TECHKON
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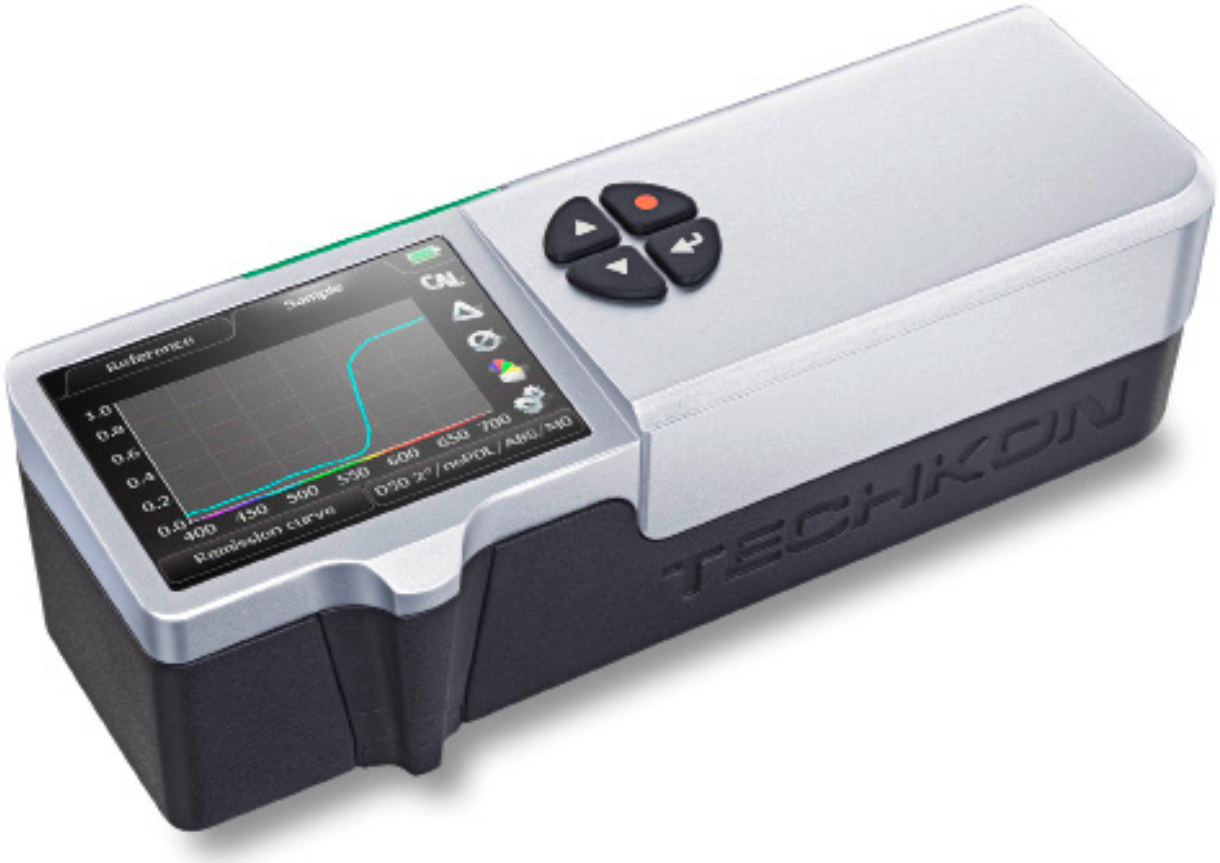


TECHKON SpectroDens

TECHKON SpectroDens – Spectro-Densitometer

The new era in color measurement

With the new SpectroDens generation TECHKON continues the success story of the SpectroDens hand-held devices in the long term. The dictum during product development was: Pursue proven concepts and integrate new meaningful technologies. The result sets a new standard.

A measurement device for all applications

SpectroDens is an all-purpose measurement device, that is universally used for quality control in the printing industry as well as for other tasks, where colors have to be judged critically. SpectroDens is exceptionally suitable, no matter which application. Thanks to the individually adjustable display functions, you can quickly set up the device for your particular job. The solid aluminum unibody case makes the device a reliable tool even in a harsh industrial environment. Direct positioning of the measurement head on the measurement field ensures a secure and quick measurement.

All SpectroDens models are equipped with tracking wheels, so that in addition to single measurements scan measurements can be performed. This supports short scans for various measurement functions (see Specifications). Thanks to the measurement function SCAN, SpectroDens Premium even enables universal scans of up to 100 measuring patches on print control strips.

