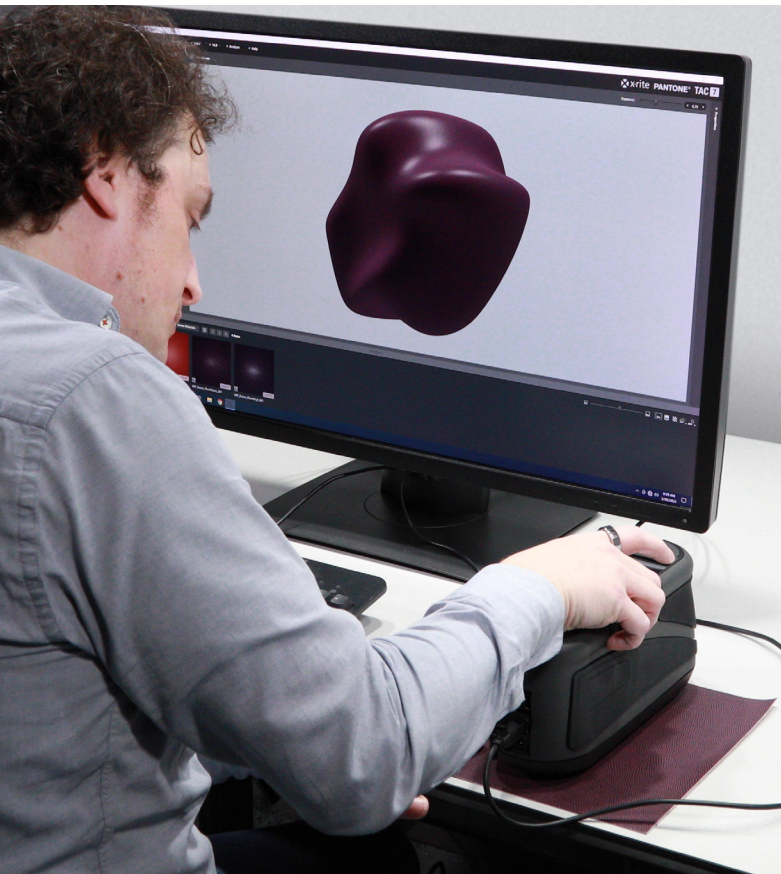


MA-T12

Multi-Angle Spectrophotometer



One Measurement Device from Design to Quality Control

In today's competitive marketplace, automotive, household, cosmetic, and consumer electronics brands continue to specify increasingly complex materials and special effect finishes to differentiate their products. However, for manufacturers who must reproduce consistent color across adjacent parts in distributed supply chains, measuring color with a standard spectrophotometer cannot accurately evaluate the appearance of sparkle, coarseness, and complex texture effects.

With twelve angles of measurement and an on-board color calibrated RGB camera, the advanced MA-T12 multi-angle spectrophotometer can fully characterize and verify color, sparkle, coarseness and texture characteristics with the highest level of repeatability and reproducibility. MA-T12 can be used from design and inspiration to final inspection to communicate, specify, measure, and ensure conformity of complex materials and finishes across the entire supply chain.



PRECISELY MEASURE & COMMUNICATE COMPLEX MATERIALS

- Quickly and accurately measure and quantify color, sparkle, coarseness, and texture with twelve angles of measurement.
- Minimize the risk of measuring sample defects with on-board camera and live preview.
- Digitally communicate tolerances for complex materials and finishes across complex global supply chains.
- Define, communicate, and ensure conformance with standards and measurement procedures.
- Ensure a smooth transition and maintain legacy data with backwards compatibility to X-Rite MA68, MA94, MA96, and MA98 devices.

PERFORM REMOTE QUALITY CONTROL

- Utilize the same device at all stages of production to ensure repeatability and reproducibility.
- Expedite production approvals by quickly measuring samples to compare against brand specifications.



