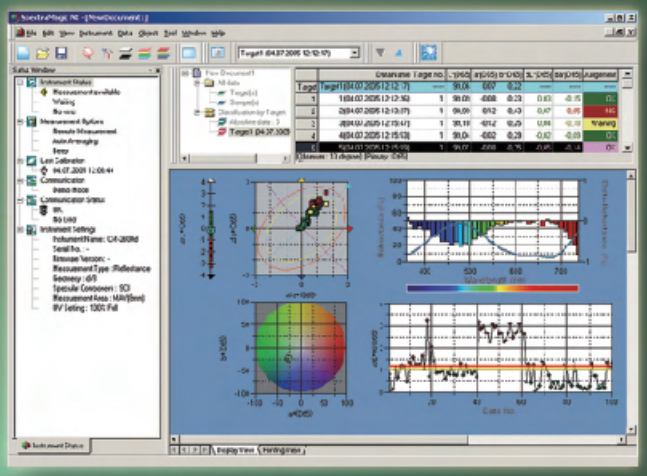
KONICA MINOLTA

SPECTROPHOTOMETER
CM-3700d



SpectraMagic™ ***NX*** (Optional)

The essentials of imaging

A High-Accuracy Benchtop Spectrophotometer With Konica Minolta's Optical Technology for High Performance and Computer Control for Easy Operation

Demands for higher accuracy and more analysis capabilities have been increasing, particularly from R&D professionals. In response, Konica Minolta has utilized its long experience in optics and color measurement to create the Spectrophotometer CM-3700d, a high-accuracy benchtop spectrophotometer suitable for not only research and development, but also for quality control or CCM applications.

High-speed, high-accuracy measurements

Measurements at wavelengths from 360 to 740nm at 10nm pitch are taken in approximately 0.6 seconds. Konica Minolta's optical technology ensures high absolute- value accuracy and repeatability, and extremely strict quality control provides higher inter-instrument agreement and reliability.

❶**Illumination/viewing geometry** meets ISO and DIN standards for di:8°, de:8° (diffuse illumination/8° viewing angle) geometry and also conforms to CIE and ASTM standards for d:0° (diffuse illumination/0° viewing angle) geometry.

❷**Pulsed xenon lamp light source** provides high stability, long life, and excellent repeatability on dark and high-chroma colors.

❸**6-inch integrating sphere** has a powdered barium sulfate ($BaSO_4$) coating with superior optical characteristics.

❹**Double-beam feedback system** monitors the light emitted by the xenon lamp and automatically compensates for changes in brightness or spectral characteristics.

❺**Flat holographic grating** efficiently separates the light by wavelength to provide higher repeatability for dark colors.

❻**Silicon photodiode array sensor** quickly converts the light separated by the grating to electrical currents.

Various measuring functions

❼Switchable between SCI and SCE measurements

SCI (specular component included) measurements minimize the influence of surface conditions on measured values, making it suitable for CCM applications. SCE (specular component excluded) measurements correspond closely to professional visual evaluation.

❽Changeable measurement areas

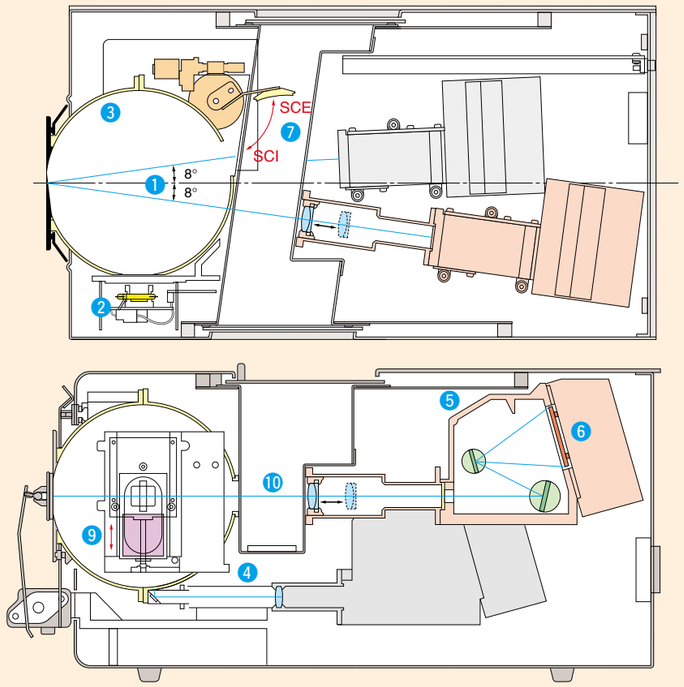
Select measurement areas of 3×5mm,ø8mm, or ø25.4mm according to the application.

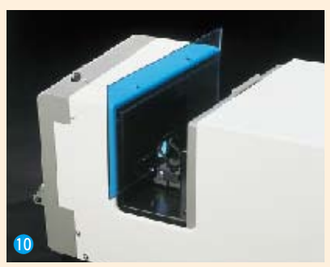
❾Variable UV

The amount of UV included in the illumination can be controlled in 1000 steps for measurements of fluorescent materials.

