PRESTO SPECTRO

SPECTRO-DENSITOMETER

Advanced LED Technology • Use 24-7-365 Without Recharging
User Friendly • The Industry's Most Affordable Spectro

L*a*b* Lch Delta E

Density • Dot Gain • Dot Area • Gray Balance

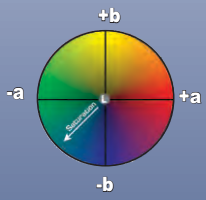
Color Match • Opacity

Measure Prints & Plates

IN / OUT of Tolerance
Traffic Lights

GO

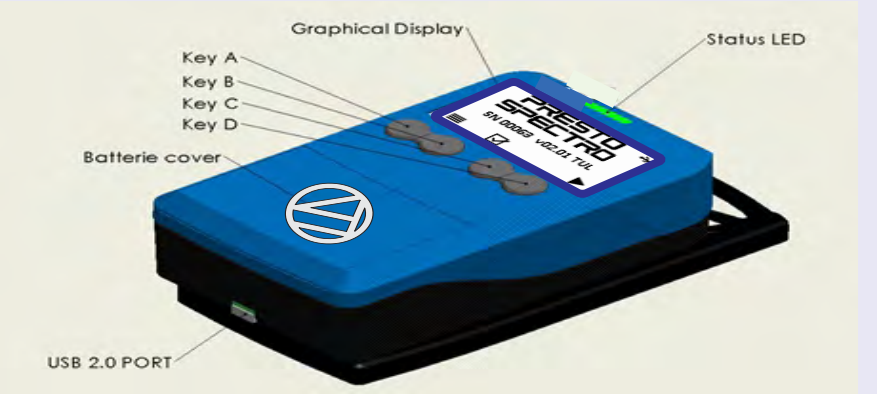
STOP



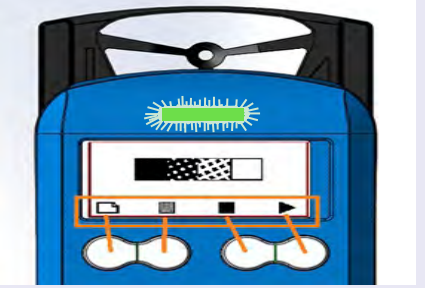
InstructionManual

ERGONOMIC DESIGN

The marvel of miniaturization has reduced the size, and weigh of the PRESTO SPECTRO into a precision color measuring instrument with unique advanced features that will increase measurement speed by more than 300%. **TRAFFIC LIGHTS** allow the operator total control without the inevitable errors associated with remembering long strings of confusing numbers.



Slide the PRESTO SPECTRO forward and hold until the measurement information is displayed.



The display will continue to show information even in power down mode with no battery usage.

LED lights will flash **GREEN** when the measurement is within tolerance or **RED** when out of tolerance.

Memorize any color from multiple sources

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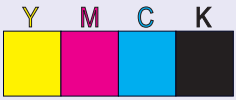
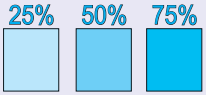
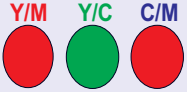


Density



Dot Gain

Gray Balance



Trapping

Color Match

Color Memory

Ver. 2.12

There are 4 Primary Screens

Automatic Density

Balance

Trapping

Color

TRAFFIC GO STOP LIGHTS

The PRESTO SPECTRO is designed to automatically ZERO to paper and measure DENSITY and DOT GAIN without changing programs.
The **GREEN** LED will flash when the measurements are within TOLERANCE thereby increasing speed and accuracy of measurements. TOLERANCES can be changed according to the quality control requirements.
The **RED** LED cautions the operator to look at the display and make corrections accordingly.

Color matching with CMYK is simply done in AUTO DENSITY mode using the MCM (Magic Color Match) feature or in the new exclusive **COLOR REFERENCE LIBRARY** with Lab Delta E that stores up to 32 colors in 4 separate channels for fast, accurate **AUTO** color matching. **Ideal for Flexo.**

To start, open the AUTO MODE screen and Zero to paper. Measure DENSITY, DOT GAIN and DOT AREA.
Press KEY D ▶ to advance to the other programs.

