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# MiniScan® EZ

The Easy To Use Portable Color Measurement Spectrophotometer



# MiniScan® EZ

## Makes color measurement simple



Portable, rugged, ergonomically designed and dependable, MiniScan EZ travels anywhere. You can easily use this lightweight, compact instrument wherever it's needed – on the plant floor, the production line, the warehouse, or outdoors. There's no need to take samples to the lab.

MiniScan EZ gives you instant, accurate data anywhere and the measurements can be stored in memory for later printout or download to a PC. You can store as many as 100 product standards and 800 sample readings.

## Easy to Use



MiniScan EZ is lightweight and ergonomically designed for operator comfort. Including batteries it weighs only 1 kg (2.25lb) and a rubberized handle provides sure handed carrying and use. The handle virtually eliminates hand fatigue when measuring a large number of samples. Using the button

pad that is built into the handle, it is simple to operate with thumb-tip navigation of all functions. MiniScan EZ has a large easy to read, LCD graphical display. The display orientation can easily be rotated through four orientations of 0°, 90°, 180° and 270° for viewing from any position.

Using MiniScan EZ it is simple to determine the color of a sample, the color difference between two samples, or the color difference between a sample and a product standard. If you are comparing the color of samples to a standard, MiniScan EZ lets you enter the standard values two ways: either by reading a standard or by manually entering the standard's color values. When you want to measure absolute color values, MiniScan EZ's hitch standard feature helps ensure agreement with other color measurement systems. You can easily enter Pass/Fail tolerances for each product standard or you can use the CMC color difference auto tolerance capability. CMC provides automatic tolerances based on the standard's color. This translates into faster implementation of a color control program and increased productivity.

## Precise Measurement

MiniScan EZ has a xenon flash lamp as a light source. To ensure measurement repeatability and stability, double beam optics are used to monitor the source and spectrally compensates for any variation. MiniScan EZ scans the visible spectrum from 400-700nm with 10nm resolution for accurate measurement of sample color. A check tile is provided with each instrument to ensure accuracy is maintained. EasyMatch EZ conforms to all widely accepted industry standards for reflected color measurement and permits measurement in all commonly used color scales. Up to 20 measurements can be averaged to give more repeatable results on non-uniform samples.



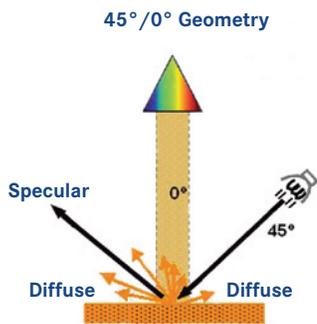
# System System Geometry



System geometry defines how the sample is illuminated and the angle at which the reflected light is measured. To best fit your measurement requirements, MiniScan EZ is available with **45°/0° or diffuse/8°** measurement geometry.

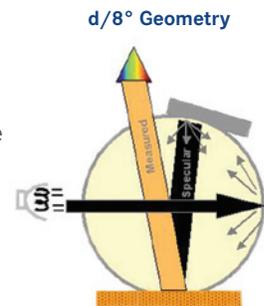
## 45°/0° Geometry

If you want to measure how the sample appears to your customer, the 45°/0° system is best. This system illuminates the sample at a 45° angle and measures it at 0° which is perpendicular to the sample. The 45°/0° MiniScan EZ ignores the glare from the sample (specular excluded) and sees both the effect of sample coloration and the effect of its gloss or texture. This is how your customer visually sees it.



## Diffuse/8° Geometry

If you want to know only the sample's coloration, ignoring the effect of its gloss or texture, then the d/8° system is best. The diffuse/8° MiniScan EZ illuminates the sample diffusely and measures it at an 8° angle to the surface. This geometry includes the sample glare (specular included) and will only see the effect of coloration, ignoring its surface characteristics. Thus the measurement will not agree with what you see. Some other d/8° instruments have a mode that approximates specular excluded; however measurements in this mode are significantly less precise than those of a 45°/0° instrument.



# Measured Measured Area

A large area view and small area view model of MiniScan EZ is available for each of the two geometries. It is always best to measure the largest possible area of a sample. The 45°/0° LAV (Large Area View) MiniScan EZ has a 31.8mm measurement port and the d/8° LAV MiniScan EZ has a 25.0mm port. Both of these systems provide an excellent optical average of the sample for each measurement and reduce the number of readings needed for averaging of non-uniform samples. If it is necessary to measure small sample areas, such as for small parts or curved surfaces, a SAV (Small Area View) MiniScan should be used. The 45°/0° SAV MiniScan EZ has a 6.0mm measurement port and the d/8° SAV MiniScan EZ has a 14.3mm port. When measuring small sample areas, you should average several readings to compensate for sample non-uniformity.



# Measurement Versatility



MiniScan EZ has built-in software that is highly versatile. It permits tailoring up to 100 customized setup configurations with product standard values and tolerances to suit specific product or customer requirements. It can also be used with HunterLab's EasyMatch® QC software.

## Each setup includes these parameters:

- **Color Scale, Indices, Illuminant, Observer**  
To specify the conditions under which the data is to be reported
- **Standard Values**  
To identify the product standard or target with which to compare for color difference
- **Pass/Fail Tolerances**  
Per your product specifications or automatically for CMC
- **Averaging**  
To provide accurate measurements of uneven or inconsistent samples
- **Display Format**  
Reports measurement data multiple ways: color data, color difference data, color plot, spectral data, spectral difference data, spectral plot and spectral difference plot

A wide variety of illuminants, observers, color scales and indices are provided with MiniScan EZ.

These include:

- **Illuminants:** A, C, D50, D55, D65, D75, F2, F7, F11
- **Observers:** 2°, 10°
- **Color Scales:** CIE L\*a\*b\*, Hunter Lab, CIE LCh, CIE Yxy, CIE XYZ
- **Color Difference Indices:**  $\Delta E^*$ ,  $\Delta E$ ,  $\Delta C^*$ ,  $\Delta C$ ,  $\Delta E_{CMC}$
- **Color Difference Scales:**  $\Delta L^*a^*b^*$ ,  $\Delta Lab$ ,  $\Delta LCH$ ,  $\Delta Yxy$ ,  $\Delta XYZ$
- **Indices and Metrics:** E313-96 Whiteness (C/2° and D65/10°), E313-96 Yellowness (C/2° and D65/10°), D1925 Yellowness (C/2°), Y, Z%, 457nm Brightness, E313-96 Tint (C/2° and D65/10°), Opacity, Strength, Gray Change, Gray Stain, Metamerism, Shade Numbers



# System Features

- Available with 45°/0° or diffuse/8° geometry and large area or small area view
- Light weight and rubberized handle for operator comfort
- Easy one handed operation with thumb-tip navigation of functions
- Large, easy to read LCD graphical display
- Displays color data, color difference data, color plot, spectral data, spectral data difference, spectral plot, spectral difference plot
- Includes all commonly used color scales and indices

- Easy color difference determination
- Averages up to 20 sample readings
- Stores 100 standards and 800 sample measurements
- Easy pass/fail determination using user entered tolerances or automatic tolerances
- Multiple languages
- Thousands of measurements on standard AA batteries
- Excellent measurement repeatability and inter-instrument agreement
- USB interface

Dedicated to worldwide support through local representation, HunterLab provides over 55 years of experience to meet the color measurement needs of customers around the world. We offer the industry's most comprehensive set of end-to-end solutions – an integrated package of resources, from the complete array of instrumentation, software, and support services to training, education and decades of application knowledge.

MiniScan and EasyMatch are trademarks of Hunter Associates Laboratory Inc.  
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