

COLOR METER

ZE 6000



NIPPON
Advanced Technology In Color and Brightness.
DENSHOKU

● **Large bright and easy-to-read screen**

● **Dialogue type simple operation**

● **Availability for versatile samples**

solid, liquid, powder, pellet, film, paste, etc.

For long time use and high accuracy measurements

Flicker photometric system



OPTION

- ◆ Harzen number color number (APHA) and Gardner color can be measured.
- ◆ Fluorescence intensity can be measured using a UV ray protective filter.
- ◆ Windows-based color management software (called ColorMate 5) can be used. Using it, you can view on the screen of your personal computer chromaticity coordinate graph, transition graph and a list of data, etc.



ISO 9001 certificate: Obtained in 2000

COLOR METER

ZE 6000

Features

- Both of reflectance and transmittance measurements are possible by this one unit. Its is in fact all-in-one type measuring instrument enabling color measurements of various shaped samples such as solid, liquid, powder, pellet and film, etc.
- Thanks to its flicker photometric system, measuring stability for a long time and data acquisition in high accuracy have been made possible.
- Munsell color system (HVC) can be selected from one of the C/2° and D65/2° conditions.
- Measuring diameter for reflectance can be selected from 6mmφ, 10mmφ or 30mmφ, with a possibility to measure even small samples. (The diameter as small as 3mm is also available on your special order, which will be most appropriate for measurement of tablet pharmaceuticals.)
- This model is equipped with a large bright and easy-to-read display.
- Color data management is available on your personal computer using the RS-232C interface.
- This model is equipped with a foot switch as one of the standard accessories, which allows you to make measurements even while you are holding a sample by both hands.

Transmittance measurement



Measurement of liquid samples in square cells



Measurement of transparent samples by setting on a sample clamp

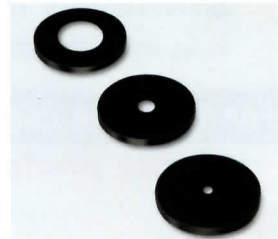
Reflectance measurement



Measurement by setting color samples on a measuring stage



Measurement of powder and paste in round cells



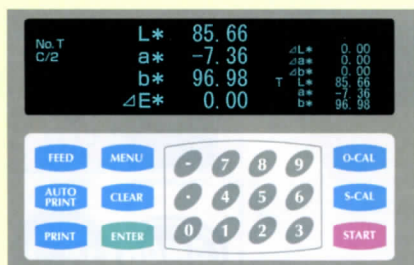
Measurement of small samples by changing sample stages for different measuring diameters

OPTION

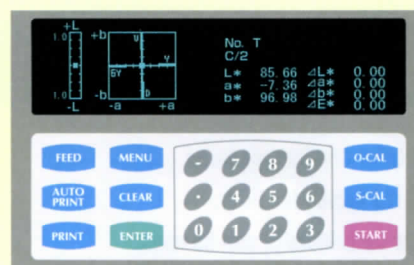
- ◆ Harzen color number (APHA) and Gardner color can be measured.
- ◆ Fluorescence intensity can be measured using a UV ray protective filter.
- ◆ Windows-based color management software (called ColorMate 5) can be used. Using it, you can view on the screen of your personal computer chromaticity coordinate graph, transition graph and a list of data, etc.



