PRESTO DX

PRESTO-DX preliminary User Manual

Table of Contents

Safety Instructions 4
DECLARATION OF CONFORMITY 4
PRESTO DX 5
Pass Fail Indicator 6
RESET and Configuration 6
Device configuration 7
Select the functions you would like to use 7
Select the Color Space 7
Select the Delta E Calculation Formula 7
Select Dot Area formula 7
Select USB Output format 7
Select the Decimal Points for density display 8
Device Calibration Mode 8
Density Adjustment using Slope 9
Absolute white calibration 9
Opacity calibration 10
Reference Mode 11
Setup Dot Gain references 11
Edit Dot Gain reference values and tolerances 11
Setup Density reference values and tolerances 11
Edit Density reference values and tolerances 11
Set the Delta E Tolerance for balance mode 12
MEASUREMENT MODES 12
AUTOMATIC DENSITY MODE 13
Measure Dot Area 14
Measure Density difference 14
BALANCE MODE 15
TRAPPING MODE 15
Opacity Mode 16
Color Mode 17
Measure Ad-hoc Reference – measure Sample 17

The Color Reference Library 19
Service the device 19
Invalid Measurement 19
USB Interface 20
Battery Power 20

Important: This manual describes the current version of the POCKET DENSONE/PRESTOΔE hardware and software. Future enhancements or modifications are reserved.

Safety Instructions

For safety reasons, it is absolutely necessary to read through the user's guide and all of the instructions it contains. If the safety recommendations and instructions in this User Guide are not complied with, measurement errors or data loss or physical injury or property damage may result.

The PRESTO DX is not intrinsically safe. Therefore, the device cannot be used in an environment with explosive vapors where there is a risk of spark ignition or in an area with strong electromagnetic fields. It should be protected against chemicals, corrosive vapors, strong mechanical vibrations and impacts

Use the PRESTO DX in ambient temperatures between 15°C(59°F) and 40°C (104°F), and do not expose the device to direct sun light.

The PRESTO DX should never be opened as there are no user-serviceable parts inside. Doing so voids the guarantee. Contact your authorized dealer if repairs are necessary.

To avoid incorrect handling, the PRESTO DX should only be used by trained personnel

Use original PERET spare parts and accessories only.

Use the original packaging exclusively when transporting.

DECLARATION OF CONFORMITY

The undersigned representing the following manufacturer: PERET GmbH/S.r.L, Forch Str. 6, 39042 Vahrn, ITALY herewith declares that the product PRESTO DX is in conformity with the provisions of the following CE directives including all applicable amendments:

77/23/EEC Electrical equipment for use within specified voltage limits.

89/336/EEC Electromagnetic compatibility and the standards and technical specifications referenced overleaf have been applied.

