LED Lighting for Bridges

PHILIPS
COLOR KINETICS
Bridge lighting,

Philips Color Kinetics offers innovative, dynamic, and highly reliable LED lighting solutions for all types of bridges, whether new or historic, utilitarian or iconic, modest or monumental. Our rugged, outdoor-rated LED lighting fixtures can stand up to the harshest environments, offering superior light output, long useful source life, highly reliable operation, simple commissioning, and digital control.

Philips Color Kinetics LED lighting solutions transform bridges with stunning dynamic effects and spectacular light shows intended for viewing close up or from miles away. With our DMX- and Ethernet-based control solutions, it’s easy to program and modify light shows, color-changing effects, and large-scale video.

When properly specified and deployed, LED lighting solutions can be significantly more energy-efficient and cost effective than comparable conventional lighting solutions, consuming less power to deliver the same
level of light and offering tens of thousands hours of low-maintenance operation.

Philips Color Kinetics offers outdoor-rated white-light and color-changing LED lighting fixtures in a wide range of form factors, output levels, and light distribution patterns. Our fixtures can brilliantly illuminate or highlight distinctive structural elements such as bridge pillars, suspension cables, underdecks, arches, balustrades, and columns. Our LED lighting fixtures are inherently directional and throw light only where it’s needed, minimizing spill light, eliminating light pollution, and reducing hazardous road glare.

With dozens of high-profile bridge lighting installations around the world — many running with minimal maintenance for years — Philips Color Kinetics is the only LED lighting provider with the track record to prove its reliability and longevity claims.

Corpus Christi Harbor Bridge
Corpus Christi, Texas, USA

This 620 ft (190 m) span, rising 138 ft (42 m) above the Corpus Christi ship channel, remained dark for over a decade when the previously installed fixtures succumbed to the unforgiving Gulf Coast elements.

ColorBlast Powercore, ColorReach Powercore, and iColor Accent MX Powercore LED lighting fixtures now illuminate this historic gateway to the city with millions of colors and spectacular color-changing effects.

With its new LED lighting solution from Philips Color Kinetics, the Corpus Christi Harbor Bridge has become a center of activity for the local community, revitalizing the city waterfront. The city of Corpus Christi uses the new lighting system to promote civic programs and community initiatives, and to celebrate holidays and special events.
ArchiPoint iColor Powercore: The next big point in bridge lighting

ArchiPoint iColor Powercore is a daylight-visible, exterior-rated LED point of light ideally suited for bridge lighting. These versatile, rugged fixtures can be deployed in grids or long runs to display intricately designed effects, graphics, and even large-scale video.

ArchiPoint iColor Powercore fixtures combine high-intensity output with the efficiency and cost-effectiveness of Powercore technology in a low-profile housing that allows for installation in spaces too tight for conventional spotlights.

ArchiPoint iColor Powercore produces color-changing light at a level of intensity that far exceeds the threshold for visibility in direct sunlight. Tested to comply with ANSI road vibration standards for lighting equipment, ArchiPoint iColor Powercore fixtures are tough enough to stand up to weather, traffic, corrosion, and the many other challenges that bridge environments can present.

**Bosphorus Bridge, Istanbul, Turkey**

Philips Color Kinetics LED lighting fixtures along the bridge visually define the physical connection between Europe and Asia.

The bridge had the fourth longest suspension bridge span in the world when its construction was completed in 1973, and had the longest span outside the United States.

At present, it is the nineteenth longest suspension bridge span in the world, eight lanes wide, with over 180,000 vehicles traveling across it per day.
Connecting communities . . . and continents

Retrofitting conventional bridge lighting with digitally controlled, energy-saving Philips Color Kinetics LED lighting fixtures can do much more than define the roadway and other structural elements. Imaginative lighting designs and dynamic light shows can create excitement, revitalize cities, and promote cultural and economic exchange.

The Bosphorus Bridge in Istanbul, Turkey, with its 1 mi (1.6 km) long suspended road, connects Europe and Asia. In 2008, Philips Color Kinetics was chosen to retrofit the bridge lighting with a new energy-efficient system that could impressively illuminate the structure while consuming minimal energy.

Unveiled in 2009, the Philips Color Kinetics installation gives this famous landmark bridge a striking new nighttime presence. The high-output LED lighting scheme visually connects two continents with an infinite array of colors, spectacular effects, and dynamic video.

