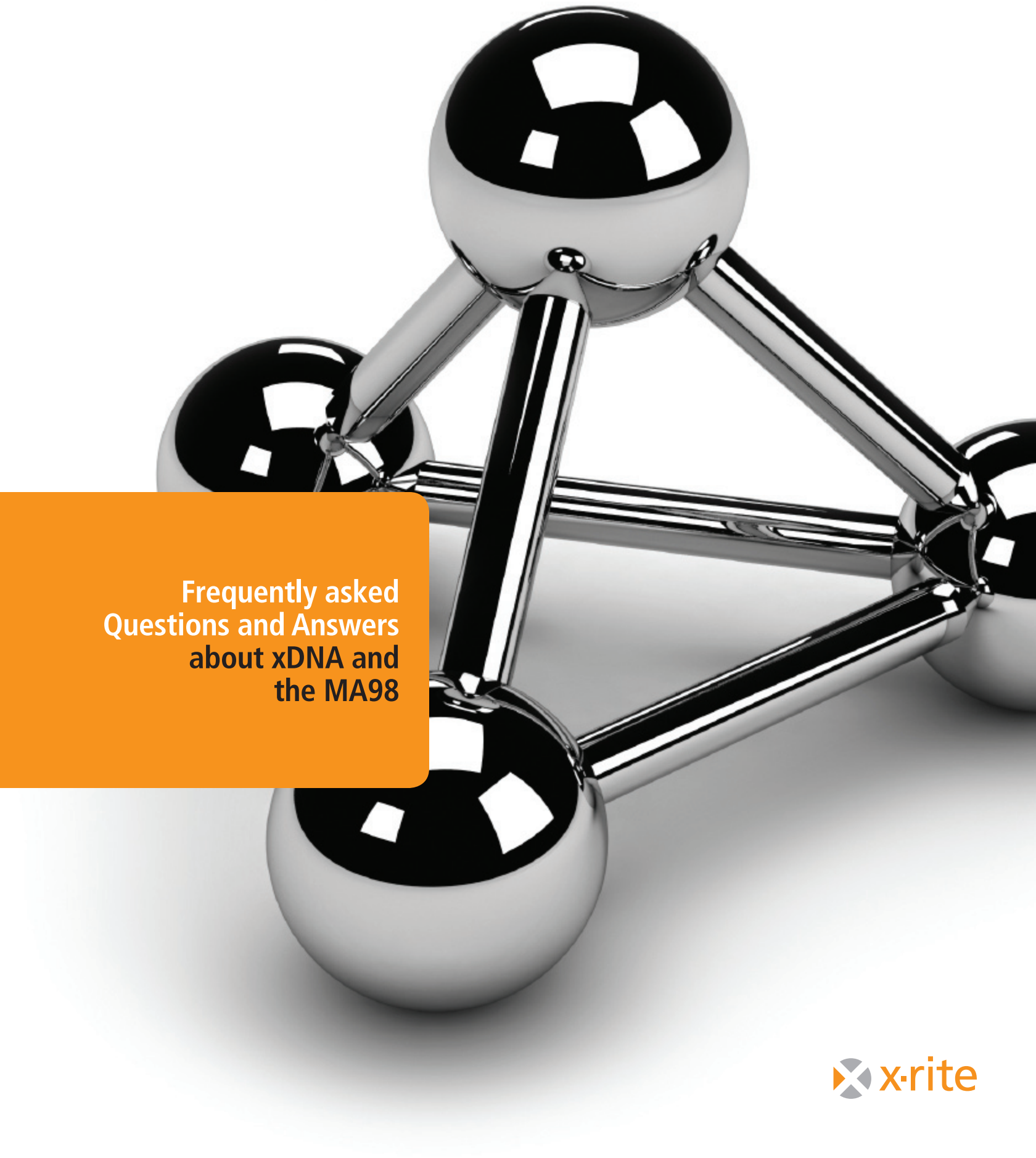
xDNA™



Frequently asked Questions and Answers about xDNA and the MA98

x-rite

What exactly is xDNA™?

xDNA is a system that uses the MA98® instrument and X-ColorQC® software to collect data that no other instrument on the market can detect, and analyze the data with proprietary algorithms to create a one-of-a-kind digital signature for an effect paint or surface.

