KONICA MINOLTA

Auto Scan Spectrophotometer FD-9

Easy-to-use, accurate and super fast!

Automatic next-generation chart reader

The Standard in Measuring Color & Light

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.

2 No format restrictions

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.

3 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 / m^2) : 100 sheets
Heavy paper (130 g / m^2) : 70 sheets

4 Measurement Utility Software FD-S2w

(Standard accessory)

- 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.

5 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.

Work time compared to conventional color scanning

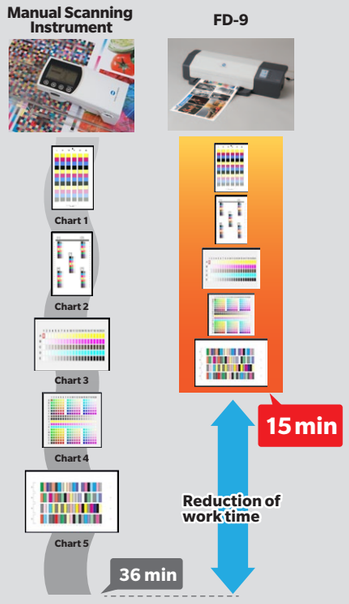
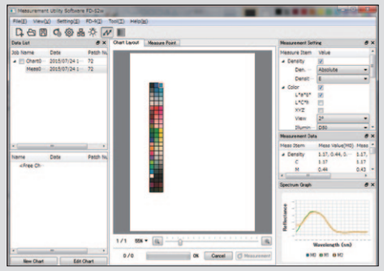


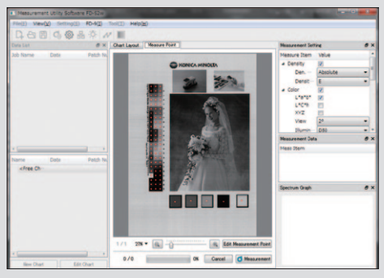

Chart example 1


Chart example 2


Measuring printing unevenness


Measuring long charts





● Sales office ★ Service facility

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.

Easy-to-read display

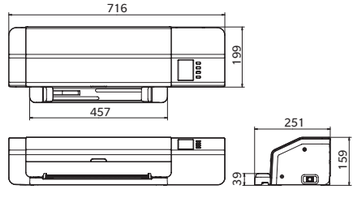
The LCD provides enhanced user operation, and shows the status of the FD-9.

LAN Connection

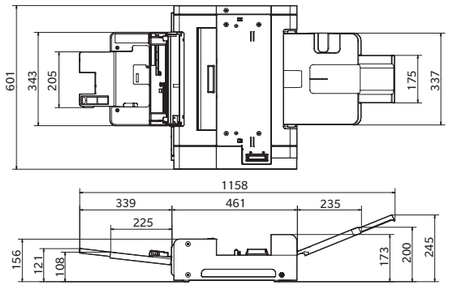
LAN connection enables one FD-9 to be shared between multiple computers or other equipment.

Dimensions (Units: mm)

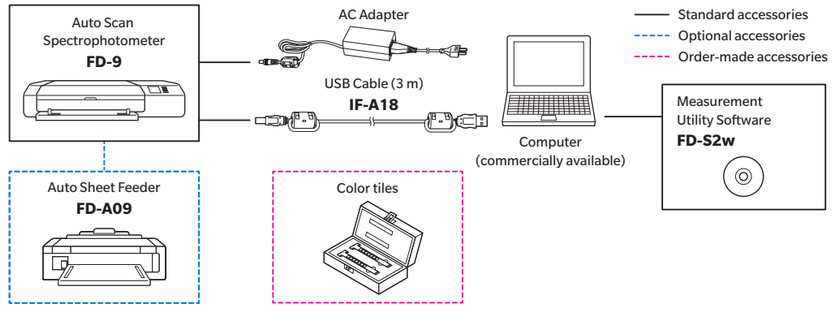
Auto Scan Spectrophotometer **FD-9**



Auto Sheet Feeder **FD-A09**



System Diagram



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 to 730 nm
Wavelength pitch	10 nm
Half bandwidth	Approx. 10 nm
Measurement area	Approx. ø3 mm
Light source	LED
Measurement range	Spectral reflectance: 0 to 150%
Repeatability	Colorimetric: Within $\sigma\Delta E_{00}$ 0.05
	* Under Konica Minolta standard conditions where a white calibration plate is measured 30 times at 10-second intervals after white calibration has been performed
Inter-instrument agreement	Within ΔE_{00} 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 standard conditions*3
Output item	Spectral reflectance
Measurement conditions*2	M0 (A), M1 (D50) , M2 (A + UV-cut filter), C, ID50, D65, ID65, F2, F6, F7, F8, F9, F10, F11, F12, User-defined illuminant
Backing condition	White backing, compliant with ISO13655
Interface	USB2.0, 100Base-TX
Power	AC adapter
Size (W × D × H)	FD-9 only : 716 x 251 x 159 mm Auto Sheet Feeder : 601 x 1,158 (when tray is open) x 245 mm FD-9 mounted on Auto Sheet Feeder : 716 x 1,158 x 256 mm
Weight	FD-9 only: Approx. 10.5 kg FD-9 mounted on Auto Sheet Feeder: Approx. 28.5 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

Measurable Chart Specifications*4

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

Main Specifications of FD-S2w

Operating environment	OS	Windows® 7 Professional 64 bit (×64) Windows® 8.1 Pro 64 bit (×64) Windows® 10 Pro 64 bit (×64) OS X® 10.10 to 10.11 mac OS™ 10.12 to 10.15
	CPU	1 GHz or faster processor
	Memory	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
	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-cut filter), C, ID50, D65, ID65, F2, F6, F7, F8, F9, F10, F11, F12, User-defined illuminant	
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*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)	

*1 Illumination for wavelengths under 400 nm is unidirectional.
*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
*4 Even if paper size is within the ranges specified, some charts may not be measured.
*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.

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.

ISO Certifications of KONICA MINOLTA, Inc., Sakai Site

ISO 9001
JQA-QMA15888
Design, development, manufacture/ manufacturing management, calibration, and service of measuring instruments

ISO 14001
JQA-E-80027
Design, development, manufacture, service and sales of measuring instruments

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