COLOR KINETICS

# FluxBoost

Unlock the full power of your luminaires

Technical Overview

Photography: © Matheo Lernher

# FluxBoost

At Color Kinetics, we create solutions that deliver maximum performance to our customers—right out of the box and year after year. That's why we developed FluxBoost an intelligent algorithm that boosts the output of multi-channel LED luminaires, giving you significantly more output, saturation—and value.

# The era of optimization

## From transportation to communication to lighting, our devices and technologies must use energy and materials wisely by conserving resources and maximizing performance.

Our engineers spent years researching and perfecting a new approach to delivering maximum power from our advanced LED luminaires. They knew that there was extra power hidden within these luminaires waiting to be put to better use—and they found an ingenious way to unlock it.

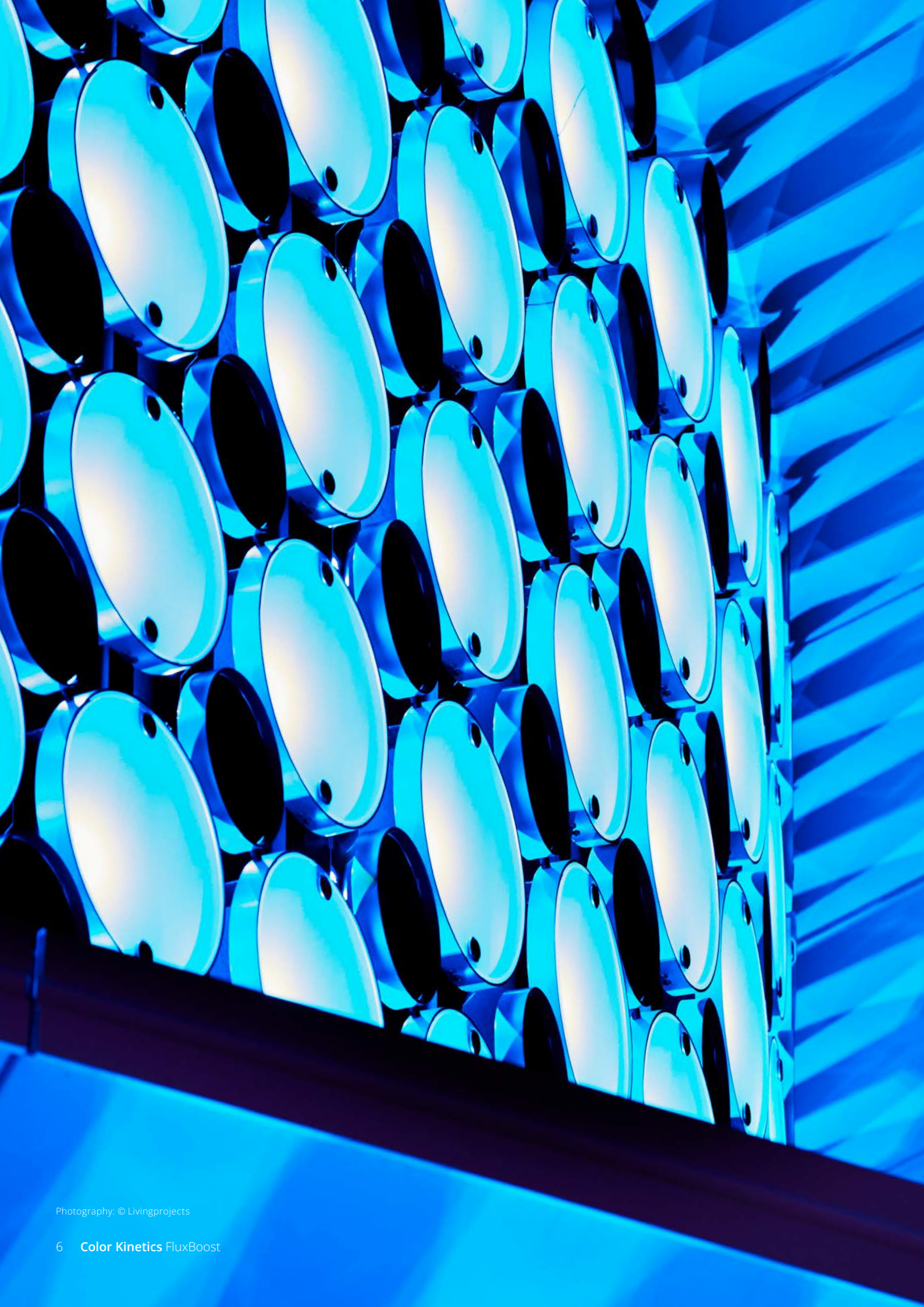
## Unlocking maximum power

The result? A breakthrough technology that optimizes power like no other. It enables significantly higher output,* creates more saturated colors, reduces the number of luminaires required for projects, and much more.

You'll find FluxBoost, our proprietary Output Optimization Technology in many Color Kinetics luminaires. And as the ultimate proof of the power of our innovation, many in the industry have licensed it for use in their luminaires. But it originated with Color Kinetics, joining our expansive portfolio of innovative technologies.

*As much as 4x the output, depending on the luminaire and implementation.

Photography: © Matheo Lernher



Photography: © Livingprojects

# FluxBoost delivers clear benefits

The main benefit delivered by FluxBoost is clear—significantly higher output. But higher performance can translate into a wealth of other benefits, from more saturated colors to more savings.

## Significantly higher output

In some installations, maximum lumens are critical. For example, a design may call for delivering maximum light to a tall exterior wall. Our proven, proprietary technologies work together seamlessly to deliver the maximum flux these applications require. FluxBoost increases output significantly—while Chromasync identifies the optimal color point. So you get bright, high-quality, consistent light—from rich single-color illumination to advanced color-changing applications.

## More saturated colors

By directing more power to an individual color channel, FluxBoost can increase color saturation significantly—of one selected color or a mix.

## Cost savings

By providing more output per luminaire, FluxBoost can enable specifiers to use fewer luminaires to achieve the same effect within their designs. Output optimization lowers commissioning and installation time, simplifying and speeding project completion. It reduces project costs during installation—as well as the ongoing cost of operation.

