IntelliHue
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Full Color, Dynamic Color, and High-Quality White LED Light in One Advanced Luminaire

Color Kinetics IntelliHue brings high output, CRI, quality to both color and white LED light – all in one advanced, affordable, all-in-one luminaire. Our groundbreaking color-control technology lets you target and adjust millions of colors and shades of white light with precision.

CK Technology

IntelliHue—our advanced approach to color mixing—enables the same luminaire to provide high-quality intelligent color and white light. Multiple channels of LED light sources combine to produce a full spectrum of precisely controllable light, including millions of saturated colors, pastels, and uniform white light, all with unrivaled color accuracy across the entire range of color temperatures. Available in a wide range of form factors, IntelliHue luminaires bring high output, and high CRI to grazing, washing, spotlighting, and other applications. Chromasync technology (available on all IntelliHue lighting systems) takes IntelliHue LED luminaires even further, delivering excellent color precision and accuracy.
To meet the needs of today’s demanding lighting implementations, IntelliHue delivers:

- **High Output**. IntelliHue luminaires achieve high output (flux), bringing new impact to a wide range of lighting designs, interior and exterior.

- **Exceptional Quality**. IntelliHue achieves higher CRI compared to RGBA and RGBW luminaires, ensuring high-quality white and color light.

- **Precision Control**. IntelliHue (with Chromasync technology) provides a high level of color consistency (<2 SDCM) that renders color variations virtually imperceptible across multiple luminaires.

- **Flexibility**. IntelliHue delivers high-quality tunable white light and color-changing effects in the same luminaire, bringing new flexibility to locations that require both, from multi-function halls to public monuments.

- **Lower Complexity and Cost**: IntelliHue reduces control costs (since a single system can control all types of light), eliminates the need for extra circuits, and lowers overall commissioning time and cost.

A lighting system designed for impact and efficiency

IntelliHue luminaires meet the pressing needs of today’s lighting professionals, who want to create exceptional high-impact lighting implementations – while reducing complexity and boosting efficiency. Advanced IntelliHue luminaires deliver white and color light in a wide range of form factors that fit seamlessly into every implementation, from office interiors to extensive exterior projects. And IntelliHue luminaires are proven and reliable, already bringing impressive white and color light to a wide range of implementations.

High output and CRI, remarkable flexibility and efficiency — that’s why IntelliHue is the smart choice for advanced color and white LED lighting.
Get Attention with High Output

IntelliHue delivers high output to even the most challenging implementations. Available in a wide range of form factors, IntelliHue luminaires provide higher flux and CRI than comparable RGBW or RGBA luminaires. Its superior color mixing and color control ensure the highest quality white light and saturated colors.

With IntelliHue, lighting designers can be confident that the luminaires they specify will deliver high illuminance at the chosen target, whether it’s close (an interior wall) or far away (an exterior architectural detail). These results are especially impressive when compared with RGBW or RGBA solutions. IntelliHue luminaires maximize output, delivering light where designers want it. And thanks to its all-in-one approach, IntelliHue enables designers to combine high-impact tunable white, color, and dynamic color in the same luminaire.

The Chromasync color control algorithm outputs the maximum possible flux based on the color command by managing how best to use multiple channels and color LEDs inside the fixture. The result? IntelliHue achieves high output in all implementations.
Achieve Your Vision with IntelliHue

IntelliHue fixtures can produce a range of color temperatures and tints of white – giving you a broader selection of white light options and greater control. For example, SkyRibbon IntelliHue Powercore fixtures deliver white ranges from 2,000 K to 10,000 K along the black-body curve/locus\(^1\), and 0.025 Duv above and below it.

In practice, this broad range of choices means that you can control IntelliHue fixtures to target and precisely adjust white points across and beyond the entire ANSI white range, choosing from a wide range of white lighting options. At one end of the black-body curve, you can select super-warm candle flame and reddish firelight shades in the 2,000 K – 2,500 K range. At the other end of the black-body curve, you can select super-cool daylight and blue zenith sky shades in the 7,000 K – 10,000 K range.