❿Transmittance measurements

The spectral transmittance of liquids or of specimens in sheet or plate form can be measured using di:0°, de:0° (diffuse illumination/0° viewing angle) geometry.





CM-3720d (Whiteness Model)/CM-3730d (Paper Industry Model)

UV cutoff filter switching (CM-3720d, CM-3730d)
Cuts off UV components having wavelengths of 420nm or less emitted by the light source. Useful for eliminating the effects of fluorescence when measuring fluorescent materials having excitation wavelengths below 420nm.
Enables easy switching to normal measurement using illumination including ultraviolet radiation.

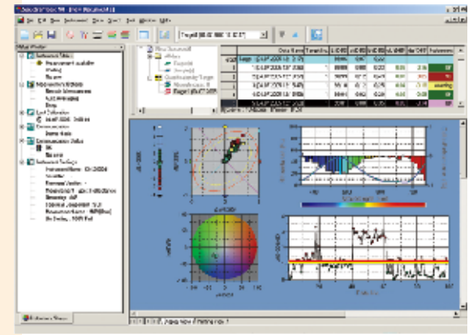
Low-illumination setting (CM-3720d, CM-3730d)
Reduces illumination level to one-fifth. Reduction of light quantity can eliminate triplet influences, which may occur occasionally when measuring fluorescent materials at the normal illumination level.

Opacity jig (CM-3730d)
Enables easy switching of the background between white and black and ensures paper position does not shift during opacity measurements.

SpectraMagic™ *NX* (optional)

Supports Windows®2000/XP/Vista

SpectraMagic™ ***NX*** enables you to perform comprehensive color inspection and analysis of incoming raw materials, in process production, and outbound color critical goods and materials in virtually any industry. With SpectraMagic™ ***NX*** you can insert digital images with measured data. Measure samples in any of 8 universally accepted color spaces. Select from 15 illuminants, and up to 40 indices to determine specific color and appearance properties, such as strength, brightness, haze, yellowness, opacity and strength. You can even configure up to 3 customized color equations. Reports range from simple Pass/Fail to trend charts, histograms, color plots, and spectral graphs. SpectraMagic™ ***NX*** comes with predefined templates using skin technology, or you can create your own templates. For illustrations and explanations to understanding color and color measurement technology, there is a link to Konica Minolta's well known and respected “Precise Color Communication”. Step by step navigation help.



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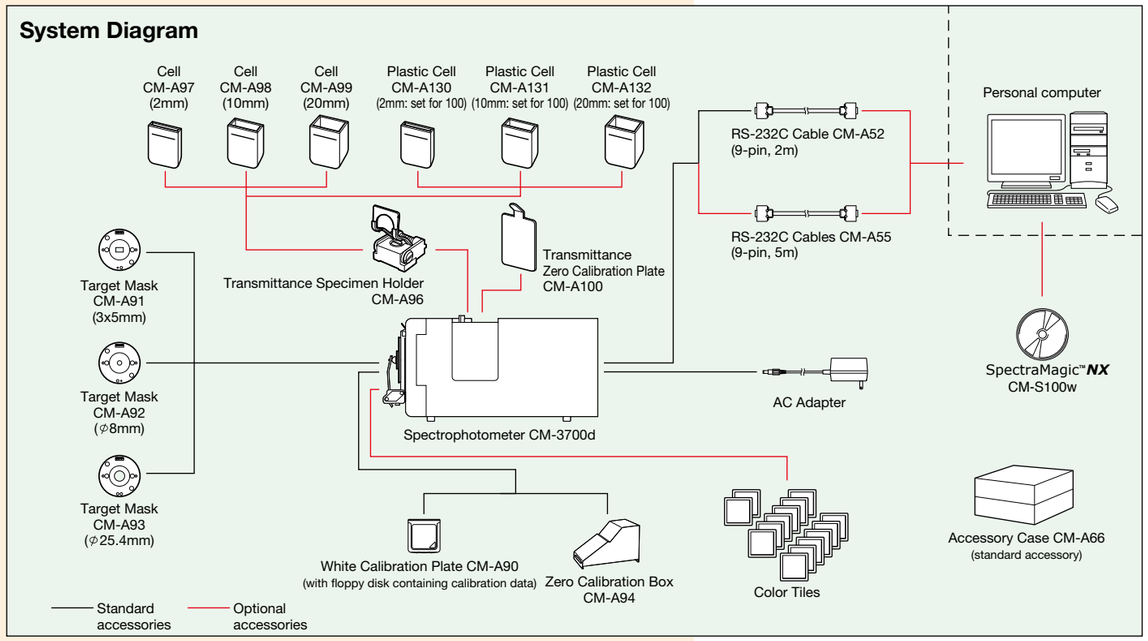
System Diagram



Optional Accessories

Transmittance Specimen Holder CM-A96

Holds specimens in place for transmittance measurements. Maximum specimen thickness: 22.5mm

Glass Cell CM-A97/CM-A98/CM-A99

Hold liquid specimens for transmittance measurements. Optical path lengths: 2mm (CM-A97), 10mm (CM-A98), and 20mm (CM-A99)

Plastic Cells CM-A130(2mm), CM-A131(10mm),CM-A132(20mm) are also available.