AUTO Mode DENSITY

In AUTO MODE measure DENSITY, DOT GAIN and DOT AREA. The unit will automatically ZERO to paper with a DENSITY lower than 0.15D.

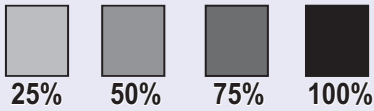
RELATIVE DENSITY MODE with **MM** (Magic Memory). ZERO to paper or press and hold Key A to force Zero. Measure a specific CMYK solid.

To memorize that color press Key A. The display will show **Target Density Updated**. Measuring another Density Target of the same color will cause a **RED** or **GREEN** light according to the TOLERANCE setting. Note: TOLERANCE Settings are +/- 5.0 dE & changeable

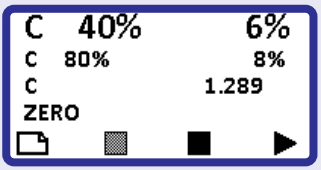
DOT AREA - ZERO to paper, measure solid, then press Key B and measure DOT AREA.

Press Key C to force a DENSITY measurement and temporarily disable DOT GAIN and ZERO detection.

DOT GAIN MEASUREMENTS



ZERO to paper
Measure the Solid target
Measure Dot Gain target of the same color

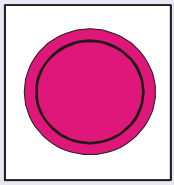
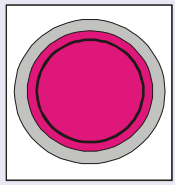
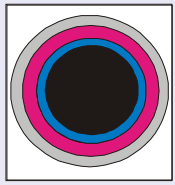


Select next measurement mode

Note: Status T PRESTO SPECTRO instruments are delivered with **25%, 50% and 75%** Dot Gain target values. Status E instruments are set at 25%, 40%, and 80%. These set points can be changed in the Configuration Mode.

DOT GAIN MEASUREMENTS

Dot gain is inherent in the printing process.
It is composed of two components;

Mechanical Dot Gain	Optical Dot Gain	Total Dot Gain
		
+ 6%	+ 7%	13%

MECHANICAL DOT GAIN is the actual physical growth of the dot on the substrate and varies according to paper type, slurring, pressure, ink/water balance, etc.

OPTICAL DOT GAIN is the scattering of light within the substrate which results in a higher than expected dot gain when measured with a densitometer using the Murray/Davies equation.

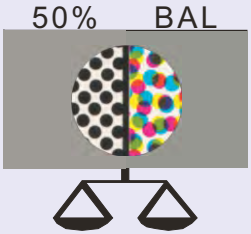
Slur, Doubling or Ink Water Imbalance result in unexpected DOT GAIN

Note: When measuring DENSITY targets, the measurement may occasionally show a false Dot Gain in the display. This is caused by an abnormally low DENSITY target erroneously interpreted as a high Dot Gain target.
If this occurs, Zero to paper and measure any questionable DENSITY target again.

Solid	Solid	75% Tint
1.40 D	0.95 D	0.95 D

GRAY BALANCE MODE

K=50%
For Visual
Comparison

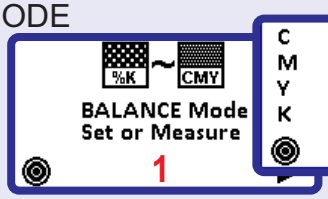


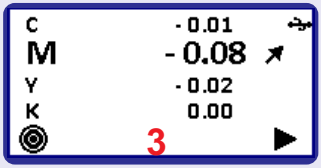
Y=40%
M=40%
C=50%

Gray Balance Targets are composed of Yellow, Magenta and Cyan tints balanced to produce a neutral gray when all the pre-press conditions are in control.
Making press corrections for slurring, doubling, ink water imbalance, etc. are fast and easy with ink key adjustments without stopping the press or wasted paper or downtime.

1.Open BALANCE MODE

2.Zero a 50% Black tint or an OK sheet CMY Balance patch with Key A.