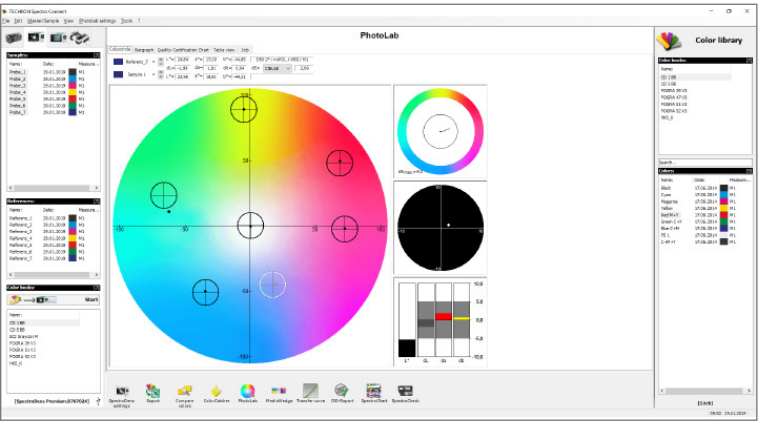
Two devices in one

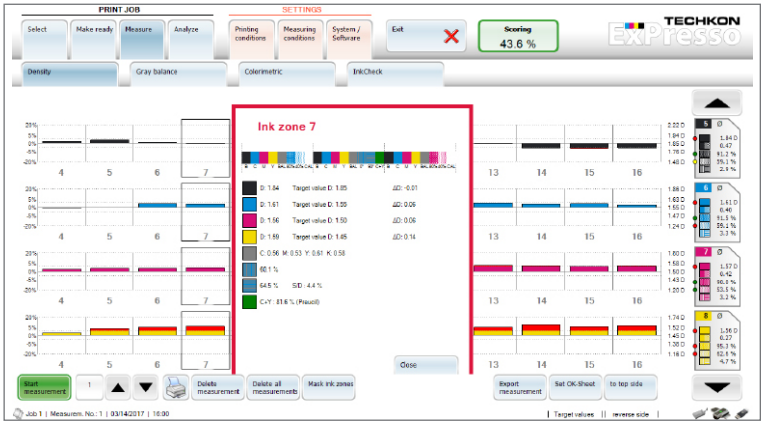
As a spectro-densitometer, SpectroDens combines the qualities of a highly accurate spectro-photometer and an easy-to-use densitometer. Measurement is spectral, i.e. the entire color information – the spectral fingerprint of the color – is precisely registered. The data is converted into measurement data for descriptive analysis and display:

- Densitometric data is widely used in quality control during the printing process.
- Colorimetric data is used in the evaluation of print proofs, the creation of color profiles in color management as well as the color matching and formulation of inks.

Densitometry / Density measurement

A push of a button provides you with solid density as well as all useful additional information such as dot gain, dot area, gray balance and print contrast. In the automatic measurement mode the device always displays the relevant information instantly. You can even quickly and easily produce complete printing curves. The spectral measurement technology calculates not only density values for CMYK, but also exact data for the density of spot colors.





Colorimetry

All standard colorimetric functions are displayed clearly. Even the entire CIE L*a*b* color circle appears in the high resolution color display. As a result understanding CIE L*a*b* values becomes very easy and clear. In the color library 25.000 reference colors and complete digital color books can be saved.

Standardized measurement

Thanks to its ISO-compliant measuring head SpectroDens works strictly according to the standards valid for the graphic industry. Select different status filters for density measurement in the device settings. A special technical feature is the polarization filter which can be switched on and off by a push of a button and makes SpectroDens particularly good at evaluating the Ugra/Fogra media wedge.

Using the latest LED technology SpectroDens provides D50 illumination and therefore fulfills the M0, M1, M2, M3 measuring conditions in accordance to ISO 13655. The lifetime of the LED illumination is nearly unlimited. Moreover the new design of the direction-independent measuring head provides reliable measurements of a wide range of print media.

Software TECHKON SpectroConnect for all SpectroDens versions

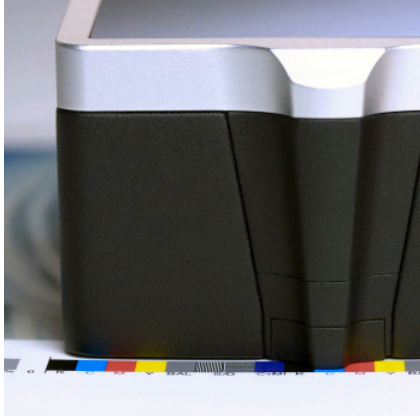
The Windows software TECHKON SpectroConnect, included in the content of delivery, establishes the connection between the measuring device and the PC via the USB connection or via a WLAN connection (optional with SpectroDens). Data processing of the measured values on the PC is very comfortable and data can be transmitted directly to Microsoft Excel™ or any other application with editing function.

The program also serves to remotely control the device for settings, lock functions, perform updates and save the display content for documentation purposes. In addition, TECHKON SpectroConnect offers fast and easy exchange of digital color libraries, as well as measured references and samples. It is also possible to import and export color data in standardized CXF format.

Software TECHKON ExPresso 4 for SpectroDens Premium

SpectroDens Premium is supported by the Windows software TECHKON ExPresso 4. TECHKON offers with this solution among other things a cost-effective entry into the continuous scan measurement of complete print control strips; including a fast calculation of recommended density value adjustments and an evaluation of the print quality.