Large bright and easy-to-read screen



Display of measurement values

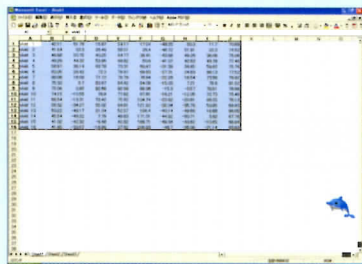
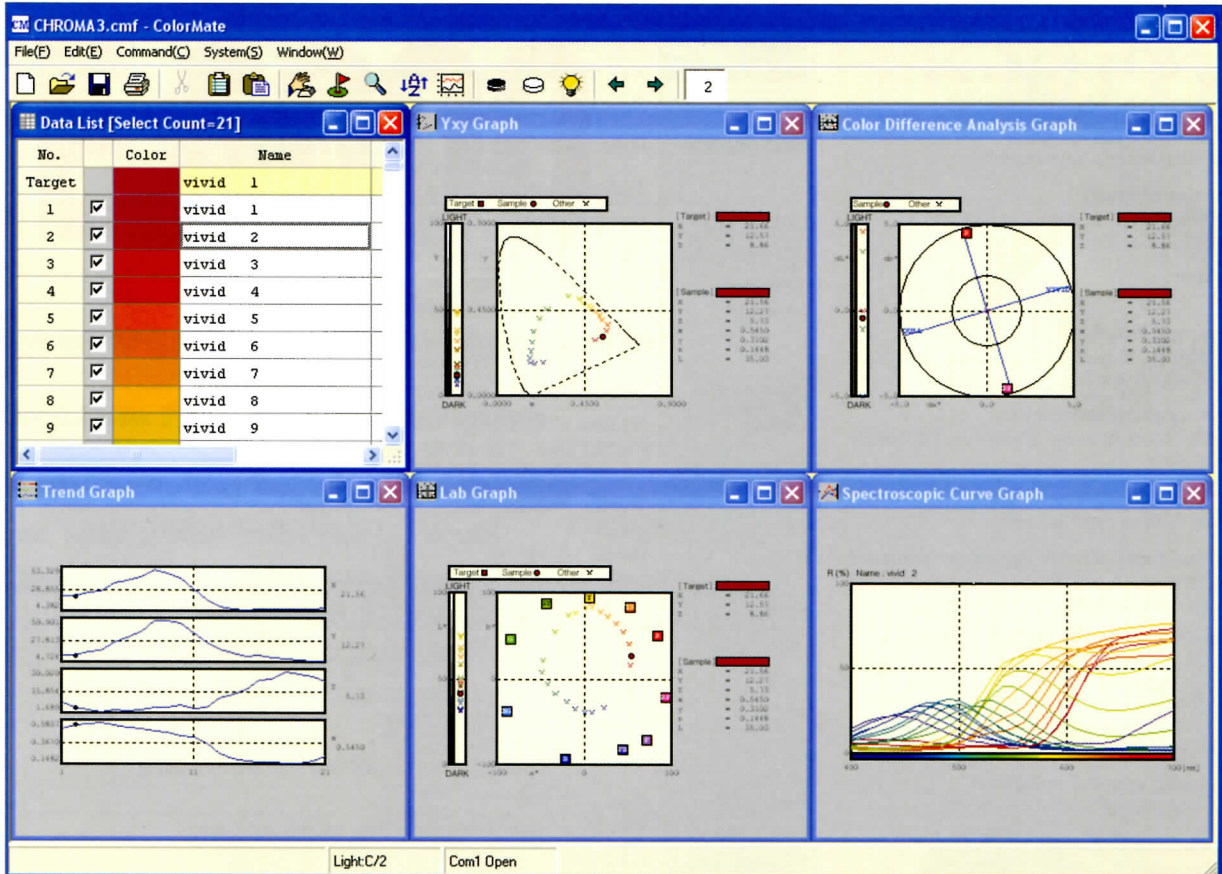


Display of color deviation criterion chart

Foot switch

Its allows you to make measurements even while you are holding a sample by both hand.

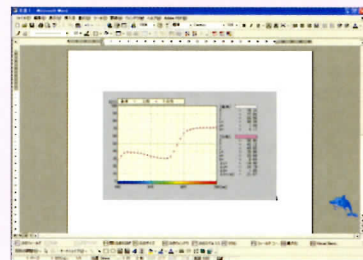




By copying each screen

You can paste it to a spreadsheet software like Excel.

You can paste it to a word processing software like Word.



Features

◆ **Versatile display**

It is possible to display a list of data, spectroscopic curve graph, Lab graph, Yxy graph, color deviation criterion chart, trend graph, spectral reflectance values, and numerical data, etc.

◆ **Data compiling using a list of data**

It is possible to calculate standard deviation, maximum value, minimum value, and mean value without using a spreadsheet software.

◆ **Text file**

Converted text file can be used in a spreadsheet software, which will give you an advantageous effect on your own data analysis.

◆ **Data judgment function**

A difference between measured values and reference values can be judged whether it is within the allowed range of tolerance or not. It can be done by $\Delta L^*a^*b^*E^*$, $\Delta LabE$, or $\Delta L^*u^*v^*$.

Specifications

Display/print	List of data, spectroscopic curve graph ^{※3} , Lab graph, Yxy graph, color deviation criterion chart, trend graph, spectral data ^{※3} (reflectance, absorbance, K/S), and data.
Color system	XYZ, xyz, L*a*b*, HunterLab, L*u*v*, L*C*h*(ab), L*C*h*(uv), Munsell HVC, whiteness, yellowness, ΔXYZ , Δxyz , $\Delta L^*a^*b^*E^*$, $\Delta HunterLabE$, $\Delta C^*H^*(ab)$, $\Delta C^*H^*(uv)$, $\Delta E(CMC)$, $\Delta E(FMC2)$, ΔE^*94 , whiteness difference, yellowness difference, metamerism, density CMYK, Nc# grade, etc.
Observation conditions	Light source (A, B, C, D50, D55, D65, D75, F2, F6, F7, F8, F10, F11, F12) Field of view (2° and 10°)
Number of data	500 data pieces and 1 reference data piece can be stored in one file.
Others	Data searching, data sorting, averaging measurement, and automatic measurement.

Environment for use

OS	Windows 98, ME, 2000, XP, and Vista
Computer	CPU : Pentium 300 MHz or more is recommended. Memory : 128 MB or more is recommended. Hard disk drive : 10 megabytes of available space at least CD-ROM drive : A drive that can read CD-ROM is needed. Display : 800×600 or more, 64000 color or more Interface : Built-in serial port is needed.