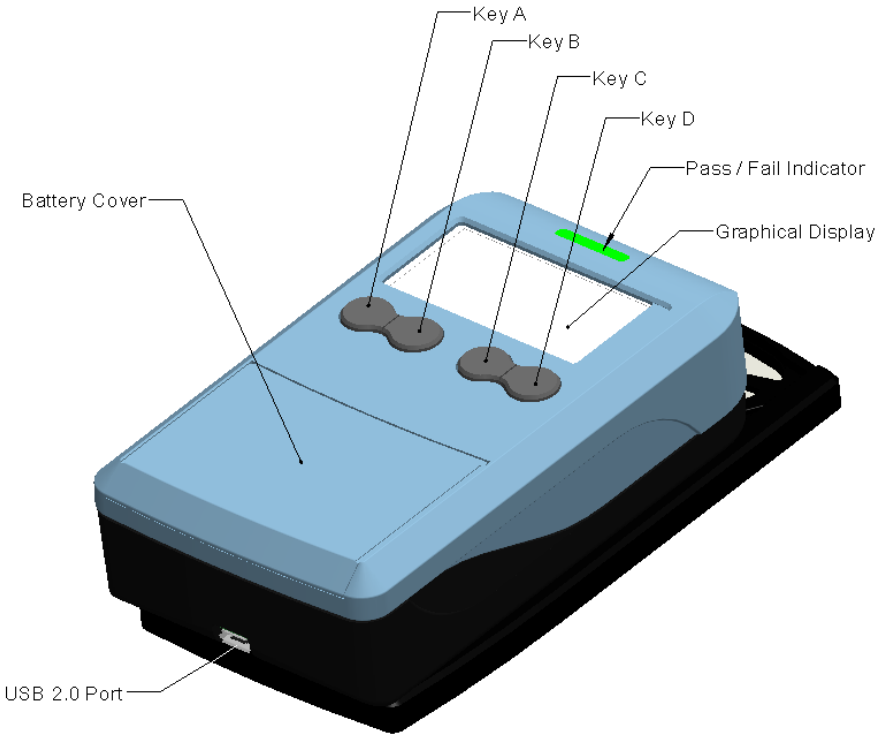
Vahrn, December 2017

PERET GmbH
Vahrner See Weg 17
I-39040 Vahrn-Varna
UID: IT02646920211

Konrad Silbernagl

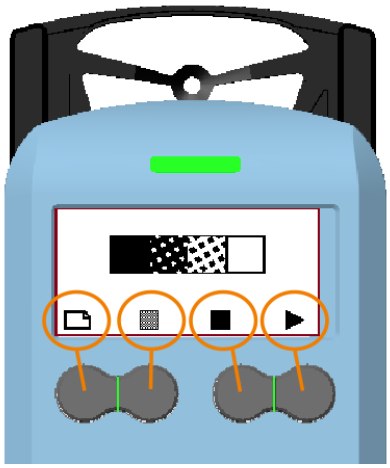
PRESTO DX

The PRESTO DX is a Spectrodensitometer based on multi color LED illumination and a tri-stimulus sensor. It measures Density, Dot Gain, Dot Area, Balance, Trapping, Lab, LCh and Delta E.



After a Measurement or a key click the PRESTO DX will immediately switch to its POWER DOWN mode.

IMPORTANT: The PRESTO DX is equipped with a passive graphical display that does NOT require any power from the batteries in display mode. Therefore, the graphical display will still show information even if the device is in power down mode.



The bottom line of the display will advise you about available functions assigned to each key [A,B,C,D] in the active mode.

Move the device to the front position to execute a measurement. Keep the device in the front position until the measurement process is finished and the measurement information is displayed.

Pass Fail Indicator

Measurements will be compared to previously stored references and tolerances. It they don't match, the traffic light will flash red. The traffic light will flash green otherwise.

RESET and Configuration

Press the RESET button on the bottom of the device to RESET the device.

The device will display its serial number, its firmware version and its filter and aperture option.

E … Status E, T … Status T

P… with Polarization Filter, U … without Polarization Filter

L … 3mm Aperture, S … 2mm Aperture

The bottom line will advise you with proper icons about available functions. Press the device key below the icon to execute the proper function.

Open the configuration menu

Check the device calibration, adjust the device slope and white point

Open the references and tolerances for density modes.

Move to next main function

This mode can also be reached from any measurement mode by pressing the left key, keeping it depressed while clicking the right key.

Device configuration

The device can be configured to use various color and halftone formulas and display or output data formats as required. Click the Menu Icon on the main screen to enter the configuration mode

Select the functions you would like to use

Select next Function

Toggle ON/OFF

Select next main configuration function

Exit the Dot Gain Edit Mode

Select the Color Space

Select CIE Lab color space

Select CIE LCh color space

Select next main configuration function

Exit the configuration mode

Select the Delta E Calculation Formula

Select ΔE (1976 ISO 12647 and ISO 13655)

Select ΔE_{00} (2000)

Select next main configuration function

Exit the configuration mode

Select Dot Area formula

Select Murray Davies formula for Dot area calculation

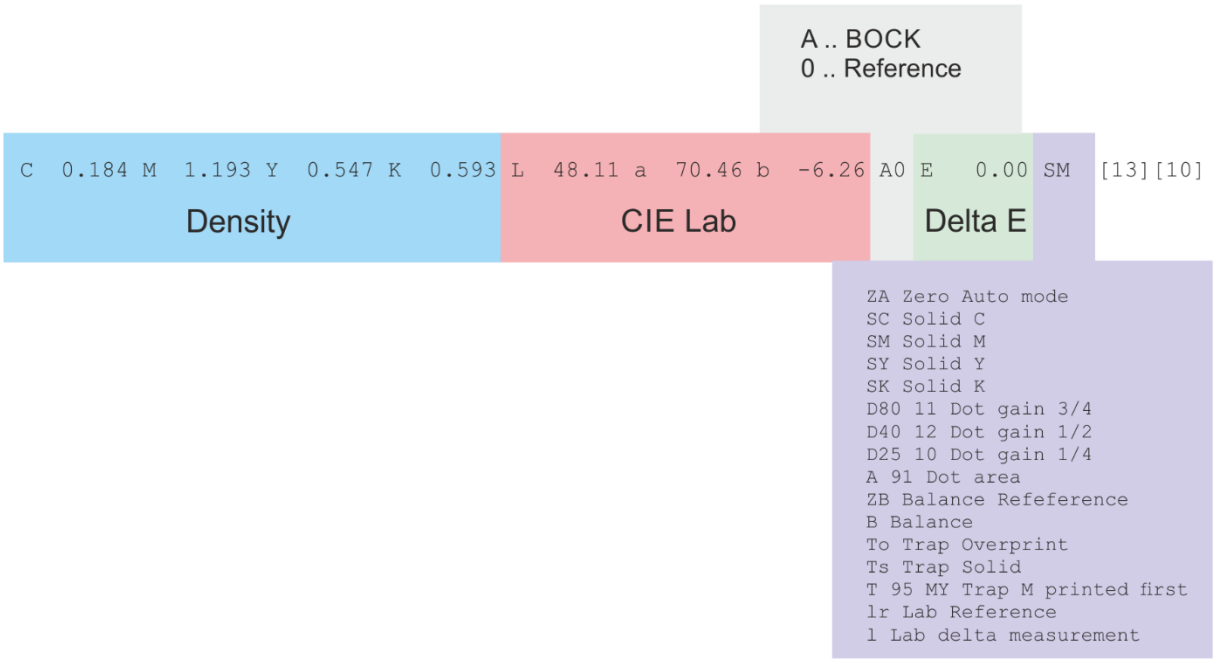
Select CTV Formula for spot color Dot area calculation

