMYK data is re-separated using the GCR level specified by the Output Profile. This simulation technique is similar to traditional ICC color matching methods and is appropriate for most documents designed for the press, but reproduced on your copier.

Output profile

The output profile is applied to all data in the print job, so make sure the selected profile is the right one for your job. The default output profile consists of both a profile for your copier, describing its color characteristics, and a **calibration target** that describes the expected behavior of the copier.

In certain cases, you may want to customize the default output profile using the ColorWise Pro Tools Color Editor to achieve particular color effects (see [page 3-10](#)). If you do so, the new customized output profile is applied to all data in the print job. Changing the output profile only does not affect its associated calibration target (since the target is based on a copier model). You can edit D-Max values of the calibration target separately (see [page 3-6](#)).

You can use the ColorWise Pro Tools Profile Manager to download your own output profile to the E-820 (see [page 3-4](#)). Downloaded output profiles are at first associated with the calibration target that is tied to the default output profile. As mentioned above, you can edit calibration target D-Max values separately.

If you are printing with the PostScript driver from a Windows computer and have enabled two-way communication, the name of each downloaded or custom profile is represented in the Output Profile setting menu. If you are printing with the AdobePS driver from a Mac OS computer, downloaded or custom profiles appear as Output-1 through Output-10. For more information on two-way communication, see the *User Software Installation Guide*.

Pure Black Text/Graphics

The Pure Black Text/Graphics option affects the printout for black text and **vector graphics** on a page. Under most circumstances, it is preferable to leave this option set to On. When Pure Black Text/Graphics is on, black colors generated by applications are printed using 100 percent black-only toner (for example, RGB = 0, 0, 0; CMYK = 0%, 0%, 0%, 100%; or K = 100%). This means the black text and line art will not exhibit halftone **artifacts** and will not be misregistered, since there is only one toner used. In addition, this setting eliminates **blasting**. This option is automatically set to On when the Black Overprint option is set to On.

For some jobs, it is preferable to clear this option, for example, if the page includes **gradient** fills that use black. The following table describes the behavior of the Pure Black Text/Graphics option with black data defined in different color spaces.

NOTE: Use the Pure Black Text/Graphics option only when printing composites, not when printing separations.

Input black color	Pure Black Text/Graphics	
	On	Off
RGB	Prints 100% black	With the default profile, prints a rich black using all toners.
CMYK		Prints only with black toner, because CMYK simulations preserve the black channel. The actual amount of toner used depends on the current simulation and the calibration state of the copier.
Spot		Prints only with black toner, because spot color simulations preserve the black channel. The actual amount of toner used depends on the current simulation and the calibration state of the copier.

NOTE: PostScript applications, such as QuarkXPress, may convert elements defined as RGB = 0, 0, 0 to four-color CMYK black before sending the job to the E-820. These elements are not affected by the Pure Black Text/Graphics option. For details, see the application notes. Also, black text and line art defined as RGB = 0, 0, 0 in office applications (such as Microsoft Word) are converted to single-color black (CMYK = 0%, 0%, 0%, 100%) by the Microsoft PostScript Level 3 driver for Windows 2000/XP. To print this single-color black at the maximum toner density of the copier, set the Pure Black Text/Graphics option to On.

Black Overprint

The Black Overprint option lets you specify whether or not black text—defined as RGB = 0, 0, 0, or as CMYK = 0%, 0%, 0%, 100%—overprints colored backgrounds.

- **On**—Black text overprints colored backgrounds, eliminating white gaps and reducing halo effects or misregistration of colors. Setting Black Overprint to On automatically activates the Pure Black Text/Graphics option.
- **Off**—Black text knocks out colored backgrounds.

NOTE: PostScript applications may perform their own black overprint conversions before sending the print job to the E-820.

One example of how you might use this setting is with a page that contains black text on a light blue background. The background blue color is CMYK = 40%, 30%, 0%, 0% and the black text is CMYK = 0%, 0%, 0%, 100%.

- With **Black Overprint On**, the final text portions of the page are overprinted, or combined with the underlying colors. This results in CMYK = 40%, 30%, 0%, 100% for the color used for the text. There is no transition in the cyan and magenta toners, and the quality of the output is improved since it will not show artifacts near the edges of the text. The option also works with text defined in the RGB color space, that is RGB = 0, 0, 0.
- With **Black Overprint Off**, the border of the text is on an edge that has cyan and magenta toners on one side (outside the text) and black toner on the other side (inside the text). This transition may cause visible artifacts because of the practical limitations of the copier.

NOTE: If you set **Black Overprint Style** to **Text/Graphics**, setting **Black Overprint** to **On** allows black text or graphics to overprint colored backgrounds (see [page 1-4](#)).

Spot Color Matching

The **Spot Color Matching** option provides automatic matching of spot colors with their best CMYK equivalents.

- **On**—The E-820 uses a built-in table to generate the closest CMYK matches of spot colors your copier can produce. (New tables are generated when you add new output profiles.) If you have the Fiery Graphic Arts Package installed, the E-820 uses the CMYK matches determined through **Spot On** (see [page 3-21](#)).

NOTE: Spot colors not included in the built-in table are treated as CMYK.

- **Off**—The E-820 uses CMYK equivalents defined by the spot color manufacturer, such as PANTONE. These are the same CMYK equivalents used by applications that include spot color libraries.

For jobs that include spot colors, set **Spot Color Matching** to **On** unless you are printing press simulations. In that case, set **Spot Color Matching** to **Off** and choose the appropriate **CMYK Simulation** setting (see [page 1-9](#)).

For PDF jobs that include spot colors and if spot colors are not included in the built-in table, setting Spot Color Matching to On retains the spot color originally specified. The E-820 makes reference to the built-in table to generate the closest CMYK matches of the original spot color.

NOTE: You can use the Spot Color Matching option only when printing composites, not when printing separations.

Spot Color Matching and the PANTONE Coated Color Reference

The PANTONE Coated Color Reference (described in the *Fiery Color Reference*) prints differently depending on the Spot Color Matching setting.

- **On**—The E-820 uses a built-in table or, if you have the Fiery Graphic Arts Package, the Spot On color dictionaries (see [page 3-21](#)) to generate the best matches of the PANTONE colors that your copier can produce. The PANTONE number is printed below each swatch.
- **Off**—The E-820 prints swatches using the CMYK values recommended by Pantone, Inc. (and used by applications that provide PANTONE color libraries). The CMYK values used to generate the color, as well as the PANTONE number of the color, are printed below each swatch. These CMYK values are printed through the selected CMYK Simulation and Output Profile settings.

Toner Reduction

This option minimizes the total amount of toner and reduces effects of toner **blasting**, offset, or flaking.

Halftone Screen

To correct problems with color quality when using a halftone screen, such as too much magenta in the printed image, make sure that the E-820 is calibrated for the particular halftone screen you use. This is important if you expect to compare a continuous tone page printed from a calibrated E-820 to a halftone printed page.

Changing halftone screens usually modifies the color response of a printer. With most printers that offer multiple (but standard) halftone screens, ColorWise Calibrator lets you select the halftone screen to calibrate. A measurement calibration set is maintained for each printer color response that is produced by different halftones coupled with

other parameters, such as media and resolution. The best color is achieved when a calibrated response and its corresponding output profile are specified by means of setting print options at print time.

However, when user-defined halftones are specified, the E-820 does not have adequate information about the resulting color response. This is why you must consider the halftone screen for separate calibration and profiling.

When your custom halftone changes the color response of your printer, you need a custom output profile. If you need to calibrate often for example, once a day), you need to perform the following custom profile creation procedure only once.

TO CALIBRATE THE E-820 FOR CUSTOM HALFTONE SCREENS

1. **Determine the measurement instrument you use for calibration.**
2. **On the Fiery Graphic Arts Package CD, open the CustomHalftonesCalibration folder.**

This folder contains images of the calibration pages for various instruments and page sizes. If you print halftone screens only from Photoshop, open the Photoshop folder; otherwise, open the Other Applications folder.
3. **Locate the image file corresponding to the patch page for your instrument and paper size.**

These images were prepared at the final sheet page size. In your software application, place them using no margins. Ignore warnings that the image may be clipped. Never “color manage” these files when you open or print them.
4. **Open a blank document in the application you use for generating screened print jobs.**
5. **Place the image of the calibration pages into the document.**

This document is now the custom calibration page.
6. **Print this custom calibration page, using your application-specific halftone settings and E-820 print option settings.**

You must print with the CMYK Simulation Profile option set to Match Copy, which produces an uncalibrated patch page.

TIPS: Remember that you are printing CMYK patches in the raw state of the copier; most other E-820 print options are irrelevant and will be ignored. To increase the speed and reliability of the calibration, print your custom calibration page to a PostScript file with the appropriate E-820 print options. The next time you calibrate, download this PostScript file. Retaining this file in the E-820 Hold Queue makes the whole calibration process even faster.

7. Open any output profile with ColorWise Calibrator.

For information about ColorWise Calibrator, see [Chapter 2](#).

8. Resave the profile under a new name which describes of your custom halftone.

9. Use ColorWise Profile Manager to associate this profile with the proper calibration set.

For information about ColorWise Profile Manager, see [Chapter 3](#).

10. Use ColorWise Calibrator to perform the actual calibration.

Do not use the Print button to generate the patch page. Instead, use the custom calibration screen page that you just printed.

TO PROFILE CUSTOM HALFTONE SCREENS FOR THE E-820

1. Calibrate your printer using the procedure on [page 1-15](#).
2. Using ColorWise Profile Editor, open the output profile saved in [step 9 on page 1-16](#).
3. Change the Target Dmax Values to match the actually measured Dmax values.
4. Save this modified output profile under the same name.
5. Using EFI Color Profiler, print the calibration patches using the same halftone screens you have just calibrated.
6. Use ColorWise Profile Manager to set the profile saved in [step 4](#) of the current procedure as the system default profile.

This is necessary because downloaded profiles take their calibration targets from the system default profile.

7. Download to the "Output Profiles" area the profile(s) you just created.

PostScript printer driver for Windows and Mac OS

You can access the printer driver options described in this section by choosing Start > Settings > Printers, right-clicking the appropriate **PPD** name, and choosing Properties (Windows 9x/Me), Document Defaults (Windows NT), or Printing Preferences (Windows 2000/XP) from the pop-up menu. To access the Mac OS driver options, choose Print from the File menu of your application. These settings are also accessible from the Print Setup or Page Setup dialog boxes of most applications.

For Windows computers, the E-820 driver interface enables you to save combinations of settings that you can later access. Additionally, you can choose different settings for individual jobs from the applications you use.

The printer driver writes a PostScript file containing the instructions generated by your application and the E-820 print options you chose. The printer driver sends the PostScript file to the E-820. The E-820 then performs PostScript processing and color conversions and sends raster color data to the print device.

NOTE: The following illustrations and instructions do not apply to all applications. Many applications, such as Adobe PageMaker, Adobe Photoshop, Adobe Illustrator, QuarkXPress, and CorelDRAW, have other color management options in addition to those presented in the printer driver. For information on specific applications, see the *Fiery Color Reference*.

Setting color management print options for Windows 9x/Me and Windows NT

This section explains how to set E-820 color print options with the Adobe PostScript Printer Driver for Windows. This driver is a PostScript 3 printer driver that takes full advantage of the color features of the E-820. Before you proceed, make sure you have completed the following procedures:

- Install the Adobe PostScript Printer Driver and the E-820 PPD (see the *User Software Installation Guide*).
- Set up the E-820 for printing (see the *Configuration Guide*).
- Install the ICC output profile for the E-820 on your Windows computer (see page 3-4).

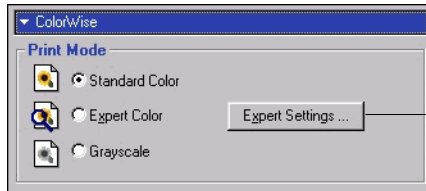
TO SET PRINT OPTIONS FOR WINDOWS 9X/ME/NT

1. Access the printer driver options, as described on [page 1-17](#).
2. Click the Fiery Printing tab, and choose settings from the ColorWise menu for the print options described on [page 1-3](#).

Choose ColorWise



3. Click Expert Settings.



Click Expert Settings to access additional ColorWise options

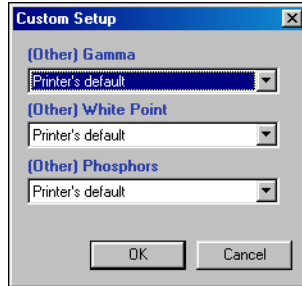
The Expert Color Settings flowchart appears. This window displays additional color settings for the E-820. Each option includes a menu from which you can select settings for your specific job.

4. Click Update to display the current E-820 settings.

If Update does not appear, make sure that two-way communication is set up as described in the *User Software Installation Guide*.

5. To specify custom RGB source settings, choose Other for the RGB Source Profile, and then click Custom Setup.

The following dialog box allows you to specify custom RGB source settings (see page 1-7).



For most users, the default settings provide the right level of color control. For more information about individual print options, see page 1-3.

Adobe PostScript printer driver for Mac OS

This section explains how to set color management print options with the AdobePS printer driver for Mac OS, a PostScript 3 driver that takes full advantage of the color features of the E-820 and lets you save a set of print option settings.

Before you continue, make sure you have completed the following procedures, as described in the *User Software Installation Guide*:

- Install the AdobePS printer driver and the E-820 PPD.
- Select the E-820 in the Chooser and set it up with the E-820 PPD.
- Install the ICC output profile for the E-820 on your Mac OS computer (see page 3-4).

NOTE: The following illustrations and instructions do not apply to all applications. Many applications, such as PageMaker, Photoshop, Illustrator, QuarkXPress, and CorelDRAW, have other color management options in addition to those presented in the printer driver. For information on specific applications, see the *Fiery Color Reference*.

Setting color management print options

You can choose print options from the various panes of the AdobePS driver dialog box. To access the initial AdobePS dialog box, choose Print from the File menu of your application.

NOTE: The word “pane” is used to describe the different pages that appear in the driver dialog box when you make selections from the menu at the upper left corner of the dialog box. Each pane presents a particular set of print options.

The AdobePS driver includes the following Color Matching options.

- **Color/Grayscale**—When this setting is used to print to the E-820, ColorWise provides all color conversions on the E-820. Typically, you should use this option when printing to the E-820.
- **PostScript Color Matching**—Can be used with PostScript devices such as the E-820. It provides for color conversion using a color rendering dictionary (CRD) that is downloaded with the print job. This method requires that the file is saved as an EPS with PostScript Color Management selected.

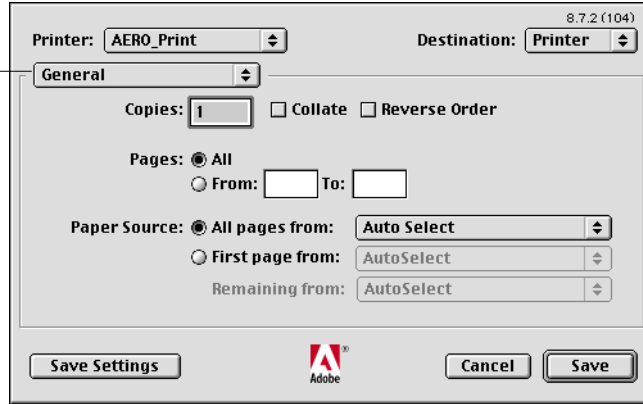
NOTE: If you use the PostScript Color Matching option, the driver may, depending on the application in use, attach a CMYK source definition to the CMYK data in your document. In such a case, the CMYK data in the document is re-separated using a E-820 CRD. The destination color space for the CRD is determined by the RGB Separation print option. When RGB Separation is set to Simulation, CMYK data is printed according to all specified CMYK Simulation Profile and CMYK Simulation Method settings. When RGB Separation is set to Output, CMYK data is converted to the selected output profile's CMYK color space.

- **ColorSync Color Matching**—Provides for color conversion *on the host computer*. This option can be used with PostScript devices such as the E-820, but it is intended for use with PostScript Level 1 devices. If you use this option, be sure to specify the E-820 ICC profile as the Printer Profile. ColorSync Color Matching is not a suggested color matching method because it does not work in conjunction with all applications and requires that you disable features of ColorWise on the E-820.

