

CORONA II LED LINE LIGHTING SYSTEM



Corona II

LED Line Lighting System

APPLICATIONS:

- Print
- Surface
- Document Scanning
- Food
- Steel
- Semiconductor Industry
- Measurement and Quality Control
- Web
- Sorting Processes
- General Machine Vision



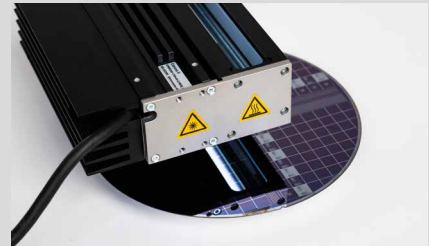
Dark field



Bright field / Back light



Tube light



Coaxial modules



Light is the first important step for a successful machine vision application.

Even with line scan cameras the requirements for light are high. Chromasens enables customers to achieve their objective with fewer complications. The Corona II family offers a wide range of lighting for line scanning:

Cooling Options:



Passive Cooling



Fan Cooling



Water Cooling

Modular concept

568.000 different illuminations are possible, based on the modular Chromasens Corona II system.

- ▶ Four basic illumination types
- ▶ Eight standard module length
- ▶ Four different focal distances for dark field illumination
- ▶ Thirteen LED types
- ▶ Five standard cable length
- ▶ Seven front screen options
- ▶ Five cooling systems

Customized solutions

Besides standard components Chromasens offers full custom solutions for lighting, camera and scanner solutions.

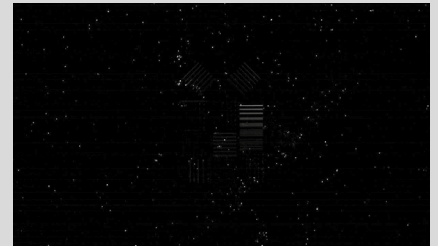
- ▶ Based on standard Corona II and XLC4 technology
- ▶ Special housing for the controller available
- ▶ Special filters or screenings for the LED module available
- ▶ Full custom designs

Corona II

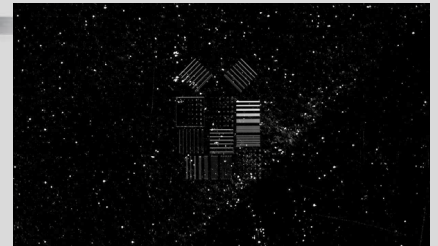
Top light / Dark field illumination



Improving inspection with more powerful light



300.000 Lux

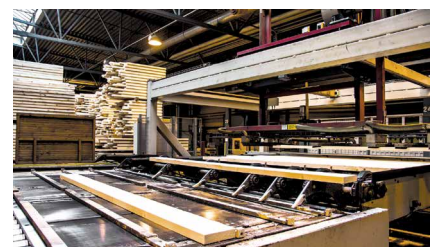
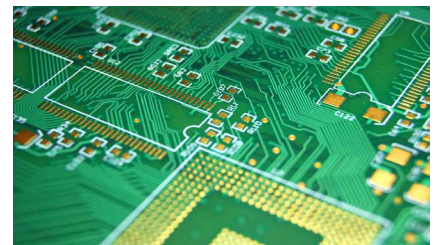


3.000.000 Lux

CORONA II LED lighting modules feature powerful brightness up to 3,500,000 lux and deliver outstanding homogeneity via a patented reflector design that perfectly shapes light, eliminating chromatic aberrations for unprecedented performance and best in class inspection results.

FEATURES

- ▶ Brightness up to 3,500,000 lux
- ▶ Patented reflector focusing technology
 - No color aberrations
 - Higher efficiency
- ▶ Various LED colors
 - Standard: White, red, green, blue
 - IR (850 nm or 940 nm)
 - UV (365 and 395 nm)
 - SWIR (1100, 1350, 1450 or 1550 nm)
 - D50 (standard daylight)
- ▶ Eight lengths up to 1360 mm per single module
- ▶ Three passive cooling options
- ▶ Fan or water cooling available
- ▶ Stackable modules
- ▶ Various screens
 - Different diffuse screens
 - Polarizing screen
- ▶ High quality LED binning
- ▶ Advanced thermal management and temperature control
- ▶ Housing design for easy mounting and integration

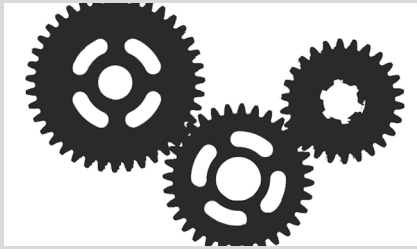


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Back light and bright field illumination



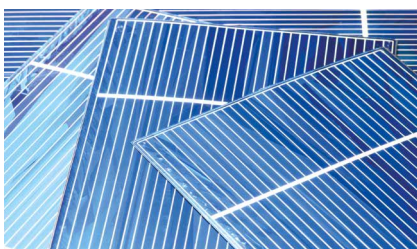
Bright field setup



Back light setup



With the outstanding luminance and uniformity of the Corona II back light / bright field illumination, high-speed applications without any compromises in image quality are possible.