Select next main configuration function

Exit the configuration mode

Select USB Output format

Select DX Output format



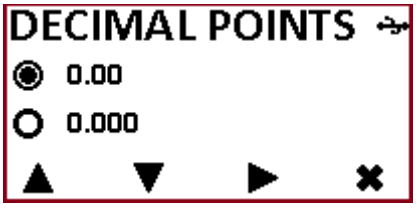
▼ Select ALL Output format

```
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

Select the Decimal Points for density display



▲ Select 3 decimal points

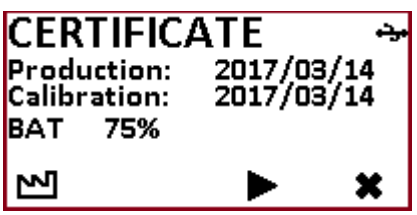
▼ Select 2 decimal points

▶ Select next main configuration function

✖ Exit the configuration mode

Device Calibration Mode ☑

Select the device calibration mode to check the device calibration date. In addition the battery status is displayed.



Click the Factory Setting Icon key to reset all settings

▶ Select next main calibration function

✖ Exit the calibration mode

Density Adjustment using Slope

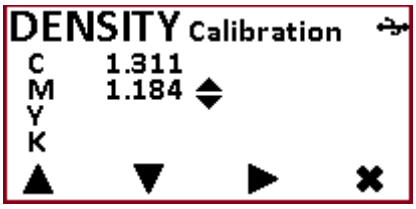
Measure on paper white

IMPORTANT: before you can perform a color density calibration you need to execute a paper measurement with key A depressed.

Measure any solid target of Cyan, Magenta, Yellow and Black, for example measure Cyan

increment cyan density

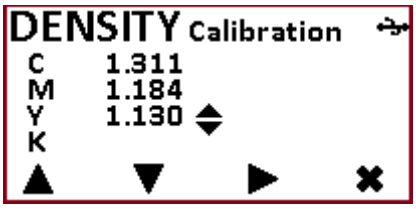
decrement cyan density



Measure Magenta solid patch

increment magenta density

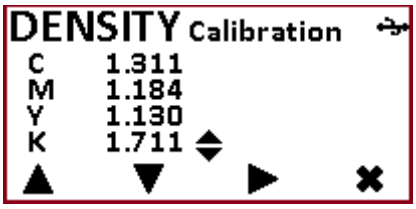
decrement magenta density



Measure Yellow solid patch

increment yellow density

decrement yellow density

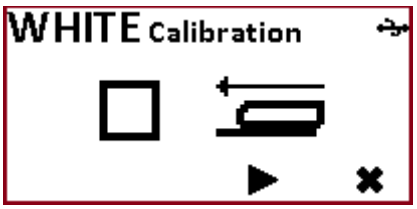


Measure Black solid patch

Select next main calibration function

Exit the calibration mode

Absolute white calibration



Measure white reference

increment highlighted value (L,a,b)

decrement highlighted value (L,a,b)

select next value (L,a,b)

Return to calibration mode

Opacity calibration

Measure 100% transparent reference

Measure 100% opaque reference

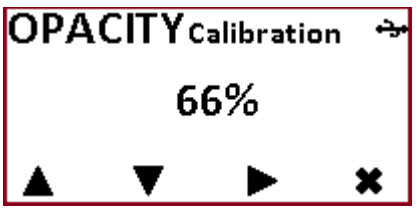
Select next main configuration function

Exit the configuration mode

Measure 100% transparent reference (Black background) with key A depressed

Measure 100% opaque reference (white film on white background) with key B depressed

Finally measure the sample on black background

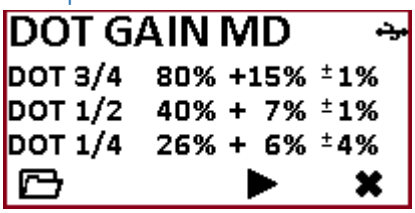


increment value

decrement value

Reference Mode

Setup Dot Gain references



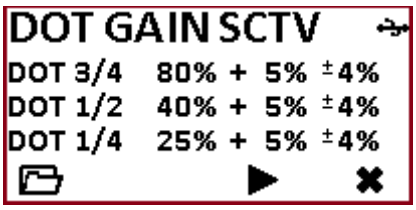
Open the reference page and edit references

Select next main configuration function

Exit the configuration mode

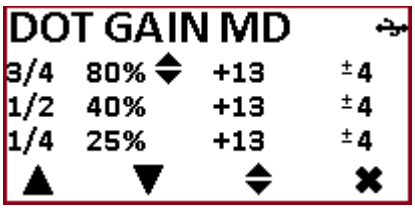
