

PRESTO SPECTRO

SPECTRO-DENSITOMETER



DENSITY



DOT GAIN



DOT AREA



COLOR MATCH

Y/M Y/C C/M



TRAPPING



GRAY BALANCE

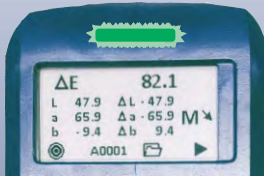
Lab

Delta E

NEW!

SCTV

Precision Easy
Glide Track
Never Touches
Wet Ink



Ever Bright
Display
2-Year
Warranty
7-Year on
LED's
Zero
Maintenance
No Chargers
Traffic
Lights



INSTRUCTION MANUAL

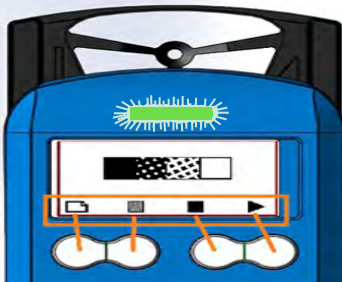


ERGONOMIC DESIGN

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.

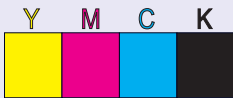
LED lights will flash **GREEN** when the measurement is within tolerance or **RED** when out of tolerance.



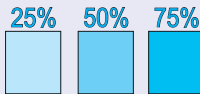
Memorize any color from multiple sources

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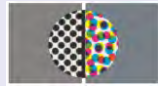
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Density



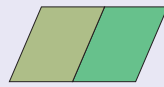
Dot Gain



Gray Balance



Trapping



Color Match



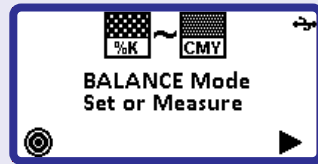
Color Memory

GETTING STARTED

There are 4 Primary Screens



Automatic Density



Balance



Trapping



Color

TRAFFIC



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.

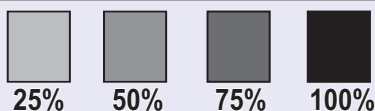
AUTO Mode DENSITY

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

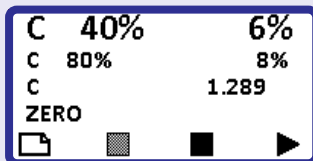


-  **RELATIVE DENSITY MODE** with **MM** (Magic Memory). ZERO to paper or press and hold Key A to force Zero. Measure a specific CMYK solid. 
-  To memorize that color press Key A. The display will show **Target Density Updated**. Measuring another Density Target of the same color will cause a **RED** 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

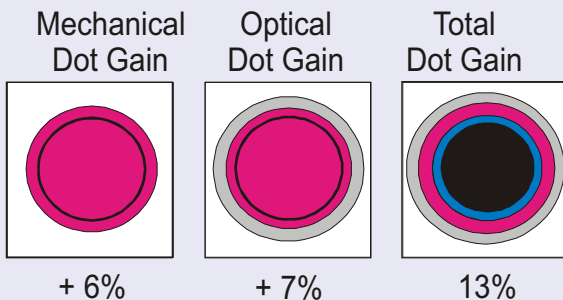


 Select next measurement mode

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 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.

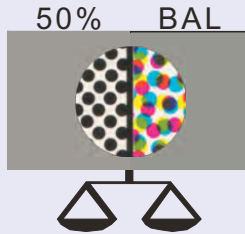
Solid	Solid	75% Tint
1.40 D	0.95 D	0.95 D



GRAY BALANCE MODE



K=50%
For Visual Comparison



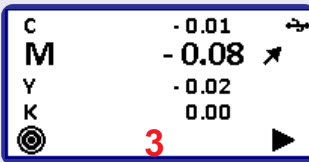
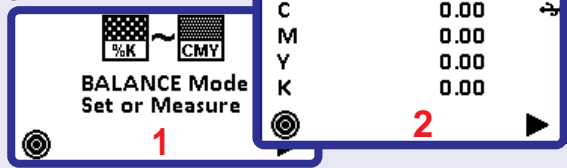
Y=40%
M=40%
C=50%

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.

