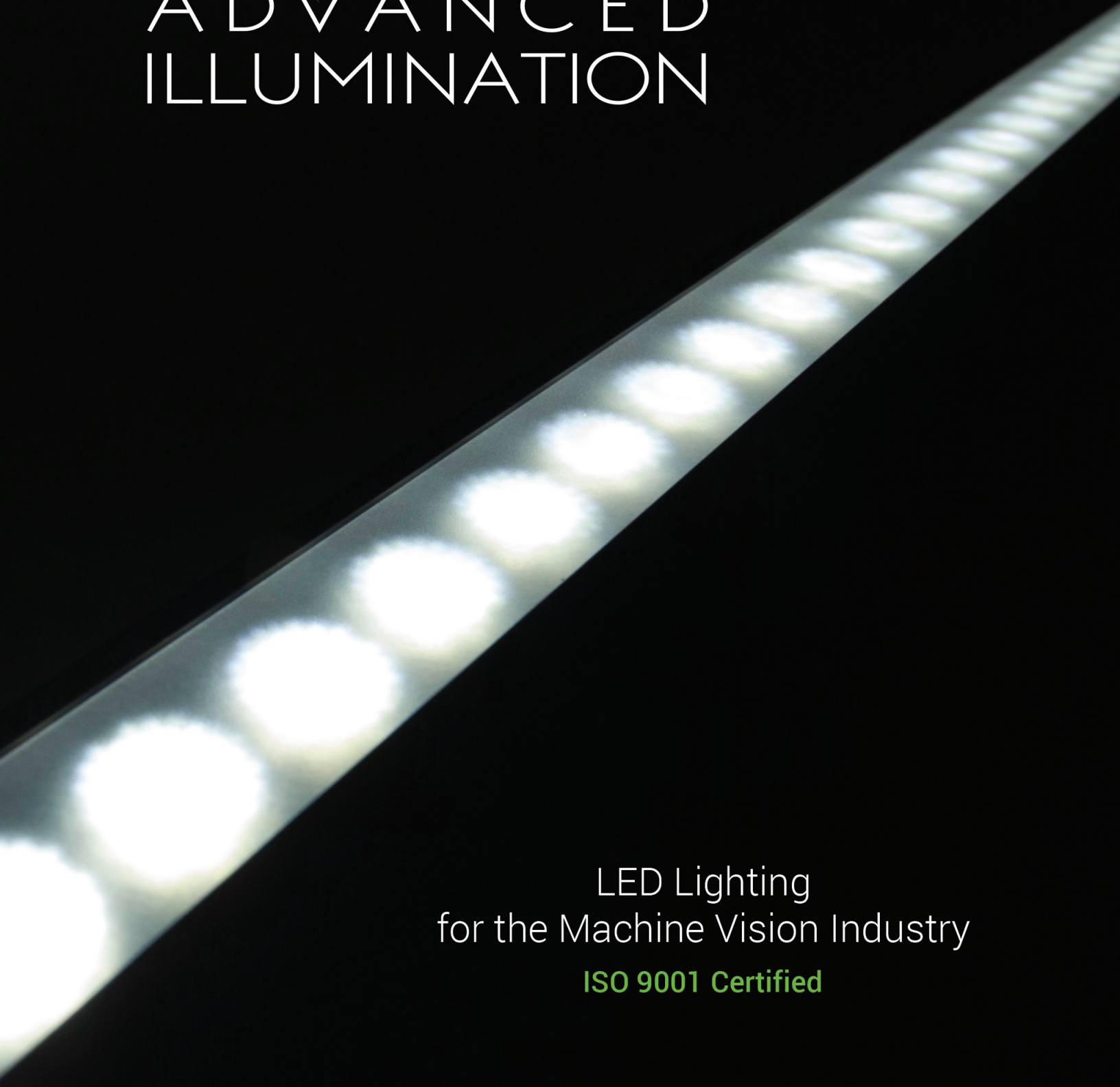




ADVANCED  
ILLUMINATION



LED Lighting  
for the Machine Vision Industry

**ISO 9001 Certified**

『 Lighting is  
our passion

Flexibility is  
our model 』

As a provider of lighting solutions for the Machine Vision Industry, we are **passionate** about exceeding our customers' expectations. As such, our ISO 9001 quality procedures are at the core of everything we do.