The Dot Gain reference and tolerance will be used to detect if a measurement in AUTO mode is in tolerance or if it is out of tolerance. If it is in tolerance the traffic light will flash green. If it is out of tolerance the traffic light will flash red.

There are two sets of reference data stored, one for Murray Davies (MD) and one for Solid Color Tone Value (SCTV). The proper set can be accessed by selecting the DOT FORMULA.



Edit Dot Gain reference values and tolerances

The current reference value is highlighted by the ⬍ suffix.



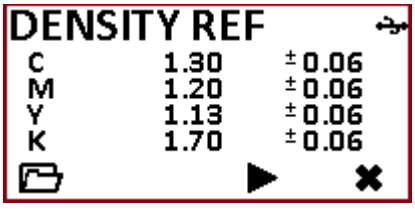
Increment current Reference value

Decrement current Reference value

Select next Reference

Exit the Dot Gain Edit Mode

Setup Density reference values and tolerances



Open the reference page and edit references

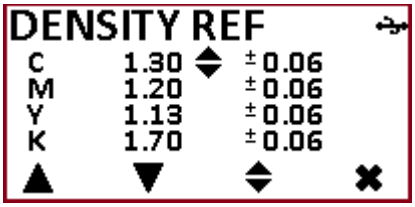
Select next main configuration function

Exit the configuration mode

The Density reference and tolerance will be used to detect if a measurement in AUTO mode is in tolerance or if it is out of tolerance. If it is in tolerance the traffic light will flash green. If it is out of tolerance the traffic light will flash red.

Edit Density reference values and tolerances

The current reference value is highlighted by the ⬍ suffix.



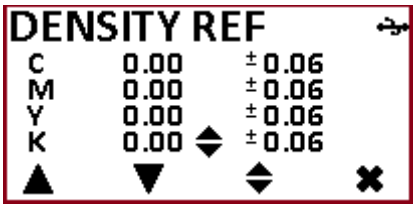
Increment current Reference value

Decrement current Reference value

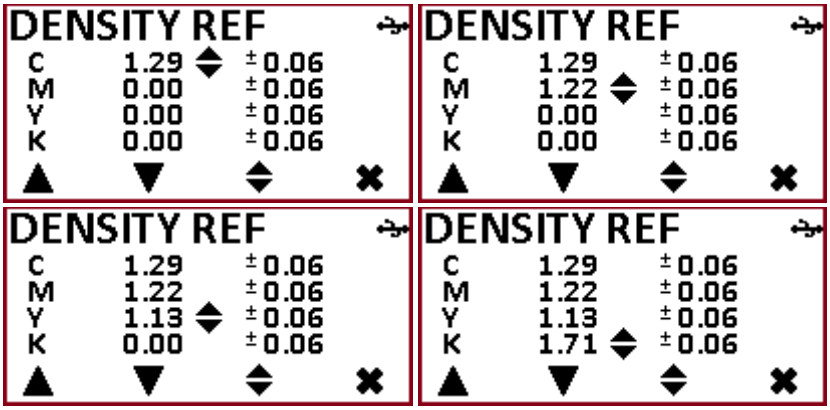
Select next Reference

Exit the Dot Gain Edit Mode

There can be inserted the reference densities by measurement. Press key A and keep it depressed while taking a measurement on paper white.



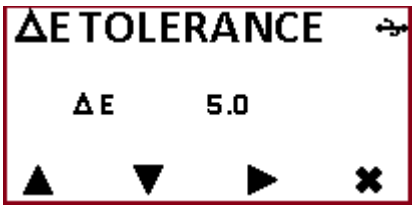
Now measure the process colors in any sequence



Edit the numbers as required.

Set the Delta E Tolerance for balance mode

The Balance Tolerance Delta E value sets the limit for the green/red traffic light during balance measurement. If the current measurement differs more than this Delta E, the traffic light will flash red, it will flash green otherwise. The Delta E tolerance can be set between Delta E 1.0 and Delta E 7.0. Depending on the selected Delta E formula this will be Delta E74 or Delta E 2000.



Increment Delta E

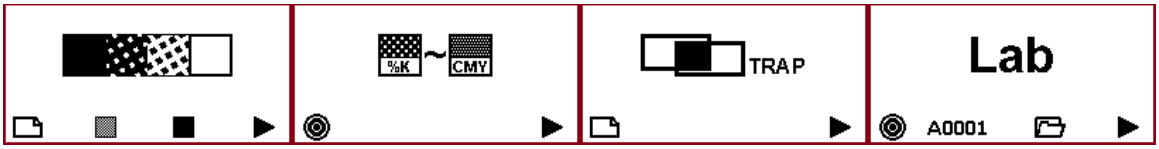
Decrement Delta E

Select next main configuration function

Exit the configuration mode

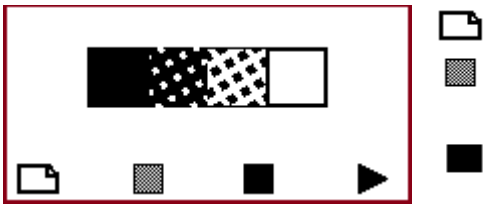
MEASUREMENT MODES

▶ Press key [D] to select one of the available measurement modes



AUTOMATIC DENSITY MODE

Click the Next Icon at the RESET Screen or simply take a measurement to enter the AUTOMATIC DENSITY MODE. Measure Density, Dot Gain, Dot Area in this mode.