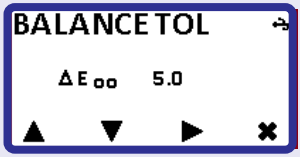


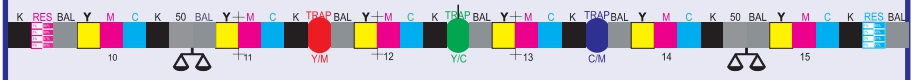


3.Measure any Gray Balance Patch without pressing any Keys.
The display arrow will indicate the greatest difference and direction followed by the remaining colors.

NOTE: The LED's will flash **GREEN** when measurements are within dE 5.0 or **RED** when out of TOLERANCE.

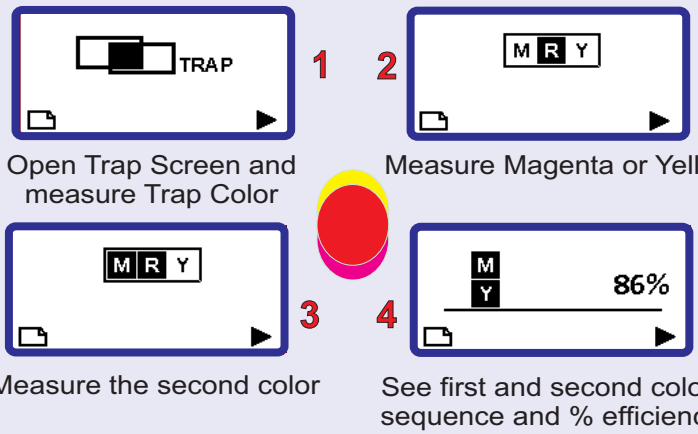
Balance Tolerance can be changed up to 7.0 dE.The factory default dE is 5.0 Edit instructions are on page 13.





Color Matching can be achieved using the same procedure as Gray Balance. The PRESTO SPECTRO will show Density differences of C,M,Y,K for fast, accurate correction on press regardless of changes caused by slurring and other press factors.

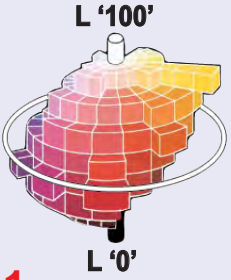
TRAPPING

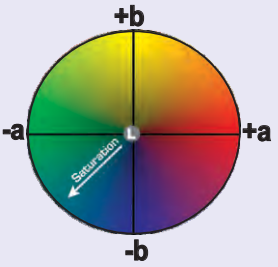


Trapping is the result of solid yellow, magenta, and cyan inks printed in two color combinations to produce red, green and blue solids.
Trapping efficiency is the ability of the second color to be accepted or trapped by the first color.
Measure overprint target (for example Red, composed of Magenta and Yellow)

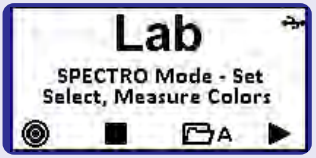
Matching the color sequence is necessary to match previous print jobs.

SPECTRO - Lab DELTA E





1



Colors can be configured to use Lab or Lch in COLOR SPACE program.*

SELECT REFERENCE - SAMPLE MEASUREMENTS

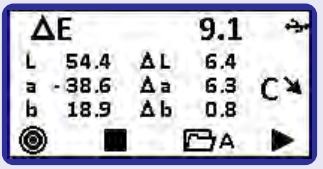
Measure a Reference color with Key A depressed.

Measure print without pressing any key.

Delta E will display and the arrow will indicate correction.