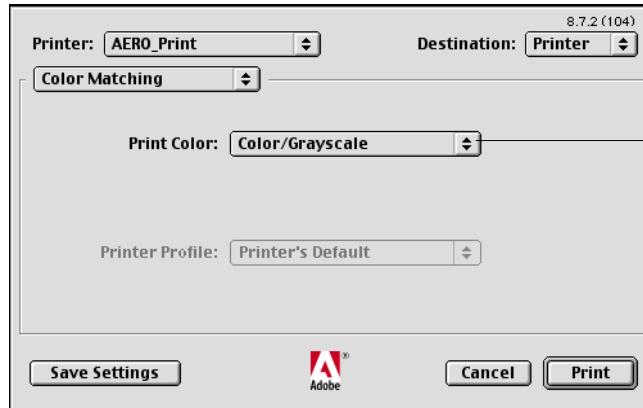
TO SET E-820 COLOR MANAGEMENT OPTIONS

1. In the AdobePS Print dialog box, choose Color Matching from the General menu.

Choose Color Matching from this menu

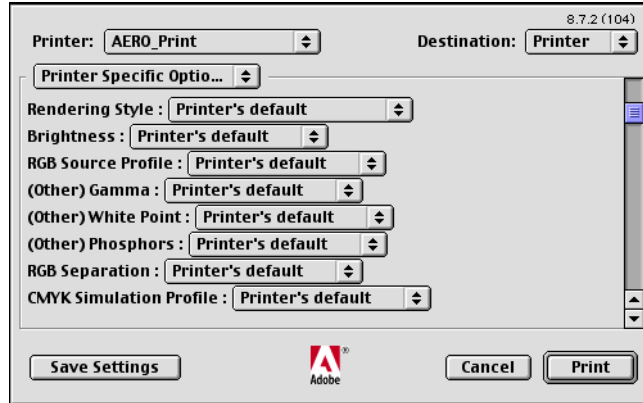


2. Choose Color/Grayscale from the Print Color menu.



Choose Color/Grayscale

3. In the Printer Specific Options menus, choose settings for the print options described on page 1-3.



4. If these settings are used regularly, click Save Settings to save them for subsequent jobs.

Chapter 2: Color Calibration

Calibrating the E-820 ensures consistent, reliable color output. You can calibrate the E-820 using ColorWise Pro Tools in combination with any of the following color measurement instruments, available as separately purchased options:

- X-Rite DTP41 automatic scanning spectrophotometer
- X-Rite DTP32 automatic scanning densitometer
- EFI Densitometer ED-100 hand-held densitometer

By connecting the instrument to the serial port on your computer, you can quickly measure calibration color patches and download measurements to the E-820. For information on setting up and operating the DTP41 and DTP32, see [Appendix A](#).

You can also obtain measurements from the copier's built-in scanner and calibrate using AutoCal™ or ColorCal™, which do not require the use of a measurement instrument and can be run from ColorWise Pro Tools or the E-820 Control Panel.

This chapter explains how **calibration** works and provides instructions for all calibration procedures.

For information on advanced calibration and simulation features available with ColorWise Pro Tools, such as editing profiles and creating custom profiles, see [Chapter 3](#). A format for inputting color measurements from other **densitometers** is described in [Appendix B](#).

NOTE: The procedures described in this chapter are fundamentally the same for Windows and Mac OS computers. The main differences are the interface cable and the port used to connect to the measurement instrument. This chapter shows illustrations for the Windows version.

NOTE: The term *computer* is used to refer to any computer running ColorWise Pro Tools.

An overview of calibration

Calibration generates curves that adjust for the difference between the actual toner densities (measurements) and the response expected by the output profile.

- Measurements represent the actual color behavior of the copier.
- Calibration sets are sets of measurements.
- A calibration target that describes the expected behavior of the copier is contained in each output profile.

Once you have calibrated the E-820, a calibration set is stored. This calibration set will be used when it is associated with an output profile. Every output profile has an associated calibration set. If you have not specified one, the calibration set associated with the default output profile is used.

If you change the calibration after a saved job has been processed (RIPped), you do not need to reprocess (reRIP) the job. The new calibration affects the job without needing to be reprocessed.

NOTE: Changing calibration has the potential to affect *all* jobs for *all* users, so you may want to limit the number of people authorized to perform calibration. You can set an Administrator password in E-820 Setup to control access to calibration (see the *Configuration Guide*).

Understanding calibration

Although most users' needs are met by the default calibration set, the E-820 allows you to choose a calibration set to customize calibration for specialized jobs.

Calibration allows you to:

- Maximize the color reproduction capabilities of the E-820.
- Ensure consistent color quality over time.
- Produce consistent output across E-820 servers.
- Achieve better color matches when reproducing **spot colors** such as PANTONE colors or other **named color** systems.
- Optimize the E-820 for using ColorWise rendering styles (CRDs) and CMYK simulations, and for using ICC profiles.

How calibration works

Success in obtaining satisfactory print quality from the E-820 depends on many factors. Among the most important are establishing and maintaining optimal toner densities. The **density** is the measure of the light absorbed by a surface. By carefully regulating toner densities, you can obtain consistent printed color.

Even with a calibrated system, toner density is affected by service settings, humidity, and temperature; density also tends to drift over time. Regular measurement detects day-to-day variations in densities, and calibration corrects for them.

Calibration works by creating calibration curves on the E-820 that compensate for the difference between actual (measured) and desired (target) density values. These calibration curves are the graphic equivalent of transfer functions, which are mathematical descriptions of changes that will be made to the data you start with. Transfer functions are often graphed as input or output curves.

The E-820 generates calibration curves after comparing measured values to the final target values for each of the four toner colors. The target values are based on the output profile specified.

Measurements

Measurement files contain numerical values that correspond to the toner density produced by the copier when it prints solid cyan, magenta, yellow, and black, and graduated tints of those colors.

To create a measurement file, first print a page of color patches. Then measure the patches using either a color measurement instrument connected to a computer on the network or, if it is available, the print device's scanner. The new measurements are automatically downloaded to the E-820.

Output profiles and calibration sets

Output profiles and calibration sets define desired calibration results. The E-820 provides one (or more) output profiles and one (or more) calibration sets. When you calibrate the E-820, you can select the calibration set that corresponds to the typical printing jobs at your site. This same calibration set can be associated with one or more output profiles. (For more information on output profiles, see [page 1-11](#).)

Scheduling calibration

In general, you should calibrate the E-820 at least once a day, depending on the volume of print jobs. If it is very important to maintain consistent color, or if the copier is subject to wide fluctuations in temperature or humidity, calibrate every few hours. For the best performance, calibrate whenever there is a noticeable change in print quality.

If you need to split a print job into two or more batches to be printed at different times, it is especially important to calibrate before printing each batch. You should also calibrate the E-820 after copier maintenance. However, because the copier may be less stable immediately after maintenance, wait until you have printed approximately 50 pages before you calibrate.

NOTE: Since printed output from the copier is very sensitive to changes in temperature and humidity, the copier should *not* be installed near a window or in direct sunlight, or near a heater or air conditioner. Paper is sensitive to climate changes, as well. It should be stored in a cool, dry, stable environment, and reams should remain sealed until they are needed.

To monitor print quality, print color reference pages. You can print Color Charts from the Control Panel (see the *Configuration Guide*) or Command WorkStation (see the *Job Management Guide*), and the color reference pages included with the user software (see the *User Software Installation Guide*). All of these pages include fully saturated color patches and pale tints of cyan, magenta, yellow, and black. Images with skin tones offer a very good basis for comparison. You can save and compare pages you printed at different times. If there is a noticeable change in appearance, calibrate the E-820.

When you examine the Test Page, keep in mind that all color patches should be visible, even though they may be very faint in the five percent and two percent range. Each color's patch set should show uniform gradation from patch to patch as the color lightens from 100 percent to zero percent.

If the solid density patches (100% cyan, magenta, yellow, or black) look less saturated with time, show the pages to your copier service technician to find out whether adjusting the copier can improve output.

Checking calibration status

You can check whether the E-820 is calibrated, which calibration set and output profile were used, and when the copier was last calibrated by doing the following:

- Print a Configuration page or Test Page from the Control Panel or Command WorkStation.
- Select a calibration set in Calibrator—the last calibration and the user who performed it are displayed.

Using Calibrator

ColorWise Pro Tools Calibrator lets you calibrate the E-820 using the measurement method of your choice.

Changing the calibration has the potential to affect *all* jobs for *all* users, so you may want to limit the number of people authorized to perform calibration. You can set an Administrator password to control access to calibration (see the *Configuration Guide*).

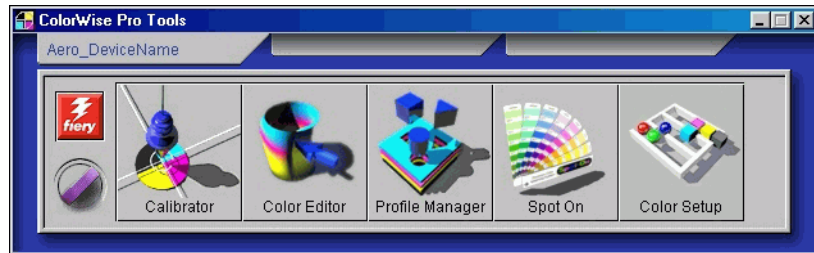
NOTE: Multiple users can be connected to one E-820 with ColorWise Pro Tools, but only one user at a time can use Calibrator. An error message appears if you try to calibrate when another user is already using ColorWise Pro Tools to calibrate.

Starting Calibrator

Start Calibrator from the ColorWise Pro Tools main window.

TO CALIBRATE THE E-820 USING CALIBRATOR

1. Start ColorWise Pro Tools and connect to the E-820.



For instructions on configuring the connection to the E-820, see the *User Software Installation Guide*.

NOTE: If the connection to the E-820 from Command WorkStation (which also allows for access to ColorWise Pro Tools) is not established, you can start ColorWise Pro Tools independently of Command WorkStation.

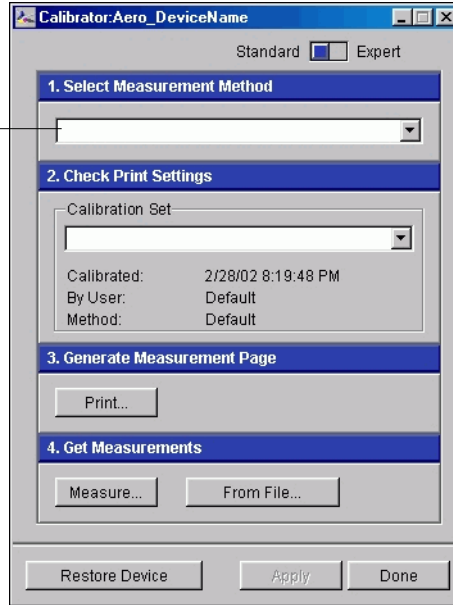
2. Click Calibrator.

2

2-7 Using Calibrator

The Calibrator window appears.

Calibration methods
appear here

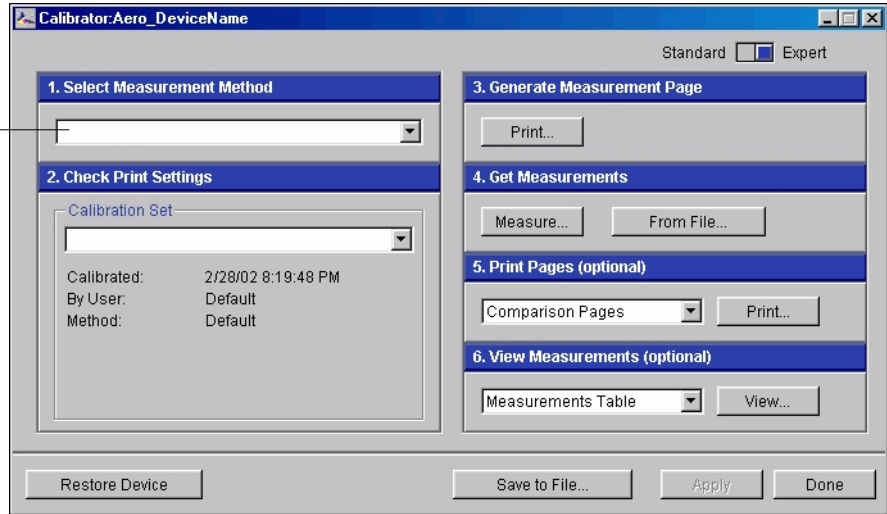


You can use the Calibrator window to perform the calibration method of your choice. Procedures for each calibration method are described in sections later in this chapter.

Expert Mode

You can set the Calibrator to either Standard or Expert Mode. You can perform all essential calibration tasks while in Standard Mode. Expert Mode offers two additional options: Print Pages and View Measurements.

Calibration methods
appear here

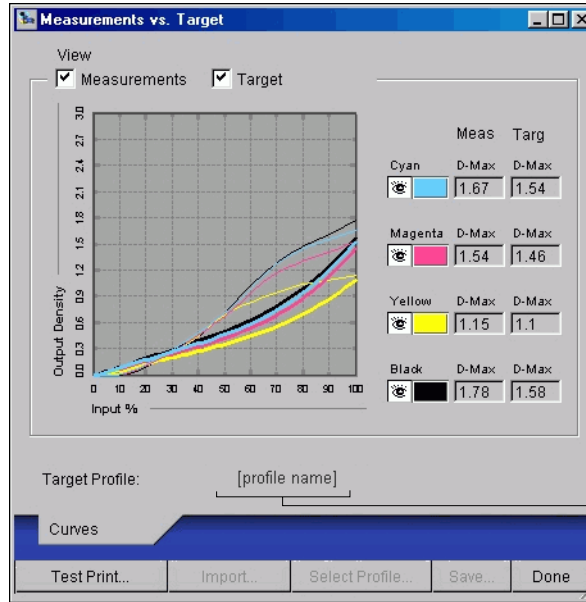


With the Print Pages option, you can print a calibration Comparison Page showing the results of the new measurements with any profile associated with the currently selected calibration set. You can also create a custom comparison page and save it as a PostScript or Encapsulated PostScript (EPS) file called CALIB.PS. You can then print the file to the Hold Queue of the E-820 from your application or download it to the Hold Queue with Fiery Downloader. An additional way to create the CALIB.PS file is to rename any job in the Hold Queue using Command WorkStation (see the *Job Management Guide*).

2

2-9 Using Calibrator

With the View Measurements option, you can view the current set of measurements as a table or graph that shows both the measurements and the target curves.



Output profile name
appears here

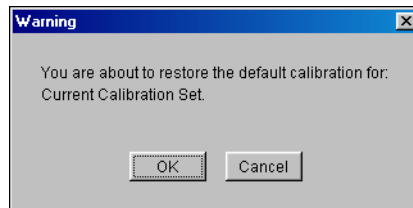
When more than one profile uses the same target, an additional menu called Plot Against appears in the upper-right corner of the dialog box. It lists all output profiles that use that same calibration set. Selecting an output profile from this menu displays the target curves associated with that profile. If each output profile contains a unique calibration target, when you switch profiles, the curves displayed also change.

Restoring default calibration measurements

Use the following procedure to return to default preset calibration measurements.

TO RESTORE DEFAULT CALIBRATION MEASUREMENTS

1. In the main Calibrator window, click **Restore Device**.
2. Click **OK** to restore the preset default calibration set.



NOTE: Restore Device applies only to the currently selected calibration set.

Calibrating the E-820 with the DTP41

Using the ColorWise Pro Tools Calibrator application and the DTP41 spectrophotometer, you can quickly measure color patches generated by the copier and automatically download these measurements to the E-820.

NOTE: Before using ColorWise Pro Tools and the DTP41 to calibrate the E-820, follow the instructions on [page A-4](#) for calibrating the DTP41 spectrophotometer.

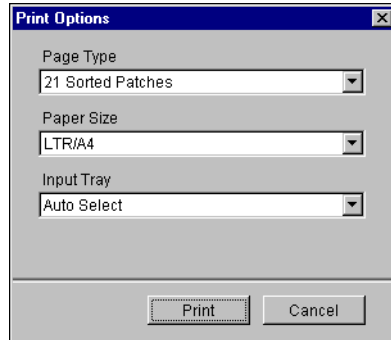
TO CALIBRATE THE E-820 USING THE DTP41

1. **Start Calibrator.**
For instructions on starting Calibrator, see [page 2-6](#).
2. **Choose X-Rite DTP41 as the measurement method.**
3. **In the Check Print Settings pane, choose the desired calibration set.**

Choose the appropriate calibration set for the type of media you use most often.

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. There is no need to make any new associations for the default calibration set, since it is already associated with the default output profile.

4. In the Generate Measurement Page pane, click Print.
5. Choose the appropriate options, and click Print.



In the Page Type menu, choose either 21 or 34 Sorted Patches.

In the Paper Size menu, the menu will automatically choose LTR/A4 for 21 Sorted Patches or 11x17/A3 for 34 Sorted Patches. For your copier model, 21 Sorted Patches is recommended.