You can also liberally and precisely tint white points by moving them above and below the black-body curve. This unparalleled freedom in producing white light allows you to match the hues of other lighting sources (e.g., fluorescent), create pastels, and produce the exact custom shade of white you want. And achieve your creative vision.

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\(^1\) Of the CIE color space
Each nominal CCT has an allowable range of variation (tolerance) both along the black-body curve and perpendicular to it. Variations that lie along the black-body curve, measured in degrees K, make a light source appear more reddish or bluish. Variations above and below the black-body curve, notated in Duv, make a light source appear more greenish or pinkish.

Specified variations in CCT and Duv define a quadrangle within the color space for each color temperature. The quadrangle for nominal CCT 3000 K, for example, is centered on 3045 K, and extends 175 K left and right along the black-body curve and 0.006 Duv above and below the curve.
Ensure Accurate Color Rendering with High CRI

LED light sources for IntelliHue fixtures are carefully selected for superior color rendering (CRI) in the white range and fine control of color, color temperature, and tint. IntelliHue’s 80+ CRI lets it render color objects with high fidelity to the reference source. After all, delivering good quality white light that looks great on a white wall is relatively simple. But to ensure that color objects (e.g. retail goods) under that same light look as natural as possible, you need the high CRI that IntelliHue delivers.

A CRI of 80 or higher is an important benchmark for a wide range of lighting implementations, such as restaurants, high-end retail spaces, and other interiors. IntelliHue luminaires exceed this rating. IntelliHue’s high CRI makes it an attractive choice for demanding white light applications, while its impressive color capabilities expand the possibilities even further.

Excellent R9 rendering
IntelliHue offers very natural red rendering, with an R9 value of greater than 80 – higher than white LED or fluorescent lighting, and closer to the R9 values offered by the ceramic metal halide and halogen lighting often used in retail. This higher R9 value makes IntelliHue appropriate for a broad range of applications in retail and beyond. Saturated red light gives objects and surfaces a vibrant and rich color that is ideal for spaces where ambience is important.

Excellent (not just good) white light
For some implementations, good white light is acceptable. But more and more designs call for great white light. Single-channel LED lighting fixtures, such as Essential White fixtures, can produce good-enough white light, but they can’t be intelligently controlled – they can be switched and dimmed only. Multi-channel LED lighting fixtures, such as RGBA and RGBW bring more control to white light, but at significantly lower output and CRI. IntelliHue delivers no-compromises light with exceptional control – achieving both the chosen white light point, as well as exceptional color rendering.

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2 CRI measures the ability of a light source to reproduce the colors of various objects faithfully in reference to an ideal light source. The index rates the quality of a light source on a scale up to 100. In practice, the color rendering abilities of all light sources differ from the ideal reference source to a greater or lesser degree. The more their color rendering differs, the lower their CRI score.
Combine Color-Changing Effects and High-Quality White Light

A single IntelliHue luminaire can deliver millions of saturated colors, pastels, and high-quality, tunable white light. This dual capability provides many benefits, from expanding your creative possibilities to reducing complexity and cost, from installation to maintenance.

IntelliHue luminaires offer unparalleled design flexibility and control over the lighting environment. IntelliHue luminaires can illuminate spaces with highly uniform, high-quality digitally adjustable white light to support a range of retail, hospitality, and other applications. And IntelliHue helps you transform spaces with intensely saturated, dynamic accent and full-color effect lighting for dramatic presentations, theatrical atmospheres, and special occasions and events.