2

3



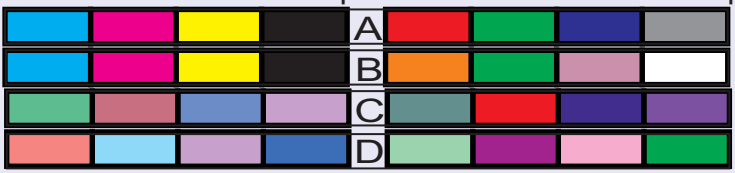
DELTA E ACCEPTANCE LEVELS

Level 1 - **2.0** dE 2000 the most color critical applications.
Level 2 - **3.0** dE 2000, color critical applications, e.g. commercial printing
Level 3 - **4.5** dE 2000, pleasing process color printing
Level 4 - **6.0** dE 2000, non critical color

* See SELECT COLOR SPACE page14

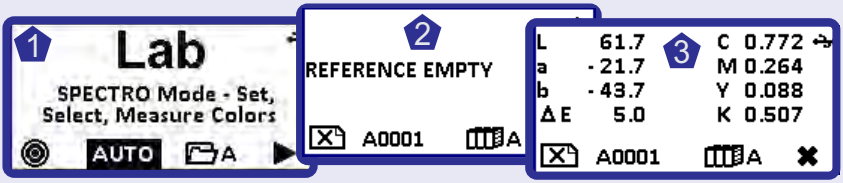
COLOR REFERENCE LIBRARY

PrestoSpectro will store 32 color References, conveniently organized in 4 Sections (A,B,C,D), each with 8 Colors. The AUTO Mode will recognize each of the 8 colors within the 4 Sections when a sample is measured. For example:



* Section A is CMYK plus RGB, Gray Balance or spot color.
* Section B is CMYK plus OGV and White ink

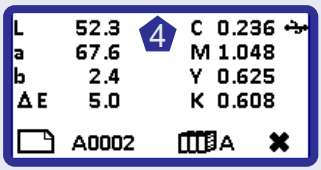
Section C and D are any random colors on a print job.

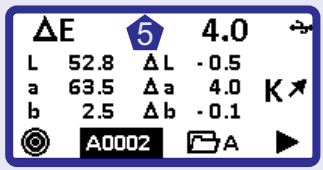


1 If the selected Volume is empty, SPECTRO Mode will open as shown here.

2 Press Key C A to open the Library. Volume A is shown here, B, C, and D are also available with Key C.

3 Zero to white paper with Key A X to erase previous imeasurements. Measure your REFERENCE to load A001.





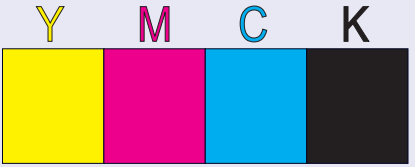
4 Press Key B to advance to A0002, measure your REFERENCE to load the value in A0002. Repeat as needed for A0003, A0004, etc. Press Key D ✖ to save Volume A.

5 AUTO Mode will now open, high-lighting the recognized REFERENCEin reverse type, displaying the Lab delta E, and the correction needed.

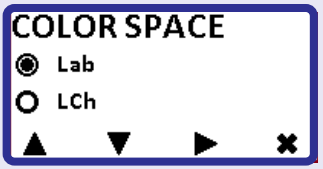
The **RED** or **GREEN** LED's will flash to indicate in or out of TOLERANCE and is adjustable in **Δ E TOLERANCE** Prog. The Default setting is dE 5.0 and the range is dE 1.0 - 7.0

* Suggested values

EDIT DENSITY & TOLERANCES

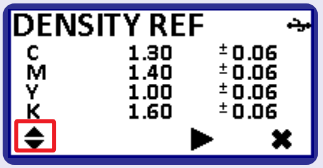


Open the PRESTO Screen by holding Key A and then press Key D

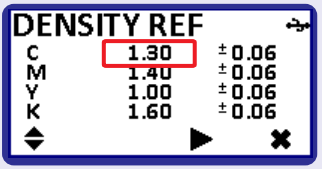


Press Key A again to open COLOR SPACE Screen

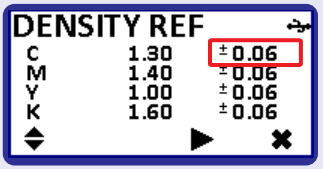
Press Key D 4X to open the DENSITY REF screen.



Press Key A to place on the DENSITY REF screen.



Press KEYS A ▲ or B ▼ to adjust CMYK DENSITY values to match the enclosed calibration card or to match shop standards.