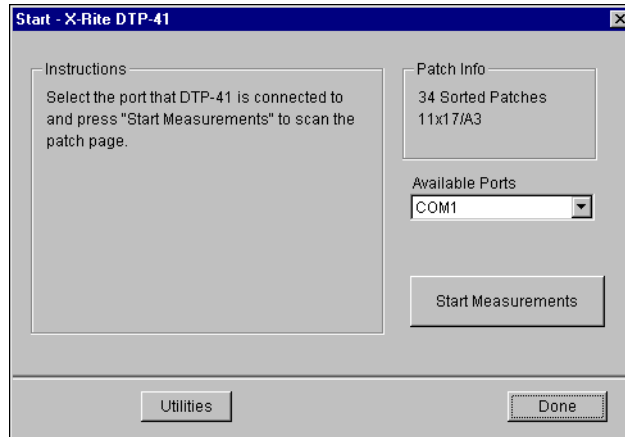
In the Input Tray menu, choose the paper source for printing the measurement page.

6. Retrieve the measurement page from the copier.
7. In the Get Measurements pane, click Measure.

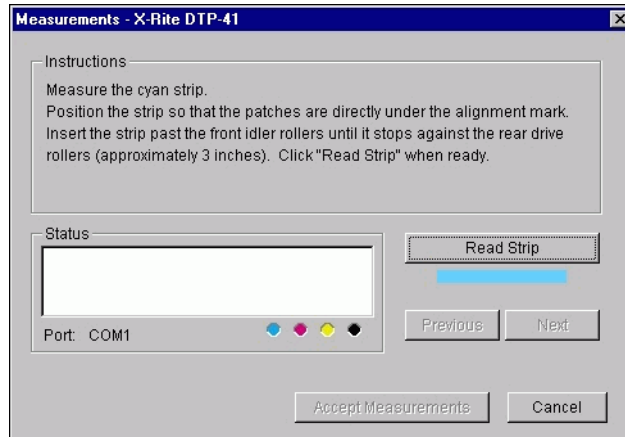
The Measurement Options dialog box appears, displaying the specified Page Type and Paper Size options.

8. Click Measure.

The Start dialog box appears.

**9. If necessary, choose the appropriate COM port for the DTP41 from the Available Ports menu. Click Start Measurements.**

The Measurements dialog box appears.



10. Feed the measurement page into the DTP41, starting with the cyan strip.

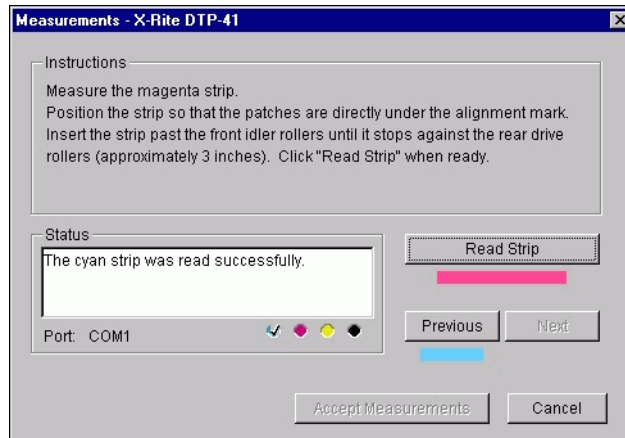
Align the page in the measurement page slot of the DTP41 so the appropriate color column is centered below the alignment mark (see the diagram on [page A-2](#)). Insert the page about 3 inches, past the front idler rollers, until it rests against the rear drive rollers.

11. Click Read Strip.

The DTP41 pulls the measurement page through automatically.

Once the measurement page is read, Calibrator instructs you to insert and align the page again for the next color.

12. Repeat the measurement process for the magenta, yellow, and black strips.



A check mark appears on the circle of the color just read, and the Status field indicates that color was measured successfully.

You can use the Previous and Next buttons to reverse or advance to another step in the measurement sequence.

13. When the Status field indicates that all four color strips have been read successfully, click Accept Measurements.

14. In the Measure dialog box, click OK.
15. Click Apply in the Calibrator window to implement the new calibration set.
16. Click OK in the Information dialog box.

This completes the E-820 calibration process.

Calibrating the E-820 with the DTP32

Using the DTP32, you can quickly measure color patches and download these measurements to the E-820 using ColorWise Pro Tools Calibrator.

TO CALIBRATE THE E-820 USING THE DTP32

1. **Start Calibrator.**

For instructions on starting Calibrator, see [page 2-6](#).

2. **In the Select Measurement Method pane, choose X-Rite DTP32.**

3. **In the Check Print Settings pane, choose the desired calibration set.**

If more than one option appears, choose the appropriate calibration set for the type of media you will use most often.

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. The default calibration set is already associated with the default output profile, so there is no need to make any new associations.

4. **In the Generate Measurement Page pane, click Print.**

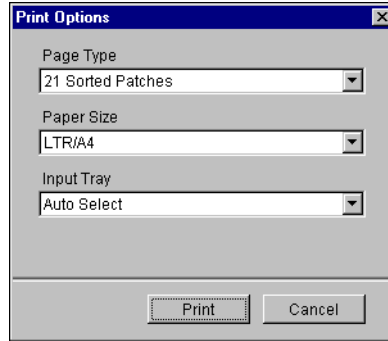
The Print Options dialog box appears.

5. **Choose the appropriate options, and click Print.**

For Page Type, choose either 34 or 21 Sorted Patches.

In the Paper Size menu, the menu will automatically choose LTR/A4 for 21 Sorted Patches or 11x17/A3 for 34 Sorted Patches. For your copier model, 21 Sorted Patches is recommended.

For Input Tray, specify the paper source.

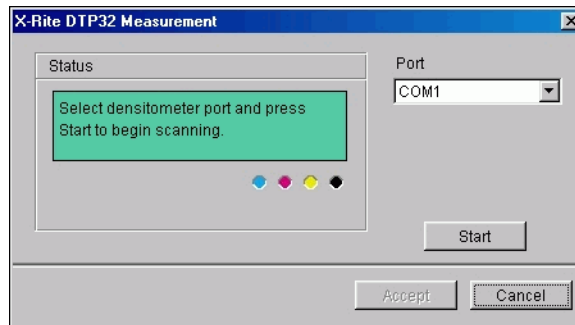


6. Retrieve the measurement page from the copier.
7. Click Measure in the Get Measurements pane.

The Measurement Options dialog box appears, displaying the specified Page Type and Paper Size options.

8. Click Measure.

In the dialog box that appears, follow the directions for feeding the measurement page through the X-Rite DTP32.



The Status field displays instructions for selecting the port and feeding the measurement page through the DTP32 four times, once for each color strip.

9. When the Status field indicates that the measurements were read successfully, click Accept.

10. Click **OK** in the **Measure** dialog box.
11. Click **Apply** in the **Calibrator** window to implement the new calibration set.
12. Click **OK** in the **Information** dialog box.

This completes the calibration process.

Using the EFI Densitometer ED-100

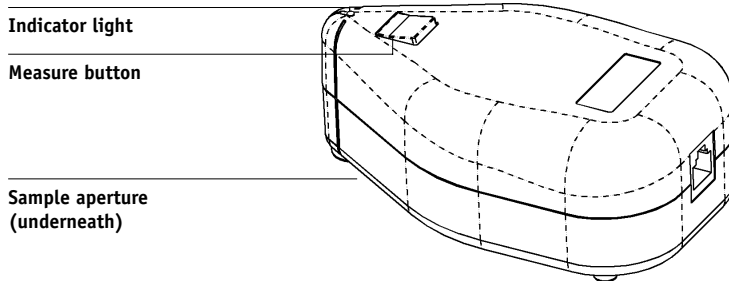
The EFI Densitometer ED-100 is a hand-held instrument that measures the density of printed ink and toner. Like the DTP32, the ED-100 is a reflection **densitometer** that you can use to calibrate the E-820.

The ED-100 is available as a separately purchased option.

Setting up the ED-100

To use the ED-100 for calibration purposes, you must first set it up for use with your computer. For complete instructions on setting up the ED-100, see the documentation that is included with the instrument.

The following illustration shows the different components of the ED-100.



Calibrating the E-820 with the ED-100

You can use ColorWise Pro Tools in conjunction with the ED-100 to calibrate the E-820.

TO CALIBRATE THE E-820 USING THE ED-100

1. Start Calibrator.

For instructions on starting Calibrator, see [page 2-6](#).

2. Choose EFI Densitometer ED-100 as the measurement method.

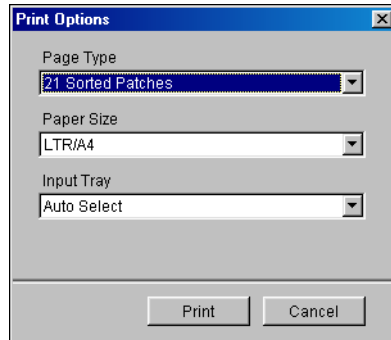
3. In the Check Print Settings pane, choose the desired calibration set.

Choose the appropriate calibration set for the type of media you will use most often.

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. There is no need to make any new associations for the default calibration set, since it is already associated with the default output profile.

4. In the Generate Measurement Page pane, click Print.

5. Choose the appropriate options and click Print.

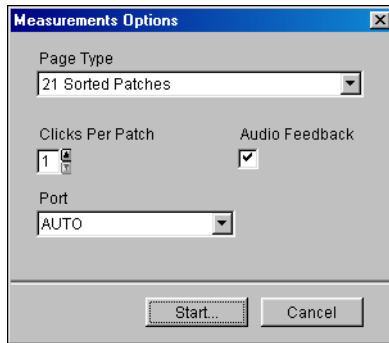


In the Page Type menu, choose either 34 or 21 Sorted Patches, or 34 or 21 Randomized Patches. Sorted patches are printed on the page in order of their hue and saturation levels. Randomized patches are printed on the page in random order, to help compensate for density inconsistencies on different areas of the page.

In the Paper Size menu, the menu will automatically select LTR/A4 for 21 Patches or 11x17/A3 for 34 Patches.

In the Input Tray menu, specify the paper source for printing the measurement page.

6. **Retrieve the measurement page from the copier.**
7. **Click Measure in the Get Measurements pane.**
8. **Choose the appropriate options, and then click Start.**



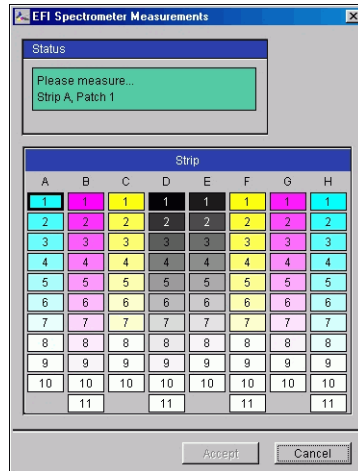
The Page Type menu automatically chooses the measurement page type that you printed in step 6.

Use the arrow buttons next to the Clicks Per Patch field to choose the number of measurements you want to take for each patch on the page. When you choose multiple clicks, the average value of all measurements taken for the patch is returned to the E-820. Multiple measurements are more accurate, but may take more time.

Select the Audio Feedback option if you want to hear a confirmation tone each time a measurement is recorded. A single tone indicates a successful measurement; two tones indicate a measurement error. If you have specified multiple clicks per patch, the tone sounds after you take the final measurement.

If necessary, choose the appropriate COM port for the ED-100 from the Port menu.

When you click Start, the Measurements window appears. Directions for measuring the patches appear in the Status area.

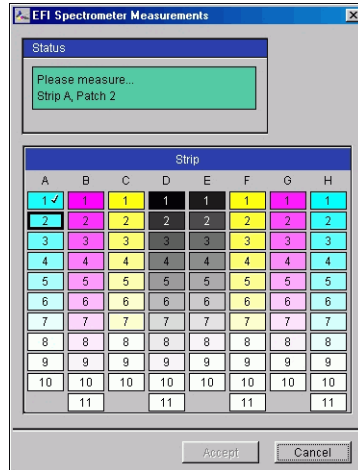


9. Place the ED-100 over the specified patch on the Measurement Page, making sure to center the sample aperture over the patch. Press Measure to take the measurement.

NOTE: For a more accurate measurement, place several plain sheets of paper beneath the Measurement Page to block underlying colors from being read by the instrument.

If you have specified multiple clicks per patch, continue pressing Measure to take the required number of measurements. We recommend that you move the ED-100 slightly after each measurement while keeping it within the patch circle.

When the patch has been measured successfully, a checkmark appears in the patch preview in the Measurements window. The window identifies and highlights the next patch to be measured.



10. Repeat step 9 to measure each successive patch on the Measurement Page.

To retake a measurement, select the desired patch preview in the Measurements window, and then measure the patch on the page using the ED-100.

NOTE: You must take the measurements in the order outlined in the Measurements window and on the measurement page.

- 11. When all the patches have been read successfully, click Accept.**
- 12. Click Apply in the Calibrator window to implement the new calibration set.**
- 13. Click OK in the Information dialog box.**

This completes the E-820 calibration process.

Using AutoCal and ColorCal

AutoCal and ColorCal are methods to calibrate the E-820 without the use of an additional spectrophotometer or densitometer. Instead, these methods use the copier's built-in scanner to measure toner density values. Because using either AutoCal or ColorCal provides an equally accurate calibration of the E-820, you need to perform only one of these methods.

You can perform either AutoCal or ColorCal calibration from ColorWise Pro Tools or the E-820 Control Panel. For troubleshooting during the AutoCal procedure, see the *Job Management Guide*.

NOTE: To calibrate using AutoCal or ColorCal, you will need the Kodak Gray Scale strip included in the customer media pack that came with your E-820. You also need the Kodak Gray Scale strip to calibrate the scanner of the copier for ColorCal.

Calibrating with ColorWise Pro Tools and AutoCal or ColorCal

When you run ColorCal from ColorWise Pro Tools, you have the option to calibrate the copier's scanner before calibrating the E-820 itself. This option is not available for AutoCal. It is recommended to calibrate the scanner for ColorCal when the copier output has been adjusted, such as after maintenance or service.

TO CALIBRATE WITH COLORWISE PRO TOOLS AND AUTOCAL OR COLORCAL

- 1. Start Calibrator.**

For instructions on starting Calibrator, see [page 2-6](#).

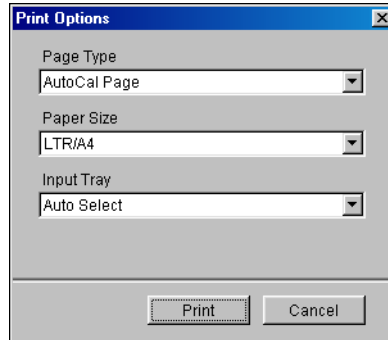
- 2. In the Select Measurement Method pane, choose AutoCal or ColorCal.**

- 3. In the Check Print Settings pane, choose the desired calibration set.**

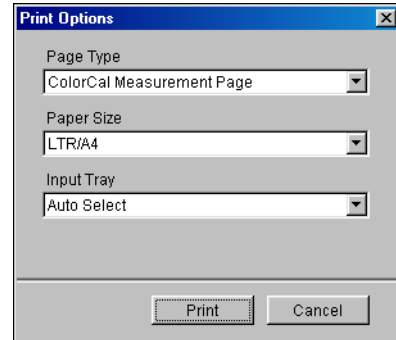
If more than one option appears, choose the appropriate calibration set for the type of media you will use most often. For more information about calibration sets, see [page 2-2](#) and [page 3-9](#).

NOTE: For this calibration to take effect, the calibration set must be associated with one or more output profiles. The default calibration set is already associated with the default output profile, so there is no need to make any new associations.

4. Click **Print** in the **Generate Measurement Page** pane.
5. Choose the **Input Tray** to use for the measurement page and click **Print**.



AutoCal



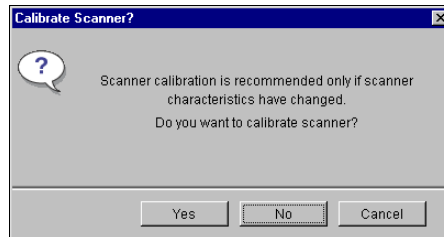
ColorCal

The Page Type is automatically set to AutoCal Page or ColorCal Measurement Page.
The Paper Size is automatically set to LTR/A4.

6. Retrieve the **Measurement Page** from the copier.
7. Click **Measure** in the **Get Measurements** pane.

If you chose the AutoCal method, skip to [step 11](#).

If you chose the ColorCal method, an alert message appears, asking if you want to calibrate the copier's scanner.



8. If you are using ColorCal and want to calibrate the scanner, click **Yes**.
9. Choose the **Input Tray** to use for the scanner measurement page and click **Print**. Retrieve the scanner measurement page from the copier.

10. **Place the Gray Scale strip, Color Scale strip, and scanner measurement page in the correct positions on the copier glass for scanner calibration.**

Place the Gray Scale face down on the copier glass so that it will be centered along the top edge of the scanner measurement page. Then place the Color Scale strip face down on the copier glass so it is centered below the Gray Scale strip, keeping a distance of 0.25 inch to 0.5 inch between the two strips. Finally, place the scanner measurement page face down over the strips.