Automated, flexible systems permeate our organization. From the design and manufacturing of our products to the processes we employ in service to our customers, **flexibility is our model.**

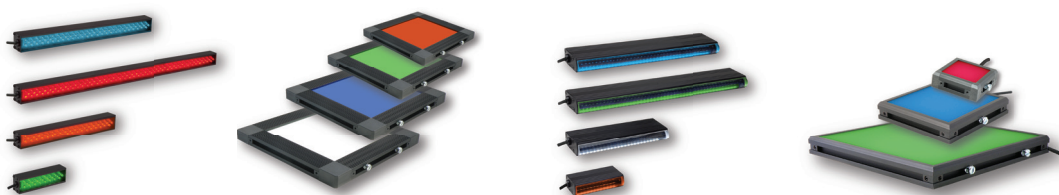


From our high-power strobe controllers to our miniaturized in-line controllers and everything in between, we are the leading innovator of advanced controls for LED lighting.

Our "Expandable" products allow us to customize a lighting solution quickly and efficiently.

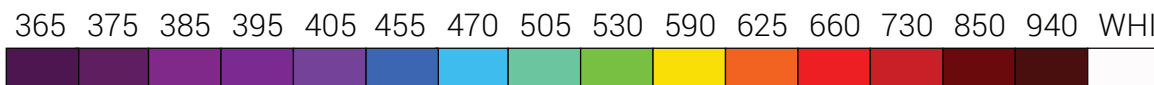
## Expandable Lighting

Extrusion based housings combined with our flexible circuit systems allow us to customize both linear and 2D expandable configurations with ease. Lead times are typically 2-3 weeks or less.



## Multiple Wavelength Options

Our lights are available in up to 16 wavelength options from 365nm Ultra Violet to 940nm Infra-red.



## SignaTech® (Signature Technology)

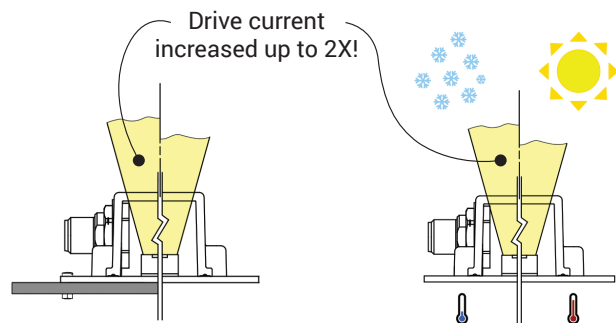
We invented LED signature technology back in the 1990's. SignaTech® enables each controller to be fully compatible with a large variety of lighting products, greatly simplifying the specification and ordering process.

The proprietary SignaTech® control system also allows an LED illuminator to operate at maximum output without risk of damage.

Our microprocessor-based controllers read a SignaTech® memory chip located in the light-head cable to establish maximum operating parameters. The memory chip is preprogrammed with a precise characterization of the LED as well as details about the illuminator's circuit configuration.

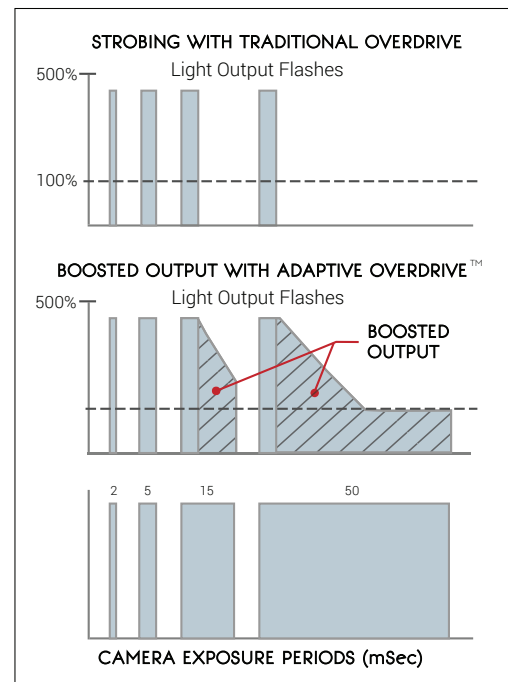
## Adaptive Power™

For lights with an integrated driver and temperature sensor, Adaptive Power™ control maximizes light output in **continuous mode** by "learning" about the heat sinking potential of the light-head's mounting bracketry as well as the ambient temperature. Maximum drive current is then adjusted and locked in.



