3-in-1 next-generation measurement tool

Streamlines color adjustment in printing, even on substrates with fluorescent whitening agents
A high-accuracy, compact, lightweight, handheld, next-generation spectrodensitometer that measures color, density, and illumination* for applications from R&D to quality control.

*FD-7 only

**Color**

The world’s first measuring instrument that corresponds to Measurement Condition M1 of ISO 13655

- Konica Minolta’s original VFS (Virtual Fluorescence Standard) technology enables L*a*b* measurements corresponding to ISO 13655 Measurement Condition M1.
- The FD-7 and FD-5 can take measurements corresponding to all four of the ISO 13655 Measurement Conditions. Measurements corresponding to M1 are enabled by Konica Minolta’s original VFS (Virtual Fluorescence Standard) technology, and measurements corresponding to M0 (CIE Illuminant A) and M2 (Illumination with UV-cut filter) can also be taken. In addition, by attaching the included polarization filter, measurements corresponding to M3 (M2+ polarization filter) can be taken.

**Scan measurements can be performed. (FD-7 only)**
- Manual scan measurements can be performed when the instrument is connected to a PC.
- With optional software basiColor catch all, the colorimetric values, density values, and spectral reflectance values of various test charts (MediaWedge EC12002, IT8.7/3, etc.) can be measured in a single operation.

**Spectral output (FD-7 only)**
- When the FD-7 is connected to a computer, the spectral reflectance data (380 to 730 nm) of samples under various illuminants and the spectral irradiance data (380 to 730 nm) of the environmental lighting can be measured and output to a computer. This makes the FD-7 ideal for research and development applications.

**Illumination**

**Illumination environment light can be measured. (FD-7 only)**
- The illuminance and color temperature in a color viewing cabinet or the actual ambient light under which printed materials will be evaluated can be measured.

**Measured environmental light can be set as illumination light source (user illuminant)**
- In the past, when measuring printed materials containing fluorescent whitening agents (FWA), large differences between measured values and visual evaluation sometimes occurred. But with the FD-7, colorimetric values can be calculated under the measured environmental light source, providing results which more closely correspond to on-site visual evaluation. This ensures customers receive the colors they want and eliminates time and labor lost resolving customer complaints due to the effects of FWA or metamerism.

**Density**

**Printing quality control functions including trapping, dot gain, etc.**
- A new industry-standard tool for commercial printing and packaging printing to improve productivity and quality at low cost.
  - CMYK density • Dot area • Dot gain • Trapping • Simple density difference
  - PS plate dot area • PS plate dot gain • Spot color density

**Target Match function**
- Displays the color difference from the target color and the process color or spot color density adjustment needed to bring the measured color closer to the target color.
- By using the Target Match function, ink color adjustment can be performed without a computer or special software.
  - Ideal for spot colors or process colors.
  - Displays color difference and density.
  - Displays estimated density adjustment needed to bring the measured color closer to the target color and the predicted color difference after adjustment.

**Functions corresponding to various printing standards**
- Pass/fail judgment against ISO, JapanColor, GRACoL®, SWOP®, PSO, or user-defined custom targets can be performed. The FD-7 and FD-5 are ideal for on-site printing quality control.
  - ISO 10547 check: • Color difference, TVI, and mid-tone spread can be evaluated.
  - Gray balance
  - Gray balance can be evaluated using the G7® evaluation method.

**Data Management Software FD-STw (included as standard accessory)**

**Features:**
- Transfer of measurement data to Excel® sheet.
- Reading/registration from instrument and storage as PDF file.
- Color set management ISO ID/ID Check.
- Required for ink color adjustment.

**Compatible instruments:**
- Spectrodensitometer FD-7, FD-5
**Display language:**
- English, Japanese

**Data Transmission:**
- FD-7 and FD-5 can be connected to a computer to output data, and they can be used with each other.

**System Requirements:**
- Required for ink color adjustment.

**Testing Conditions:**
- Measurement accuracy:
  - ±2.0 % of the ratio (1.0 - 99.9 %) of the reference value

**Color set management ISO ID/ID Check**
- Color set management ISO ID/ID Check allows the user to store and manage color sets.
- Supports both ISO standard and company-specific color sets.

**Colorimetric values:**
- The colorimetric values (L*, a*, b*) are calculated based on the CIE L*a*b* color space.

**Software Features:**
- Excel®: This feature allows users to export measurement data to Excel® spreadsheets.
- Color set management ISO ID/ID Check: This feature allows users to store and manage color sets.

**FD-7 only**

- Spectral irradiance data (360 to 730 nm) of the environmental light can be measured.
- Automatic wavelength compensation function minimizes inter-instrument errors when using multiple instruments.
- Working bodies, color control using the same FD-7 master body and then transferring working bodies.
- By measuring the environmental light source with the FD-7 ideal for research and development applications.

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Industry’s first automatic wavelength compensation function

- Wavelength compensation is performed during white calibration without requiring additional work.
- Until now, wavelength compensation could only be carried out as one part of manufacturer servicing. This task is now performed whenever white calibration is done, helping to maintain the high reliability of measurement values until the next periodic service.