To perform the scanner calibration, click Continue in the dialog box that appears.

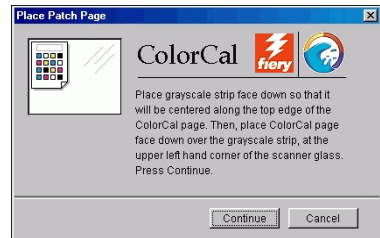


After the scanner has been calibrated, another dialog box appears, prompting you to calibrate the E-820.

11. **Follow the directions in the dialog box for placing the Gray Scale strip and the AutoCal or ColorCal measurement page on the copier glass. Click Continue.**



AutoCal



ColorCal

12. **Click Apply in the main Calibrator window to implement the new calibration set.**
13. **Click OK in the Information dialog box.**

This completes the calibration process.

Calibrating from the Control Panel with Fiery AutoCal or ColorCal

If an Administrator password has been set, you will need it to perform calibration from the Control Panel. For instructions on using the E-820 Control Panel, see the *Configuration Guide*.

It is also possible to remove calibration measurements from the E-820. In general, it is not necessary, because any new calibration replaces the existing one if the same calibration set is selected.

TO USE FIERY AUTOCAL OR COLORCAL FROM THE CONTROL PANEL

1. **At the Idle screen, press Menu to enter the Functions menu.**
2. **Using the Up and Down arrow buttons and the Line Selection buttons, choose Calibration, and then choose Set Up Calibration.**

If a password is set on the E-820, enter it and press OK.

3. **For Calibration Mode, choose Standard or Expert.**
Expert Mode adds the option to print a Comparison Page (see [page 2-8](#)).
4. **For Tray, choose the paper source for the patch page and press OK.**

Choose LTR/A4 from the E-820 Control Panel.

NOTE: If you print a measurement page from the Manual Feed tray, you must load the appropriate paper in the tray and select the correct paper size from the copier touch panel display.

5. **Choose Calibrate.**
6. **Select the Calibration Set.**

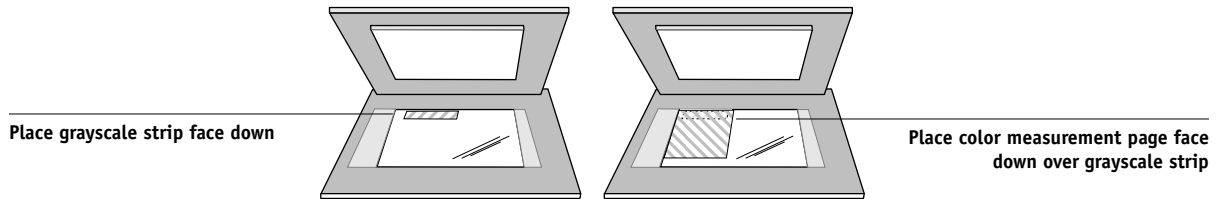
You can choose from the list of all calibration sets on the E-820. This screen appears only if more than one calibration set is available. For more information about calibration sets, see [page 2-2](#) and [page 3-9](#).

7. **When prompted, choose Yes to print the measurement page.**

This page is comprised of swatches of color that will be measured by the copier's scanner and then compared to the target color values. After the page is printed, the Measure Page screen appears.

8. **Choose Yes in the Measure Page screen.**
9. **When prompted on the Control Panel, place the Kodak Gray Scale strip face-down on the copier glass.**

Place the strip along the top edge of the copier so that it is centered between the paper width marks on the copier.



10. **Place the color measurement page face-down over the grayscale strip.**

Make sure the patches on the grayscale strip do not overlap the color patches.

Close the platen glass cover, being careful not to move the grayscale strip and color measurement page.
11. **On the Control Panel, choose OK.**

Status messages display the progress of scanning and calculating measurements.
12. **When prompted to Print Comparison Page (Expert Mode only), choose Yes to print a preview of the selected calibration.**

Choose from a list of output profiles that use the same calibration set and press OK. This option appears only in Expert Mode calibration.
13. **When prompted to apply or overwrite the calibration, choose Yes.**
14. **Choose Yes to confirm.**

Status messages display progress information. When calibration is complete, the Control Panel display returns to the Functions menu.

TO REMOVE CALIBRATION FROM THE CONTROL PANEL

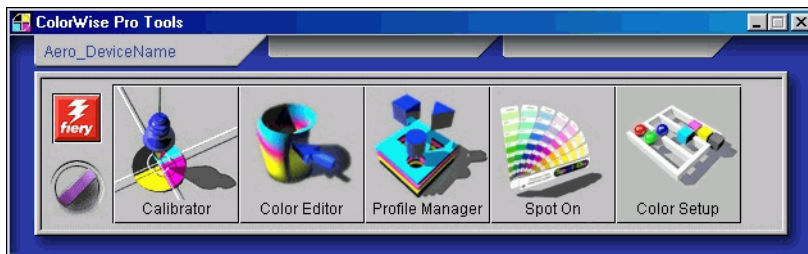
1. From the E-820 Control Panel, access the Calibration menu as described on [page 2-24](#).
2. Choose Remove Calibration.
3. When prompted, verify that you want to proceed with removing calibration.

The current measurements are removed and a default calibration is restored.

Chapter 3: ColorWise Pro Tools

Designed to give you flexible control of color printing, ColorWise Pro Tools include the following color management tools:

- Calibrator (see [Chapter 2](#))
- Color Editor
- Profile Manager
- Spot On (available only if you have installed the Fiery Graphic Arts Package)
- Color Setup



ColorWise Pro Tools for Windows and Mac OS computers are fundamentally the same; differences are noted in this chapter. The windows and dialog boxes illustrated are the Windows versions. For information on installing and configuring a connection to ColorWise Pro Tools, see the *User Software Installation Guide*.

NOTE: If the connection to the E-820 from Command WorkStation (which also allows for access to ColorWise Pro Tools) is not established, you can start ColorWise Pro Tools independently of Command WorkStation.

Profile Manager

Profile Manager allows you to manage and edit ICC profiles. In the case of the E-820, these profiles are divided into RGB Source, Simulation, and Output profiles.

- **RGB Source** contains all monitor profiles resident on the E-820. RGB Source profiles are used to define the source color space for RGB colors processed by the E-820.

NOTE: If you use Photoshop 5.x or 6.x, you can upload the profile for your selected working space to the E-820 and choose that as your RGB Source profile. For more information, see the *Fiery Color Reference*.

- **Simulation** contains printer profiles used to simulate another device on the E-820.
- **Output** contains copier profiles that describe the copier. For more information on output profiles, see [page 1-11](#).

NOTE: Changing the E-820 default profiles affects *all* jobs for *all* users. You may want to limit the number of people authorized to use ColorWise Pro Tools by setting an Administrator password.

The following profiles are provided with the E-820.

RGB Source:

- **sRGB (PC)**—source color space for a generic Windows computer monitor
- **Apple Standard**—standard source color space for Mac OS computer monitors with older versions of ColorSync
- **EFIRGB**—preset default setting for a E-820

Simulation:

- **SWOP-Coated**—United States press standard
- **Euroscale**—European press standard
- **DIC**—Japanese press standard

In addition, one or more output profiles are provided with the E-820.

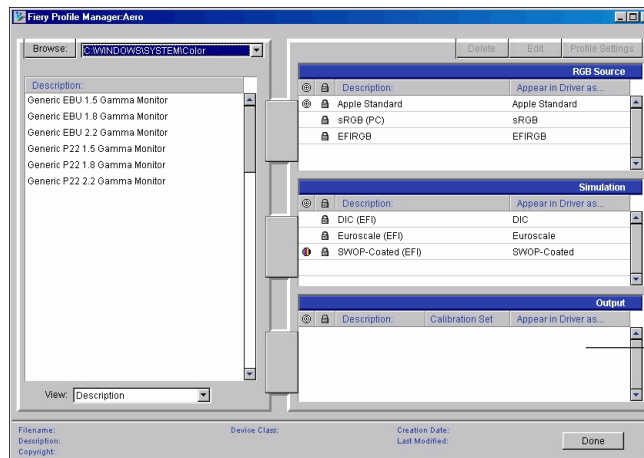
For more information on output profiles, see [page 1-11](#).

Setting the default profiles

The default profiles are applied to all print jobs sent to the E-820, unless you override them using print options. Therefore, the defaults should be the most commonly used profiles.

TO SPECIFY A DEFAULT PROFILE

1. Start ColorWise Pro Tools and click Profile Manager.



Output profiles
appear here

The left side of the main Profile Manager window lists the ICC profiles in the default directory of your computer; the right side lists the three profiles on the E-820.

The Lock icon (🔒) to the left of a profile name indicates that the profile cannot be deleted and can be edited only if saved under a new name. Only Simulation and Output profiles can be edited.

A small icon to the left of a profile name indicates the default profile for each category (RGB Source, Simulation, and Output). If you designate a different profile as the default, the icon appears next to your designated profile. The icon indicating the default RGB Source and Output profiles looks like a target (🎯). The icon indicating the default Simulation profile changes in appearance depending on whether the default RGB Separation setting is set to Simulation (🌈) or Output (🇧🇪).

2. Select the profile you want as the default for a profile type and click Profile Settings.

3. In the Profile Settings dialog box, click Default and click Apply.

4. Click OK.

In the main Profile Manager window, the target icon appears next to the new default profile you specified.

5. Repeat steps 2 through 4 for each type of profile.

If no default is set for RGB Source, the RGB Source print option is set to None. If no default profile is set for Simulation, the CMYK Simulation print option is set to None. For more information on print options, see [Chapter 1](#).

The Output profile always has a default profile. You can change the Output default by selecting a preset profile you want as the default and clicking Profile Settings. Or create a new default under a new name by selecting a preset profile and specifying your choice of the calibration set in the Use Calibration Set menu and a new name in the Profile Description menu.

Downloading profiles

The E-820 comes with default profiles. You can download additional profiles from any computer connected to the E-820.

TO DOWNLOAD A PROFILE

1. Start ColorWise Pro Tools and click the Profile Manager.

The left side of the main Profile Manager windows lists the ICC profiles in the default directory of your workstation.

- **Windows 9x/Me**—Windows\System\Color
- **Windows NT 4.0**—Winnt\System32\Color
- **Windows 2000**—Winnt\System32\Spool\Drivers\Color
- **Windows XP**—Windows\System32\Spool\Drivers\Color
- **Mac OS**—System Folder: Preferences: ColorSync Profiles for ColorSync 2.0, and System Folder: ColorSync Profiles for ColorSync 2.5 or later

2. If the desired profile does not appear, click Browse to go to a different directory. Browse to the directory containing the profile you want to download and click OK.

3. When the profile you want to download appears in the list in the main Profile Manager window, select it.

If the profile is compatible with the E-820, a green arrow indicates that the profile is available for downloading. Only output device profiles are downloadable to Simulation and Output. Only input device profiles are downloadable to RGB Source.



NOTE: On Windows computers, the profiles must have an extension of .icc or .icm to be listed. On Mac OS computers, the profiles must have a file type of “profile.”

All ICC profiles in the selected directory on your computer are displayed in the list in the main Profile Manager window. However, because a profile is listed does not necessarily mean it can be downloaded to the E-820.

Simulation profiles should be profiles only for those devices you want the E-820 to match in terms of color output characteristics. Output profiles should be profiles only for the copier to which you print. Although CMYK printer profiles can be downloaded as Simulation or Output, consider how they will be used. If you want the E-820 prints to look like another printer, download that profile as a Simulation. If you have a custom profile of the copier you print to, download that profile as an Output profile.

4. Click the arrow to download the profile and click OK when the download is complete.

The new profile now appears in the list of profiles on the right side of the Profile Manager main window.

For Windows 2000/XP and Mac OS computers, this profile must be associated with one of the predefined names (Source-1 through Source-10 for RGB Source, Simulation-1 through Simulation-10 for Simulation, or Output-1 through Output-10 for Output) or set as the default before it can be used. For Windows 9x/Me/NT, all profiles can appear in the printer driver by their profile descriptions (see “[Defining profiles](#)” on page 3-7).

NOTE: When an output profile is downloaded, it inherits the calibration target of the current default output profile.

Editing profiles

The profiles on the E-820 can be customized to meet your specific needs and the characteristics of your copier using Color Editor, either directly or through Profile Manager. For more information on editing profiles, see “Color Editor” on page 3-10.

Managing profiles

Profile Manager lets you back up profiles to ensure that no custom profiles are lost when the E-820 software is updated. You can also upload a copy of a built-in E-820 profile to your workstation in order to use it with an ICC-aware application, such as Photoshop. Profile Manager also lets you delete unwanted profiles.

NOTE: You can back up and delete only those profiles that appear in the main Profile Manager window *without* a Lock icon next to them. Locked profiles cannot be deleted, but most can be backed up.

TO BACK UP PROFILES

1. **Start ColorWise Pro Tools and click Profile Manager.**

2. **Select the profile on the E-820 to upload.**

The arrow in the middle of the Profile Manager window turns green and points to the left, indicating the profile is available for upload.

3. **Click the green arrow, choose a name and location for the profile, and click Save.**

The name will be the file name of the profile, but the profile description will be the original description, or the one you entered in the Profile Settings dialog box.

NOTE: When saving the profile on a Windows computer, be sure to include the extension .icm. If the extension is not included, additional dialog boxes appear.

4. **Click OK when you are notified that the profile was successfully uploaded.**

Delete profiles to make sure no one uses the wrong profile and to free up disk space on the E-820 (although profiles are small and do not take up much space).

TO DELETE PROFILES FROM THE E-820 HARD DISK

1. **Start ColorWise Pro Tools and click Profile Manager.**

2. **Select the profile you want to delete and click Delete.**

A Warning dialog box asks you to confirm the deletion.

NOTE: You cannot delete preset profiles, profiles that are currently set as default, or profiles that are linked to any of the predefined custom names, for example Simulation-1.

3. **Click Yes to delete the profile.**
4. **To delete a profile currently set as the default or associated with a custom name, click Profile Settings and clear the default option.**

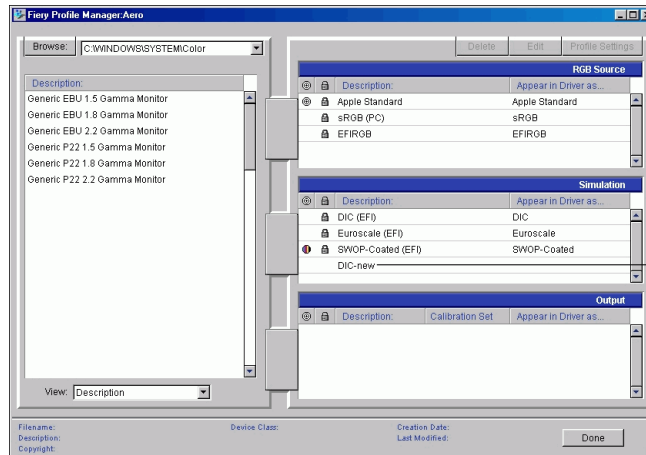
Defining profiles

For Windows 2000/XP and Mac OS computers, before you can apply any downloaded or edited profile to a print job, that profile must be linked to one of the predefined custom names, or you can set the profile as the default for all print jobs (see setting default profiles, [page 3-3](#)). Ten names are available for custom profiles—Source-1 through 10 for RGB Source, Simulation-1 through Simulation-10 for Simulation, or Output-1 through Output-10 for Output. For Windows 9x/Me/NT, all profiles appear by their actual names in the printer driver. These fixed names are used in the printer driver so that you can select profiles per job even if your driver does not have the capability to obtain an updated list from the E-820.

NOTE: A custom simulation profile is used to illustrate this procedure. The same steps apply for defining custom or downloaded output profiles.

TO DEFINE A PROFILE

1. Start ColorWise Pro Tools and click Profile Manager.



Custom profile created
with Color Editor

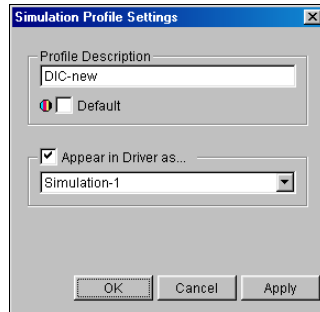
For the purposes of this example, assume DIC-new is a custom simulation profile created with Color Editor and, as such, no information is displayed for DIC-new under the heading “Appear in Driver as.”

2. Select DIC-new in the Simulation list, and click Profile Settings or double-click DIC-new.
3. Select the “Appear in Driver as” option, choose one of the predefined custom simulation names (Simulation-1 through Simulation-10) from the menu, and then click Apply.

NOTE: Choose a name that is not already linked with another simulation. If you try to define two profiles with the same name, you will get an error message.