※1 Specifications are subject to change without notice due to technical improvement.
 ※2 Excel and Word are the registered trademarks of Microsoft Corporation, U.S.A.
 ※3 Those marked cannot be used by a tristimulus (XYZ) type color meter.



Examples of applications for different industries

● Food industry

Color difference control for tomato juice, orange juice, mayonnaise, ketchup, miso, coffee, and ham

● Fishing industry

Control for fish freshness and minced fish color

● Cosmetics industry

Color check for foundation, lipstick, etc. and for demonstration use at shops

● Dentistry

Color check for teeth, gums, and dental material

● School and hospital

Educational use for housekeeping class, color control at cooking, and color check of skin

● Pharmaceutical industry

Color shading control for tablets, granules, and powdered pharmaceuticals

● Paper manufacturing industry

Color management for paper and pulp

● Household and electric appliance industry

Color shading control for refrigerators, washing machines, cleaners, etc., and color check of TV sets, and LCD panels

● Automobile and motorcycle industries

Color management for automobile and motorcycle painting

● Metal industry

Color control for printing on aluminum and metal, and for general color printing

● Dyeing and apparel industries

Color shading control for dyed or sewn fabric

● Paint and ink industries

Color difference control for inks and pigments

● Printing industry

Density analysis and color management for printed matter

● Resin and plastics industries

Color management for pellets, resin sheets, moldings, and films

● Petrochemical industry

Color check for petroleum

● Agriculture and livestock industry

Color management for meat and processed products

Specifications

Illumination and light receiving conditions	Reflectance : Condition d (n-d) Transmittance : Condition e (n-d) Both based on JIS Z-8722
Measuring system	XYZ tristimulus direct reading
Measuring method	Double beam (flicker photometric system)
Measuring area	Reflectance : 30mm ϕ , 10mm ϕ , and 6mm ϕ (Small diameter is available in option.) Transmittance : 30mm ϕ
Light source	Halogen lamp, 12V 50W
Light receiving element	Silicon photocell quick response type
Measuring accuracy	Repeatability using a standard white plate: · ΔE^* - Standard deviation within 0.02 At the conditions of 30 measurements at intervals of 10 seconds, 15 minutes after turning on the power
Light source	Selectable from C/2, D65/2, and D65/10
Display	Number of dots : 256 \times 64 dots Display area : 166.25mm \times 41.45mm
Display items	L*a*b*, Δ L*a*b*, Δ E*, Lab, Δ Lab, Δ E, XYZ, Yxy, YI(E313), YI(D1925), W(CIE), W(Lab), WB, HVC, L*C*h*, Δ L*C*h*, Δ E94, Δ ECMC(1:1), Δ ECMC(2:1), LCh, Δ LCh, OD, color deviation criterion chart, Option (APHA and GARDNER) Any of the above color systems can be arbitrarily selected to display on the screen.
Printer	Thermal line dot printing system, thermal printer
Print items	Sample No., light source/field of view, data/time, L*a*b*, Δ L*a*b*, Δ E*, Lab, Δ Lab, Δ E, XYZ, Yxy, YI(E313), YI(D1925), W(CIE), W(Lab), WB, HVC, L*C*h*, Δ L*C*h*, Δ E94, Δ ECMC(1:1), Δ ECMC(2:1), LCh, Δ LCh, OD, color deviation criterion chart, Option (APHA and GARDNER) Any of the above items can be arbitrarily selected for printing.
Averaging	Max. 99 times
Reference value	Max. 50 pieces of reference data can be registered
External output	RS-232C
Environment for use	15 to 40°C, 30 to 80%R.H., No condensation
Power supply	100 to 240 VAC, 50/60Hz
Power consumption	100VA
Dimensions & weight	425W \times 415D \times 189H mm, 13kg
Related standards	JIS Z-8722, ASTM E 308, ASTM E 313, ASTM D 1925
Option	Color management software for Windows, various attachments and cells for exclusive use

※Specifications are subject to change without notice due to technical improvement.

New Product

SE 6000 + Optical fiber, Model **OF**

OPTION



● Spectrophotometric color difference meter



By applying a pen type head to your samples, it will become possible to measure even the ones with complicated shapes, measurement of which has been difficult before.

Specifications

Measuring diameter	Select one of 3mm ϕ , 4mm ϕ , and 6mm ϕ
Light receiving system	Select one of the following 4 systems: 0° illumination / diffused light reception, diffused illumination / 0° light reception, 0-45°, or 45-0°

Suitable for such measurements as for :

- ◇ Printed matter
- ◇ Large samples
- ◇ Convexo-concave samples
- ◇ Dental material and skin
- ◇ Automobile components
- ◇ Cosmetics
- ◇ Craftwork and timber
- ◇ Petals and leaves
- ◇ Fruits
- ◇ Beans
- ◇ Electronic components

XEBEX

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