Transmittance Zero Calibration Plate CM-A100

For performing zero calibration for transmittance measurements.

Color Tiles

14 color tiles are available: White, Pale grey, Middle grey, Difference grey, Deep grey, Deep pink, Red, Orange, Bright yellow, Green, Difference green, Cyan, Deep blue, Black. Original materials of these tiles are supplied by BCRA.

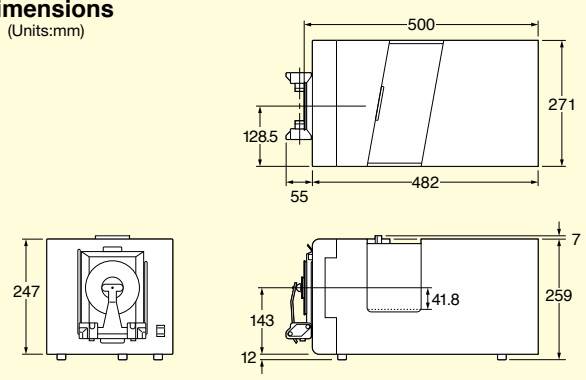
Specifications (CM-3700d)

Measuring geometry	Reflectance: di:8°, de:8° (diffuse illumination/8° viewing angle); SCI (specular component included)/SCE(specular component excluded) switchable; meets CIE, ISO, ASTM, and DIN standards. Transmittance: di:0°, de:0° (diffuse illumination/0° viewing angle)
Detector	Silicon photodiode array with flat holographic grating
Wavelength range	360 to 740nm
Wavelength pitch	10nm
Half bandwidth	Approx. 14nm average
Photometric range	0 to 200%; Resolution: 0.001%
Light source	Pulsed xenon arc lamp
Measurement time	0.6 to 0.8 sec. (to start of data output)
Illumination/ measurement areas	Reflectance: Changeable between LAV, MAV, and SAV LAV: ø28mm illumination/ø25.4mm measurement MAV: ø11mm illumination/ø8mm measurement SAV: 5×7mm illumination/3×5mm measurement Transmittance: Approx. ø20mm
Repeatability	When white calibration plate is measured 30 times at 10-sec. intervals after white calibration has been performed: Spectral reflectance: Standard deviation within 0.05% Chromaticity: Standard deviation within ΔE*ab0.005 When black tile(BCRA Series II ; reflectance: 1%)is measured 30 times at 10-second intervals after white calibration has been performed: Spectral reflectance: 380 to 740nm: Standard deviation within 0.02% 360 and 370nm: Standard deviation within 0.04% Chromaticity: Standard deviation within ΔE*ab0.05
Inter-instrument agreement	mean ΔE*ab0.08 (typical) Average for 12 BCRA Series II color tiles. Max ΔE*ab0.3(corresponds to approx. ΔE*CMC 0.2) for any of 12 BCRA Series II color tiles compared to values measured with master body ; LAV.
Temperature drift	Spectral reflectance: Within ±0.10%/°C, Color difference: Within ±ΔE*ab0.05/°C
UV adjustment	Computer controlled: continuously variable
Specimen conditions for transmittance measurements	Sheet, plate, or liquid form up to a maximum thickness of approximately 50mm
Interface	RS-232C standard; baud rates: 1200,2400,4800,or 9600
Power	AC 100V/120V/230V 50/60Hz (using included AC adapter)
Operation temperature/ humidity range (*1)	13 to 33°C, relative humidity 80% or less with no condensation
Storage temperature/ humidity range	0 to 40°C, relative humidity 80% or less with no condensation
Dimensions (W×H×D)	271 × 259 × 500mm(10-11/16 × 10-3/16 ×19-11/16 in.)
Weight	18kg(39.7 lb.)
Standard accessories	White Calibration Plate; Target Mask(3×5mm); Target Mask(ø8mm); Target Mask(ø25.4mm); Zero Calibration Box; AC Adapter; RS-232C Cable(9-pin, 2m); Accessory Case CM-A66
Optional accessories	Transmittance Specimen Holder; Glass Cells(2mm, 10mm, 20mm); Plastic Cells(2mm, 10mm, 20mm); Transmittance Zero Calibration Plate; Color Tiles; RS-232C Cable(9-pin, 5m)

*1 Operating temperature/humidity range of products for North America : 13 to 33°C, relative humidity 80% or less (at 31°C) with no condensation

Dimensions

(Units:mm)



●Specifications are subject to change without notice.

Certificate No : YKA 0937154
Registration Date : March 3, 1995

Certificate No : JQA-E-80027
Registration Date : March 12, 1997

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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9242-4851-31 AHLJPK⑯ Printed in Japan