FEATURES

- ▶ Ultra high bright: 280,000 cd/m² or 880,000 Lux
- ▶ Compact design
- ▶ Modular concept
- ▶ Compatible with other Corona options
- ▶ Compatible with XLC4 controller
- ▶ Various LED colors
 - Standard: White, red, green, blue
 - IR 850 nm or 940 nm
- ▶ Modular lengths up to 1360 mm per single module
- ▶ Multiple passive cooling options
- ▶ Active fan or water cooling
- ▶ Temperature stabilization
- ▶ High quality LED binning and color matching with other Corona lighting options
- ▶ Advanced thermal management and temperature control
- ▶ Housing design for easy mounting and integration
 - ITEM5 T-nut system

Corona II Tube light



Camera viewing angle 0°



Camera viewing angle 15°

The Corona II tube light module offers the most powerful light source for line scan applications with diffuse lighting conditions, for example, when inspecting metallic objects with highly reflective or glossy surfaces.

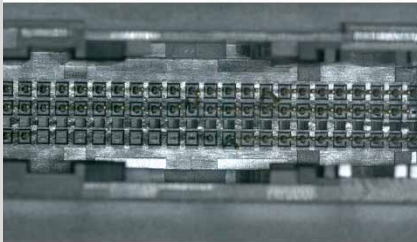
FEATURES

- ▶ Now with two power options:
 - Ultra high bright version: up to 1,200,000 lux
 - High bright version: up to 600,00 lux
- ▶ High uniformity light distribution
- ▶ Suitable for specular surfaces
- ▶ Reduces shadows on objects
- ▶ Reduces unwanted reflections
- ▶ Modular concept
- ▶ Compatible with other Corona lighting options
- ▶ Compatible with XLC4 controller
- ▶ Various LED colors
- ▶ Eight lengths up to 1360 mm per single module
- ▶ Camera angles 0°X or 15°X
- ▶ Active fan or water cooling
- ▶ Passive cooling options on request
- ▶ Temperature stabilization
- ▶ High quality LED binning for white
- ▶ Advanced thermal management and temperature control
- ▶ Housing design for easy mounting and integration

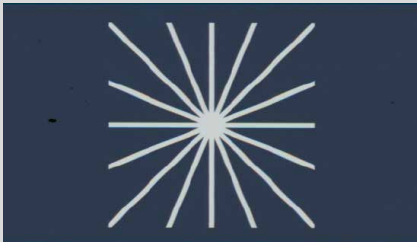


Corona II

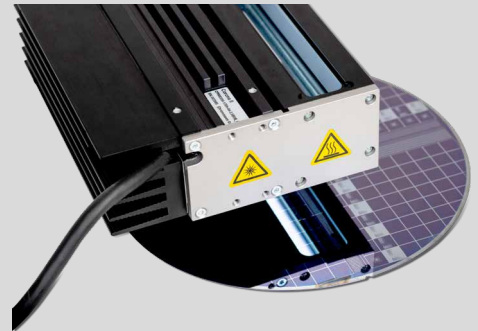
Coaxial Illumination



Dark field setup for pin inspection



Bright field setup for wafer inspection



Coaxial light illuminates the objects in viewing direction of the camera. Two coaxial light modules are available for selecting the most suitable version for your application:

- **Bright field illuminatio**
- **Dark field illuminatio**

COAXIAL MODULES FOR DARK FIELD ILLUMINATION:

Getting high light intensity into deep object grooves:
 Typical examples are automotive plug connectors with increasing pin counts and complexity. Many of them are equipped with very deep connector housings. With the new Chromasens coaxial module for dark field illumination, it is now possible to bring directed light into the depth of the component, free of shadows without affecting the camera perspective.