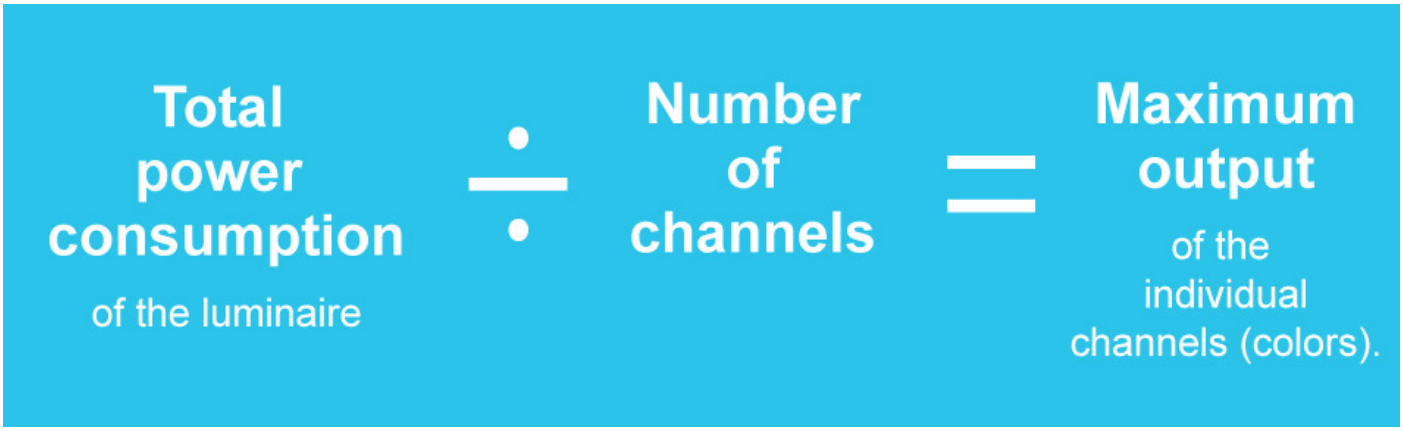
## Greater value

With FluxBoost, an installation can use more of the power budget allocated to the project, reducing waste and increasing efficiency. The bottom line? More output, flexibility, efficiency—and greater value when investing in a lighting infrastructure.

# How does FluxBoost work? Solving a daunting challenge

Maximum power means rethinking some long-held traditional assumptions about multi-channel luminaires. As luminaires added more channels, there was an unwanted side-effect—lower performance in key situations. FluxBoost solves this problem with an elegant technical solution that unlocks the power of today's LED luminaires.

The traditional thinking about output goes like this:




Using this assumption, an RGBW LED luminaire capable of 100 watts of power consumption would give you 25 watts of power per channel. Makes sense, right? Each channel gets the same amount of power. You don't want to overheat the luminaire when all channels are turned up to the maximum. But there's a flaw in this logic.

Photography: © Livingprojects

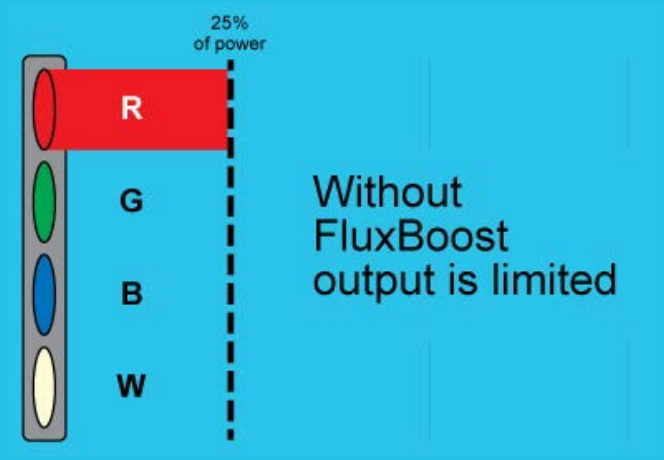
# The challenge: Overcoming outmoded design limitations

This electrical design limitation works for RGB luminaires, which might be used with all three channels full on to achieve white light. But not when it comes to today's 4+ channel luminaires, with a white channel. During real-world use, there would be no reason to use all channels at maximum power. That's why there's a dedicated white channel.

In short, old approaches to controlling power may protect luminaires from overheating. But they prohibit them from achieving maximum performance.

Photography: © Chengdong Deng

For example, if one channel of a RGBW luminaire is on, it's limited to 25% of the total wattage of the luminaire. For a 100-watt luminaire, that would mean 25 watts, leaving 75 watts untapped. With two channels on (e.g., red and blue to create magenta), it's limited to 50% of the total power budget.



# The solution: Smart technology that optimizes power AND quality

Our proprietary approach to output optimization raises the output of an individual color (or colors) by going beyond the traditional thinking—and artificial limitations. Our advanced algorithm raises LED output, but keeps it well within safe limits, protecting the luminaire while providing significantly increased output.

We provide the best of both worlds—significantly higher output and extremely consistent light quality. But we put quality of light first, so our luminaires never sacrifice quality for power utilization.

The result? **A critical element of an integrated design.**


FluxBoost is a critical element embedded in the firmware of our luminaires. But it's just part of our integrated design approach. We combine the FluxBoost algorithm with the right LEDs, luminaire size, power budget, and more, adjusting to meet the specific goals of each luminaire.