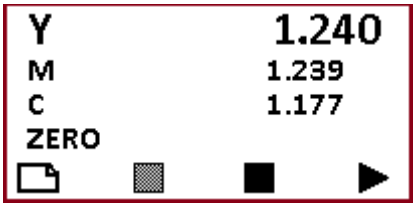


force paper zeroing measurement

Dot Area measurement –
zero first, measure solid second

force density measurement
(disable temporarily the dot gain and zero detection)

The AUTOMATIC MODE will automatically detect the patch color and the patch type after a reading and display the result and the measurement history with the most recent reading on top.

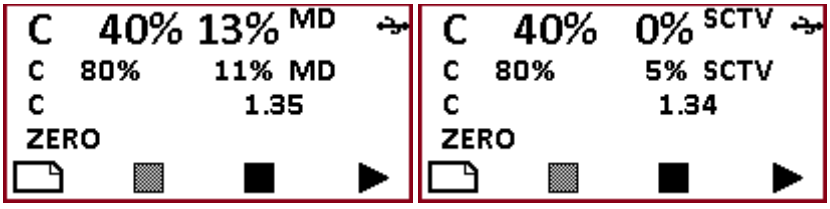


Any solid density measurement will be compared to the reference numbers and tolerances stored in the settings. If the reading is in tolerance, the traffic light will flash green. If it is out of tolerance, the traffic light will flash red.

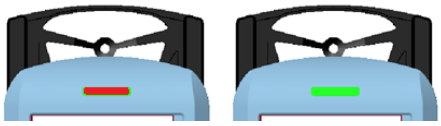
Dot Gain Measurement is performed by

- Zero on paper
- Measure Solid patch
- Measure tint percentage patches of the same color

The device now displays the nominal reference and the dot gain, calculated using the formula selected in the settings. The selected Formula is displayed as MD (Murray Davies) or SCTV (Solid Color Tone Value).



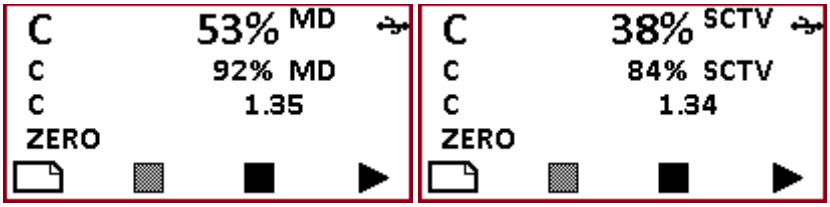
Any dot gain measurement will be compared to the reference numbers and tolerances stored in the settings. If the reading is in tolerance, the traffic light will flash green. If it is out of tolerance, the traffic light will flash red.



Measure Dot Area

Zero on paper. Zero with key A depressed in case you are using a dark paper. Measure the Solid density patch.

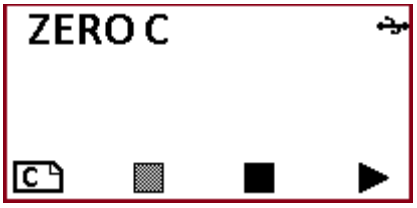
Measure as many Tint percentage patches as required with key B depressed



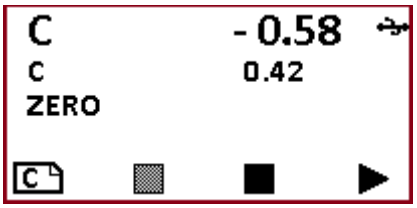
Measure Density difference

Zero with key A depressed the Solid density reference patch. Next to the ZERO there will be displayed a color character of the measured color. Color is detected on densities > 0.30D. Below this density the device is zeroed normally.

The color of the selected filter will be displayed inside the zero icon. This makes the operator aware of the fact, that actually there is no paper zero available. If the density measured is higher than 0.22 compared to calibration white, the color can be stored as a reference. A normal paper zero will performend otherwise.



Now measure as many samples as required with key C depressed.



The density difference is displayed.

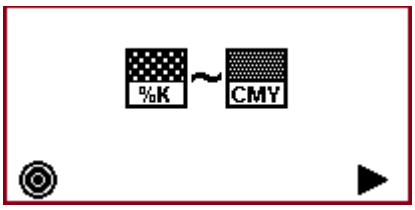