Meeting the needs of multi-function spaces

Many venues and public spaces are used for multiple purposes. For example, a public building or monument may require white light on most days, but color (or dynamic color) light on holidays. Or consider a multi-function facility that serves as an office by day (requiring high-productivity white light), and an entertainment venue by night, which benefit from dynamic color lighting.
How IntelliHue Luminaires Produce White Light

IntelliHue fixtures produce high-quality white light points by combining output from channels of LED sources. It uses all LED sources to produce a specific white CCT, maximizing output and achieving at least 80 CRI on white CCT’s.
Achieve Unprecedented Color Consistency with

Chromasync

Our Chromasync technology delivers improved color consistency from luminaire to luminaire by precisely adjusting the color point. With Chromasync, colors are more consistent, regardless of the specific LEDs used, date of manufacture, and other manufacturing variables. Chromasync allows Color Kinetics luminaires to achieve high color precision. With Chromasync enabled, luminaires within the IntelliHue family can achieve color variation of less than 2 MacAdam ellipses (2 SDCM) across multiple luminaires – without programming or additional manual tweaking to find the optimal output and color mix. Faster, easier commissioning, content creation, and programming mean significant time savings. And Chromasync helps maximize most IntelliHue luminaires by helping programmers achieve the highest output for any given color or white point they choose.

All IntelliHue luminaires include Chromasync technology, enabling them to achieve unprecedented color consistency and uniformity across fixtures in an installation. With Chromasync, a luminaire’s on-board logic automatically adjusts all fixtures in an installation to a common gamut. Having all fixtures using the same gamut, improves color consistency significantly, eliminating the need to manually adjust the color points of each fixture using controller or configuration software.
Color Kinetics fixtures use Optibin, our proprietary binning optimization process, to guarantee uniformity and consistency of hue and color temperature for Signify lighting products. For more information, refer to the Optibin Technology Overview, which you can download from the LED Education section of www.colorkinetics.com/ls/guidesbrochures/

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**Consistency**
Chromasync allows the Color Kinetics IntelliHue family of luminaires to achieve high color precision with a color variation of less than two MacAdam ellipses across multiple luminaires.

**Color Accuracy**
Chromasync enables lighting designers to pick a specific Correlated Color Temperature (CCT) via the Color Kinetics software and ensure accuracy – achieving their vision, protecting brand consistency, and much more.

**Flexibility**
Chromasync is controller-agnostic and works with 3-, 4-, and 5-channel controllers, including those from Color Kinetics as well as third-party controllers. It only requires a 3-channel controller to operate 3-, 4-, and 5-channel luminaires when Chromasync is enabled in 3-channel mode.

**Maximum Output**
Chromasync ensures consistency, but also optimizes the luminaire for maximum output for the chosen color point, as well ensuring consistently high output for specified colors.

**Speed**
Chromasync simplifies and speeds commissioning by replacing time-consuming adjustments with an automated process integrated into the lighting solution and controller.
Right for a Wide Range of Interior and Exterior Applications

IntelliHue technology is available in Color Kinetics luminaires in diverse form factors, enabling lighting professionals to choose exactly what they need for their application, interior or exterior.

The IntelliHue family of advanced LED luminaires includes form factors for general illumination, grazing/washing, spotlighting, concealed interior lighting, and direct viewing. And it keeps growing to meet the evolving needs of lighting designers, interior designers, architects, engineers, and other lighting professionals.

Graze / Wash LED Lighting Systems

LED wall grazing luminaires deliver high-intensity intelligent colored light in a range of beam angles, from narrow to wide, for a variety of effects and light distribution. The consistent, high-performance colored light emitted by our grazing luminaires highlights the textures of the illuminated surface.
Spotlighting

Architectural installations, public monuments, landscape and hardscape environments, and stage performances often require the narrow focus of a spotlight. Our spotlighting fixtures are ideal for creating areas of drama using concentrated color-changing light.

Concealed Interior Linear LED Lighting Systems

The innovative, compact form factor of our high-performance linear luminaires makes them a perfect fit for alcoves, accent spaces, and other interior settings. By reducing mixing distances dramatically, this aesthetically pleasing form factor opens up exciting new possibilities from retail to hospitality.

Direct View LED Lighting Systems

Our full-color LED direct-view fixtures deliver fine levels of control and can display complex, dynamic images and color-changing effects.
IntelliHue luminaires are the smart choice for a wide range of indoor and exterior applications that require high-quality, tunable white light, millions of saturated colors and pastels, or dynamic color lighting effects. With IntelliHue, you can do it all – all in one flexible, reliable fixture. Here are just some of the ways that IntelliHue luminaires makes a real difference and helps you achieve your creative vision.

