KONICA MINOLTA

Skin Analysis Software
CM-SA

For quantitative evaluation & analysis of skin color and pigmentation

Simultaneous Measurement of Skin Color and Melanin Index

Used in combination with a Konica Minolta spectrophotometer, the CM-SA enables highly accurate measurement of skin color simultaneously with a numerical display of the Melanin Index, Hb (Hemoglobin) Index, and Hb SO_2 (Hemoglobin oxygen saturation) Index (%).

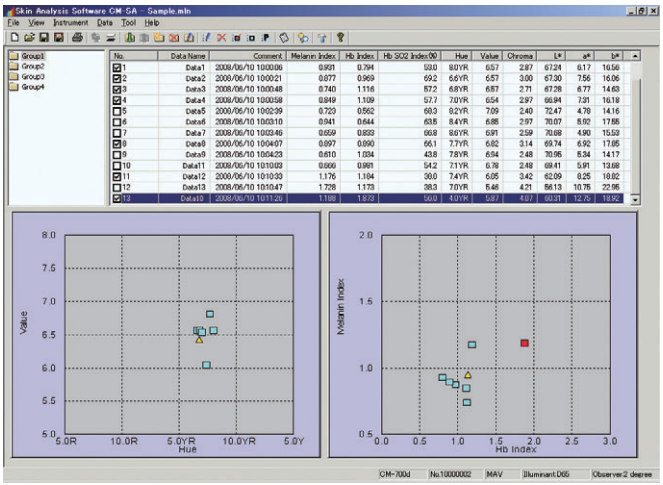
For applications in the R&D divisions of cosmetic, functional food, and pharmaceutical companies developing products with "skin-lightening" effects, commissioned clinical testing organizations, and research institutes for dermatology, plastic surgery, etc.

Realizing Simultaneous Measurement of Skin Color and Melanin Index!

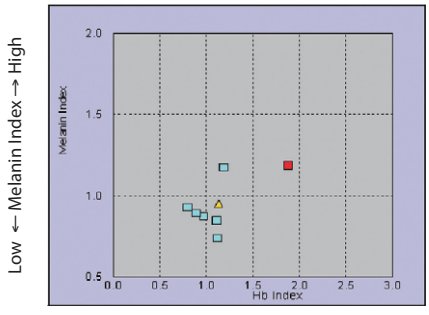
In the field of skin research and development, there is an increasing demand to measure the color and pigmentation of skin as it provides valuable information on a number of factors. For example, where cosmetics are concerned companies are aiming to make products that more closely match or complement the skin tone of clients. In pharmaceutical research and development, skin measurement can be used to determine the effects of suntanning on skin and in the prevention of sunburn.
The software provides important factors of skin data: color, melanin, hemoglobin and oxgen saturation. This software employs an original algorithm to separately calculate Melanin Index, Hb Index, and Hb SO_2 Index (%) based on the spectral reflectance data measured by a spectrophotometer, enabling highly accurate measurement of melanin pigmentation level of the skin without being affected by skin redness.

Combining the Melanin Measurement Function with a Spectrophotometer

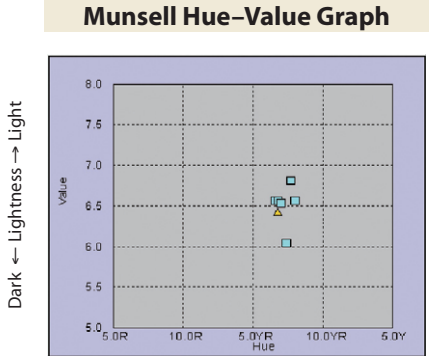
By using this software in combination with a spectrophotometer, Melanin Index, Hb Index, and Hb SO_2 Index can be measured simultaneously with spectral reflectance and colorimetric values in a single operation. There is no need to separately measure the color of skin and Melanin Index using different instruments, as was previously necessary.



Hb Index–Melanin Index Graph



Munsell Hue–Value Graph



The handheld CM-700d/CM-600d enables simple operations while standing.

Simple measurement

Measurement can be performed by simply placing the head of spectrophotometer against the skin and pressing the button. Measurement by just applying light to the face, arm, or other desired part of the body will not put undue stress on the examinees.

Featuring Bluetooth®

The Bluetooth® function of Spectrophotometer CM-700d/CM-600d enables wireless transmission of measured data to the PC, offering greater flexibility for measurements without the constraints of communication cables.

Can be used for consecutive measurements, enabling efficient measurements of a number of examinees.

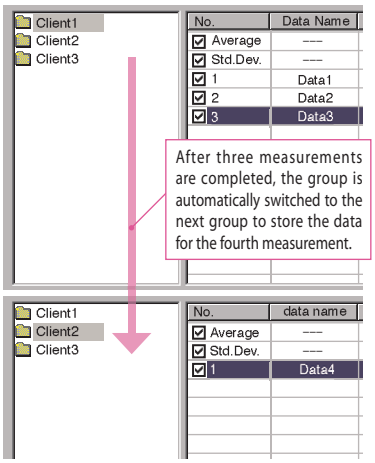
(Useful for applications at laboratory testing institutes)

Data can be easily grouped by examinee

The CM-SA features a function to automatically switch groups by examinee. When a preset number of measurements is reached, the next measurement data can be linked to the next group.
(Useful for consecutive measurements on a number of examinees)

Example

When there are Examinees 1, 2, and 3, and the number of measurements is set to 3, the group is automatically changed to the next one every three measurements, and the data is linked to the relevant group (examinee).