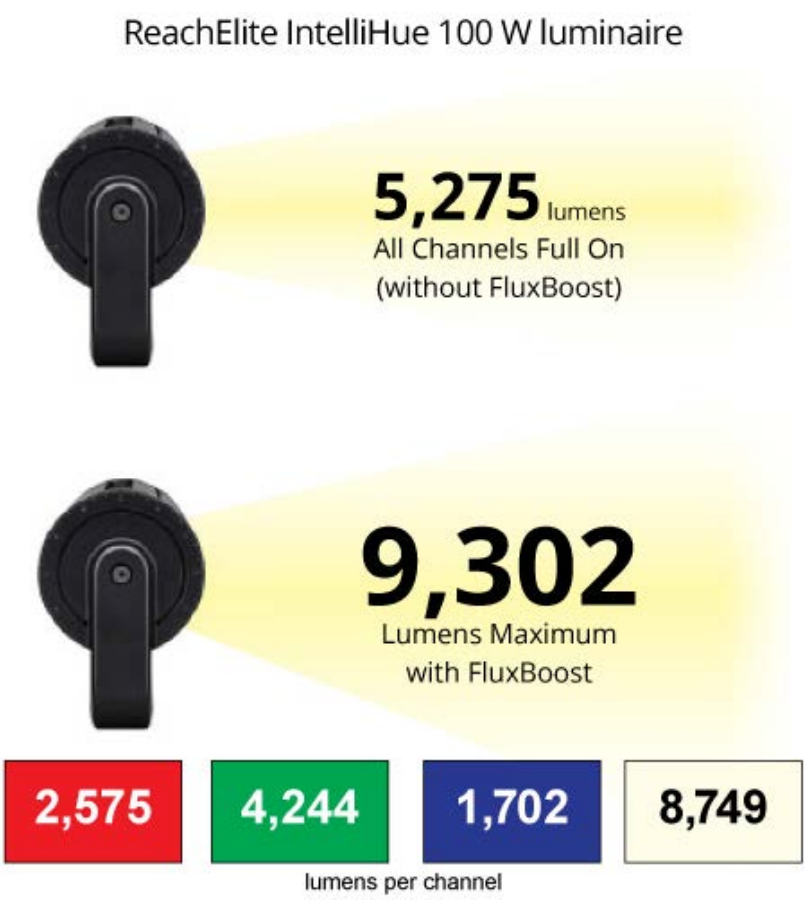
By focusing on the total design of our luminaires, we can integrate and optimize all elements to deliver maximum lumen output and efficiency, provide exceptionally high quality, consistent light—and meet the needs of our customers.

Photography: © Chris Turgeon

# Our approach to output optimization in action

ReachElite High Output serves as an excellent example of how FluxBoost enables our next-generation luminaires to achieve industry-leading output. ReachElite High Output's LED array uses more than 500 mid-power LEDs per 100W module. This design approach creates inherent efficiency during normal use since more LEDs can be driven at lower power. FluxBoost takes advantage of the potential to drive the LEDs harder, achieving higher lumen output.

Customized for the specific needs of this unique array, FluxBoost continually adjusts power, increasing lumens up to 2 – 4x. Instead of capping each channel's power at 25%, it redirects power automatically, up to 100% to an individual channel providing a major boost in output.




**Before:** With all channels full on—and without FluxBoost —the 100W power budget is equally distributed to the four channels (25W per channel), achieving 5274 lumens.