TECHKON ExPresso 4 has a self-explanatory user interface which can be operated via touch-screen. The software offers a comprehensive tool set comprising measurement of spot colors, support of up to 16 print units, front-side and reverse printing, display of color density, dot gain, gray balance, G7™, CIE L*a*b*-values and recommendations on how to adjust the ink on the press. This is only an extract of the complete functionality. Thanks to its modularity TECHKON ExPresso 4 is expandable and versatile. The measurement data can be exported into other software applications that connect real-time to printing presses to enable a “closed loop” turn-key solution. In addition, the ExPresso software can export measured data to standard applications such as Microsoft Excel™.



Versions and functions

We supply SpectroDens in three types of performance packages: The model **Basic** with all density functions, and the **Advanced** version which adds essential colorimetric functions and a color library. The fully equipped flagship model SpectroDens **Premium** meets all demands with regard to quality control.

All SpectroDens devices feature a brilliant color display and can be used in various measurement functions for short scans. Thanks to the SCAN measurement function, SpectroDens Premium can even read and evaluate universal scans of up to 100 measuring patches on print control strips. The LED technology provides measurement conditions M0, M1, M2, M3 according to ISO 13655. Optionally data transmission by means of a WLAN module is possible. SpectroDens Basic and Advanced can be upgraded post-purchase by program upload to higher versions (charged service).

SpectroDens Basic

▪ Automatic density ▪ Density CMYK (with reference measurements) ▪ Dot area ▪ Dot gain ▪ Print contrast ▪ Gray and color balance ▪ Ink trapping ▪ Printing curve (short scan) ▪ Density spectrum ▪ Spectral density for spot colors ▪ Trend function ExPresso mini ▪ Slur/doubling ▪ Dot area to Yule-Nielsen for printing plates ▪ Spot Colour Tone Value (SCTV) ▪ Spot Colour Tone Value (SCTV) Printing curve (short scan) ▪ Average

SpectroDens Advanced

Same functions as SpectroDens Basic and additionally:
▪ CIE L*a*b* ▪ CIE L*a*b* + D ▪ G7™ (short scan) ▪ ΔE*a*b* ▪ CIE L*C*h*ab ▪ CIE XYZ ▪ CIE color circle ▪ ΔE*cmc ▪ ΔE*CIE94 ▪ ΔE*CIE2000 ▪ Remission spectrum ▪ InkCheck: Color control of spot colors ▪ Color library with up to 20 color books and a total number of 25000 reference values ▪ Memory capacity for 3000 sample values and 300 reference values

SpectroDens Premium

Same functions as SpectroDens Advanced and additionally:
▪ Ugra/Fogra media wedge evaluation (short scan) ▪ ISO-Check: Color control based on CIE L*a*b* values (short scan) ▪ CIE L*u*v* ▪ CIE L*C*h*uv ▪ CIE xyY ▪ DIN Lab99 ▪ Metamery index ▪ Whiteness ▪ Yellowness ▪ Universal scan measurement ▪ Pass/fail tolerance ▪ Opacity ▪ OBA-Check

Software	▪ SpectroConnect (for all SpectroDens devices) and ExPresso 4 (for SpectroDens Premium) require Windows 7, 8 or 10
Contents	▪ Measurement device SpectroDens ▪ Charging console with white standard ▪ AC adapter with universal plugs ▪ USB cable ▪ Data media with software TECHKON SpectroConnect ▪ Manual with ISO 9000 compliant certificate (pdf on data media) ▪ Manufacturer certificate
Optional accessories	▪ Small apertures ▪ Print control strip TCS Digital ▪ Color reference TECHKON SpectroCheck ▪ WLAN module ▪ Upgrades for SpectroDens Basic and Advanced to higher performance levels

Specifications

Measurement geometry	0° : 45° optics according to ISO 5-4
Spectral range	400 to 700 nm in 10 nm steps, spectral resolution 10 nm, pixel distance sensor < 3 nm
Measurement aperture	3 mm round standard; 1.5 mm round optional
Light source	LED, provides measurement conditions M0, M1, M2, M3 according to ISO 13655
Polarization filter	Twice linear crossed, switched on and off per button release
Measurement time	Approx. 1 sec. per measurement; max. 10 seconds in scan mode
White reference	Absolute and relative; absolute white standard integrated in charging console
Illumination types	A, C, D50, D65, F 2/7/11
Standard observer	2°, 10°
Density filter	DIN 16536, DIN 16536 NB, ISO/ANSI T, ISO/ANSI I, ISO E; spectral density Dmax
Density measurement range	0.00 – 2.50 D
Repeatability	0.01 D; 0.03CIE ΔE 2000
Inter-instrument agreement	0.01 D; 0.3 CIE ΔE 2000
Display	Color LC backlight display, anti-reflective, 320 x 240 pixels
Power supply	Rechargeable LiFePO4 battery, regulated recharge via charging console with AC adapter, 100 – 240 V, 47 – 63 Hz, approx. 10000 measurements per battery charge, battery level control
Communication port	USB; WLAN module optional
Weight	495 grams
Dimensions	62 x 50 x 185 mm (approx. 2.4 x 2.0 x 7.3 inches)

System requirements for TECHKON software:
Windows 7, 8 or 10; 32- and 64-bit, minimum: IBM-compatible PC with Intel Core Duo processor or comparable processor, 4 GB RAM, 2 USB ports

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