ColorReach Powercore fixtures flood the 345 ft (105 m) high towers of the bridge with high-quality, intensely saturated, color-changing light.

iColor Accent Powercore fixtures, installed along the guardrails of the bridge, define the edge of the deck with long ribbons of colored light.

The bridge’s steel cables are festooned with 1 ft (305 mm) ColorGraze Powercore linear grazing fixtures, creating a bold zigzag pattern that can be seen for miles.

“The Bosphorus Bridge connects two continents, adding value to Istanbul as a center of daily exchange,” said the head of the design team. “Philips Color Kinetics products enhance the bridge with dynamic light and minimum energy consumption, making it even more iconic.”

Photography: Kaan Verdioglu
Philips Color Kinetics complete line of high-output, outdoor-rated LED grazing fixtures, wash lights, spotlights, and floodlights produce intense colored or white light that can be seen for miles. Fixtures in a variety of sizes and form factors can blend with a bridge’s structural elements for a seamless, sensational viewing experience. A wide range of custom products extends our substantial portfolio, offering solutions to exactly fit almost any special lighting, power, or aesthetic need.

Situated in the center of Meydan City, Dubai, United Arab Emirates, the Meydan Race Course is an architectural marvel and first-class tourist destination. Connecting the main road to the nearby Meydan Hotel is another impressive Dubai landmark, the Meydan VIP Bridge and its extension, the Royal Bridge. Every year, VIPs and members of the Royal family attend the invitation-only Dubai World Cup, crossing the VIP Bridge as they make their way to the Meydan Race Course.

To make the bridge feel more welcoming and regal for visiting dignitaries, authorities selected Philips Color Kinetics to provide a maintenance-free linear solution that would produce a specific shade of blue light. The lighting fixtures had to blend seamlessly with the undulations of the bridge, which represent the movement of a horse’s mane as it gallops.

Philips Color Kinetics created a custom exterior grazing fixture to meet all of the project’s lighting requirements, replacing the existing white-light sources with a low-maintenance, energy-efficient, LED-based solution in the required shade of intensely saturated blue.

Because it was so successful, Philips Color Kinetics turned this custom solution into eColor Graze Powercore, a standard grazing fixture in the product portfolio, available in red, green, blue, amber, and — of course — royal blue. With patented Powercore technology, eColor Graze Powercore fixtures receive power directly from line voltage, eliminating the need for external power supplies and making installation easy and quick.

Give your imagination
free rein

Meydan VIP Bridge, Meydan City, Dubai, United Arab Emirates
In honor of the San Francisco-Oakland Bay Bridge’s 75th anniversary in 2011, nonprofit provider of innovative art programs Illuminate the Arts joined forces with the California Department of Transportation and renowned light artist Leo Villareal to transform the bridge’s western span into a breathtaking, monumental light sculpture.

Stretching 1.8 miles across San Francisco Bay, the Bay Bridge is a valuable commercial and transit link between the metropolitan hubs of San Francisco and Oakland, California.

Over the six-month installation, 25,000 Philips Color Kinetics eW Flex SLX nodes were mounted on vertical suspender cables connecting the bridge’s deck and its main cables. The 4000 K white-light LED nodes were spaced 12 in (610 mm) apart, creating a low-resolution electronic canvas designed to feature Leo Villareal’s unique programming.

Using a custom control solution, Villareal programmed each node to create complex algorithms and patterns along the bridge’s western span that can recombine into a theoretically endless set of displays over the life of the installation. The lighting faces north and is viewable from San Francisco, but not by drivers on the bridge.

The installation is predicted to be seen by more than 50 million people and generate nearly US$100 million in revenue for the local economy over its planned two-year lifespan. As an additional benefit, due to the energy-efficiency of the LED products used in the display, the installation is predicted to incur an electrical cost of only US$30 per night.
Interactive, multi-dimensional effects help pedestrians find their way

The Gateshead Millennium Bridge (top), the world’s first and only tilting bridge, features colorful light shows from sunset to 1 am daily. In the Clink Street Bridge tunnel (above), strands of iColor Flex MX create complex, fireworks-like effects that react to changes in pedestrian activity.
Beautiful, useful, and safe

Pedestrian bridges and passageways present opportunities for unusual form factors, innovative wayfinding schemes, and intimate viewer experiences that can’t be achieved on massive automobile and railroad bridges. At night, they also present special challenges for ensuring the safety of passers-by. Intelligent LED lighting solutions from Philips Color Kinetics can transform any structure’s daylight design into a memorable night-time viewing experience, while delivering the light levels required to keep public walkways inviting and secure.

