xDNA™

Color Measurement and System Control

The New Technology X-Rite MA98™

Portable Multi-Angle Spectrophotometer

x-rite

X-Rite: Your source for accurate color. On time. Every time.

X-Rite is a world leader in providing global color control solutions for manufacturing and quality management requirements.

We lead the industry in offering service options to ensure uninterrupted performance of all X-Rite products. Training and educational resources are available globally and on line for both new and experienced users to optimize their color measurement capabilities.

Visit xrite.com for more information about X-Rite products. X-Rite customers worldwide may also call the Applications Support team at CASupport@xrite.com or Customer Service at 800-248-9748.

X-Rite MA98 Specifications

Measuring Geometrics	
Illumination	45°
Aspecular Viewing	-15°, 15°, 25°, 45°, 75°, 110°
Out-of-plane	25°az90, 25°az-90, 60°az125.3, 60°az-125.3
Secondary Illumination	15°
Aspecular Viewing	-15°, 15°
Angular Accuracy	±0.15° Fiber Optic pick up coupled with DRS technology
Measurement Area	Approx. 12mm (.5 inch)
Light Source	Gas filled tungsten lamp
Lamp Life	750,000 measurements typical
Spectral Range	400nm – 700nm
Spectral Interval	10nm (31 measured points)
Measurement Range	0 - 400%
Colorimetric Illuminants	A, C, D50, D65, F2, F7, F11 & F12
Colorimetric Standard Observers	2° & 10°
Colorimetric Scales	L*a*b*, L*C*h°, ΔE*; ΔECMC; ΔE DIN6175, ΔE_{2000}
Effect Parameters	xDNA, Flop Index
Measurement Time	Approx. 2 seconds
Reproducibility (Inter-instrument agreement)	0.18 ΔE* avg on reference Series II BCRA tile set
Repeatability	0.02 ΔE* max on white cal plaque (20 measurements at 5 sec intervals)
Power Supply	Rechargeable Lithium Ion battery pack 7.4vDC @ 2400mAh
AC Adapter	12vDC, 2.5 amps
Measurements per charge	Up to 750
Measurement storage	250 Standards 1000 Samples
Data interface	USB 2.0 Bluetooth wireless
Operating Temperature Range	50F to 104F (10C to 40C) 85% Relative Humidity max (non-condensing)
Storage Temperature Range	-4F to 122F (-20C to 50C)
Dimensions	3.4 x 4.5x 10.6 (8,7cm x 11,4cm x 26,9cm)
Weight	2.5 lbs
Standards	
ASTM	D 2244, E 308, E 1164, E 2194
DIN	5033, 6174, 6175-2
ISO	7724
SAE	J1545

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X-Rite MA98

Portable Multi-Angle Spectrophotometers

This next generation multi-angle measurement tool is designed for consistent, precise color measurement of metallic, pearlescent, and other complex special effect finishes. The unit provides 10 measurement angles and 2 illumination angles to create a unique master profile of each color that serves as a benchmark for optimizing color communication from initial design, through formulation, processing, and quality assurance.

The MA98 features a rugged, compact, ergonomically efficient design. Color values are obtained for the following colorimetric systems: L*a*b*, ΔL*Δa*Δb*, L*C*h°, ΔL*ΔC*ΔH*, Flop Index, ΔFlop Index, ΔE^*_{ab} ΔE_{CMC}, ΔE_{94}, ΔE_{2000}.

X-Rite MA98
Features and Advantages

Accurate, repeatable sample positioning. Innovative user selectable pressure sensors ensure consistent sample interface on flexible or curved surfaces.

Portable, lightweight. The unit weighs a little more than a kilogram, making it ideally suited for long term use without discomfort.

Rugged design. Engineered to withstand demanding production environments. Supported by an unprecedented two-year warranty.

xDNA™ driven. Bundled with X-Rite's exclusive X-Color QC™ measurement and analysis software.

Complete analysis. Ten angles of measurement, including out-of-plane readings, and two illumination angles produce a precise, dimensional portrait for each color, a critical advantage when attempting to measure, analyze, or duplicate special effects paints and coating.

Quick reads. Consistent measurements are achieved in 2 seconds.

Universal functionality. Universal menu icons simplify usage while eliminating language barrier.

Program measurement position and sequence. Through software JOBs mode, workers can be given text and/or visual measurement directions to ensure consistency of measurement from shift to shift.

Increased lamp life, reduced battery consumption. Improved illumination efficiency, results in reduced power consumption from the lamp, allowing up to 700 reads from a fully charged battery.

Compatibility with previous X-Rite instruments. Maintaining similar optical configurations from previous generations of X-Rite instruments provides compatibility with existing data.

International standards ready. Meets DIN and ASTM standards: ASTM D 2244, E 308, E 1164, E 2194; DIN 5033, 6174, 6175-2; ISO 7724; SAE J1545.


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Setup and Maintenance Advantages

1 *Soft touch overmold case with two-hand configuration.* Designed to ensure a safe, steady grip and consistent positioning. Safety wrist strap enhances control.

2 *Icon driven color LCD.* Backlit color display allows for easy screen viewing in varying light conditions.

3 *Replaceable lamp modules.* If service is ever required, the self-contained modules can be replaced at approved X-Rite service centers without affecting the measurement results of the instrument.

4 *Strategic aperture location.* Aperture is located at front end of instrument, providing consistent readings of corner points and other difficult geometries.

Optical Features

5 *Measurement unaffected by ambient light.* A circumferential non-marking seal prevents ambient light from affecting measurements.

6 *Enhanced color resolution.* A 31-point DRS (Dynamic Rotation Sampling) color engine ensures that every angle is measuring surface reflectance at 10mm intervals from 400 mm to 700mm, creating a true color representation. The motor drive stops precisely at the center point of each of the 31 filters for every measurement, improving repeatability and inter-instrument agreement over prior generations.

Handling and Operating Features

7 *Pressure feedback control.* Solid-state sensors positioned around the spring-loaded aperture plate produce a visible LED signal when proper pressure is achieved. This improves measurement repeatability, particularly on flexible or curved surfaces.

8 *Pressure indicator LEDs.* LEDs on the front of the unit align with the pressure feedback control sensors to provide visual confirmation of sample presentation.

9 *Four-button intuitive navigation.* Enables users to scroll quickly through menus, permitting easy use with minimal training.

10 *External measure trigger switch.* An optional activation system that works with pressure feedback control or as the sole means of triggering the instrument.

Setup and Maintenance Advantages

11 *USB or wireless communication (Bluetooth®).* Removable port cover protects USB and AC power ports when not in use. Wireless communication available where permitted and with compatible software.

Easily integrated. Using X-Color QC software, instruments provide for quick setup and on-board upload and download capacity.

12 *Lithium ion 7.4 v. commercially available battery.* Each instrument includes two batteries and a two-pocket external battery charger. The instrument will operate with batteries or via direct connection.