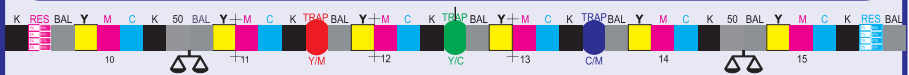


3. Measure any Gray Balance Patch without pressing any Keys.

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.

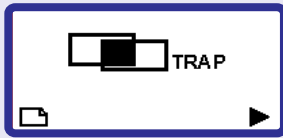
Balance Tolerance can be changed up to 7.0 dE. The factory default dE is 5.0. Edit instructions are on page 13.





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



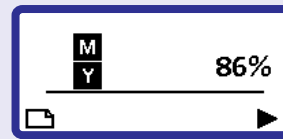
1 Open Trap Screen and measure Trap Color



2 Measure Magenta or Yellow



3 Measure the second color



4 See first and second color sequence and % efficiency



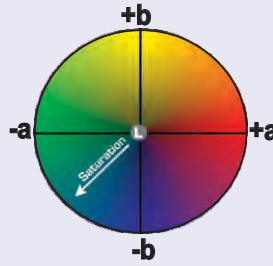
Trapping is the result of solid yellow, magenta, and cyan inks printed in two color combinations to produce red, green and blue solids.

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




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



SELECT REFERENCE - SAMPLE MEASUREMENTS



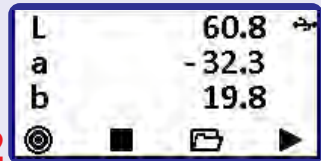
Measure a Reference color with Key A depressed. 

Measure print without pressing any key.

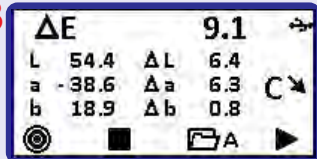


Delta E will display and the arrow will indicate correction.

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

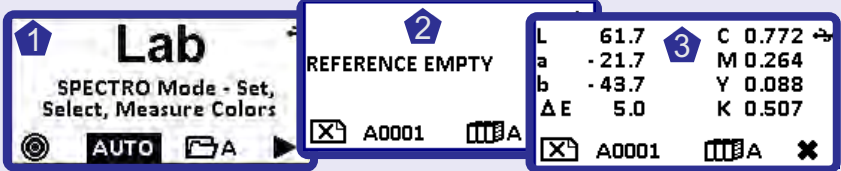
* See SELECT COLOR SPACE page 14

COLOR REFERENCE LIBRARY

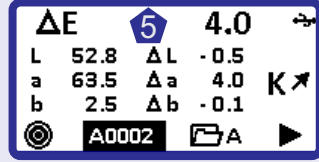
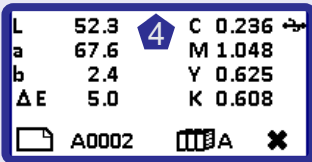
PrestoSpectro will store 32 color References, conveniently organized in 4 Sections (A,B,C,D), each with 8 Colors. The AUTO Mode will recognize each of the 8 colors within the 4 Sections when a sample is measured. For example:



- * 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 measurements. Measure your REFERENCE to load A001.

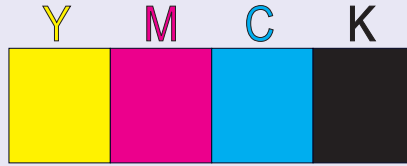


- 4 Press Key B to advance to A0002, measure your REFERENCE to load the value in A0002. Repeat as needed for A0003, A0004, etc. Press Key D X to save Volume A.
- 5 AUTO Mode will now open, high-lighting the recognized REFERENCE in reverse type, displaying the Lab delta E, and the correction needed.

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

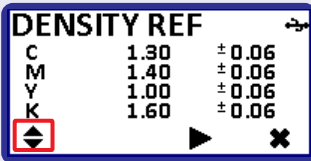
EDIT DENSITY & TOLERANCES



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

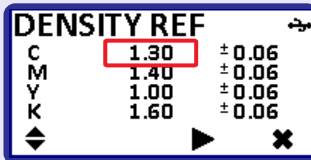


Press Key A again to open COLOR SPACE Screen

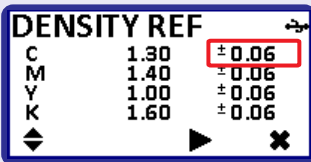


Press Key D 4X to open the DENSITY REF screen.