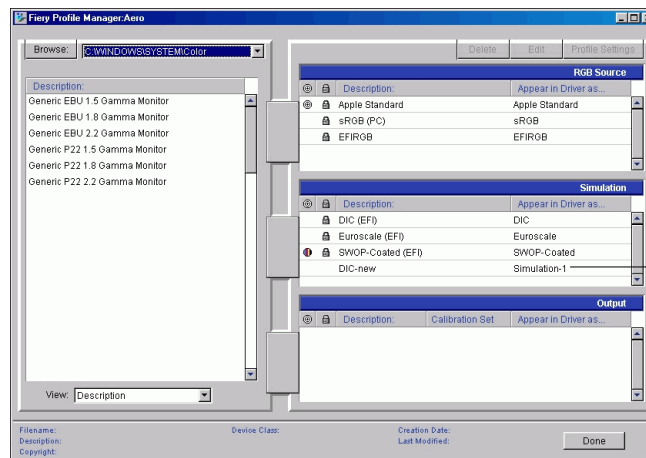
For an output profile, the predefined custom names would be Output-1 through Output-10.

NOTE: While you cannot delete a preset profile, you can use the name of a preset profile name for your edited profile when you select the “Appear in Driver as” option. This replaces the preset profile with your own profile.



When you choose Profile Settings for an output profile, the Use Calibration Set options also appear. You must calibrate the E-820 with this calibration set before this option has any effect. If you have never measured for this calibration set, default measurements will be used. For more information about calibration sets, see [page 2-2](#). In Profile Settings, you can also change profile descriptions for all non-locked profiles.

4. Click OK.



DIC-new will appear in driver as Simulation-1

Simulation-1 now appears under the “Appear in Driver as” column for DIC-new. Choosing Simulation-1 from the CMYK Simulation option of the printer driver applies the DIC-new simulation to the print job.

If you do not define a custom simulation profile, your job will print with CMYK Simulation Profile set to None. If you do not define a custom RGB Source or Output profile, the default profile is used.

Color Editor

Color Editor allows you to customize simulation and output profiles. You can access Color Editor directly by clicking its icon in the ColorWise Pro Tools main window, or indirectly, through the Profile Manager.

Editing profiles

Color Editor allows you to create custom profiles by editing existing simulation or output profiles and saving the changes as a new profile. With Color Editor, you can fine-tune a profile on your E-820 to meet your exact specifications.

NOTE: You cannot edit source profiles; only simulation and output profiles can be customized.

Color Editor has two Edit Modes for editing output profiles.

- **Custom**—Edit output profiles and save customized versions of them.
- **% Density**—View the calibration target, which is one component of the output profile. You cannot make changes to the calibration target in this window, but you can import a new target (see [page 2-2](#)).

Color Editor also has several Edit Modes for editing simulations.

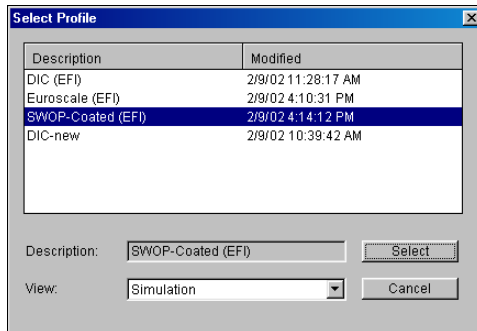
- **Master**—Create a custom *master* simulation that affects all print jobs to which it is applied, unless a linked simulation exists for the selected combination of simulation profile, simulation method, and output profile.
- **Quick, Full (Source GCR), or Full (Output GCR)**—Create custom *linked* simulations. Linked simulations affect the print job only if the corresponding simulation profile, simulation method, and output profile are selected. If you choose an output profile and simulation method for which you have created a custom linked simulation, that simulation is applied automatically to the job. If you choose a simulation method or output profile for which there is no custom linked simulation, the master simulation is automatically applied. For detailed information about simulation methods, see [page 1-10](#).

NOTE: If you made edits to a master simulation after you created a linked simulation, the edits are not applied to the linked simulation.

TO EDIT A SIMULATION PROFILE IN MASTER MODE OR AN OUTPUT PROFILE IN CUSTOM MODE

1. **Start ColorWise Pro Tools and click Color Editor.**
2. **Choose Simulation or Output from the View menu.**

Simulation lists the simulation profiles resident on the E-820, and Output lists the output profiles resident on the E-820.

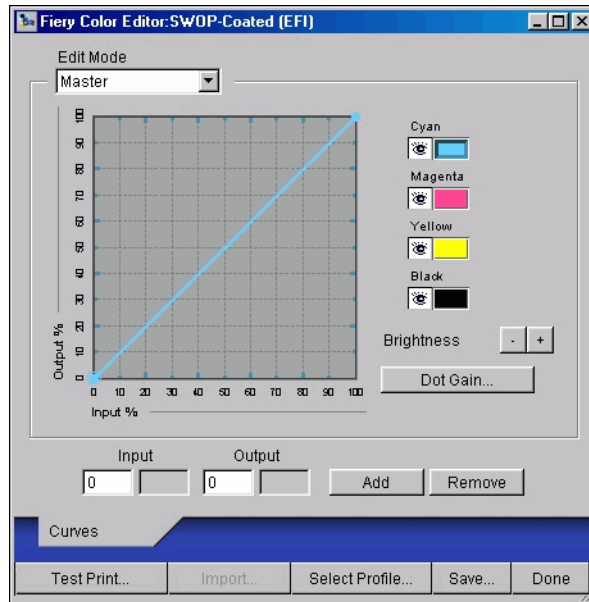


3. **Choose a profile to edit and click Select.**

You can also open the Profile Manager, select a profile, and then click Edit.

4. For a simulation profile, choose Master from the Edit Mode menu. For an output profile, choose Custom from the Edit Mode menu.

For instructions for using Quick, Full (Source GCR), or Full (Output GCR) mode, see page 3-16.



You can use this dialog box to view or edit profiles. The graph allows you to view and manipulate color output values.

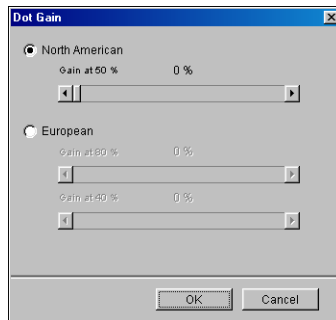
NOTE: When editing an output profile in Custom mode, clicking Import at the bottom of the Color Editor window lets you import a calibration target file (.trg) created on another E-820 using the previous version of ColorWise. The current version of ColorWise does not allow you to save a target separately; rather, it saves the target in conjunction with an output profile.

5. Select the colors you want to edit by turning colors off and on.

The Eye icon to the left of each color indicates whether that color is visible on the graph and will be affected by changes to the curves, brightness, and dot gain controls. You can view and edit all four colors (cyan, magenta, yellow, and black) at once, or any combination thereof. Working with only one or two colors at a time helps you fine-tune your adjustments. To turn off a color, click its Eye icon. In the following example, cyan and magenta are visible and can be edited.



6. To adjust the dot gain value for simulating press output, click Dot Gain.



You can choose either the North American or European standard. Use the sliders to adjust to the desired Dot Gain:

- The range of values for North American at 50% input are from 0% to 50% gain on output.
- The range of values for European at 40% input are from 0% to 59% gain on output; the range of values for European at 80% input are from 0% to 20% gain on output.

If you use Dot Gain values, apply the settings first, so that the curves are deflected from their straight-line positions. Then make edits to the new curves. When you adjust Dot Gain values, all existing points on the curve are removed. A warning dialog box allows you to cancel Dot Gain settings before they are applied.

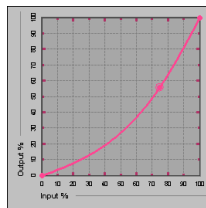
7. Use the plus and minus buttons to adjust brightness.

Changes to the brightness are reflected in the curve(s).

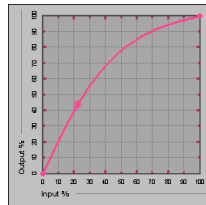
8. To adjust the curves directly, click and drag points on the curve or enter numbers into the input and output boxes.

The graph maps the input percentage to the output percentage. (These percentages refer to the size of the CMYK halftone dots.) The curve you selected appears, and points along the curve are marked so you can adjust them.

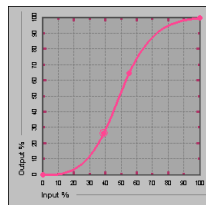
A curve with this shape makes a color appear lighter by reducing density in the midtones.



A curve with this shape makes a color appear darker by adding density in the midtones.



A curve with this shape increases contrast.



NOTE: You should adjust points in this way only *after* you have entered the Dot Gain and Brightness values.

For greater precision, you can type percentages in the Input and Output boxes or use the arrow keys on the keyboard to adjust the curve. To use the arrow keys, you must first click the curve to establish an anchor point that serves as a reference.

9. For an output profile, you can set maximum densities of the C, M, Y, and K channels.

You can enter the maximum densities, called D-Max values, of individual colors for profiles that support density settings. D-Max settings are not available when editing Simulation profiles in Master mode.

10. When you are finished, click Save and enter a name for the new profile.

The new custom profile is saved to the E-820 with the new name. If you edit one of the press standard targets (for example, SWOP-Coated, DIC, or Euroscale), you may want to include the original name as part of the new target name (for example, DIC-new) to help you remember the source of the new target.

NOTE: Preset default profiles are locked and *must* be saved with a new name.

For Windows 2000/XP and Mac OS computers, custom profiles must be linked to one of the 10 predefined custom profile names (Simulation-1 through Simulation-10 for Simulation or Output-1 through Output-10 for Output) in order to be accessible from the printer driver. You can create as many custom profiles as you want, but a maximum of 10 are available from the printer driver at any one time. For information on linking custom profiles to the predefined custom profile names, see [“Defining profiles”](#) on page 3-7. If you are using the printer driver for Windows 9x/Me/NT, custom profiles will appear in the driver window without being associated with a predefined profile name.

If you set a custom profile as the default, you can access it from the printer driver *without* linking it to one of the predefined custom names. Simply select “Printer’s default” from the printer driver.

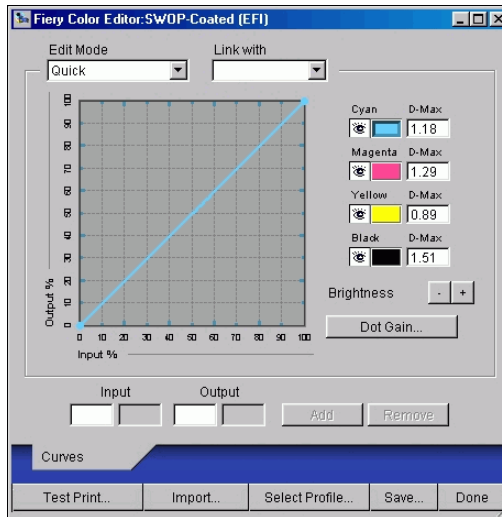
TO EDIT A SIMULATION IN QUICK, FULL (SOURCE GCR), OR FULL (OUTPUT GCR) MODE

1. Start ColorWise Pro Tools and click Color Editor.
2. Choose Simulation from the View menu, select the simulation profile to edit, and then click Select.

NOTE: You can also open the Profile Manager, select a simulation profile, and then click Edit.

3. Choose Quick, Full (Source GCR), or Full (Output GCR) from the Edit Mode menu, and choose an output profile with which your edited simulation will be linked from the Link with menu.

The edited simulation will be linked with the output profile you choose from the Link with menu.



NOTE: When editing a simulation profile in Quick mode, clicking Import at the bottom of the Color Editor window lets you import a custom Quick Simulation created on another E-820 using the previous version of ColorWise. The current version of ColorWise does not allow you to save custom Quick or Full Simulations independently; rather, they are saved as components of the same profile.

4. **Edit and save the simulation, as described in steps 5 through 10 of the procedure on page 3-13.**

For this new simulation to be automatically applied to a print job, the CMYK Simulation, Simulation Method, and Output Profile settings must be the same as those used when you edited the profile. If the Simulation Method is different or a different output profile is selected, the Master simulation is applied.

NOTE: A Simulation Profile can have a custom Master and one or more custom links—up to three links (Quick mode and the two Full modes) for each output profile on the system. (For the CMYK Simulation Profile option in the printer driver, note that if you select a custom profile for which the output ink percentage is greater than 0 and the input ink percentage is 0, the Use Master print option will have no effect.)

Undoing simulation edits

You can undo the changes you made to simulations (master and linked) in the following ways:

- If you have not yet saved your edits, click Done on the Color Editor menu bar and do not save the changes.
- If you saved your edits under a new simulation name and want to delete all edits (in Master, Quick, and Full modes) to the simulation, see [page 3-7](#).

Adjusting gray balance

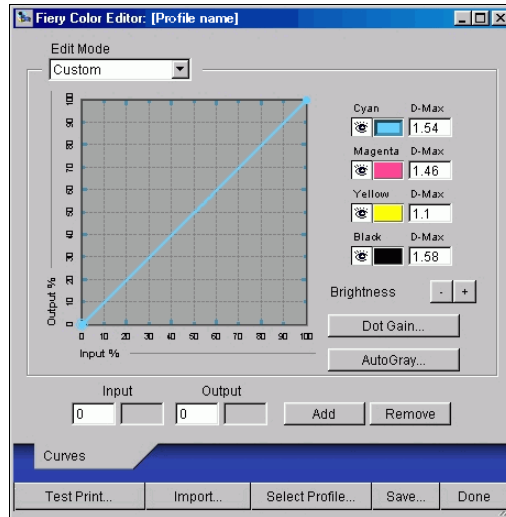
The AutoGray feature lets you use the copier's built-in scanner as a measurement device for adjusting the gray balance of output profiles. Gray balance refers to the quality of neutral gray tones in a profile. In many cases, gray tones may contain a bluish or reddish color cast. AutoGray helps shift these tones back toward neutral grays. If you are satisfied with the gray balance of the copier, you do not need to use AutoGray.

TO CORRECT THE GRAY BALANCE OF AN OUTPUT PROFILE

1. **Start ColorWise Pro Tools and click Color Editor.**
2. **Choose Output from the View menu.**

3. Select a profile to edit and click Select.

You can also open the Profile Manager, select a profile, and then click Edit.

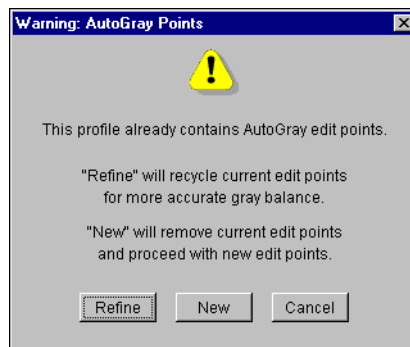


4. Choose Custom from the Edit Mode menu.

5. Click AutoGray.

6. If the output profile contains no edit points, continue to step 8.

If the output profile contains edit points from a previous AutoGray session, choose an action from the following warning that is displayed.



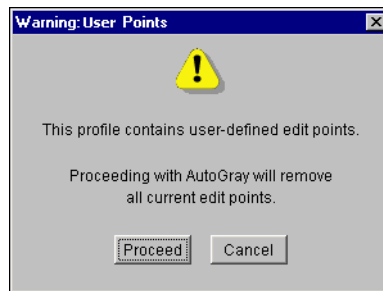
Refine reuses edit points from a previous session in an attempt to make them more accurate. Refine is optional; use it only if the gray balance in your test document still

needs improvements after the first AutoGray session. If two Refine applications cannot fix the situation, it is probably because your test document is not correctly addressing the output profile, or because the output profile that you are editing does not adequately describe the actual copier and printing conditions. Applying Refine more than twice is not recommended.

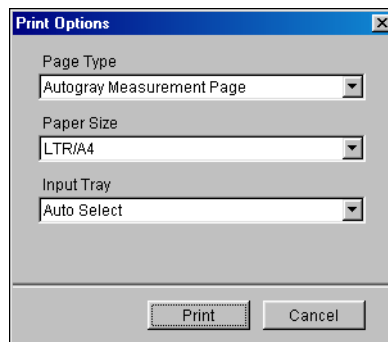
New starts a fresh AutoGray session by first removing all edit points from a previous session. “New” is recommended when you have performed more than two Refine applications.

- 7. If the output profile contains edit points that were entered by a user, choose Proceed to remove the points and continue with the AutoGray adjustment.**

Proceed starts a fresh AutoGray session by first removing all user edit points. This is because AutoGray cannot modify user-entered points.



- 8. In the Print Options dialog box that appears, choose the Input Tray to use for the measurement page and click Print.**



The Page Type is automatically set to AutoGray Measurement Page.