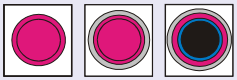


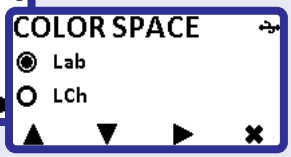
Press KEY C to adjust + or - TOLERANCE values for CMYK DENSITIES.

Press KEY D to exit.

NOTE: The CMYK DENSITY values can be manually entered, or memorized by direct measurement of a Calibration Card, or by measuring a live print job.
The +/- TOLERANCE values can only be changed manually.
Activating the reset Icon returns CMYK DENSITY and TOLERANCE values to factory settings.

EDIT DOT GAIN & TOLERANCES





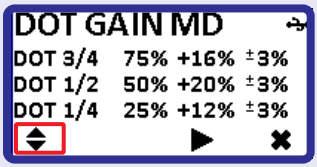
1. Open the reset Screen by holding Key A and then press Key D *

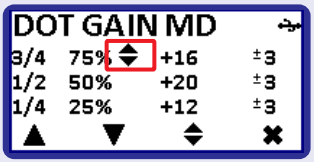
2. Press Key A ☰ to open COLOR SPACE SCREEN

3. Press Key C 3X to open **DOT FORMULA** screen.

4. Select **Murray Davies** for standard Dot Gain measurements on paper or **SCTV** for Packaging or special colors. **

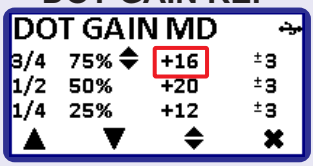
5. Press Key C to open **DOT GAIN MD** or **SCTV** if selected



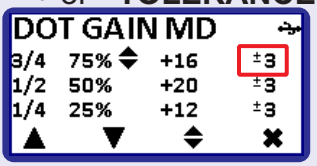


6.Press Key A. The ⬍ Icon will appear at 3/4 75%. Press ▲ to raise or ▼ to lower target values

7. Press Key C to adjust **DOT GAIN REF**



8. Press Key C to adjust + or - **TOLERANCE**



Press Key C to continue **DOT GAIN** adjustments

*The reset screen can also be opened by pressing the recessed button on the underside.

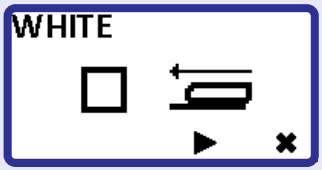
** **SCTV** (Spot Color Tone Value)

EDIT GRAY BALANCE TOLERANCE

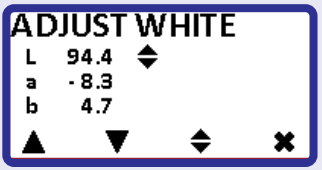
1.Open Screen by holding Key A , then press Key D.
2. Press Key A ≡ to open COLOR SPACE SCREEN
3. Press Key C 2X to open Δ E TOLERANCE SCREEN. Press Keys A and B to raise or lower the dE from 1 to 7

ABSOLUTE WHITE CALIBRATION

1.Open the PRESTO Screen by holding Key A and then press Key D
2. Press Key B ☑
3. Press Key C 2X



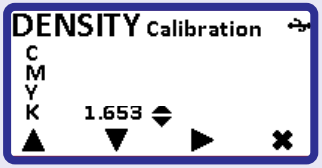
Measure the white Lab plaque



▲ Increase highlighted value (L,a,b) ▼ Decrease value
▲▼ Select next value (L,a,b) ✖ Return to calibration mode

DENSITY CALIBRATION

Press Key A - Zero to paper. Measure solid Cyan, Magenta, Yellow or Black from a Calibration Chart



Adjust each Density to agree with Calibration Chart.
▲ Increase Density
▼ Decrease Density

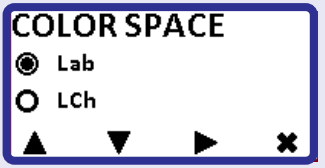
CERTIFICATION & RESET

Select the calibration mode to check the calibration date.
Click the Factory Setting Icon Key to reset all settings

