Color can make or break a product. Metallics, pearlescents, and other complex special effect finishes deliver limitless possibilities for enhancing product appeal. And limitless challenges as well. Duplicating complex colors from part to part is no easy task.

X-Rite has answers. Our MA98 spectrophotometer is an intelligent, hand-held tool with the power to provide reliable, consistent data on special effect coatings that were formerly impossible to measure.

By using dual illuminators and sensors that measure more in-plane and out-of-plane angles than any instrument in its class, the MA98 is the only device that meets the ASTM standard (E2539) for measuring interference pigments. We developed a proprietary mathematical model for just this purpose. It identifies surface data points and create a unique color signature that takes into account the coating formula and how the coating was applied.

Operation is enhanced by exclusive advantages, such as X-ColorQC® software that enhances process recording, reporting, and control and a JOBs software mode that allows text or visual measurement direction to ensure consistency.

So now, the only limit to working with special effect finishes is your imagination.

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°, \(\Delta E^*\); \(\Delta E_{2000}\)

Effect Parameters: xDNA, Flop Index

Measurement Time: Approx. 2 seconds

Reproducibility (Inter-instrument agreement): 0.18 \(\Delta E^*\) avg on reference Series II BCRA tile set

Repeatability: 0.03 \(\Delta E^*\) 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 1500 measurements, Li ion dual battery packs

Measurement storage: 250 Standards 1000 Samples

Data interface: USB 2.0 Bluetooth wireless (in compliant countries only)

Operating Temperature Range: 50°F to 104°F (10°C to 40°C)

Storage Temperature Range: 5°F to 122°F (-20°C to 50°C)

Dimensions: 3.4 x 4.5x 10.6 inches (8.7cm x 11.4cm x 26.9cm)

Weight: 2.5 lbs 1.13 kgs

Standards: ASTM E 2539, D 2244, E 308, E 1164, E 2194, 5033, 6174, 6175-2, 7724, J1545
The New Technology X-Rite MA98™
Portable Multi-Angle Spectrophotometer
**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 E 2539, D 2244, E 308, E 1164, E 2194; DIN 5033, 6174, 6175-2; ISO 7724; SAE J1545.
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.

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

**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.