CAUTION: The color character inside the zero icon will advise you, that no paper white calibration is available. Before starting to measure normal density and dot gain you need to zero the device on paper.

Important: In case SCTV is selected, there can be measured 7 colors, CMYK + OGV.

▶ Select next measurement mode

BALANCE MODE

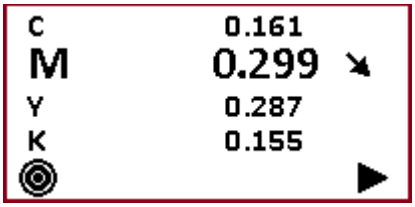
Balance mode is used to measure CMYK densities with one single measurement to compare two measurements in terms of Density and Density difference.



◎ Measure reference patch

- Compare paper white with gray balance patch
- Compare black tint percentage with gray balance patch
- Compare one color patch with a similar color patch

Measure Reference patch with Key A depressed. Measure sample patch without any key depressed.



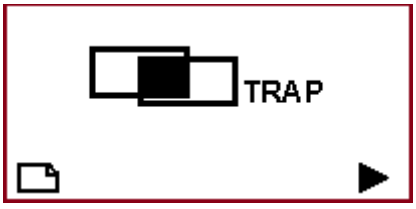
The color with the largest difference will be highlighted and an Arrow will tell you the direction of corrective action required.

If the difference between target and actual measurement is greater than the Delta E tolerance specified in the settings, the traffic light will flash red. The traffic light will flash green otherwise.

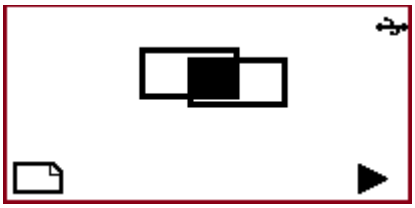
▶ Select next measurement mode

TRAPPING MODE

Select the trapping mode to measure the trapping efficiency in color overprint.



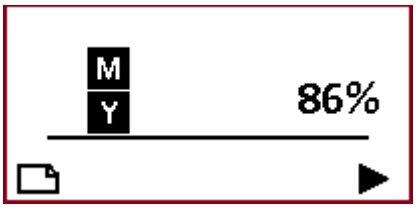
force paper zeroing measurement



Paper white has been measured, measure now the overprint patch (for example Red, composed of Magenta and Yellow)

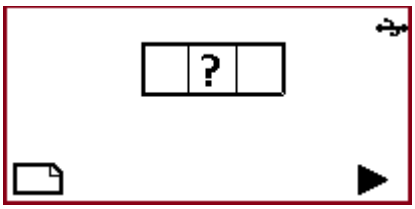
The overprint patch RED has been measured. The composing colors M (Magenta) and Y (Yellow) are displayed and need to be measured in any sequence next.

Magenta has been measured. Now measure Yellow.

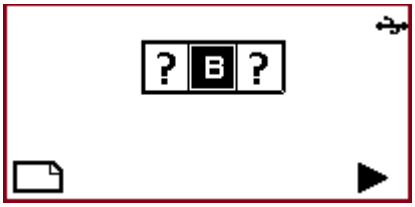


The overprint color and the two composing colors have been measured. The Trapping value is calculated automatically. The print sequence is displayed graphically. Magenta has been printed on top of yellow in this example.

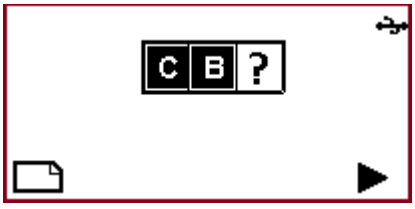
Warnings:



The device is expecting an overprint color measurement of red, green or blue color while a simple color has been measured. The composing colors can not be calculated. Measure an overprint color.



The overprint color Blue has been measured. A measurement of one of the composing colors CYAN or MAGENTA is expected. The Yellow has been measured instead. Measure CYAN or MAGENTA to proceed.

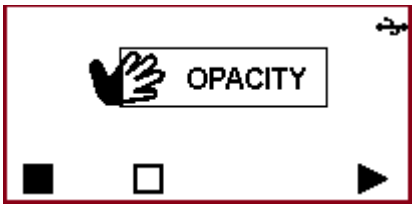