The Paper Size is automatically set to LTR/A4.

9. **Click OK to confirm printing of the measurement page.**
10. **Retrieve the page from the copier.**
11. **Follow the directions in the dialog box for placing the Gray Scale strip and the AutoGray measurement page on the copier glass, and then click Continue.**

Messages display the progress of the gray balance adjustment.

12. **When the adjustment is complete, click OK.**

Color Editor displays the adjusted output profile curve. New edit points have been inserted by AutoGray to modify the gray balance, in much the same way an expert user would have done manually.

13. **To make edits to the output profile curve, click AutoGray again.**
14. **Choose Refine to fine-tune the curve or New to acquire a new curve for editing.**

For more information on these actions, see [step 6](#).

Checking edited profiles

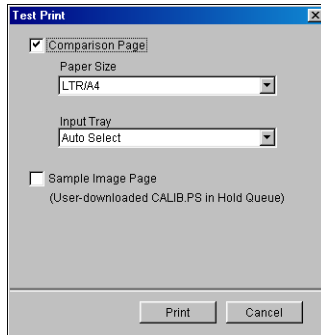
You can view a printed sample of a profile before you save it to the E-820 by printing one of the following:

- Comparison Page provided with ColorWise Pro Tools, which shows a comparison of images and colored patches with and without edits
- User-defined CALIB.PS in the Hold Queue

You can create a custom comparison page and save it as a PostScript or Encapsulated PostScript (EPS) file called CALIB.PS. Print the file to the Hold Queue of the E-820 from your application, or download it to the Hold Queue with Fiery Downloader (see [page 2-8](#)).

TO CHECK A PROFILE

1. Click **Test Print** from the **Color Editor** window.



2. Select a page to print, specify the paper size and input tray (**Comparison Page only**), and then click **Print**.

For **Comparison Page**, choose the paper size (LTR/A4 or 11 x 17/A3) from the **Paper Size** menu. In the **Input Tray** menu, choose the paper source.

Using Spot On (Fiery Graphic Arts Package)

The **ColorWise Spot Color Matching** option automatically matches spot colors with their best **CMYK** equivalents, so that spot colors can be simulated using the **CMYK** toner of the copier. However, you may want to adjust the default **CMYK** equivalents to achieve a better match for your specific printing conditions.

Spot On allows you to adjust and manage lists of spot colors and their **CMYK** equivalents. The matching lists of spot colors and **CMYK** values are known as **Spot Color Dictionaries**. **Spot On** lets you maintain multiple **Spot Color Dictionaries**—one for each output profile on the E-820.

NOTE: In order to use **Spot On CMYK** equivalents, you must enable the **Spot Color Matching** option (see [page 1-13](#)).

Starting Spot On

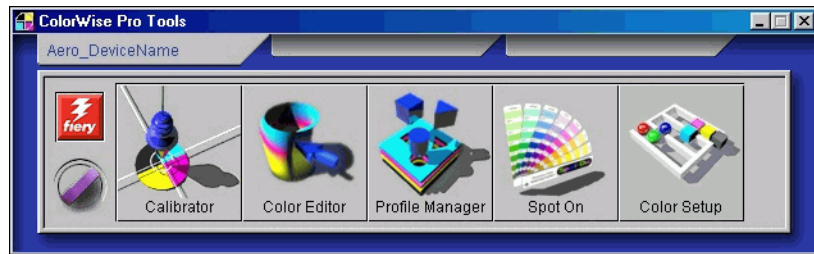
You can start Spot On from ColorWise Pro Tools.

To work with Spot On, you must first specify the output profile associated with the Spot Color Dictionary that you want to edit. However, you may switch to a different output profile at any time while working with Spot On.

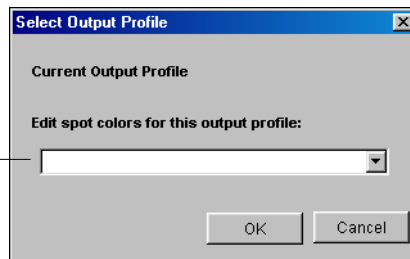
NOTE: The E-820 allows only one user connection through Spot On at a time.

TO START SPOT ON

1. Start ColorWise Pro Tools and click Spot On.



2. Choose the desired output profile and click OK.

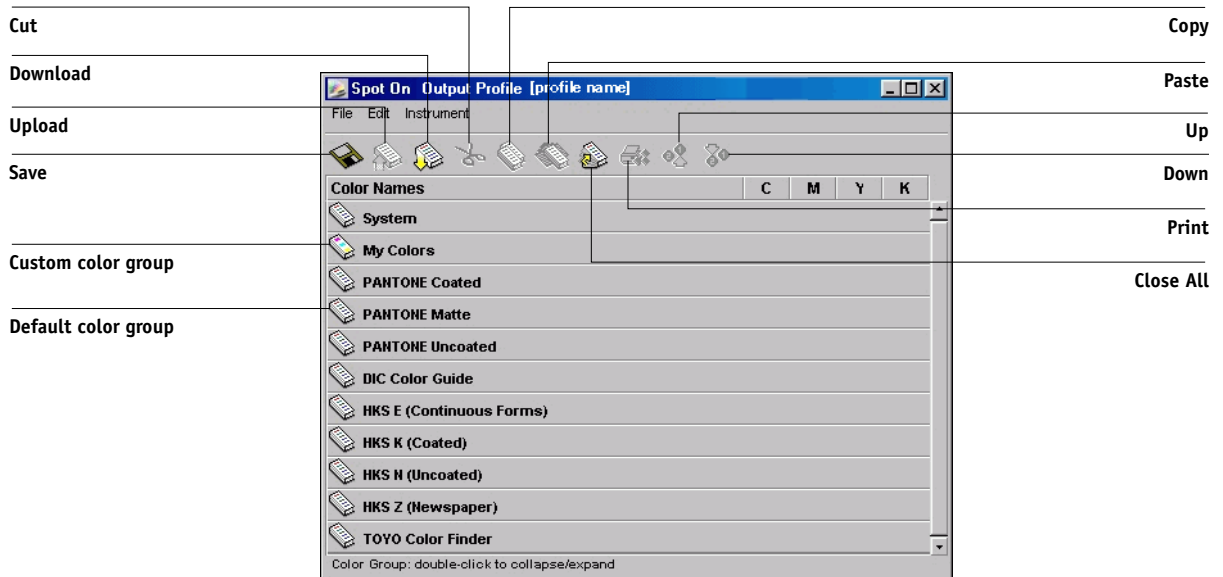


Output profile names
appear here

The Spot On main window appears. The CMYK values you see in the window are calculated with respect to the specified profile.

Using the Spot On main window

The Spot On main window displays a list of color groups which represent libraries of spot colors on the E-820. Tool icons for working with colors appear at the top of the window.



By default, the E-820 includes several PANTONE libraries along with a System library. The DIC, HKS, and TOYO libraries are available as part of the Fiery Graphic Arts Package. These factory default libraries appear marked with the default group icon (📄).

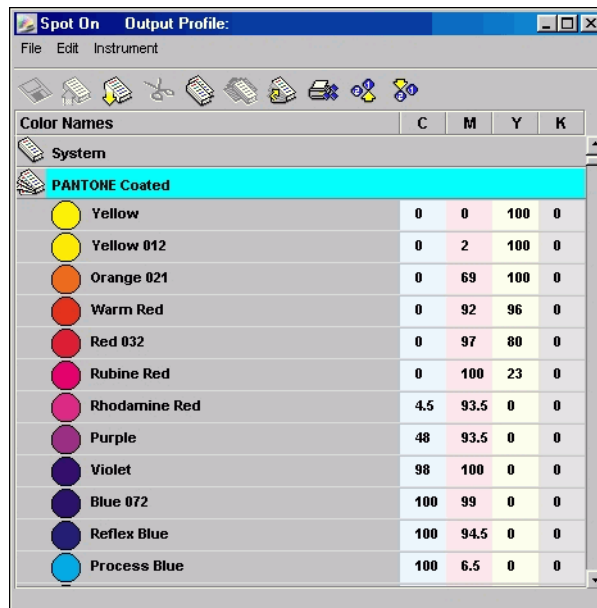
You can also add custom color groups and colors to the Spot On window (see [page 3-26](#)). Added groups appear marked with the custom group icon (📁). Both default and custom groups can be opened to display their included colors.

TO OPEN AND CLOSE A COLOR GROUP

1. To open a color group, click the icon to the left of the group name.

You can also open a group by double-clicking the blank area to the right of the group name.

When you open a group, all colors in the group are displayed, and the group icon changes appearance.



2. To close a color group, click the icon to the left of the group name, or double-click the blank area to the right of the name.
3. To close all color groups in the list, choose Close All from the Edit menu.

You can also close all color groups by clicking the Close All icon above the color list.

Working with existing colors

With Spot On, you can view and manage existing groups of colors on the E-820. You can also search for a particular color in the Spot On list.

Color groups in the Spot On window appear in order of their priority. Highest priority is given to color groups at the top of the list. For instance, if two colors from two different color groups have the same name, the E-820 uses the color from the higher group and disregards the other color. By managing the priority of colors in this way, you can maintain several CMYK variants for the same spot color.

TO REARRANGE THE PRIORITY OF COLORS

1. **To rearrange an entire color group, select the desired color group.**

To rearrange an individual color, select the desired color.

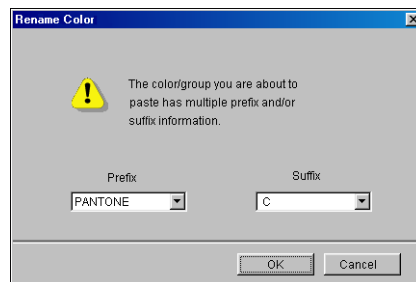
Individual spot colors are marked with circular color icons.

2. **To move the selection up or down in the list, click the Up or Down icon in the toolbar.**
3. **To paste the selection in a different location in the list, click the Cut or Copy icon in the toolbar.**

NOTE: The Cut operation is only available for custom colors.

Click the location in the list where you want to paste the cut or copied selection, and click the Paste icon in the toolbar.

When you paste a default color group or color, a warning message may appear asking you to rename the selection. Use the menus to choose the desired prefix and suffix for the new name, and click OK. The pasted selection becomes a custom color group or color with the specified name.



TO FIND A SPECIFIC COLOR**1. Choose Find from the Edit menu.**

The Find dialog box appears.

2. Enter the name of the color you want to find and click OK.

Spot On searches for the specified color, starting from the top of the color list. The located color appears selected in the color list.

3. To find additional colors based on the same search criteria, choose Find Again from the Edit menu.**Creating custom colors**

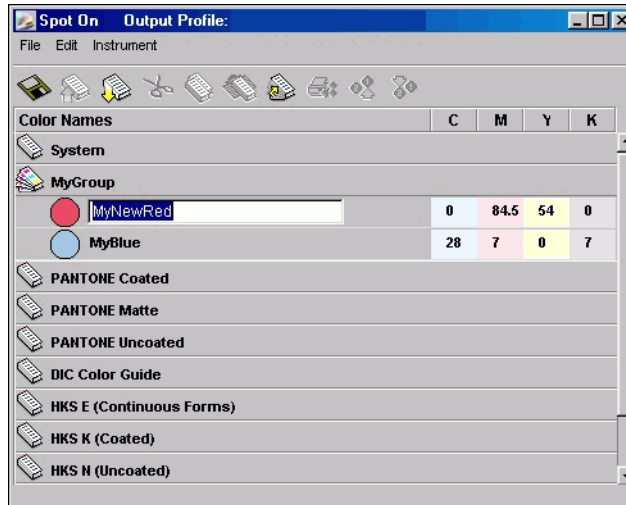
Spot On provides a number of default color groups, such as PANTONE and DIC, in the color list. You can add your own custom spot colors and groups to the list.

TO ADD A NEW COLOR OR COLOR GROUP**1. Select the line in the group or color list where your addition is intended.****2. Choose New Group from the Edit menu to insert a new group or choose New Color to insert a new color.**

A new color group entry or color entry appears as Untitled.

TO RENAME A CUSTOM COLOR OR COLOR GROUP

1. Select the Color Name or specific color you want to edit.



2. Type the new name exactly as it appears in the print job documents, including upper and lowercase characters and spaces, as needed.

NOTE: Default groups or colors (such as PANTONE) cannot be renamed.

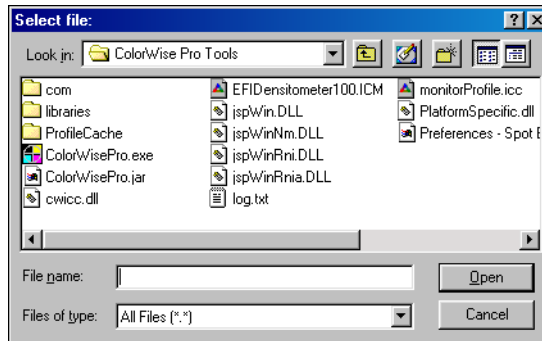
Downloading custom color groups

You can download custom color groups from your computer to the E-820. Downloaded groups are added as custom groups to the Spot On color list and are enabled immediately for use on the E-820.

TO DOWNLOAD CUSTOM COLOR GROUPS

1. **Select the line in the color list where you want to add the downloaded group.**
2. **Choose Download from the File menu.**

The Select File dialog box appears.



3. **Locate and select the desired color group and click Open.**

The downloaded group is added to the specified location in the Spot On list. If you did not specify a location, the group is added to the top of the list.

If the downloaded group has the same name as an existing group in the list, you are prompted to rename the downloaded group.

Uploading custom color groups

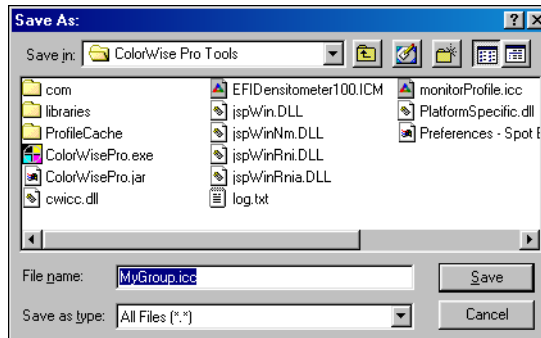
You can upload custom color groups from the E-820 to your computer as ICC files. The upload feature allows you to share a group by creating a local copy that can be downloaded to another E-820.

A color group must be saved to the E-820 before you can upload it to your computer. To upload a factory default group, first copy and paste the group as a new custom group. You can then upload the group as desired.

TO UPLOAD CUSTOM COLOR GROUPS

1. **Select the name of the color group you want to upload.**
2. **Choose Upload from the File menu.**

The Save As dialog box appears.



3. **Browse to the location where you want to save the file, name the file, and then click Save.**

Editing color values

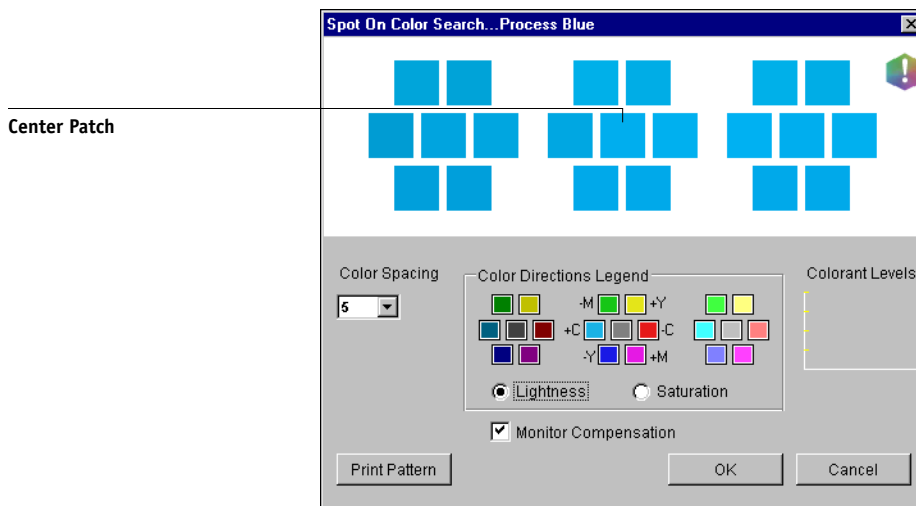
The Spot Color Search targets the exact CMYK toner equivalents required to simulate a desired spot color on the copier. If an existing spot color is not printing as desired, you can modify the color values as needed to achieve your intended result. Beginning with an approximate color, you can adjust the hue, saturation, and lightness of the color until you achieve a desirable match.

TO TARGET A COLOR USING SPOT COLOR SEARCH

1. **Select a color icon from a color group and choose Color Search from the Edit menu.**

The Spot On Color Search window appears. You can also display this window by double-clicking a color icon in the color list.

