



KONICA MINOLTA

Auto Scan Spectrophotometer FD-9

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



Giving Shape to Ideas

1 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



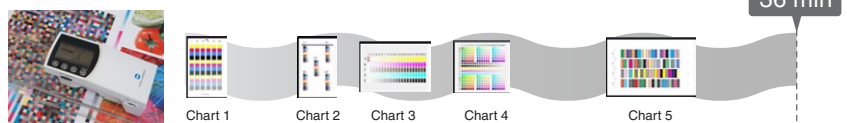
The LCD provides enhanced user operation, and shows the status of the FD-9.



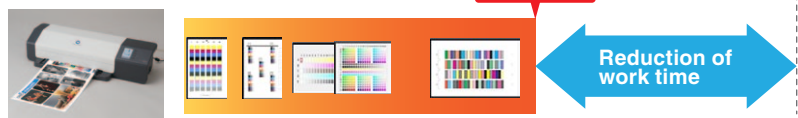
LAN connection enables one FD-9 to be shared between multiple computers or other equipment.

Work time compared to conventional color scanning

Manual Scanning Instrument



FD-9

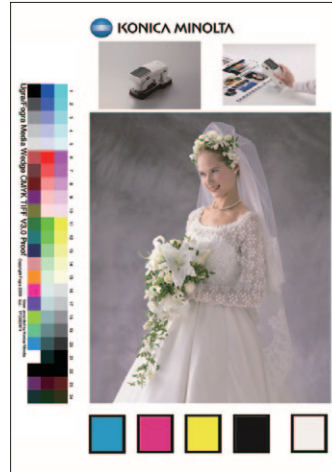


2

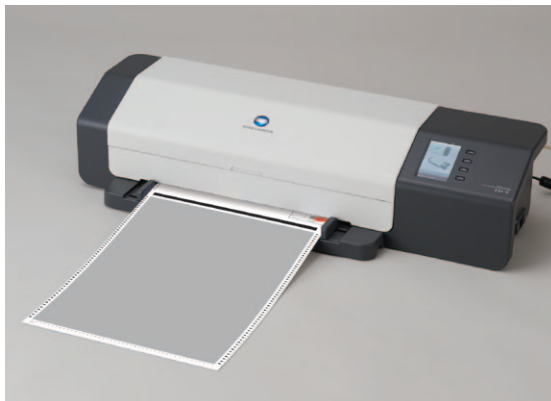
No format restrictions



Example Chart 1



Example Chart 2



Automatic detection of color patches enables printed materials that mix color patches and pictures or illustrations, such as Example Chart 2 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 colorimeters to detect patch positions are not needed.

In addition, a grid of measurement points can be used when measuring color charts like Example Chart 1 above which have patches filling the entire page to identify print areas where colors are uneven.

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Auto Sheet Feeder (Optional accessory)



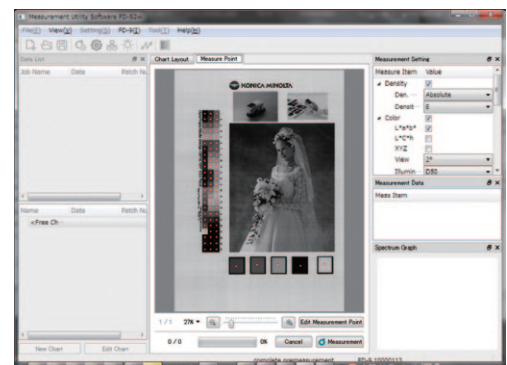
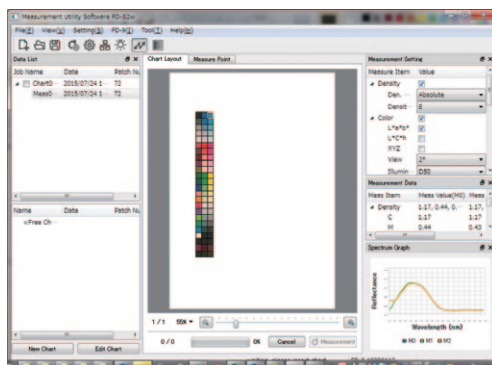
The optional Auto Sheet Feeder reduces workload and enhances work efficiency by enabling continuous unattended measurement of a stack of color charts. Up to 100 charts can be placed in the Auto Sheet Feeder and automatically fed through the FD-9.

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Measurement Utility Software FD-S2w (Standard accessory)

Features:

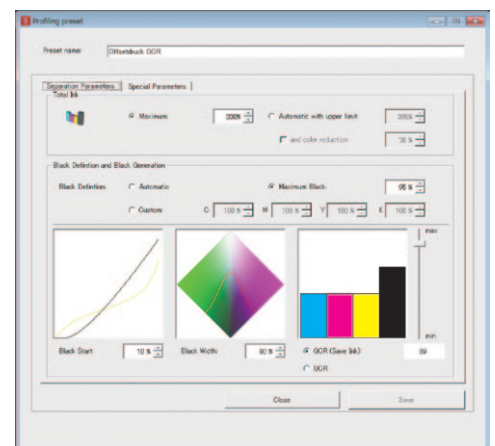
- Enables easy measurements of color charts with or without a definition file.
- Enables creation of color chart definition data from acquired image data, deletion of automatically detected patches from the points to be measured, and addition of measurement points anywhere within a picture or pattern.
- 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 basIColor 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).
- Includes the standard ΔE and TVI references for Fogra[®], IDEAlliance[®] and JapanColor[®] certification checks widely used for QC.
- Can automatically create and output PDF reports.