The Gateshead Millennium Bridge links Gateshead to Newcastle, England, across the River Tyne. Primarily intended as an overpass for pedestrians and cyclists, the bridge features unique curved arches that mimic the movements of an eyelid as they tilt to make way for the maritime traffic below. Because of its unusual design and masterful engineering, the bridge is a popular tourist attraction.

The 164 x 413 ft (50 x 126 m) bridge also required illumination that could create dazzling full-color effects while minimizing light pollution. Eight ColorReach Powercore fixtures saturate the arches with colorful light. To illuminate the underside of the arches, four ColorReach Powercore fixtures were installed on either side of the river and positioned side by side, parallel to the river’s edge. Each half of each fixture is addressed and controlled separately for flexible, directional control of light dispersion, allowing the light to be projected exactly where needed and minimizing waste and spill light.

To alert pedestrians and cyclists to the bridge’s opening and closing, custom-designed green LEDs were embedded in the ground in the shape of a “go” arrow when the bridge is open, while red LEDs create a no-entry symbol when the bridge is closed.

Along the Regent’s Canal Tunnel (above), iW Graze Powercore and ColorGraze Powercore fixtures produce dynamic white-light and color-changing effects as people move through the tunnel. On the Randy Pausch Memorial Bridge (right), light shows use ColorGraze Powercore and iW Graze Powercore fixtures to mimic aspects of stories written by Pausch, metaphorically linking the arts and sciences.
Ben Franklin Bridge
Philadelphia, Pennsylvania, USA

Philips Color Kinetics LED fixtures are installed along the 1,750 ft (533.4 m) suspension bridge deck. Beacons of color shine out from the deck, providing dynamic light shows that can be seen from as far as ten miles away.

Because of their rugged construction, long useful source life of up to 50,000 hours and more, ultra-reliable low-maintenance operation, and their ability to natively display millions of colors and color-changing effects, LED lighting fixtures from Philips Color Kinetics are the perfect, cost-effective choice for giving new life to historic bridges.

As part of a refurbishment project to mark the Republican National Convention in 2000 and its 75th anniversary, the Ben Franklin Bridge in Philadelphia, Pennsylvania, USA, received a colorful makeover with an LED lighting solution from Philips Color Kinetics that brought brilliant, intelligent color to the deck of the historic landmark.

According to the lighting design team, the benefits of LED lighting — long useful source life, ultra-low-maintenance operation, and the ability to natively deliver spectacular full-color effects — made it an easy choice over comparable traditional lighting options.

“The brightness and saturation of the color produced by the Philips Color Kinetics LED lighting is just awesome, and the rapidity and liveliness of the color changes and effects you can create with this lighting is like nothing else,” they noted. “Couple this with the fact that the lights won’t burn out for 11 years, and we were sold.” They also understood that the Philips Color Kinetics lighting solution could withstand the stress and vibrations caused by the train passing over the bridge, which carries over 40,000 rail commuters daily.

Over 400 C-200 Watercolor LED floodlights were installed on the bridge. As expected, the installation has been running successfully for over 11 years, and has withstood harsh heat, cold, and vibration with minimal maintenance.

Today, the Ben Franklin Bridge is lit with a variety of intricate light shows designed to commemorate holidays and celebrate city events.

Although Philips Color Kinetics no longer offers C-200 Watercolor fixtures, our ColorBlast 6, ColorBurst Powercore, and ArchiPoint iColor Powercore architectural spotlights far exceed the capabilities of these first-generation LED lighting fixtures, offering longer useful life, superior light output, and even more reliable operation.

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When several bridges and waterfront landmarks in London were given a makeover for the summer of 2012, designers turned to the leader in LED lighting solutions — Philips Color Kinetics. Philips Color Kinetics supplied LED fixtures for three River Thames bridges: London Bridge, Waterloo Bridge, and the Golden Jubilee Bridge.