The overprint color Blue and the composing color Cyan have been measured. Instead of measuring the second composing color Magenta there has been measured Yellow. Measure Magenta to proceed.

▶ Select next measurement mode

Opacity Mode

The opacity mode measures the opacity of a white or color ink film.

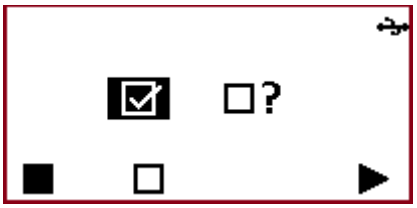


■ Measure 100% transparent reference

□ Measure 100% opaque reference

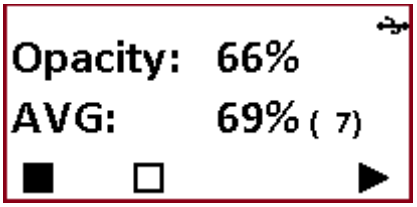
▶ Select mode

Measure 100% transparent reference (Black background) with key A depressed



Measure 100% opaque reference (white film on white background) with key B depressed

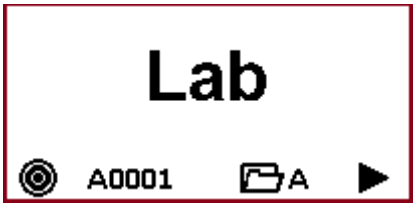
Finally measure up to 60 locations on the sample on black background. The current opacity is displayed. The average and the number of readings is displayed.



Measure the 100% opaque reference to restart the averaging process.

Color Mode

The color Mode can be configured to use Lab color space or LCh color space.



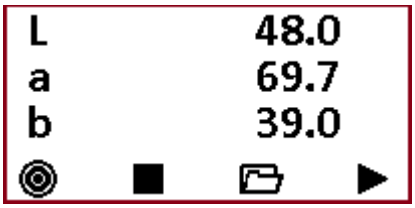
◎ Measure Reference for ad-hoc reference sample measurements

A0001 Select one of the references out of the reference Library

Open Reference Library. The current color book is A

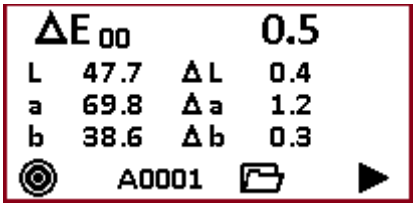
Measure Ad-hoc Reference – measure Sample

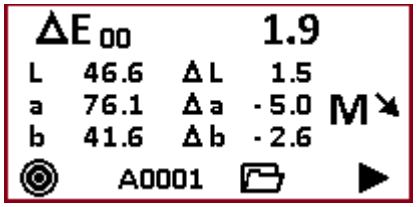
◎ Measure the reference patch with key A depressed



■ ad-hoc reference is selected – click to select another reference from the reference library

Measure sample without any key depressed





If the difference between reference and sample is significant and a correction in CMYK can be made, correction advice in terms of Color and Up/Down will be displayed.

Click Key-B to select the reference:

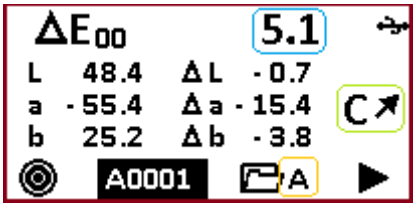
■ ad-hoc reference is measured

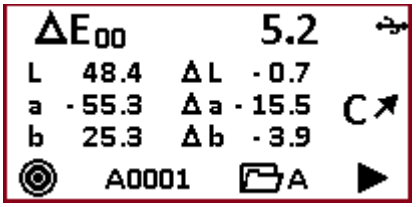
A0001 Select one of the references out of the current reference Library

AUTO Search for the closest color match in the current reference Library

NOREF Reference Library is empty – no references are available

Example measurement:





A0001 The reference color name is printed with white letters on black background If the closest color out of the current reference book is selected automatically.

A0001 The reference color name is printed with black letters on white background if the reference has been pre-selected by the operator.

A the current reference book is book 'A'.