- ▶ Application: 3D inspection of connectors
- ▶ Type: Dark field version
- ▶ Approach: Getting light into deep objects

COAXIAL MODULES FOR BRIGHT FIELD ILLUMINATION:

Diffuse light for flat objects:
 Bright field lighting systems are the first choice for applications with vertical viewing angle and with telecentric lenses. The coaxial bright field module from Chromasens is perfect for such applications and is available with length of up of 680 mm. Optional protection glasses are offered for use in dusty environments. The performance values of the Corona modules are fully maintained.

- ▶ Application: Wafer inspection
- ▶ Type: Bright field version
- ▶ Approach: Perpendicular camera view

SETUPS

- ▶ Available for Corona modules up to 680 mm. High quality antireflection coating and thin glasses to reduce ghost images.
- ▶ Option: Protection glasses for dusty environments



Corona II

Combined tube light

3-in-1



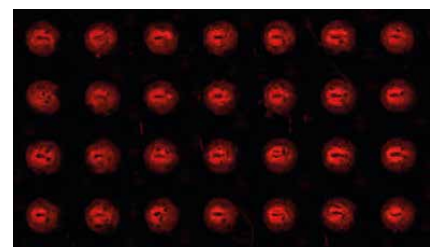
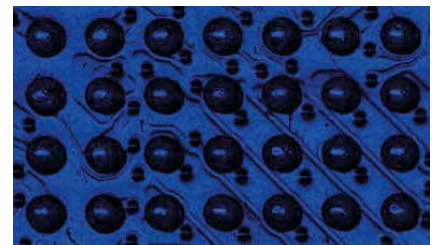
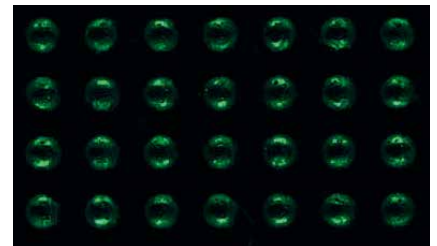
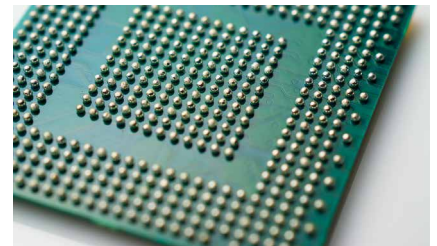
The new illumination module of the CORONA II lighting series offers highly flexible illumination setups: Tube light, dark field and bright field characteristics are no available in one module. Instead of using three different illuminations with three cameras it's now possible with only one station and one camera.

FEATURES

- ▶ High Brightness values for single parts:
 - Tube light segment: Up to 1.000.000 Lux
 - Dark field segment: Up to 800.000 Lux
 - Bright field module: Up to 12.000 cd/m²
- ▶ Independent LED segments for the single units, e.g. for line synchronized flashing
- ▶ Patented reflector focusing technology for dark field segment
- ▶ Various LED colors:
 - White (5500 K or 3500 K)
 - Red, green, blue
 - IR (850 nm or 940 nm)
- ▶ Four lengths up to 680 mm per single module
- ▶ Fan cooling
- ▶ Passive or water cooling on request

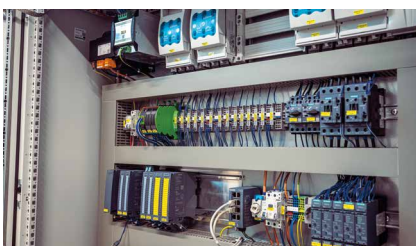
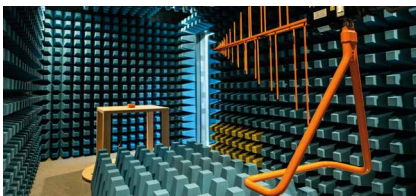
SETUPS

- ▶ Tube light / Dark field / Bright field
- ▶ Tube light / Dark field
- ▶ Tube light / Bright field