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.

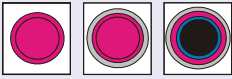


Press KEY C to adjust + or - TOLERANCE values for CMYK DENSITIES.

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.

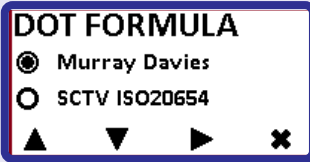
EDIT DOT GAIN & TOLERANCES



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

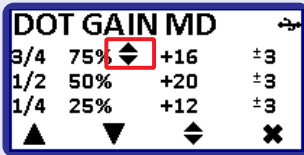
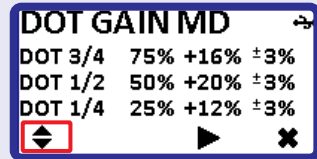
2. Press Key A to open COLOR SPACE SCREEN

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. **

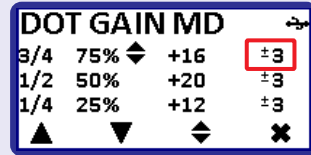
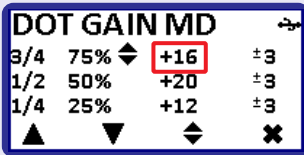
5. Press Key C to open DOT GAIN MD or SCTV if selected



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

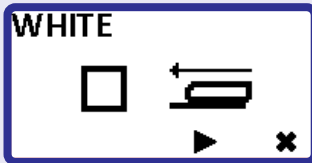


1. Open Screen by holding Key A , then press Key D.
2. Press Key A to open COLOR SPACE SCREEN
3. Press Key C 2X to open Δ E TOLERANCE SCREEN. Press Keys A and B to raise or lower the dE from 1 to 7



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

CERTIFICATE

Production: 2016/10/25
Calibration: 2016/10/25



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



SELECT DELTA E CALCULATION FORMULA

ΔE FORMULA

- ΔE
- ΔE2000



Select Delta E1976 (not recommended except for compatibility)



Select Delta E2000 (the current international standard)



Select next configuration



Exit

SELECT COLOR SPACE

COLOR SPACE

- Lab
- LCh



Select CIE Lab color space



Select CIE LCh color space



Select next main configuration function



Exit

SELECT USB OUTPUT FORMAT

USB OUTPUT

- PRESTO DX
- ALL



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]



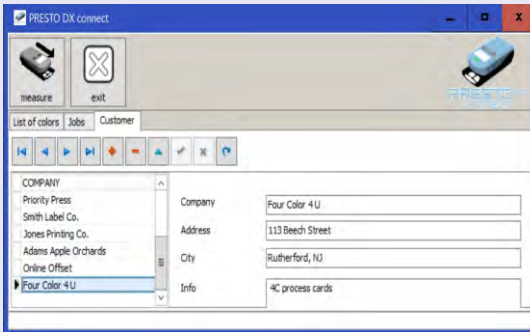
Move to next main configuration function



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.

BETA EYE SCAN COLOR BARS

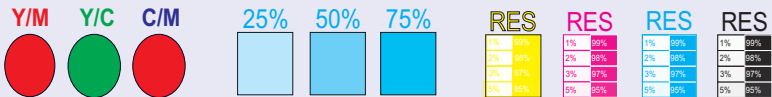
The **BETA EYE**  **SCAN CUSTOM GRAY BALANCE COLOR BAR SYSTEM** is designed for faster make ready, precise press monitoring and quicker turn around using a densitometer for objective measurements and optical tools for subjective evaluation. This **SEE IT** and **MEASURE IT** system is a precise, cost effective control system guaranteed to produce the highest quality printing. The heart of the system is a customized color bar designed to match the size of your press and numbered ink keys in exact alignment to the ink keys of the press thereby making faster and more accurate corrections.



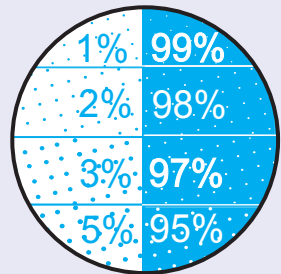
Targets of solid yellow, magenta, cyan, black, and gray balance appear in every ink zone for ultimate control across the full width of the sheet. Trapping, dot gain, and resolution targets are centered for smaller sheets.