The current color appears in the center patch of the window.



2. **To update the center patch to a neighboring color that more closely matches the target, click the corresponding neighbor patch.**

Neighboring patches represent variations from the center patch and can be selected if they offer a closer match to the desired color. Clicking one of these patches updates the center patch to the new color and provides a new selection of neighboring colors.

These patches are either lightness or saturation neighbors, depending on the option specified in the following step.

NOTE: When you select certain colors, an exclamation point icon may appear in the upper-right corner of the window. This icon indicates that the center patch color lies at the edge of the copier's printable gamut and may not be reproducible. In such cases it is recommended that you use an approximate target that lies within the gamut, rather than the out-of-gamut color.

You can also click the center patch to enter CMYK values directly. For more information, see the procedure on [page 3-33](#).

3. Use the following techniques to control how neighboring color patches are generated:

Select either Lightness or Saturation in the Color Directions Legend.

Lightness generates neighbor patches based on darker to lighter shades of the original color. This variation is displayed from left to right, with the original color remaining in the center of the middle group.

Saturation generates neighbor patches based on less saturated to more saturated variations of the original color. This variation is displayed from left to right, with the original color remaining in the center of the middle group.

Choose a setting from the Color Spacing menu to control the closeness of the neighbor patches.

A higher setting generates neighbor patches that differ more noticeably from the center color. As you get closer to your target color, you will want to reduce the color spacing to a smaller value.

Select Monitor Compensation to simulate how all the on-screen color patches will appear when printed on paper.

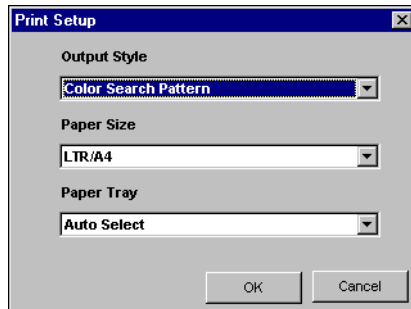
This simulation depends on the monitor profile that has been configured for the display. To specify the monitor profile, choose Preferences from the Edit menu in the Spot-On main menu.

If you use the monitor that is part of the Fiery Advanced Controller Interface option, select the monitor profile that is installed with the option. If you use another monitor, select a profile customized to describe the characteristics of that monitor.

NOTE: If you install ColorWise Pro Tools only, load the appropriate monitor profile on the E-820. The monitor profiles are provided in the Monitor Profiles folder on the CD-ROM that accompanies the Fiery Advanced Controller Interface.

4. Continue adjusting the color patch controls and clicking neighbor patches until the desired color appears in the center patch. Then click Print Pattern.

5. **Choose Output Style, Paper Size, and Paper Tray options.**



For Output Style, choose between Color Search Pattern and Color Neighbor Pattern. Color Search Pattern prints patches with the same pattern as displayed in the Color Search window. Color Neighbor Pattern prints patches in a three column by eight row format.

For Paper Size, choose the size of the paper you want to use for printing the patches.

For Paper Tray, specify the input tray for the paper you want to use.

6. **Click OK to print the patches.**

The Print Pattern test page includes the following information:

- Center patch color CMYK value
- Color spacing
- Lightness or Saturation neighbors selected
- Output profile selected

The goal of the Spot On Color Search is to find the color values that make a printed color patch match a target, not the screen simulation of it. Printing a Print Pattern of the neighbor color patches allows you to compare the printed patches to the color target. Once you compare the printed patches and find the one that matches most closely, you can then select the corresponding patch on the screen.

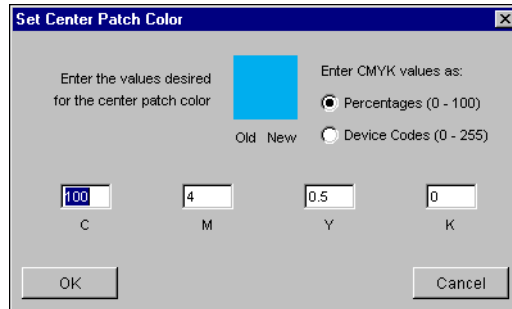
7. **When you have selected the desired target color in the Spot On Color Search window, click OK.**

The edited color appears in the color list of the main Spot On window.

TO TARGET A COLOR USING EXACT CMYK VALUES

1. **Click the center patch in the Spot On Color Search window.**

The Set Center Patch Color dialog box appears.



2. **Select how you want to enter the CMYK values.**

The Percentages option lets you enter color values between 0 and 100%, in increments of 0.5. Values out of this range are rounded to the nearest whole or half percentage.

The Device Codes option lets you enter color values between 0 and 255. This option reflects the full range of color values that the E-820 can actually reproduce, and provides finer gradations of color than are possible with Percentages.

3. **Enter the C, M, Y, and K values of your specific color in the appropriate fields.**

Use the Tab key to move from field to field. As you enter each new value, the preview patch updates to reflect the old and new colors.

4. **Click OK.**

The new color appears as the center patch in the Spot On Color Search window.

Using a measurement instrument to target colors

If you have the EFI Densitometer ED-100, you can import measured color values directly into Spot On. This feature lets you target matches based on the actual colors of immediate objects, such as the red of a printed logo or the yellow of a packaging envelope.

For best results, download and save any measurement data you have gathered with the ED-100 in its offline state. Spot On automatically clears stored data when it establishes a connection with the instrument. For information on downloading stored data from the ED-100, see the documentation included with the instrument.

TO IMPORT COLOR MEASUREMENTS INTO SPOT ON

- 1. Make sure you have installed and set up the ED-100 for use with your computer.**

For installation and setup instructions, see the documentation that came with the instrument.

For an illustration of the ED-100, see the section beginning on [page 2-16](#).

- 2. Choose Start from the Instrument menu.**

The Choose Port dialog box appears.

- 3. For Instrument, choose the instrument you will use to take measurements. For Port, choose the serial port connection of the instrument. Click OK.**

The indicator light on the instrument flashes for a few moments as the connection to Spot On is established. When the flashing stops, the instrument is ready to read measurements.

- 4. Place the ED-100 over the target color, making sure to center the sample aperture over the color. Press Measure to take the measurement.**

The measured CMYK values are imported into Spot On as follows:

- If an individual color is selected in the color list, it updates to the measured color.
- If a group is selected in the color list, a new color with the measured values is created within the group.

- If the Spot On Color Search window is open, the center patch updates with the measured values, and the neighbor patches update accordingly.
- If the Set Center Patch Color dialog box is open, the measured values are imported into the CMYK entry fields.

5. When you are finished taking color measurements, choose Stop from the Instrument menu.

Spot On closes the connection to the instrument.

Saving changes and exiting Spot On

To enable your spot color matches for use on the E-820, you must save your edits before exiting Spot On. This action ensures that all your changes to Spot On color definitions are stored on the E-820 and available for use when printing documents that contain spot colors.

The following edits do not require saving to take effect:

- Rearranging the priority level of a color group
- Downloading a color group
- Clearing or deleting a color group

TO SAVE THE SPOT ON COLOR LIST

- 1. Choose Save from the File menu.**
- 2. Click Close in the upper-right corner of the Spot On main window to exit the utility.**

Color Setup

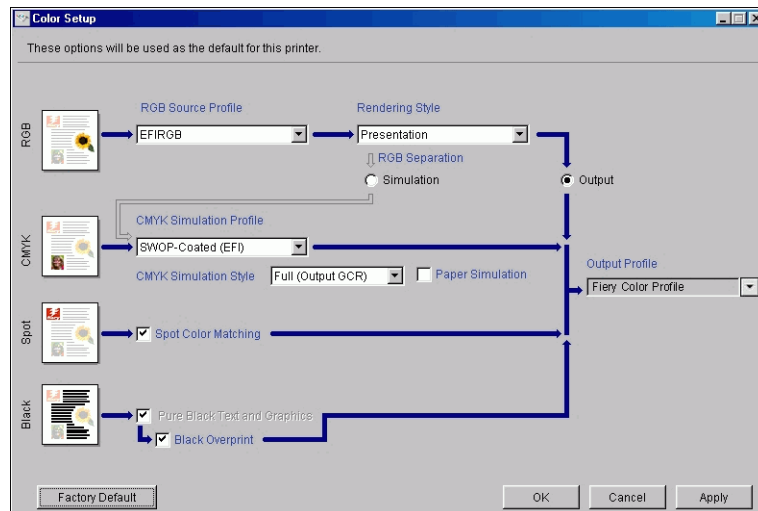
You can use Color Setup to set the default ColorWise settings for the E-820. To access Color Setup, click its icon in the ColorWise Pro Tools main window.

Setting default ColorWise options

Color Setup allows you to configure the default color management settings for the E-820. These settings are applied to all print jobs sent to the E-820, unless a user overrides them for an individual job by changing settings in the printer driver. These default settings can also be overridden using Command WorkStation or Fiery WebSpooler™. Color Setup maintains a connection to the E-820, so changes made in Profile Manager appear automatically. In addition, the defaults set in Color Setup are automatically reflected in other E-820 tools that list default settings.

You can also reset the E-820 to its factory default settings by clicking Factory Default in the lower-left corner of the Color Setup window.

The options in Color Setup are arranged in a pattern representing the flow of color processing that takes place on the E-820.



For those color options that offer multiple choices, make your selection from the menu that appears. For RGB Separation, make your selection by selecting the appropriate radio button. Other options are selected simply by selecting a check box next to the option name. Once you have made your changes, you must click OK or Apply for the changes to take effect. Clicking OK sets the new defaults and closes the Color Setup window. Clicking Apply sets the new defaults and keeps the Color Setup window open. Clicking Cancel closes the Color Setup window without applying any changes to the default settings.

For most users, the factory defaults result in optimal color output.

Appendix A: Color Measurement Instruments

This appendix explains how to set up and calibrate the following color measurement instruments, available as separately purchased options:

- X-Rite DTP41 automatic scanning spectrophotometer
- X-Rite DTP32 automatic scanning densitometer

Using the X-Rite DTP41 spectrophotometer

ColorWise Pro Tools Calibrator supports the X-Rite DTP41 spectrophotometer, a device that measures density and color data. The DTP41 communicates directly with the Calibrator application in ColorWise Pro Tools, sending measurements to the E-820 automatically.

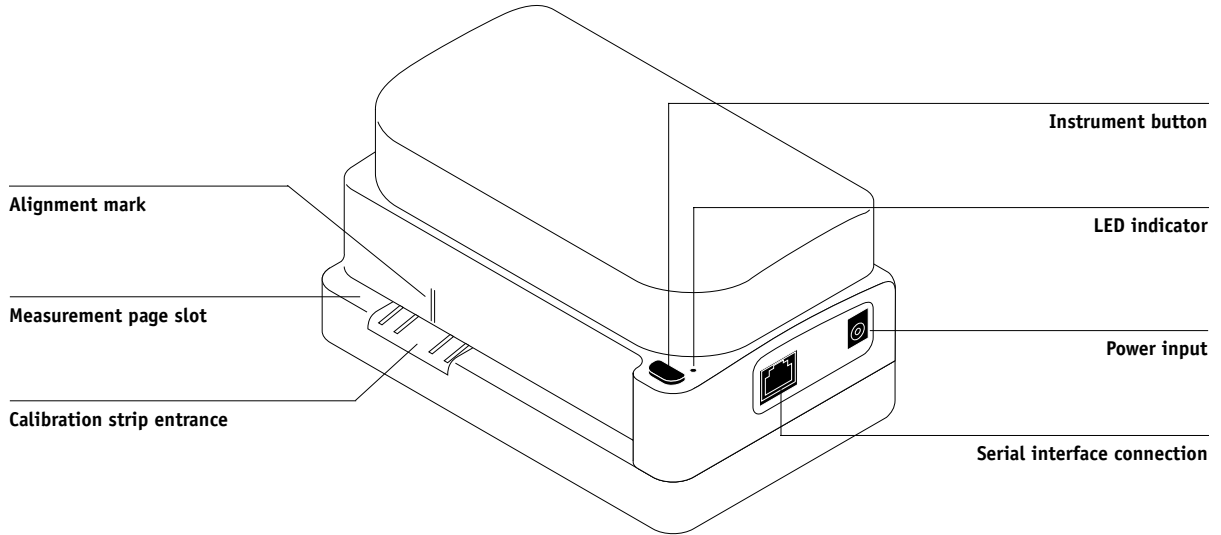
Setting up the DTP41

Before you calibrate the E-820, you must connect, configure, and calibrate the spectrophotometer to prepare for measuring the printed patches. For additional information about setting up and using the DTP41, see the documentation included with the instrument.

TO CONNECT THE X-RITE DTP41 TO THE COMPUTER

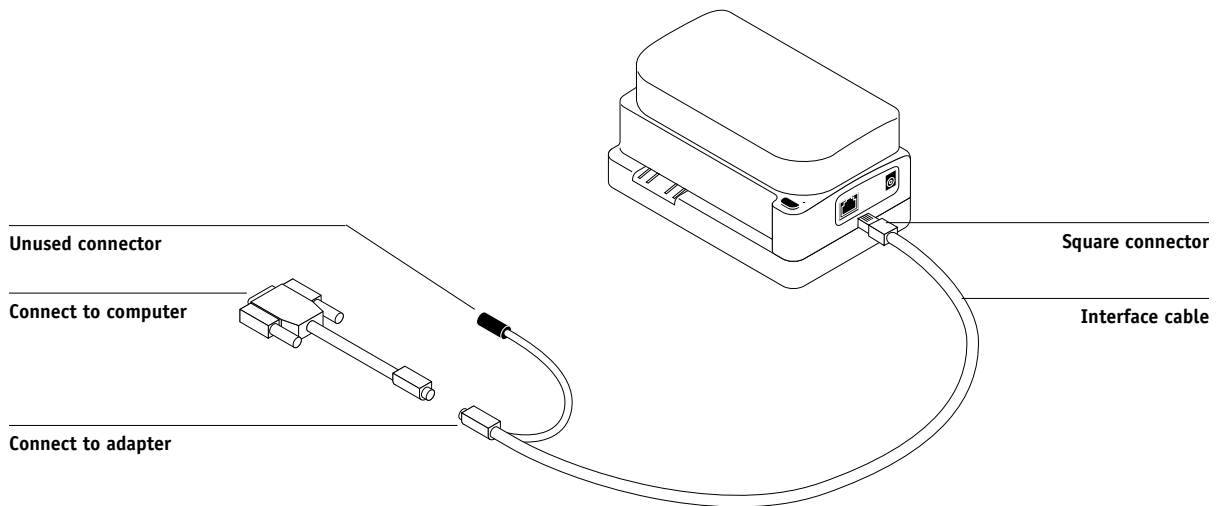
1. Turn off the computer.
2. Unpack the X-Rite DTP41 and remove the spacer from the measurement page slot.

3. Plug the square end of the interface cable (looks like a modular phone plug) into the serial interface connection on the side of the X-Rite DTP41.

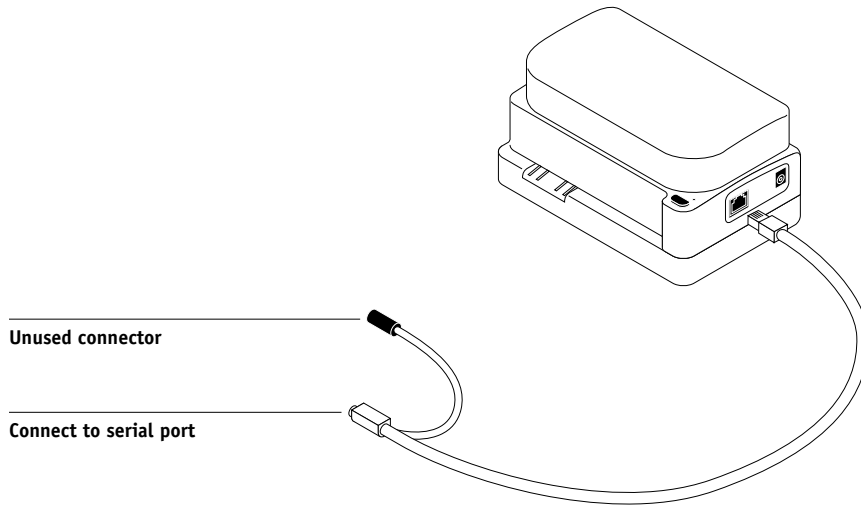


4. Attach the connector to the computer.

For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.