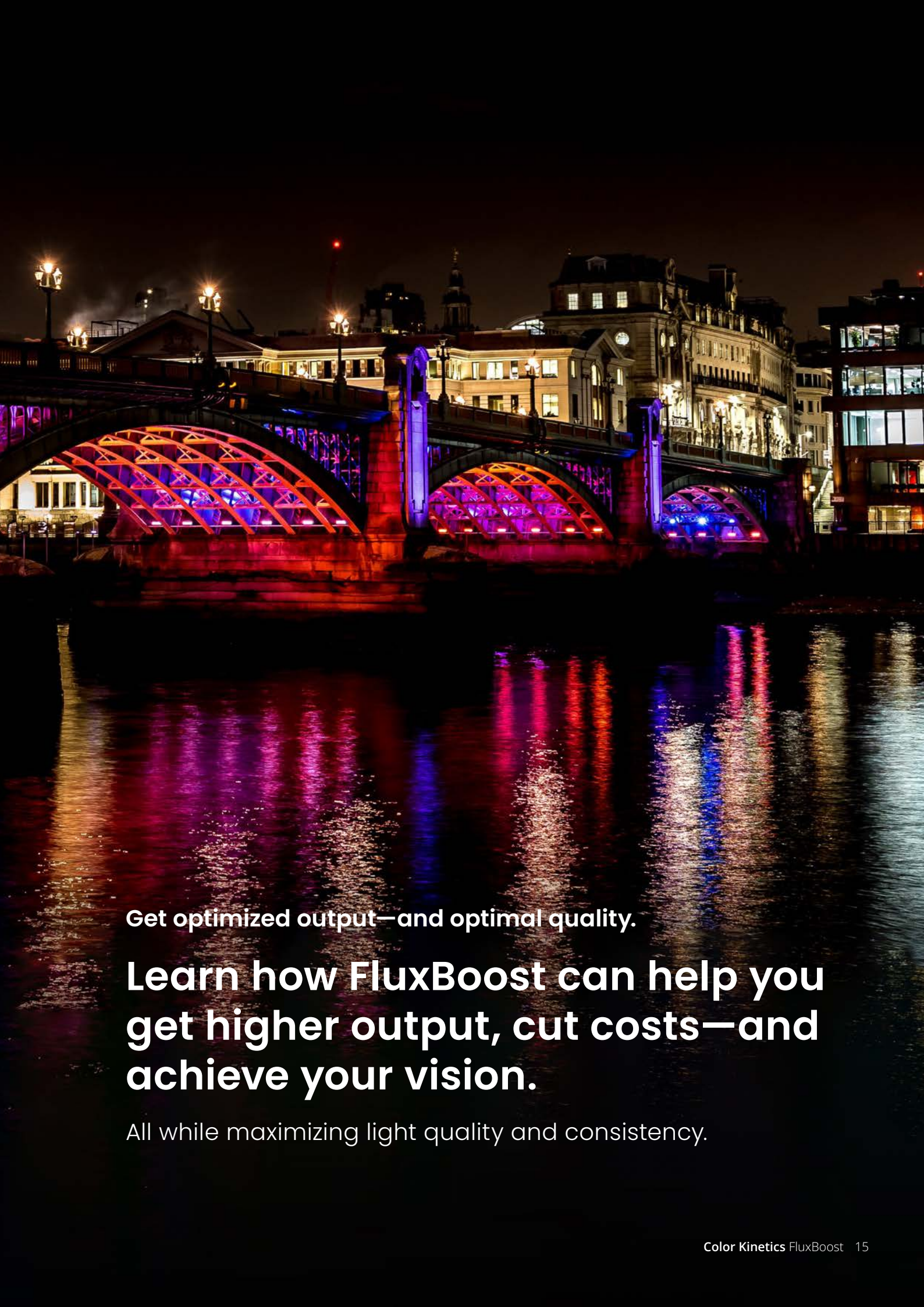
**After:** The lumens per channel figures show how FluxBoost delivers more power to each channel. Lumens maximum shows the technology's impressive impact on the full array, boosting maximum output to 9,302 lumens—and achieving efficiency of an impressive 87.2 lumens per watt.

# A commitment to technological innovation

Our advanced technologies set new standards for consistency, accuracy, and performance, enabling your most innovative and ambitious lighting designs and projects.

For example, Optibin, our proprietary binning process, ensures LED optimization right from the start, while our IntelliHue advanced color mixing delivers unrivaled color accuracy. These are just some of the innovative technologies to come out of our engineering labs—all driven by the evolving and escalating needs of our customers throughout the world. Find out more in the Technology portfolio shown on the following pages.