London Bridge was fitted with 36 ColorBlast Powercore LED wash lights — 12 on each of the two supporting piers and six on each bank. Four ColorReach Powercore LED floodlights illuminated the arches of the Waterloo Bridge, and two ColorBlast Powercore fixtures lit each of its four piers. ColorBurst Powercore spotlights illuminated the suspension wires and arms of the Golden Jubilee footbridge. The result — a stunning light show that illuminated the waterfront every night.
Bridge lighting as it was never possible before

The Leonard P. Zakim Bunker Hill Bridge in Boston, Massachusetts, USA, has been a landmark of the city since it was unveiled in 2002. The bridge symbolizes a united and connected community, commemorating civil rights leader Leonard P. Zakim and the Battle of Bunker Hill.

Initially, the bridge glowed with dazzling blue lights. But after years of use, the metal halide lighting system was deteriorating and the lights were fading. The outdated technology was also extremely expensive to operate and maintain.

Boston-based Philips Color Kinetics suggested updating the bridge with a new LED lighting system using their IntelliPower solution. IntelliPower allowed the Massachusetts Department of Transportation (MassDOT) to use the existing electrical wiring and fixture mounting points on the bridge and save money on the installation.

The Zakim Bridge now shines bright in the night sky thanks to ColorReach Powercore LED floodlights that bathe the towers in rich, vibrant colors.

The new lighting system allows MassDOT to change the colors of the lights with the push of a button—and with over 16 million colors from which to choose, there is no shortage of options. The new lighting system also reduces energy consumption by more than 80% over the previously installed conventional lighting system.

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Transition to dynamic, intelligent LED lighting using existing electrical systems with IntelliPower

IntelliPower, a groundbreaking implementation of proven power line carrier technology, sends high-bandwidth control data to intelligent LED lighting fixtures over standard 2 + ground wiring. By leveraging existing electrical infrastructures, IntelliPower technology lets you affordably install dynamic, digitally controllable LED lighting where it was never possible before.

IntelliPower can bring intelligent LED lighting retrofits of bridges within budget by allowing you to reuse the 2 + ground wiring, fixture mounting points, and other electrical system components already in place.

By lowering overall installation and maintenance costs, IntelliPower solutions can make it affordable to transition from static conventional lighting to intelligent, digitally controlled LED lighting. IntelliPower works with any DMX or Ethernet lighting controller for transforming bridges with color-changing lighting effects, intricate light shows, and large-scale video.
Many municipalities who need to make critical cost- and energy-saving decisions choose LED lighting solutions to illuminate their iconic city landmarks and structures. With tax-saving energy benefits and other government-based incentives for the use of energy-efficient LED technology, such landmarks need not go dark to balance the budget.

Energy-saving lighting upgrades can be practical and visually spectacular at the same time. The Peace Bridge, built in 1924, located near Buffalo, New York, USA, spans the Niagara River. In 2011, over 4 million automobiles used the bridge to cross between the United States and Canada.

Previously lit by 25-year-old metal halide floodlights that had fallen into disrepair, the 3,580 ft (1,091 m) bridge is now illuminated by nearly 700 intelligent color Philips Color Kinetics LED lighting fixtures. The new LED solution transformed the static monument into a vibrant, ever-changing form — all while meeting the client’s budget and requirements for efficiency, security, and versatility. The lighting solution reinforces the bridge’s form while revealing the essential character of the architecture.

The entire LED lighting installation consumes just one-third of the energy of the previous system, reinvigorating the signature bridge in a smart and sustainable way. The system runs several light shows on a regular schedule, along with shows for special occasions and tributes. LED lighting makes it possible for Buffalo to keep the bridge lit and reconnect with its former status as the “City of Light.”
Philips Color Kinetics LED lighting solutions transform bridges around the world

Top: ColorBurst Powercore, ColorGraze Powercore, and ColorBlast Powercore fixtures revitalize Stone Bridge in Johnstown, Pennsylvania, USA.

Second from top: ColorReach Powercore, ColorGraze Powercore, iW Burst Powercore, and iColor Flex LMX fixtures light up Vietnam’s longest cabled suspension-style bridge, the Thuan Phuoc Bridge, in Da Nang, Vietnam.


Bottom: ColorReach Powercore fixtures help transform the Nelson Mandela Bridge in Johannesburg, South Africa, at night in a colorful and extremely sustainable way. Dynamic, energy-efficient LED lighting brings together two disparate economic areas to promote unity, cultural exchange, and economic growth.

Photography: Stone Bridge by John Brandon Miller; Thuan Phuoc Bridge by Truong Tuan Hai.
A complete portfolio of LED lighting solutions

Philips Color Kinetics offers industry-leading, high-performance LED lighting solutions for architectural applications both outdoors and indoors, and for the full range of theatrical, presentation, and portable lighting applications.