We coined the term 'xDNA' to emphasize the fact that each effect paint or surface has a unique, three-dimensional mathematical model, similar to the way that each person has a unique DNA structure. The exact name for X-Rite's package is Dynamic Numerical Analysis, but we figured xDNA was a little easier to say.

Why do I need xDNA and the MA98?

The xDNA system solves a thorny problem that has concerned manufacturers for decades on how to accurately measure the color and appearance of surfaces with "sparkle" that confounds optical instruments. Companies have searched for a reliable system that relates manufacturing processes and formulas to how humans perceive effect paints or surfaces. In the past, manufacturers have wasted considerable amounts of time and money trying to match mating parts because they do not have instruments that measure why the parts look different under different illumination and observation angles.

For instance, quality control personnel on a production line may have observed when a body panel and bumper facia didn't match properly, but the instruments could not give consistent and accurate measurements as to why the mismatch was occurring. Consequently, companies have spent an inordinate amount of time and resources trying to determine the root cause of manufacturing problems through trial-and-error methods.

All that has changed with xDNA and the MA98.

What makes the MA98 so special?

There isn't an instrument like it on the market for measuring color and appearance samples. For instance, the MA98 can detect characteristics of an effect paint that are invisible to X-Rite's own MA68II and competitors' instruments. The MA98 has sensors at 10 measurement angles and two illuminators—twice the number of many other instruments—so it collects the data required to create a three-dimensional map of the surface of a part, which is unheard of in the color measurement industry.

But in addition to its illuminators and sensors, the MA98 has a number of other improvements in power supply, optics, illumination source, instrument display, and imbedded software.

Is the MA98 easy to use?

Very. X-Rite engineers designed the MA98 with the user in mind, creating an instrument that is lightweight, comfortable to grip, and rugged to stand up to demanding production environments. Weighing about a kilogram, the instrument features solid state sensors positioned around a spring-loaded aperture plate that activate indicator LEDs when the instrument is positioned properly against the test surface. The instrument can take 700 5-angle measurements on a full charge, holding 1,000 samples and 250 standards in its internal memory.

Measurements take only 2 seconds, and results are displayed on a large color LCD for easy reading.

What about the xDNA software? Is it hard to use and understand? How much time will it require to learn the software?

Like the MA98 instrument, the xDNA system is designed with the user in mind. The data generated by the MA98 is analyzed by the X-Color QC software package that runs proprietary algorithms of xDNA. While the calculations are complex, the software package produces clear and easy-to-understand graphs that can be used to interpret changes in process and recipe of effect paints.

The X-Color QC software is the standard in the color measurement industry for power and versatility. Quality control personnel, engineers and others can learn how to navigate and operate the X-Color QC software with only a few hours of training.

Is the MA98 accurate and reliable?

The MA98 carries on X-Rite's reputation for making highly accurate and reliable instruments. The inter-instrument agreement with the MA98 is an average 0.18 Delta E* on a reference BCRA tile set, a maximum of 0.35 Delta E* on

any chromatic tile and a maximum of 0.15 ΔE* on any grey tile. For short-term repeatability, the MA98 measures an average 0.02 ΔE^*_{ab} on the white ceramic tile.

I have an MA68II instrument with X-ColorQC software now, can I just upgrade my software to get the advantages of xDNA?

No, the xDNA system works only with the additional datapoints provided by the MA98. The MA98 has double the number of illuminators and sensors as the MA68II and many other competitors' instruments, so it gathers datapoints in three dimensions instead of just two dimensions.

However, the data generated by the xDNA system can work seamlessly with existing databases set up for the MA68II or other prior generations of X-Rite instruments.

Will this work with my current database?

Yes, if you are using an X-Rite system now. Using identical optical configurations from previous generations of X-Rite instruments, the data generated by the xDNA system can drop into existing databases set up for the MA68II or a number of other X-Rite instruments. Consequently, companies can implement the xDNA system and continue to use their existing X-Rite databases without modification or re-measurement.

How about illumination? How difficult is it to replace a lamp and calibrate the instrument?

The MA98 is equipped with a long-lived gas-filled tungsten lamp that is rated for approximately 750,000 measurements. Standard Illuminants are not related to the instrument illumination.

If service should ever be required, the self-contained lamp modules can be replaced at approved X-Rite service centers around the world without affecting or changing the measurement performance or results of the instrument.