Output of measured data in CSV text format

The measurement results can be output in CSV text format to be utilized for further analysis or data management using Excel® or other spreadsheet applications.

<Major specifications of CM-SA>

Skin data display	Melanin Index Hb Index [Total hemoglobin (oxidized + reduced) index] Hb SO_2 Index (%) [Hemoglobin oxygen saturation index (%)]
Colorimetric data display	L*, a*, b*, Munsell value (Hue, Value, Chroma)*1
Graph display	Hue–Value Graph, Hb Index–Melanin Index Graph
Data handling	Saving/reading data in CM-SA original format Saving data in text (CSV) format [Melanin Index, Hb Index, Hb SO_2 Index (%), L*, a*, b*, Munsell value (Hue, Value, Chroma), Spectral reflectance (400-700 nm)*2]

*1 Munsell data are calculated for 2° observer and Standard Illuminant C.
*2 The spectral reflectance data that are output are the reflectance obtained in SCI (specular component included) mode.

<PC operating environment>

OS	Windows® XP Professional 32 bit SP3, Windows® 7 Professional 32 bit, 64 bit, Windows(R) 8 Pro 32 bit, 64 bit
CPU	Pentium® III 600 MHz or equivalent (recommended)
Memory	128 MB or more (256 MB or more is recommended)
Hard disk	100 MB or more free disk space is required.
Display	Display capable of displaying 1,024 × 768 pixels or above/16-bit color or above
Other	CD-ROM drive (required for software installation), USB port or serial port (required for connecting the PC with the instrument)

<Main specifications of compatible spectrophotometers>

* Some instrument functions not available when using instrument with CM-SA.

Model	CM-700d	CM-600d	CM-2600d	CM-2500d
Wavelength range	400 nm to 700 nm		360 nm to 740 nm	
Wavelength pitch	10 nm			
Light source	Pulsed xenon lamp (with UV cut filter)		Pulsed xenon lamp	
Measurement time	Approx. 1 second		Approx. 1.5 seconds (Approx. 2 seconds for fluorescent measurement)	Approx. 1.5 seconds
Minimum measurement interval	Approx. 2 seconds for SCI or SCE measurement		3 seconds for SCI/SCE measurement (4 seconds for fluorescent measurement)	3 seconds for SCI/SCE measurement
Battery performance (max. measurement count)	Approx. 2,000 measurements with alkaline dry batteries Approx. 2,000 measurements with fully charged nickel-metal-hydride rechargeable batteries (2300 mAh) *Continuous measurements at 10-second intervals at 23ºC (single measurement fixed at SCI or SCE)		Approx. 1,000 measurements with alkaline dry batteries *Continuous measurements at 10-second intervals at 23ºC	
Measurement/ illumination area	MAV : Ø8 mm/ Ø11 mm SAV : Ø3 mm/ Ø6 mm *Changeable by replacing target mask and selecting lens position	MAV : Ø8 mm/ Ø11 mm only	MAV : Ø8 mm/ Ø11 mm SAV : Ø3 mm/ Ø6 mm *Changeable by replacing target mask and selecting lens position	MAV : Ø8 mm/ Ø11 mm only
Repeatability	Spectral reflectance: Standard deviation within 0.1% Colorimetric value: Standard deviation within ΔE*ab 0.04 *When a white calibration plate is measured 30 times at 10-second intervals after white calibration		Spectral reflectance: Standard deviation within 0.1% (standard deviation within 0.2% for the wavelength range of 360 to 380 nm) Colorimetric value: Standard deviation within ΔE*ab 0.04 *When a white calibration plate is measured 30 times at 10-second intervals after white calibration	
Inter-instrument agreement	Within ΔE*ab 0.2 (MAV/SCI) *Average of 12-color measurement with the BCRA Series II compared to values measured with a master body at 23ºC			
No. of averaging measurements	1 to 10 measurements (automatic averaging); 1 to 30 measurements (manual averaging)		1/3/5/8 measurements (automatic averaging); 1 to 30 measurements (manual averaging)	
Interface	USB1.1 and Bluetooth® standard version 1.2*		RS-232C-compliant	
Power	4 AA-size alkaline dry batteries or nickel-metal-hydride rechargeable batteries; Special AC adapter			
Size	73 (W) × 211.5 (H) × 107 (D) mm		69 (W) × 96 (H) × 193 (D) mm	
Weight	Approx. 550 g (without white calibration cap and batteries)		Approx. 670 g (with Measuring Base/without batteries)	

* Applicable Bluetooth® profile: Serial Port Profile, Output: Bluetooth® Power Class 1
The communication distance may vary depending on the obstacles and radio wave conditions between the devices.
Successful wireless communication is not guaranteed with all Bluetooth®-ready equipment.

- Bluetooth® is a registered trademark of The Bluetooth SIG, Inc. and is used under license agreement.
- Windows® is a trademark or registered trademark of Microsoft Corporation in the U.S.A. and other countries.
- Pentium® is a trademark or registered trademark of Intel Corporation in the U.S.A. and other countries.
- Specifications shown here are subject to change without notice.

SAFETY PRECAUTIONS

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

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

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

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