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

BetaFlex PRO **PLATE & IMAGE ANALYZER**

Better, More Cost Effective Flexo From Superior Image Analysis In One Affordable Easy-To-Use Device



Technology For Today's Flexo

**Measure
& Control**

**.5% Highlights & Better (2D)
HD FLEXO (3D Measuring)
& More**



THE WORLD STANDARD FOR VIEWING COLOR

BETA COLOR VIEWER

Mark III with UV

THE BEST COLOR TOOL SINCE THE DENSITOMETER

High Contrast CMYK Enhancement
Magnifications from 10X-100X

Yellow Looks Almost BLACK!



Register



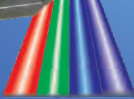
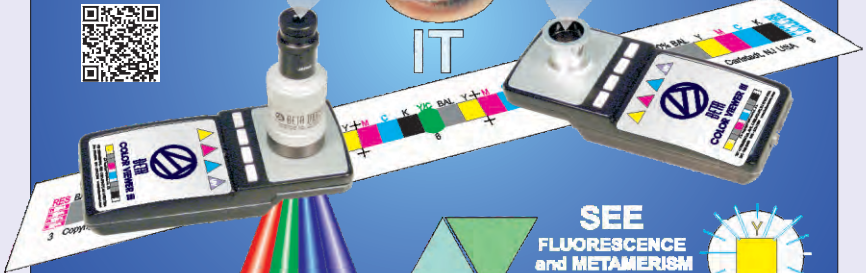
SEE



Yellow



IT



LED Lights



SEE
FLUORESCENCE
and METAMERISM
In INK or PAPER



Resolution



Ink/water Balance



Slur



Doubling

PRECISION DIGITAL ELECTRONIC RULERS

Precise, Non-contact Measurement of Large and Small Distances
Small details such as barcode lines can be measured within the eyepiece of the 50x microscope, while the cross hair in the microscope is used to locate larger details

Sizes:

- Ruler 16in. (406 mm)
- Ruler 24in. (610 mm)
- Ruler 30in. (762 mm)
- Ruler 40in. (1016 mm)
- Ruler 60in. (1524 mm)
- Ruler 80in. (2032 mm)



BETA QUALITY CONTROL PRODUCTS



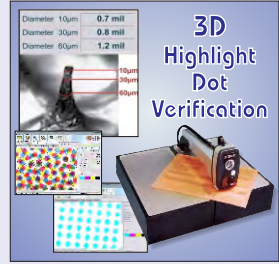
BETACOLOR XPRESS DENSITOMETERS

Advanced User Friendly LED technology. No light bulbs to replace, chargers or cables. Seven year warranty on LED's



PRESTO & PRESTO DELTA E SPECTRO DENSITOMETER

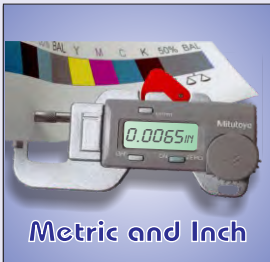
Low cost, high quality solution for Density, Dot Gain, Gray Balance, & Spot Color Matching. The Spectro version features Delta E.



BETAFLEX PRO FLEXO IMAGE ANALYZER

Measure HD Flexo Plates, Masks, Stain Density, Dot Area, Screen Ruling, Film, & Offset Plates. 3D quality control Dot Imaging index.

FREE 10-DAY TRIAL



Metric and Inch

DIGITAL MICROMETERS

Precise measurements of paper, plates, blankets and packing. Display 0.0005 in. or 0.01mm. Spring loaded anvil assures accuracy.



PRECISION RULERS

Precise, non-contact measurement of distances on films, plates, dies, & prints. Available as Electronic Ruler or Video Ruler.



BETAFOLD CREASE & FOLD ANALYZER

Portable, hand-held analysis of crease height, width, angles, and symmetry.

BETA INDUSTRIES
The Quality Control Company



707 Commercial Ave. Carlstadt, NJ 07072
Tel: 201-939-2400 info@betascreen.com
www.betascreen.com www.betascreen.net