## Adaptive Overdrive™

Our ICS in-line controllers as well as our EuroBrite™ lighting family feature Adaptive Overdrive™, providing a maximal output pulse in **strobe mode** regardless of exposure time.



Traditional Overdrive vs **Adaptive Overdrive™**

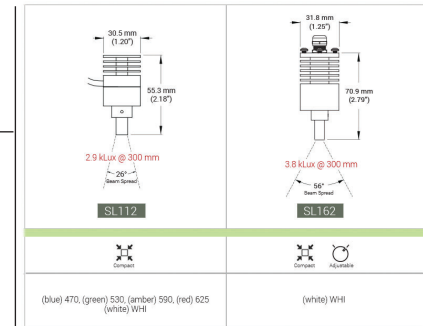
# Capabilities **Delivered**



## Solution Support

### Website Tools

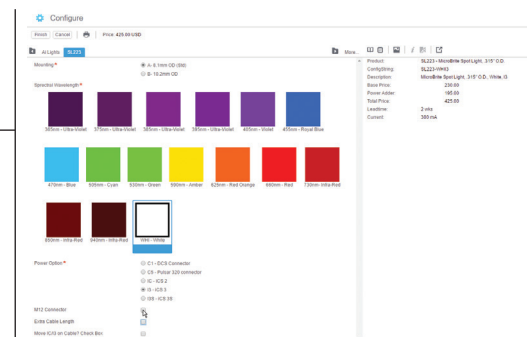
- Visual product overview and selection tools
- Complete web-based product specifications
- Product comparison tools (coming soon)
- Download - Product specification sheets (.pdf)
  - Mechanical installation drawings
  - 3D mechanical models
  - Lighting controller manuals
  - Software development tools



### Sales Portal

- Product Configurator

*This web-based tool makes it simple to specify and price our products accurately.*



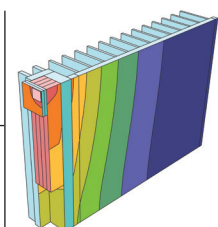
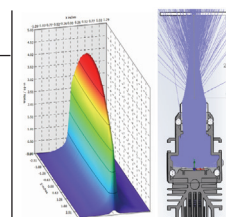
### Application Support

- Free vision-lab evaluations; send us a sample part and we'll return a full report with images that can be analyzed with your vision tools
- Free loaner evaluation service



## Research

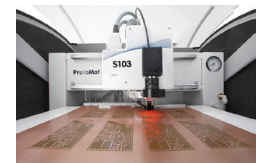
- Structured lighting effects
- Optical modeling
  - Pulse mode drivers
  - Continuous mode drivers
  - Device communications
- Thermal Modeling





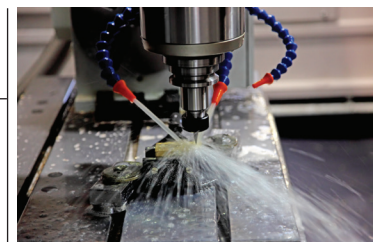
## Design

- Firmware & software development
- Circuit Analysis
- Solid modeling
- Advanced project management
  - Visual Project Control Center
  - Automated change-order process
  - Automated e-doc management system
- Rapid prototyping
  - Experimental lighting development
  - Functional 3D printed parts
  - PCB routing and fabrication



## Fabrication

- Laser fabrication
- Extrusion processing
- Extensive machining capability
- Optical polishing



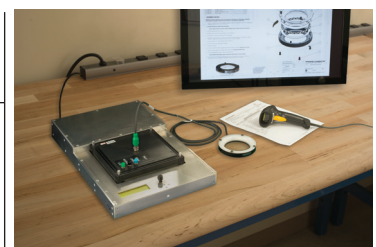
## Assembly

- In-house IPC certified training
- Proprietary LED aiming process
- Automated workflow
  - Barcoded processes throughout
  - Workstations with touchscreen e-doc system
- Component pick & place
- Reflow soldering



