

Auto Scan Spectrophotometer **FD-9**

Easy-to-use, accurate and super fast! Automatic next-generation chart reader



Super fast spot color measurement



A color chart with 1,500 patches can be processed in about 4 minutes, from inserting the color chart to output of measurement results. Plus, the FD series can determine results under multiple illuminant conditions (M0, M1 and M2) from a single measurement, so the color chart needs to be scanned only once.

To ensure accuracy, scanning is performed as a series of ultra-high-speed motions which precisely position the FD-9's color sensor at each measurement point and halt the motion just long enough to measure the point before moving to the next point.

Easy-to-read display



The LCD provides enhanced user operation, and shows the status of the FD-9.



LAN connection enables one FD-9 to be shared between multiple computers or other equipment.

Work time compared to conventional color scanning





No format restrictions







Measuring printing unevenness



Measuring long charts

Automatic detection of color patches enables printed materials that mix color patches and pictures or illustrations, such as the example charts above, to be measured without a preset chart definition file, so existing charts can continue to be used. At the start of each measurement, the FD-9 uses an image sensor to pre-scan the chart and automatically detect measurement points before performing the color scan of the detected patches. Automatic color patch detection also means that the markers used by conventional chart reader to detect patch positions are not needed.

In addition, a grid of measurement points can be used when measuring color charts which have patches filling the entire page to identify print areas where colors are uneven.

As the maximum chart paper length is up 1,500 mm, you can save time by loading long charts without cutting.

Auto Sheet Feeder (Optional accessory)



The optional Auto Sheet Feeder reduces workload and enhances work efficiency by enabling continuous unattended measurement of a stack of color charts. Up to 100 charts* can be placed in the Auto Sheet Feeder and automatically fed through the FD-9.

 * When using optional Auto Sheet Feeder FD-A09, the maximum recommended number of loaded sheets is: Normal paper (80 g / m²) : 100 sheets Heavy paper (130 g / m²): 70 sheets

Measurement Utility Software FD-S2w (Standard accessory)

Features:

- Enables easy measurements of color charts with or without a definition file.
- Enables creation of color chart definition data from acquired image data, deletion of automatically detected patches from the points to be measured, and addition of measurement points anywhere within a picture or pattern.
- Evaluation of colors under user-defined illuminant data measured with the Konica Minolta Illuminance Spectrophotometer CL-500A or Spectrodensitometer FD-7 in addition to the standard illuminants for the M0, M1, and M2 measurement conditions.
- Output of measurement data in various formats.





Color Management Software basICColor series (Optional accessory)

Features:

- Interfaces with all FD series models.
- 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 ΔE 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.



Minimum computing requirements

OS	Windows [®] 7/8/8.1/10	
	OS X [®] 10.9* - 10.10	
CPU	Intel [®] Pentium 4-Processor	
Memory	4GB or more	
Hard disk	2GB or more available disk space	

* basICColor Print requires OS X[®] 10.9.5 or above.

Full service support

Service support is available worldwide.

Konica Minolta has a vast service support network that includes service centers in the USA, Europe and Asia, in addition to the factory in Japan. This ensures the FD-9 can be swiftly serviced and calibrated no matter where in the world it is used.



Color tiles for absolute color measurement checking (Order-made)

Color tiles enable users to easily check that the measurement values from their FD-9 are correct.

System Diagram

Dimensions (Units: mm)