With tens of thousands of high-profile installations in more than 100 countries around the world, many running for ten years or longer, Philips Color Kinetics is the only LED lighting provider with the track record to prove the longevity and reliability of its LED lighting solutions.

For an overview of all Philips Color Kinetics LED lighting fixtures, controllers, and power / data supplies, see the latest Philips Color Kinetics Product Portfolio. For stunning photographs and case studies that showcase our LED lighting solutions in signature installations around the world, see the latest volume of our Illumination Gallery.

Visit Philips Color Kinetics online

You can always visit us online at www.philipscolorkinetics.com for complete product information, including installation instructions, user guides, and other product documentation, and sales and ordering information.
# Project credits

## The Bay Lights
- **Location**: San Francisco, California, USA
- **Catalyst**: Ben Davis
- **Artist**: Leo Villareal
- **Executive Producer**: Amy Critchett
- **Lead Programmer**: Jason Gipson
- **Installation**: Dutco

## Ben Franklin Bridge
- **Location**: Philadelphia, Pennsylvania, USA
- **Lighting Design**: Aydinlik Company
- **Photography**: Carlton Read

## Bosphorus Bridge
- **Location**: Istanbul, Turkey
- **Electrician**: Philips Turkey LIAS
- **Photography**: Kaan Verdioglu

## Clink Street Bridge
- **Location**: Southwark, London, England, UK
- **Lighting Design**: Philips Lighting Europe
- **Photography**: Kaan Verdioglu

## Corpus Christi Harbor Bridge
- **Location**: Corpus Christi, Texas, USA
- **Lighting Architect**: Terry Orf, AIA
- **Electrical Contractor**: Aydinlik Company
- **Photography**: Kaan Verdioglu

## Gateshead Millennium Bridge
- **Location**: Gateshead Quays, Tyne & Wear, England, UK
- **Photography**: Phil Grieveson

## London Bridges
- **Location**: London, England, UK
- **Lighting Supply**: Architainment Lighting Ltd.
- **Lighting Designer**: Paul Cook
- **Lighting Controls**: Pharos Architectural Controls

## Meydan VIP Bridge and Royal Bridge
- **Location**: Dubai, United Arab Emirates
- **Architect**: Jennifer Ting, TAK Architects
- **Engineer**: Anton Bezuendhouw, Larno Meyer
- **Photography**: Courtesy of Philips

## Nelson Mandela Bridge
- **Location**: Johannesburg, South Africa
- **Architect**: Joint venture between BKS and ARQ
- **Lighting Solution**: Philips South Africa
- **Photography**: Chris Ricco

## Peace Bridge
- **Location**: Buffalo, New York, USA and Fort Erie, Ontario, Canada
- **Engineering**: Stantec Consulting Services
- **Electrical Contractor**: FBY Electric
- **Lighting Programming**: Westbury National Show Systems Ltd.
- **Photography**: John Brandon Miller

## Pont de l’Atlas
- **Location**: Liège, Belgium
- **Electrical Contractor**: Ghislain Broers, Yvan Paque
- **Photography**: Courtesy of Philips

## Randy Pausch Memorial Bridge
- **Location**: Carnegie Mellon University, Pittsburgh, Pennsylvania, USA
- **Photography**: Todd O. Wren

## Regent’s Canal Tunnel
- **Location**: Wharf Road, Islington, London, England
- **Photography**: Redshift Photography

## Skydancer Bridge
- **Location**: Oklahoma City, Oklahoma, USA
- **Architect**: Miguel Rosales, Rosales + Partners
- **Electrical Contractor**: Ronco Electric
- **Photography**: Ralph Cole, Inc.

## Stone Bridge
- **Location**: Johnstown, Pennsylvania, USA
- **Installation**: Blaeberry Electric
- **Engineer**: H.F. Lenz Co. of Johnstown
- **Photography**: John Brandon Miller

## Thuan Phuoc Bridge
- **Location**: Da Nang, Vietnam
- **Lighting Design**: Pavo Lighting Vietnam
- **Photography**: Truong Tuan Hai

## The Leonard P. Zakim Bunker Hill Bridge
- **Location**: Boston, Massachusetts, USA
- **Lighting Design**: Crane ERI
- **Electrical Contractor**: Terry Hanlon, Hanlon Electric
- **Photography**: Todd O. Wren

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