- Go beyond the capabilities of traditionally low-quality, low-CRI light sources
- Make brick and other exteriors pop
- Ensure that greenery and other challenging outdoor settings look great
- Keep building façade colors more consistent and pure
- Add circadian lighting to offices, conference rooms, and other interior spaces, including hotels and other hospitality areas, as well as hospitals and sleep labs. These applications tap IntelliHue’s unique ability to change spectral content to optimize for circadian stimulation, while achieving a high CRI for all CCTs used.
- Bring new impact and flexibility to ballrooms, conference rooms, entry areas, and other indoor spaces with white and color light. IntelliHue transforms these spaces become into multi-purpose, multi-functional facilities – increasing use and profitability.
IntelliHue white-light applications

You can fine tune the white-light output of IntelliHue fixtures for an array of effects and applications, including:

- Matching the hues of fluorescent and incandescent lighting sources in an installation.
- Blending lighting with daylight, or following the daylight cycle from cooler color temperatures in the morning to warmer color temperatures in the evening.
- Allowing occupants of a space to adjust the color temperature, tint, and intensity of lighting to increase comfort and productivity.
- Adjusting the color appearance of light for changing retail displays, or to encourage desired occupancy behavior in indoor spaces.

IntelliHue color and dynamic color applications

IntelliHue also enables you to create millions of colors or impressive light effects.

- Public spaces that require white and color capabilities
- Multi-function facilities
- Architectural lighting that blends white and color light
- Indoor spaces that use color light during the day, and white light for cleaning
- Art galleries and installations that use white and color light to illuminate artwork, providing two different impressions of the same artistic work
- Wayfinding during events and in large facilities, where white and color light can be used effectively at different times.
Optibin is just part of the ongoing effort by Color Kinetics to set new standards for consistency. These technologies work together to deliver the ever-escalating levels of accuracy required by innovative and ambitious dynamic color applications.

**Optibin**
Optibin 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 to guarantee uniformity and consistency of hue and color temperature for Color Kinetics lighting products.

For more information on the Optibin proprietary binning optimization process, refer to the Optibin Technology Overview, which you can download from the LED Education section of www.colorkinetics.com/ls/guides-brochures/

**Chromasync**
Chromasync capability is available on many Color Kinetics LED Lighting Systems, initially including Blaze TRX, Blast TRX, Color Graze EC, QLX, MX, MX4, SkyRibbon IntelliHue, PureGlow, iColor MR G3, Blast G4, Burst G2. As additional luminaires integrate Chromasync technology, they will be able to achieve advanced color consistency. Chromasync is an evolving technology and its integration into Color Kinetics advanced LED lighting systems is ongoing. Please check with your Color Kinetics representative to determine the current availability of Chromasync within Color Kinetics luminaires.

For more information on Chromasync, refer to the Chromasync Technology Overview, which you can download from the LED Education section of www.colorkinetics.com/Learn/LED-Lighting-Technology/

**IntelliHue**
IntelliHue is an advanced approach to color control and mixing that produces an enhanced spectrum of precisely controllable light, including millions of saturated colors, pastels, and precisely controllable, high-quality white and tinted white light. By combining carefully selected channels of LED light sources, IntelliHue enables high-quality dynamic color and white light from the same luminaire. Chromasync enables Color Kinetics IntelliHue luminaires to achieve an extremely high level of color consistency (<2 SDCM), rendering color variations virtually imperceptible.
Make the Smart Choice

IntelliHue

The technology behind IntelliHue, from meticulous LED binning to advanced color control algorithms – is impressive. But the results, as seen in wide-ranging interior and exterior implementations, are even more so.

To find out more about how to make IntelliHue luminaires part of your next lighting design, visit www.colorkinetics.com/lp/IntelliHue/