SELECT DELTA E CALCULATION FORMULA

Select Delta E1976 (not recommended except for compatibility)
Select Delta E2000 (the current international standard)
Select next configuration
Exit

SELECT COLOR SPACE



Select CIE Lab color space
Select CIE LCh color space
Select next main configuration function
Exit

SELECT USB OUTPUT FORMAT

Select DX Output format

```
C -0.019 M  0.087 Y  1.222 K  0.028 L   0.00 a   0.00 b   0.00[13][10]
```

Select ALL Output format

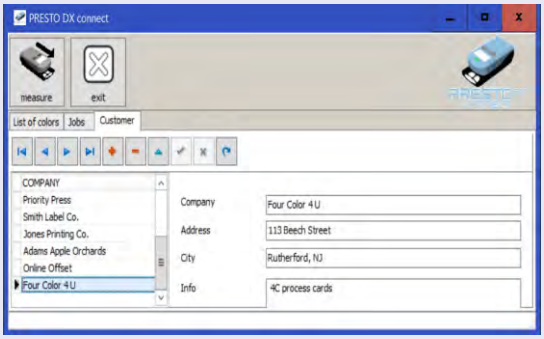
```
L   0.00 a   0.00 b   0.00 C   0.00 h   0.00 [13][10]
C -0.022 M  0.084 Y  1.219 K  0.026 R  0.000 G  0.000 B  0.000 [13][10]
```

Move to next main configuration function
Exit the configuration mode

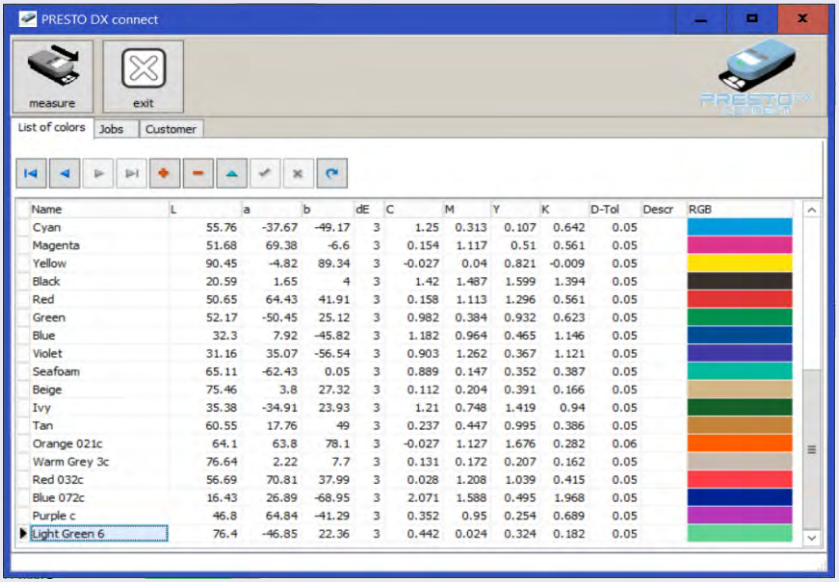
OPTIONAL COLOR LIBRARY SOFTWARE

PrestoConnect

Color Library Management Software



The optional PrestoConnect Windows software allows the user to create, collect, and manage an unlimited number of colors in conjunction with the new Beta Presto Spectro portable spectrodensitometer.