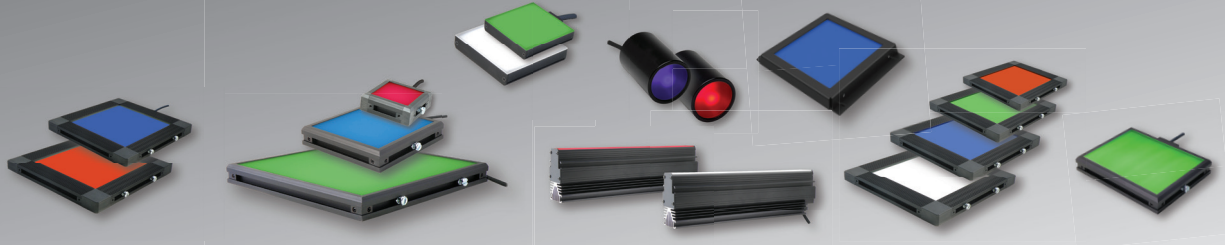
## Verification

- Highly Accelerated Life Testing (HALT)
- Full regulatory compliance
- Proprietary automatic test and validation systems



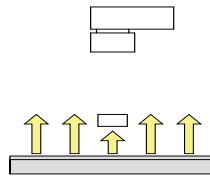


## BACKLIGHTS



- Expandable options from 25 X 25mm to 559 X 864mm (1" X 1" to 22" X 34") in 25.4mm increments
- Up to 5 wavelengths available from 455nm (Blue) to 880nm (IR) & White
- Extremely uniform active area
- Collimation and polarizer options available on select backlights
- Available in both Side Lit & Back Lit configurations

*An object is imaged in silhouette form when it is placed between the backlight and camera.*



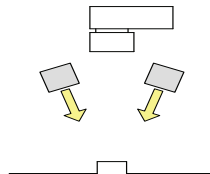
- Effective for gaging, robotic co-location, feature presence and absence
- Object positioned between illuminator and camera
- May have very large footprint
- Difficult to place under moving objects, such as conveyors

## BAR LIGHTS



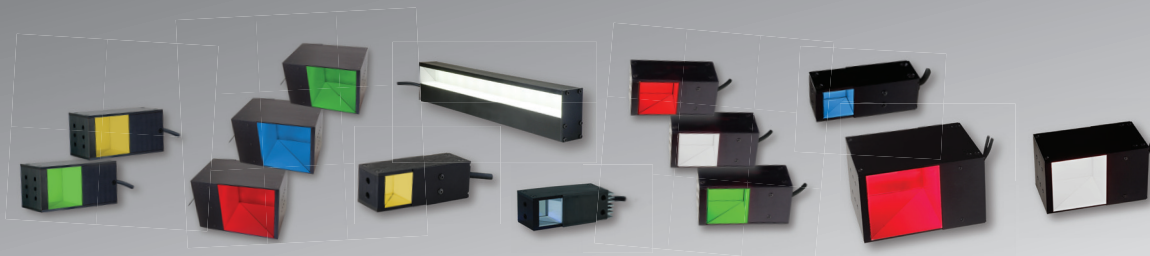
- Expandable lengths from 25 to 2134mm (1" to 84")
- Up to 16 wavelengths available including UV, IR & White on select lights
- Narrow, medium & wide lens options on select bar lights
- IP65 wash down versions available on select models
- Diffuser and polarizer options available on select lights

*A versatile illuminator typically used for a wide range of applications.*



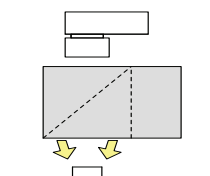
- Typically used for large areas or longer working distances
- Opposing pairs create a rectangular area of illumination
- May be mounted at any angle off-axis
- Diffuse or direct illumination

## COAXIAL LIGHTS



- Sizes from 25 x 25 mm to 150 x 150 mm (1" X 1" to 6" X 6")
- Up to 13 wavelengths available including UV, IR & White on select lights
- The new DL225 Coaxial light series features an advanced heat sink design for higher performance

*A diffuse light source projected perpendicular to the imaging axis is reflected down from a beam splitter onto the object.*



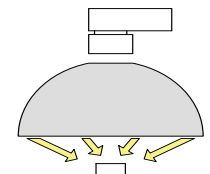
- Effective for topographic, complex shapes
- Used on specular, flat surfaces for uniform illumination
- Light must be close to object
- Effective area is ~85% of the illuminator's viewing area
- Often immune to overhead ambient light contribution

## DIFFUSE LIGHTS



- Multiple sizes available with O.D.'s from 50 to 610mm (2" to 24"). Expandable options also available
- Up to 16 wavelengths available including UV, IR & White on select models
- Collimation and polarizer options available on select lights

*A reflected, multi-directional light that provides "cloudy day" illumination to minimize shadowing.*