Main Specifications of FD-9

Main	Specifications	of	FD-S2w
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main opcomoa			
	45°a: 0°(annular illumination)*1		
Illumination/viewing	Conforms to CIE No. 15, ISO 7724/1, DIN5033 Teil 7,		
system	ASTM E 1164, and JIS Z 8722 Condition a for reflectance		
	measurements.		
Spectral separation device	Concave grating		
Wavelength range	380 ~ 730 nm		
Wavelength pitch	10 nm		
Half bandwidth	Approx. 10 nm		
Measurement area	Approx. 3 mm		
Light source	LED		
Measurement range	Reflectance: 0 to 150%		
	Colorimetric: Within <i>o</i> ∆E00 0.05		
Short-term repeatability	* Under Konica Minolta test conditions where a white calibration plate is measured 30 times at 10-sec. intervals after white calibration		
Inter-instrument agreement	Within ∆E00 0.3 (Average of 12 BCRA Series II color tiles compared to values measured with a master body under Konica Minolta standard conditions)		
Measurement time	Approx. 4 min per 1,500 patches * Konica Minolta measurement conditions* ³		
Output item	Spectral reflectance		
Measurement conditions*2	M0 (A), M1 (D50) , M2 (A + UV filter), C, ID50, D65, ID65, F2, F6, F7, F8, F9, F10, F11, F12, User-defined light source		
Backing condition	White backing, compliant with ISO13655		
Interface	USB2.0, 100Base-TX		
Power	Specified AC adapter (Input: AC 100 to 240 V, 50/60 Hz; Output: DC 24 V, 5 A)		
Size	FD-9 only : W716 x D251 x H159 mm Auto Sheet Feeder : W601 x D1,158 (when tray is open) x H245 mm		
Weight	FD-9 only: Approx. 10.5 kg		
Operation temperature/ humidity range	10 to 35°C, 30 to 85% relative humidity with no condensation		
Storage temperature/ humidity range	0 to 45°C, 0 to 85% relative humidity with no condensation		
Standard accessories	AC adapter, USB cable, Measurement Utility Software FD-S2w		
Optional accessories	Auto Sheet Feeder FD-A09		

	os	Windows [®] 7 Professional 64 bit (×64) Windows [®] 8.1 Pro 64 bit (×64) Windows [®] 10 Pro 64 bit (×64) OS X [®] 10.9 to 10.11		
Operating environment		mac OS [™] 10.12 to 10.14		
	CPU	1 GHz or faster processor		
	Memory	2 GB or more (64 bit)		
	Hard disk	d disk At least 8 GB of available disk space		
	Display	Display unit capable of showing at least 1,024 x 768 dots		
	Interface	USB 2.0*5, 100BaseTx		
Compatible Instruments	FD-9 FD-7/CL-500A (Readout only for user-defined light source)			
Features	Chart creation, chart measurement, measurement data display, measurement file output, QR code creation			
Displayed measurement data	Spectral reflectance, colorimetric value, density			
Measurement conditions*2	M0 (A), M1 (D50) , M2 (A + UV filter), C, ID50, D65, ID65, F2, F6, F7, F8, F9, F10, F11, F12, User-defined light source			
Illuminant	A, C, D50, ID50, D65, ID65, F2, F6, F7, F8, F9, F10, F11, F12, A + UV filter, User-defined light source, Auto* ⁶			
Observer	2° or 10° Standard Observer			
Color space	L*a*b*, L*C	C*h, XYZ		
PC supported languages	English, French, German, Spanish, Japanese, Chinese (Simplified)			
Output format	CxF3: ISO17972-1:2015 CGATS: ISO28178:2009 (ANSI CGATS-17) FD-S2w original format (csv/txt)			

Measurable Chart Specifications *4

Width	$45 \sim 330 \text{ mm}$	
Length	$170 \sim 1,500 \text{ mm}$	
Thickness	$0.05 \sim 0.45 \text{ mm}$	
Smallest patch size	6×6 mm	
Maximum patches per	1,394 (A4)	
sheet	2,928 (A3)	
Margins(minimum)	Leading: 23 mm; Trailing: 33 mm; Left/right sides: 4 mm each	

*1 Unidirectional illumination for wavelengths of 400 nm and below

- *2 M0, M1 and M2 are lighting conditions contained in ISO13655 "4.2.2 Illumination requirements and measurement conditions."
- *3 Chart size: A3, Patch size: 6 x 6 mm, Patch layout: 32 rows x 47 columns
- Even if paper size is within the ranges specified, some charts may not be measured. *4
- *5 Ethernet connection is recommended on OS X® 10.11. Communication error may occur when using USB connection.
- *6 The illuminant is automatically set according to the selected measurement condition.

Displays shown are for illustration purpose only.

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SAFETY PRECAUTIONS For correct use and for your safety, be sure to read the

instruction manual before using the instrument. Be sure to use the specified power supply voltage Improper connection may cause a fire or electric shock

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