Photography: © Nick Fewings



Get optimized output—and optimal quality.

# Learn how FluxBoost can help you get higher output, cut costs—and achieve your vision.

All while maximizing light quality and consistency.

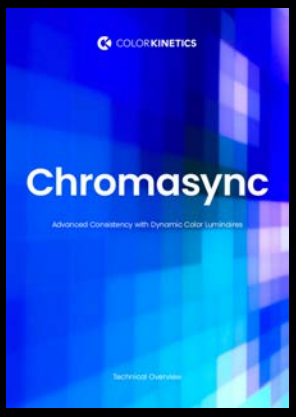
# Color Kinetics technology portfolio

We continually explore your challenges, invest in research and development, and make the significant commitment required to develop and perfect breakthrough technologies. The result of decades of work, our unequaled portfolio of proprietary, quality-enhancing technologies helps you achieve the best possible results. These technologies increase quality by ensuring sustainability, consistency, raising uniformity, providing precision control, and more.


## Optibin

Where consistency begins.

Our LED optimization technology begins the color consistency process by grouping (or binning) LEDs by flux as well as center wavelength. This proprietary binning optimization process uses an advanced bin selection formula that exceeds industry standards for chromaticity. The result? Higher uniformity and consistency of hue and color temperature for all our luminaires.




## Chromasync

Optimize output & color consistency.

Our advanced output optimization technology controls and boosts output while ensuring color consistency. When enabled, Chromasync ensures excellent color consistency between luminaires, without manually adjusting color points on each luminaire.


## IntelliHue

The smart way to deliver white & color light.

Our advanced approach to color mixing produces high-quality white light, subtle pastels, and fully saturated colors in the same precisely controllable luminaire. All with unrivaled color accuracy across the entire range of color temperatures.


## OptiField

Uniformity never looked this good.

OptiField's freeform optic creates a breakthrough rectangular beam that covers large surfaces with full, bright, even light. And OptiField can cover more surface area with fewer luminaires — simplifying installation while lowering energy use.


## Powercore

Power made simple.

Our patented approach to power output proves that simple is better. As well as faster, more efficient, and accurate. Powercore® controls power output to luminaires directly from line voltage. It merges line voltage with control data and delivers both over a single standard cable—dramatically simplifying installation and lowering total system cost.


## FluxBoost

Unlock the full power of your luminaires.

FluxBoost is a breakthrough technology that optimizes power and quality. With FluxBoost, an installation can use more of the power budget allocated to the project, enabling significantly higher output, creating more saturated colors, reducing waste and increasing efficiency.

# What matters in professional lighting?

Our series of guides explores key topics in professional lighting—Color Science, Light Matters, Quality Matters, Optics Matter, and more. It's part of our commitment to passing on our deep technical knowledge and decades of expertise to help you achieve your vision.


## Color Science

Color science serves as an underlying technical foundation for the entire lighting industry. It establishes a consistent way of thinking about light—how it is created, controlled, and delivered in real-world implementations. A core understanding of the science of color is critical to lighting professionals, who must be able to specify the right light—color, technology, luminaire, and more—clearly and accurately.


## Light Matters

Traditional methods of evaluating light focused on lumen output, which was defined by the output capabilities of a light source, such as an incandescent lamp. The advent of LED lighting changed all that, since lumens were no longer the best measurement of a luminaire's capabilities. We explore some of the new ways lighting can be evaluated in the age of LED.


## Quality Matters

What does quality mean to you? The answer depends on what you do within the lighting industry. Quality has different meanings for building and site owners/managers, lighting designers, and installers. We delve into the needs of each of these groups as we take a holistic approach to quality, one that begins and ends with the customer.


## Optics Matter

It's safe to say that few lighting designers, building owners/managers, or other lighting professionals have ever seen the optical system housed inside an LED luminaire. But the optical system, or optics, play a vital, but often hidden role in performance, efficiency, and more. The right optics within a luminaire make a big difference in the final results—for both interior and exterior applications.

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