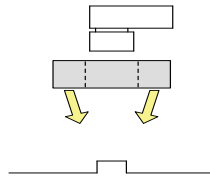
- Effective for curved, complex shapes
- Used on specular, curved surfaces for uniform illumination
- Light must be close to object
- Effective area is ~60% of large opening diameter
- Often immune to overhead ambient light contribution

## RING LIGHTS - BRIGHT FIELD



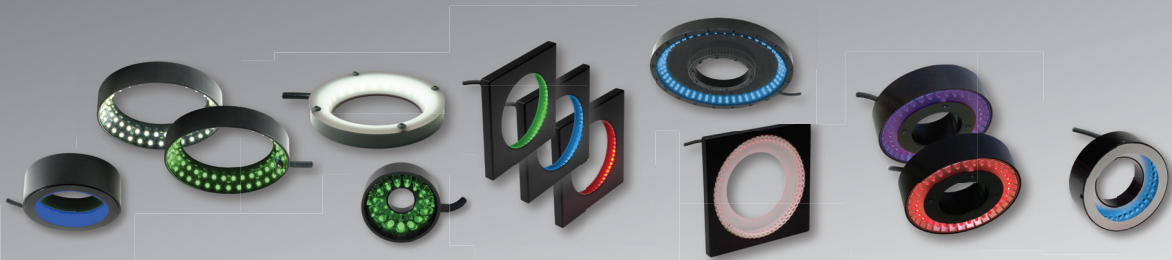
- Sizes available with O.D.'s from 95 to 250mm (3.8" to 10")
- Up to 16 wavelengths available including UV, IR & White on select lights
- Wash down versions rated up to IP67 available on select ring lights
- Diffuser and polarizer options available on select lights
- IP67 wash down versions available on select models

*Directional light from a coaxial mounted ring light is projected directly at the object to create intense illumination or dramatic shadows.*



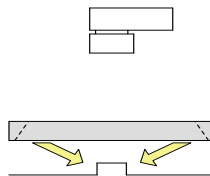
- High contrast provided for any non-specular, flat surface
- May be used as directional dark field
- Working distance limited only by intensity and field-of-view
- Susceptible to ambient light contribution

## RING LIGHTS - DARK FIELD



- Sizes available with O.D.'s from 50 to 280mm (2" to 11")
- Up to 6 wavelengths available including UV, IR & White
- Diffuser option available on select lights

*Small features or defects on an otherwise flat surface deflect angled light back into the camera, creating bright areas on a dark background.*



- Used for relatively flat, specular surfaces
- May be used to detect edges and surface detail
- Dark field ring lights must be close to object

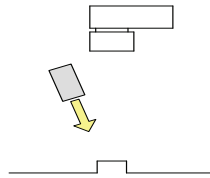


## SPOT LIGHTS



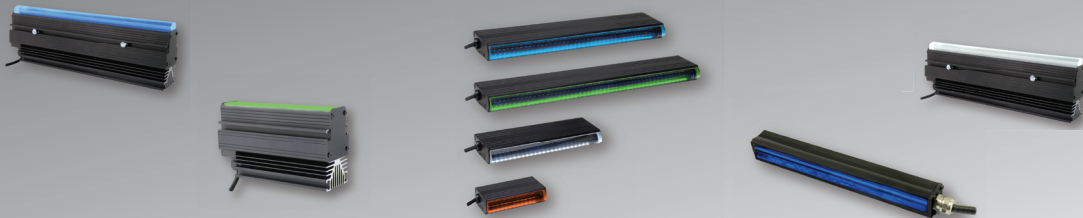
- Wide range of light intensities available
- Up to 16 wavelengths available including UV, IR & White
- Wash down versions rated up to IP67 available on select lights
- Pattern generating light available with reticle and lens
- Diffuser and polarizer options available on select models

*Directional light from a compact source is projected directly at the object to create intense illumination or dramatic shadows.*



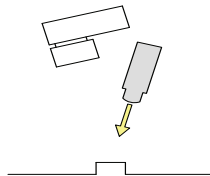
- High-contrast light for any non-specular, flat surface
- May be used as directional dark field
- Working distance limited only by intensity and field-of-view
- Susceptible to ambient light contribution