5.1 The **Delta E2000** between actual measurement and the detected reference is **5.1**

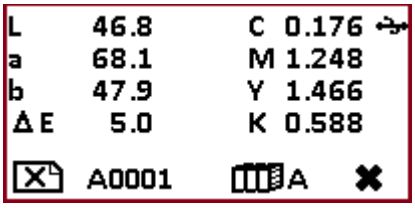
C In order to get closer in case of 4-color process the **Cyan density needs to be increased**.

If a reference from the reference library is selected, the status LED in front of the graphical display will be green in case of 'in-tolerance' measurements. It will be red in case of 'out-of-tolerance' measurements.

The Color Reference Library

Open the Reference Library

The reference library can store up to 4 color books [A,B,C,D], with 8 color references each for a total of 32 reference colors. A reference color is defined by LAB values and CMYK densities. A tolerance in terms of delta E can be assigned..

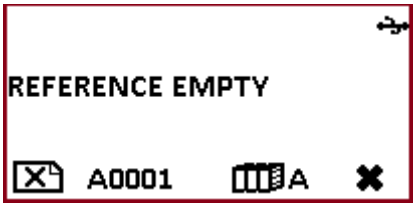


paper zeroing for density measurement, empty the current reference

A0001 Select one of the references out of the current reference book

A Select reference book

If a reference is not yet assigned the reference will displayed as REFERENCE EMPTY

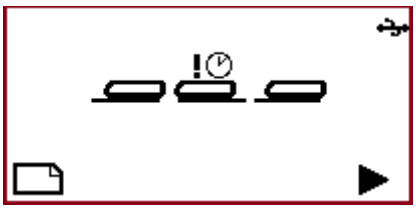


Measure a reference patch to assign reference number to the current reference.

exit the reference library mode

Service the device

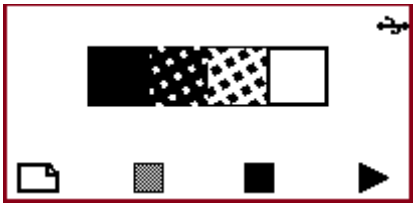
Invalid Measurement



In order to execute a measurement, move the device quickly over the aperture in its front position. Hold the device in its front position until the measurement values are displayed.

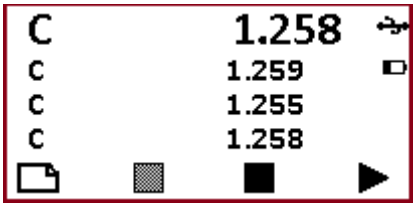
USB Interface

The PRESTO DX is equipped with an USB Interface. You can connect the USB via USB cable to your PC. In order to start the communication a key press on the device is required. The established USB connection will be displayed by the USB Icon in the right top corner of the Device Display.

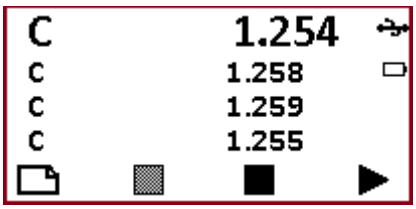


Battery Power

During the measurement process the current battery power is monitored. If the level of the battery power goes below a threshold, then the operator will be advised by a semi empty battery icon in the device display.



You can continue to take measurements but you should consider to replace the batteries as soon as possible. If the battery power level goes very low, the empty battery icon will arise. Replace the batteries immediately as repeatable measurements cannot be guaranteed any more.



Open the battery cover and replace batteries with 4 AA (LR6) 1.5V alkaline batteries.

CAUTION: make sure the polarity of the batteries is correct!