Minimum computing requirements

OS	Windows [®] XP SP3 (32bit), Windows [®] Vista (32bit, 64bit), Windows [®] 7 (32bit, 64bit)
CPU	Intel [®] Pentium [®] 4 Processor
Memory	512 MB
Hard disk	At least 100MB of available disk space

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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.

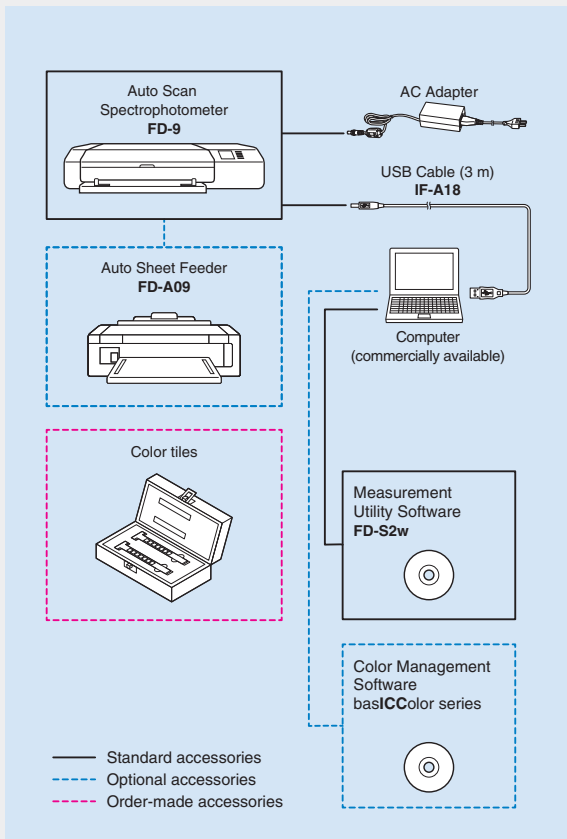


Color tiles for absolute color measurement checking (Order-made)

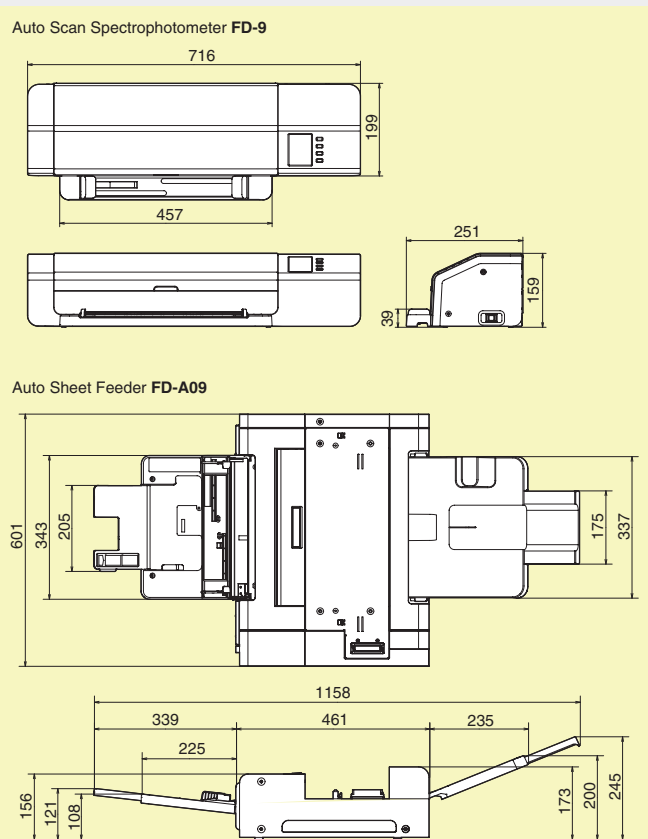


Color tiles enable users to easily check that the measurement values from their FD-9 are correct.

System Diagram



Dimensions (Units: mm)



Main Specifications of FD-9

Illumination/viewing system	45°a: 0°(annular illumination)* ¹ Conforms to CIE No. 15, ISO 7724/1, DIN5033 Teil 7, 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%
Short-term repeatability	Colorimetric: Within $\sigma \Delta E_{00}$ 0.05 (Without polarization filter)
	* Under Konica Minolta test conditions where a white calibration plate is measured 30 times at 1- sec intervals after white calibration
Inter-instrument agreement	Within E_{00} 0.3 (Average of 12 BCRA Series II color tiles compared to values measured with a master body under Konica Minolta standard conditions; without polarization filter)
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, 10Base-T/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

FD-S2w

Operating environment	OS	Windows7/Windows8.1/ Windows10 MacOS X 10.9-10.10
	CPU	1 GHz or faster processor
	Memory	1 GB or more (32 bit)/ 2 GB or more (64 bit)
	Hard disk	At least 8 GB of available disk space
	Display	Display unit capable of showing at least 1,024 x 768 dots
Compatible Instruments	Interface	USB 2.0, 10Base-T/100Base-TX
		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	
Observer	2° or 10° Standard Observer	
Color space	L*a*b*, L*C*h, XYZ	
PC supported languages	English, French, German, Spanish, Japanese, Chinese (Simplified)	
Output format	Cx/F3: ISO17972-1:2015 CGATS: ISO28178:2009 (ANSI CGATS-17) FD-S2w original format (csv/tsv)	

Measurable Chart Specifications

Width	45 ~ 330 mm
Length	170 ~ 660 mm
Thickness	0.05 ~ 0.45 mm
Smallest patch size	6x6 mm
Maximum patches per sheet	1,394 (A4)
	2,928 (A3)

*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: 47 rows x 32 columns

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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.



Certificate No : LRQ 0960094/A
Registration Date : March 3, 1995

Certificate No : JOA-E-90027
Registration Date : March 12, 1997

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