## LINE LIGHTS



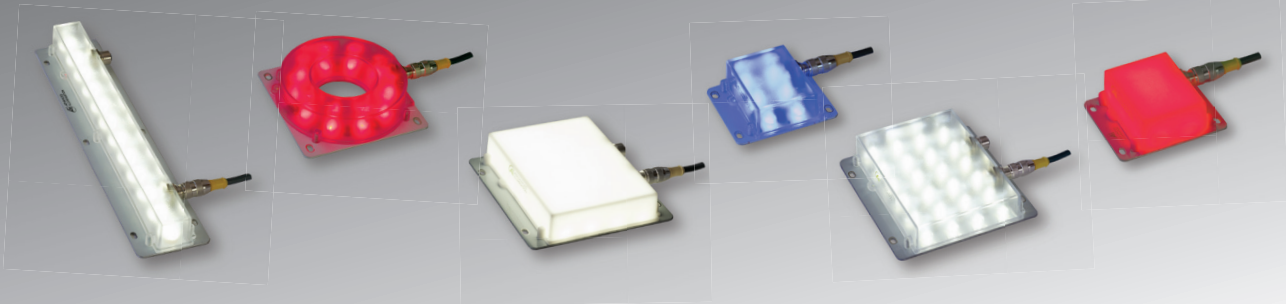
- Expandable lengths from 50 to 2438mm (2" to 96")
- Range of working distances from 25 to 300mm (1" to 12")
- Up to 6 wavelengths available including UV, IR & White
- Models available with intensity control
- Range of beam widths available
- Models available with passively cooled design
- Some high-power models have integrated drivers for ease of use

*Typically used with a line scan camera, taking a one pixel wide linear image several times a second to create a 2D image of a moving surface.*



- Typically used in conjunction with line scan cameras
- Idea for real-time, continuous, Hi-speed inspection of moving webs
- Will detect ripples, warps, inclusions or foreign matter
- Effective for visually "unwrapping" cylindrical labels

## EUROBRITE™ LIGHTS



- Cost effective, feature rich designs
- Rugged, IP67 rated enclosures
- Daisy chainable up to 4 units with pass-through control on select lights
- On-board smart drivers provide seamless strobe and continuous operation with intensity control
- Adaptive Overdrive™ - optimizes light output under all strobe conditions
- Adaptive Power™ - maximizes light output in continuous mode by “learning” about the heat sinking potential of the light head’s mounting bracketry as well as the ambient temperature
- Up to 11 wavelengths available including IR & White

## CONTROLLERS



- Our controllers are available in a range of configurations:
  - **Discrete Control System (DCS)**; DCS-100 series & Pulsar 320
  - **In-line Control System (ICS)**; ICS 2 (continuous only) & ICS 3 (continuous & strobe)
  - **Embedded Control System (ECS)** EuroBrite™ family & other select models
- Communication protocols include; Analog, USB & Ethernet
- All Discrete controllers utilize our proprietary SignaTech® control system
- Software SDKs available including LabView, C++, C# and more

NOTES

## CONTACT US

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Rochester VT 05767

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Fax: 802-767-3831  
info@advancedillumination.com

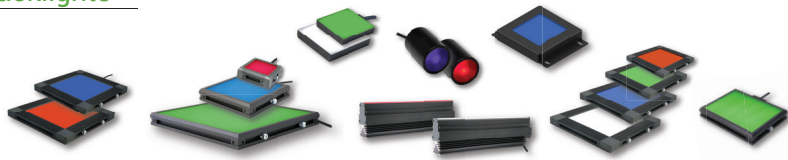
## VP of Sales & Marketing

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### Backlights



### Bar Lights



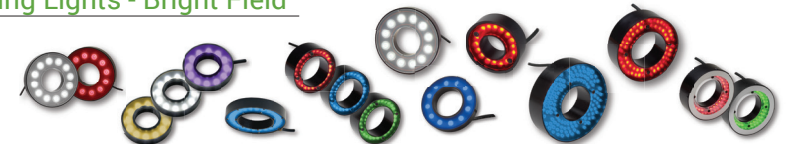
### Coaxial Lights



### Diffuse Lights



### Ring Lights - Bright Field



### Ring Lights - Dark Field



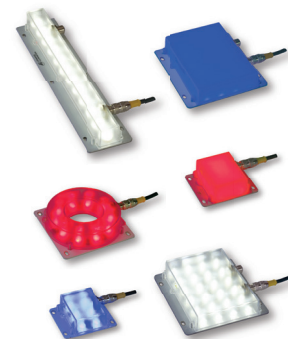
### Spot Lights



### Line Lights



### EuroBrite™



### Controllers



ISO 9001  
CERTIFIED