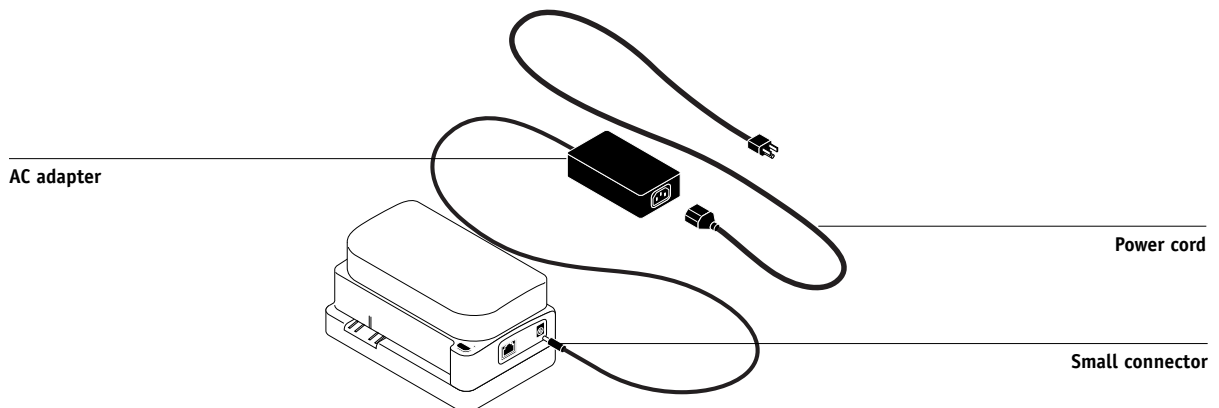
For a Mac OS computer, connect the 8-pin mini-DIN plug directly into the serial port of the computer.



NOTE: For Mac OS computers with a USB port (for example, an iMac), you need an adapter to connect the DTP41 to your computer. For information on supported adapters, see the X-Rite, Inc. web site (www.x-rite.com).

5. Use the AC adapter to provide power.

Plug the small connector on the adapter cable into the power input of the X-Rite DTP41 and plug the AC adapter into the power cord. Plug the power cord into a wall outlet.



6. Turn on the computer.
7. Calibrate the X-Rite DTP41 using ColorWise Pro Tools (see the following section).
8. Calibrate the E-820 using ColorWise Pro Tools and the DTP41 (see [page 2-10](#)).

Calibrating the DTP41

For the most accurate color, you should calibrate the X-Rite DTP41 **spectrophotometer** every time you calibrate the E-820. You can initiate the calibration sequence in ColorWise Pro Tools Calibrator as part of the process of E-820 calibration. The computer may also prompt you that it is necessary to calibrate the spectrophotometer.

Alternatively, you can initiate the DTP41 calibration process using the Instrument button on the DTP41. For more information on this method, see the documentation that came with the X-Rite DTP41.

Multiple users can be connected to one E-820 server with ColorWise Pro Tools, but only one user at a time can use the Calibrator module. An error message appears if you try to calibrate when another user is already using ColorWise Pro Tools to calibrate.

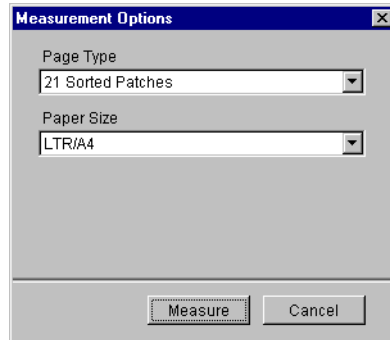
You will need the Color Reflection Reference strip that is included with the spectrophotometer. Remove the strip from its protective envelope, handling it by the edges only. Keep the strip free of dust and smudges and always store it in the protective envelope.

TO CALIBRATE THE X-RITE DTP41

1. Connect the spectrophotometer to the computer and turn on power (see [page A-1](#)).
2. Start Calibrator.

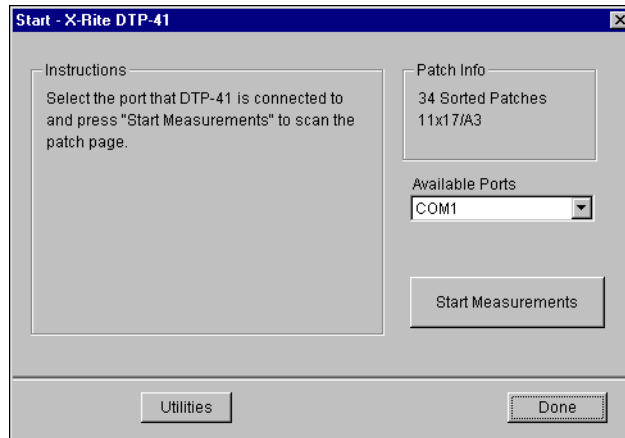
For instructions on starting Calibrator, see [page 2-6](#).

3. Choose DTP41 as the measurement method.
4. In the Get Measurements pane, click Measure.
5. In the Measurement Options dialog box, click Measure.



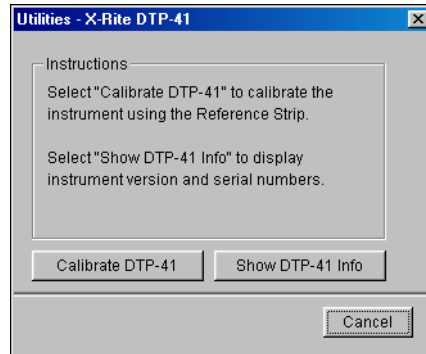
6. Choose the appropriate COM port for the DTP41 from the Available Ports menu.

The Instructions area displays instructions for selecting the port.



7. Click Utilities.

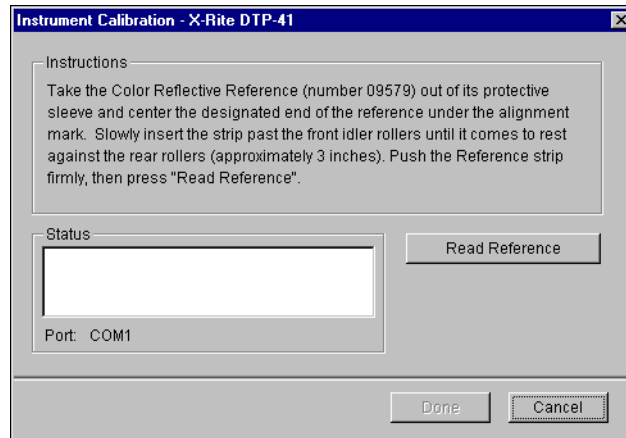
The Utilities dialog box appears.



To view version and serial number information, click Show DTP-41 Info and click Done when you are finished.

8. Click Calibrate DTP-41.

The Instrument Calibration dialog box appears.



9. **If you have not already done so, remove the shipping spacer from the measurement page slot.**
10. **Insert the end of the Color Reflection Reference strip with the arrow into the calibration strip entrance on the DTP41, centering it below the alignment mark (see the diagram on [page A-2](#)).**

Insert the strip about 3 inches, past the front idler rollers, until it rests against the rear drive rollers.

11. **Click Read Reference in the Instrument Calibration dialog box.**

The DTP41 pulls the calibration strip through automatically.

A message appears in the Status area when the calibration is finished.

12. **Click Done.**
13. **Close the Utilities window.**

This completes DTP41 calibration.

When the DTP41 requires calibration, your computer prompts you. When the prompt message appears, click Calibrate Now and follow the instructions, starting with [step 8 on page A-6](#).

After calibrating the DTP41, calibrate the E-820 (see [page 2-10](#)).

Using the X-Rite DTP32 densitometer

ColorWise Pro Tools are designed to work with the X-Rite DTP32 reflection densitometer, which feeds color measurements to the E-820 automatically.

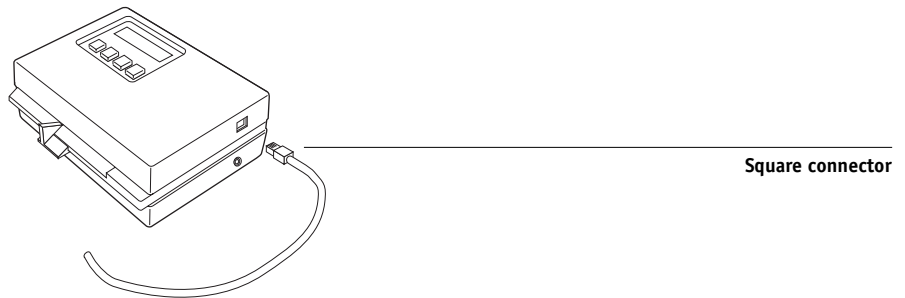
NOTE: Measurements from other densitometers can be input using a simple ASCII file format (see [Appendix B](#)).

Setting up the DTP32

Before you calibrate the E-820 using the X-Rite DTP32, you need to connect, configure, and calibrate the densitometer to prepare for measuring the printed patches (see “[Calibrating the DTP32](#)” on page A-10). For additional information about setting up and using the DTP32, see the separate documentation included with the densitometer.

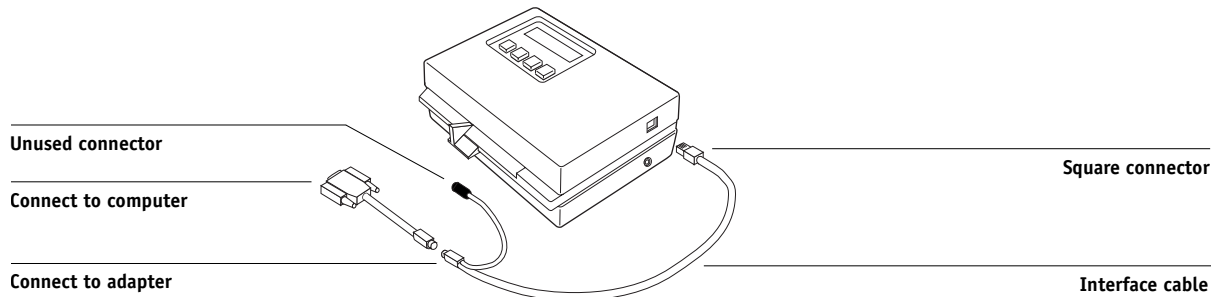
TO CONNECT THE X-RITE DTP32 TO THE COMPUTER

1. Turn off the computer.
2. Plug the square end of the interface cable (looks like a modular phone plug) into the I/O port on the side of the X-Rite DTP32.

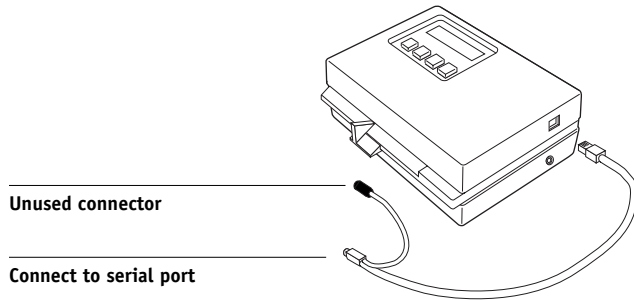


3. Attach the connector to the computer.

For a Windows computer, insert the 8-pin mini-DIN end of the interface cable into the 9-pin DB9 Connector cable adapter. Insert the 9-pin end into the COM1 or COM2 port on the computer and tighten the screws. If the available port on your computer is 25-pin, you must use the 8-pin-to-25-pin adapter.

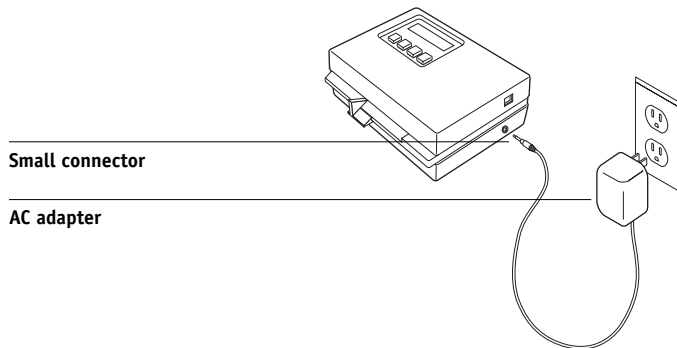


For a Mac OS computer, connect the 8-pin mini-DIN plug directly into the serial port of the computer.



NOTE: For Mac OS computers with a USB port (for example, an iMac), you need an adapter to connect the DTP32 to your computer. For information on supported adapters, see the X-Rite, Inc. web site (www.x-rite.com).

4. Plug the small connector on the adapter cable into the side of the X-Rite DTP32 and plug the AC adapter into a wall outlet.



5. Turn on the computer.
6. Calibrate the DTP32 (see the following section).
7. Calibrate the E-820 using ColorWise Pro Tools (see [page 2-21](#)).

Calibrating the DTP32

You will need the black-and-white X-Rite Auto-Cal Strip included with the densitometer. Calibrating the densitometer does not require ColorWise Pro Tools.

TO CALIBRATE THE X-RITE DTP32

1. **Connect the densitometer to the computer and supply power (see [page A-7](#)).**
2. **From the Main Menu on the X-Rite DTP32 display, press the p1 key once to reach p2.**
3. **Press the cal key.**

Calibrating motor speed is displayed, followed by the words INSERT CAL STRIP.

4. **Insert the arrow end of the X-Rite Auto-Cal Strip into the 35mm slot on the front of the X-Rite DTP32 until it stops or the roller starts pulling the strip.**

Reading appears momentarily, followed by the density values and CALIBRATION OK. The densitometer automatically returns to the MAIN MENU.

If UNRECOGNIZABLE STRIP appears, repeat the process or try cleaning the strip (see the X-Rite DTP32 Operating Manual).

5. **Start ColorWise Pro Tools and calibrate the E-820 (see the following section).**

Recalibrate the DTP32 at least once per month. For critical color, calibrate the densitometer every time you calibrate the E-820. The DTP32 may also warn periodically that it requires calibration.

Appendix B: Importing density measurements

This appendix describes Simple ASCII File Format, which can be used to import density measurements from measurement devices. To use your own measurement data from an alternate measurement instrument, record your individual readings in a text file and structure it as follows.

Simple ASCII Import File Format (SAIFF)

This format describes **Status T** measurement data and is for import into the ColorWise Pro Tools Calibrator. The three possible file formats are:

- 1D Status T density for EFI 34 patch page
- 1D Status T density for EFI 21 patch page
- 1D Status T density for other pages (maximum of 256 patches per ink)

The file format is ASCII and has no tabs. A single space or multiple spaces are used as delimiters. Blank lines are not allowed. Each line in the file represents four patches (C, M, Y, K) of a specific ink value. Comments may be on any line in the file, and these lines start with a pound sign (#) followed by a space. A line with a pound sign followed by any character other than a space has been reserved. Comments must be on an entire line by themselves.

Each line of data contains five values. The first number is the sequential patch number (for EFI 34 and EFI 21 pages) or the ink value percentage (for other pages). The four values that follow are the density values of C, M, Y, and K of the corresponding patch. Lines are ordered either by increasing sequential patch numbers or by increasing the ink percentage.

For Windows computers, the file extension must be .cm1. For Mac OS computers, the file type must be 'TEXT'.

Measurement data in EFI 34 and EFI 21 are paper-relative. For other pages, if the first line corresponds to zero ink value, the Calibrator assumes that the measurement data is absolute and adjusts it to become paper-relative by subtracting the density values of the first line from the remaining patches.

Example of 1D Status T density for EFI 34 patch page

This file format is used to specify the Status T density measurements of the EFI 34 patch page. The value in the first column is the patch number. The first patch must be 1 and the last must be 34.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST34
# Cyan   Magent Yellow Black
1 0.0300 0.0400 0.0200 0.0400
2 0.0600 0.0700 0.0800 0.0700
3 0.1000 0.1000 0.1000 0.1000
(...more data...)
33 1.6700 1.3400 0.8900 1.6700
34 1.7200 1.4300 0.9300 1.7500
```

Example of 1D Status T density for EFI 21 patch page

This file format is used to specify the Status T density measurements of the EFI 21 patch page. The value in the first column is the patch number. The first patch must be 1 and the last must be 21.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST21
# Cyan   Magent Yellow Black
1 0.0300 0.0400 0.0200 0.0400
2 0.0600 0.0700 0.0800 0.0700
3 0.1000 0.1000 0.1000 0.1000
(...more data...)
20 1.6700 1.3400 0.8900 1.6700
21 1.7200 1.4300 0.9300 1.7500
```


Example of 1D Status T density for an arbitrary page

This file format is used to specify the Status T density measurements of a user-defined patch page. The value in the first column is the ink/toner percentage of the patch. The first percentage must be 0 and the last percentage must be 100. The percentages must increase in between.

```
#!EFI 3
# EFI ColorWise 2.0 Data
type: 1DST
# percent Cyan Magent Yellow Black
0.0000 0.0300 0.0400 0.0200 0.0400
0.3922 0.0600 0.0700 0.0800 0.0700
1.1765 0.1000 0.1000 0.1000 0.1000
(...more data...)
98.0000 1.6700 1.3400 0.8900 1.6700
100.0000 1.7200 1.4300 0.9300 1.7500
```


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