*3 Except when polarization filter is attached.

World’s lightest

- The main body weighs only about 350g, and even with the target mask attached it’s only about 430g, lighter than any previous spectrophotometer.
- This reduces the load on the user’s arm during work, improving efficiency when taking measurements over a long time.

*4 Display-equipped spectrophotometer. As of December 1, 2012

Worry-free after-sales service

- Worldwide service centers provide rapid support when needed.
- A comprehensive service network is in place to ensure that your instrument is always in top shape.

XY Automatic accessories

- XY Automatic Color Measurement Stage ColorScout series
  The ColorScout series enables accurate, high-efficiency measurements of color charts with the Spectrophotometer FD-7 and FD-5. It enables automatic positioning and measurement of the instrument, providing higher reliability and reducing labor compared to manual measurements.

- Capable of both spot and scan measurements!
  - Supports A3+ and A4+ sizes. Measurements can be efficiently done without cutting, folding and switching in and out important color charts
  - Definitions files can be easily created for charts using the ClrChrt application that comes standard with the product.
  - Data can be saved in ANSI.B7 or CQAT.SS format and exported to profile editing software. Colors can be reproduced closer to what is perceived with the human eye, by using M1 light sources or user-defined light sources.
  - The ES series uses electrostatic attraction to immobilize charts during measurement.

Optional accessories

- Color Management Software basIICColor series
  The software contains interfaces for all models of the FD series and enables users to handle everything from measuring colors to creating, analyzing and managing the quality (pass/fail judgment) of ICC profiles.

- For major efficiency increases in daily color control work.
  - Enables color measurement, ICC profile creation, and quality control (pass/fail evaluation and certification).
  - Incorporates a variety of profile evaluation functions, such as tone curves for 2D/3D color gamuts, and CIELAB comparison and display, and supports functions that improve profile quality (measurement data smoothing, duplicate patch correction, defect [measured value] correction).
  - Enables profile creation with multi-channel data (seven colors at most) having more colors than CMYK full color as well as normal measurement and normal profile creation.
  - Supports device link profile creation, editing, and evaluation. Can automatically create and output PDF reports.

- Color Data Software SpectraMagic NX
  Ideal for color-difference control of spot colors relative to target colors.

Achieves overall ease of use with free selection of evaluation equations and report formatting. With the new E94 and E00 color difference equations as well as a user index that allows users to freely set their own evaluation equations, SpectraMagic NX can meet a wide variety of user needs.

Measurement data can be displayed in list form or in objects such as spectral graphs, color-difference graphs, etc. that the user can freely lay out, and those objects can be copied and pasted as is into other software such as Excel® for easy data control. In addition, printing screens can also be designed using the same objects to create user-defined formats for easy-to-read reports.
**Main specifications**

<table>
<thead>
<tr>
<th>Function</th>
<th>FD-7</th>
<th>FD-5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Illumination/viewing system</strong></td>
<td>45°: 0° (annular illumination)**</td>
<td>**</td>
</tr>
<tr>
<td>45°: 0° (annular illumination)**</td>
<td>**</td>
<td></td>
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<td>**</td>
<td></td>
</tr>
<tr>
<td>Spectral separation device</td>
<td>Concave grating</td>
<td>**</td>
</tr>
<tr>
<td>Wavelength range</td>
<td>Spectral reflectance: 380 to 730 nm; Spectral irradiance (FD-7 only): 360 to 730 nm</td>
<td>**</td>
</tr>
<tr>
<td>Wavelength pitch</td>
<td>10 nm</td>
<td>**</td>
</tr>
<tr>
<td>Half bandwidth</td>
<td>Approx. 10 nm</td>
<td>**</td>
</tr>
<tr>
<td>Measurement area</td>
<td>Ø8.35 mm</td>
<td>**</td>
</tr>
<tr>
<td>Light source</td>
<td>LED</td>
<td>**</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Approx. 0.10 W</td>
<td>**</td>
</tr>
<tr>
<td><strong>Output data</strong></td>
<td>Displayed values; Spectral reflectance data (FD-7 only); Spectral irradiance data (FD-7 only)</td>
<td>**</td>
</tr>
<tr>
<td><strong>Size</strong> (W × D × H)</td>
<td>70 × 165 × 83 mm (Body only); 90 × 172 × 84 mm (With target mask attached)</td>
<td>**</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 2,000 g</td>
<td>**</td>
</tr>
<tr>
<td><strong>Storage temperature/humidity range</strong></td>
<td>30°C to 85% relative humidity with no condensation</td>
<td>**</td>
</tr>
<tr>
<td><strong>Measurement area</strong></td>
<td>Ø3.6 mm</td>
<td>**</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Rechargeable internal lithium-ion battery (Number of measurements per charge: Approx. 2,000 when new without polarization filter; AC adapter: USB power)</td>
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</table>

**SAFETY PRECAUTIONS**

For correct use and for your safety, be sure to read the instruction manual before using the instrument.

Always connect the instrument to the specified power supply voltage. Improper connection may cause a fire or electric shock.

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