Create a Digital Workflow for Complex Materials

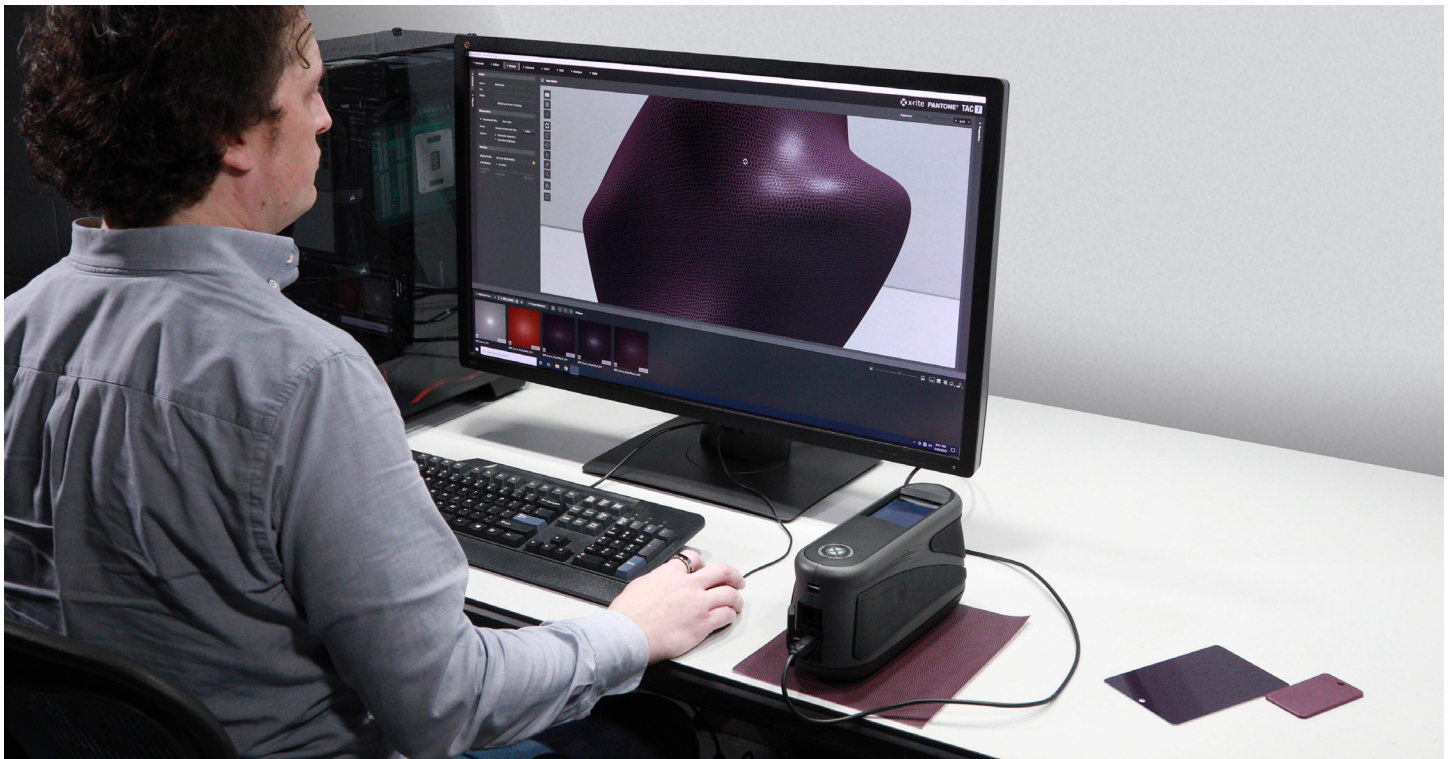
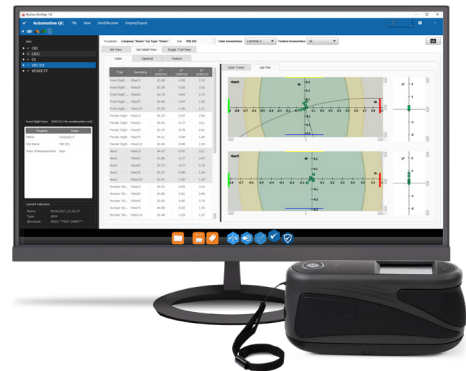
MA-T12 can connect to two different software solutions to move customers into a more data-driven and sustainable workflow for measuring and managing complex materials. Industrial Designers, Product Engineers and Material suppliers can use an MA-T12 with Pantora Appearance software to virtualize color and appearance during product development while supply chain partners can use MA-T12 with EFX QC software to ensure they are meeting customer expectations.