Name	L	a	b	dE	C	M	Y	K	D-Tol	Descr	RGB
Cyan	55.76	-37.67	-49.17	3	1.25	0.313	0.107	0.642	0.05		
Magenta	51.68	69.38	-6.6	3	0.154	1.117	0.51	0.561	0.05		
Yellow	90.45	-4.82	89.34	3	-0.027	0.04	0.821	-0.009	0.05		
Black	20.59	1.65	4	3	1.42	1.487	1.599	1.394	0.05		
Red	50.65	64.43	41.91	3	0.158	1.113	1.296	0.561	0.05		
Green	52.17	-50.45	25.12	3	0.982	0.384	0.932	0.623	0.05		
Blue	32.3	7.92	-45.82	3	1.182	0.964	0.465	1.146	0.05		
Violet	31.16	35.07	-56.54	3	0.903	1.262	0.367	1.121	0.05		
Seafoam	65.11	-62.43	0.05	3	0.889	0.147	0.352	0.387	0.05		
Beige	75.46	3.8	27.32	3	0.112	0.204	0.391	0.166	0.05		
Ivy	35.38	-34.91	23.93	3	1.21	0.748	1.419	0.94	0.05		
Tan	60.55	17.76	49	3	0.237	0.447	0.995	0.386	0.05		
Orange 021c	64.1	63.8	78.1	3	-0.027	1.127	1.676	0.282	0.06		
Warm Grey 3c	76.64	2.22	7.7	3	0.131	0.172	0.207	0.162	0.05		
Red 032c	56.69	70.81	37.99	3	0.028	1.208	1.039	0.415	0.05		
Blue 072c	16.43	26.89	-68.95	3	2.071	1.588	0.495	1.968	0.05		
Purple c	46.8	64.84	-41.29	3	0.352	0.95	0.254	0.689	0.05		
Light Green 6	76.4	-46.85	22.36	3	0.442	0.024	0.324	0.182	0.05		

The database organizes the work by Color, Customer, and Job making it easy for production personnel to use and understand the system.

Physical samples are measured with the instrument and automatically written to the database with Lab and Density values, a user-entered color name, and delta E and density tolerances. A representation of the color is generated on-screen for confirmation to the operator. Once the sample is measured the operator has the option to accept the entry, as shown here.

Once the color sample is named and accepted it becomes part of the List of Colors as shown.

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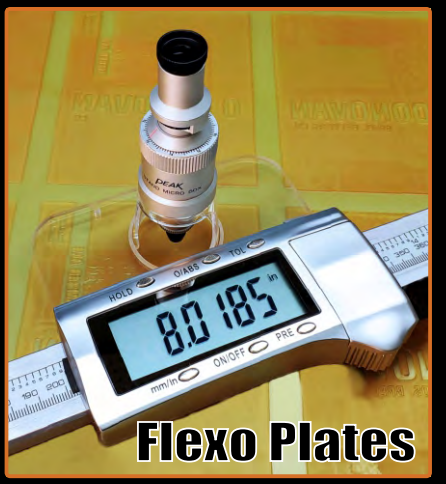

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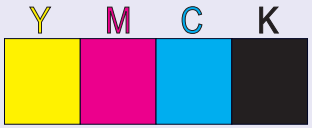
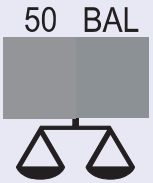
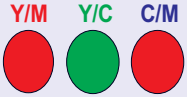
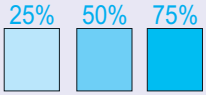
Targets of solid yellow, magenta, cyan, black, and gray balance appear in every ink zone for ultimate control across the full width of the sheet. Trapping, dot gain, and resolution targets are centered for smaller sheets.

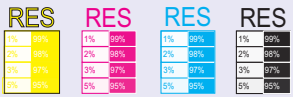




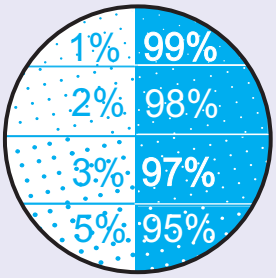
CMYK and Gray Balance appear in every ink zone. 50% and Gray Balance appear every 4th zone







RESOLUTION TARGETS WITH MICRO DOTS of 1%, 2%, 3%, and 5% minimum printable dot targets detect press slur and doubling. Maximum printable dot targets of 95%, 97%, 98% and 99% indicate press slur, print contrast problems and/or plate production errors.
Call for more information



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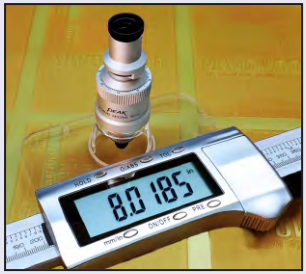

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