VISUALIZE 3D COLOR AND APPEARANCE TO MINIMIZE PHYSICAL PROTOTYPES WITH PANTORA

- Pantora Color and Appearance Software is a desktop application designed to simplify the management of complex color and appearance data.
- Accurately capture color and appearance characteristics from physical materials to digitize for use in PANTORA software.
- Render realistic 3D models in PLM software that demonstrate color and appearance to present additional product designs during concept and minimize physical prototypes during approval.
- Compare samples virtually from your desktop and remotely approve complex materials and finishes.
- Create comprehensive digital libraries of materials, making it easy to share and access critical product appearance information from anywhere in the world, ensuring more accurate color and reducing the need for shipping samples.

MEET CUSTOMER STANDARDS WITH EFX QC

- EFX QC is a quality control software specifically designed to manage complex materials and effect finishes.
- Quickly verify color and appearance match customer expectations to ensure design intent is achieved.
- Eliminate downtime and expensive waste when color does not meet expectations by ensuring everyone is working off the same standard.
- Monitor real-time performance and provide actionable insights to troubleshoot out-of-tolerance product using EFX QC visual tools.



Specifications

MA-T12

Measurement Geometry	12 measurement angles (6 illumination sources, 2 pick-ups)
Inter-Instrument Agreement	0.18 ΔE_{2000} avg. on BCRA
Illumination Source	Polychromatic white LED with blue enhancement
Illumination Spot Size	9mm x 12mm (.40in x .50in)
Illuminants	A, C, D50, D65, F2, F7, F11 & F1
Color Differences	$L^*a^*b^*$, $L^*C^*h^*$, ΔE_{CMC} ; $\Delta E_{DIN6175}$, ΔE_{2000}
Short Term Repeatability on white	0.02 ΔE^* (10 consecutive measurements on white tile)
Reproducibility on BCRA Tiles	Grey BCRA tiles; avg. $\Delta E_{00} < 0.10$
Sparkle Measurement	Sparkle Grade, Color Sparkle Parameter, Illumination 15as-15, 15as15, 15as-30, 15as45, 15as45, 15as80, 15d Diffuse Coarseness
Sparkle Repeatability & Reproducibility	0.12 (mean error on median %) & 1.9% (mean error on median %)
Coarseness Repeatability & Reproducibility	0.09 (mean error on median %) & 1.4% (mean error on median %)
Calibration Interval	30 days
Software Compatibility	Pantora, EFX QC
Appearance Measurement Functions	BRDF, CPA 2, SVBRDF (Pantora 2023.1)

The X-Rite Service Promise

X-Rite's MA Family of multi-angle spectrophotometers are manufactured to rigorous quality standards and our global service options ensure uninterrupted performance. Adding a Service Care Plan provides additional protection beyond the product defect coverage of our basic manufacturer's warranty to improve the reliability and lifespan of your device. To fit your needs and budget, X-Rite has a variety of plans that include accidental damage coverage, ISO certification, and loaner units to keep production up and running. With 800+ employees, 11 service centers, 40+ service partners worldwide, and field service options, you can rest assured that you will receive world class support.

X-Rite also offers customized training and education to provide you with the knowledge necessary to master the color measurement process from start to finish. Our team of Color Scientists, Solution Architects, and Industry Experts can help you and your team specify, communicate, design, and produce accurate and consistent color for any industry.

Call **888-800-9580**
or visit **www.xrite.com**

X-Rite Incorporated
4300 44th St. SE, Grand Rapids, MI 49512 United States

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MA-T12