Corona II

LED Control Unit XLC 4 – Four channel LED controller



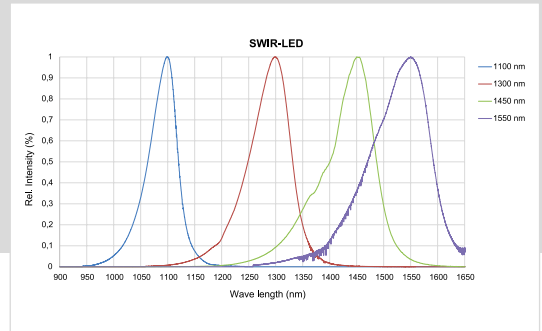
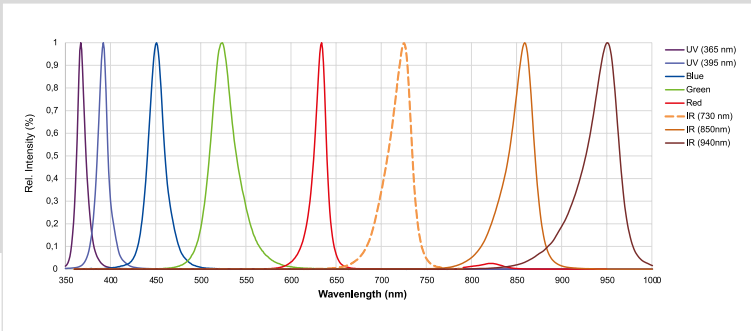
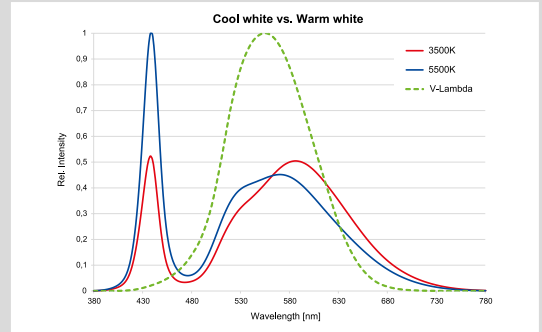
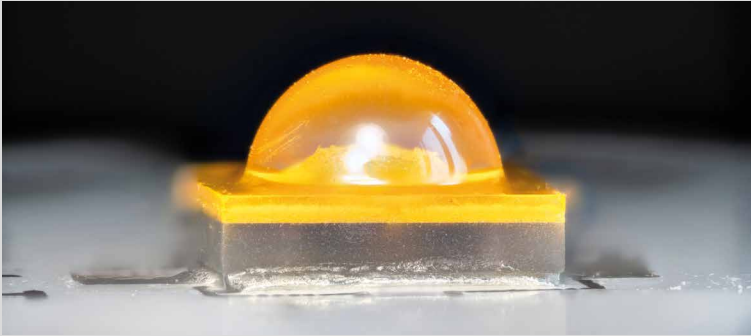
LEDs need controlled conditions. The smallest fluctuations in current lead to noticeable brightness variations in the image. The XLC4 controller guarantees this even at very high powers.

FEATURES

- ▶ External LED controller for flexibility and improved thermal management
- ▶ Four channels up to 1.8 amps per channel
- ▶ Trigger inputs for each channel
- ▶ Flashing up to 50 kHz
- ▶ RS232, USB, Ethernet and RS485 interfaces
- ▶ Direct communication and triggering with allPIXA cameras
- ▶ Analog or PWM input for external control
- ▶ Temperature stabilization via controller:
 - +/- 1 Kelvin water cooling option
 - +/- 2 Kelvin fan based cooling
- ▶ Automatic detection of Corona II modules with automatic current limitation
- ▶ Temperature monitoring in the controller and the Corona II modules
- ▶ Intended for use within cabinets
- ▶ EMC tested for industrial environment

LED control unit XLC4	
Dimensions	160 x 116 x 72 mm
Input voltage	24 Volt DC +/- 10%; approx. 3.5 amps per channel used at full load
Trigger inputs	1 trigger input synchronous for 4 output channels CP000411-1A 4 trigger input Independent for each output channel CP000411-1F4
Outputs	4 current controlled outputs, from 0.2 amps to 1.8 amps Output power 80 watts per channel and max. output 46 Volt
Interfaces	Rs232; RS485; USB; Ethernet; Analog input 1-10 Volt and PWM interface; fan control output 24 VDC/1 amp
Protection classes	IP 40
Operating temperature	0° to 50° C (housing temperature)
Certifications	CE; FCC compliant; RoHS; REACH

Corona II Technical Specifications



Corona II Lighting System	Dark Field / Top Light	Bright Field / Back Light	Tube Light	Coaxial Modules	Combined Tube Light	
Illuminance (white 5500 Kelvin)	up to 3.500.000 Lux @ focus „A“ - 60 mm min. 1.500.000 Lux @ focus „B“ - 95 mm min. 800.000 Lux @ focus „C“ - 190 mm min. 300.000 Lux @ focus „D“ - parallel	800.000 Lux on top surface	Ultra high bright: @ 10 mm WD up to 1.200.000 Lux High bright: up to 600.000 Lux @ 10 mm WD	min. 750.000 Lux @ focus „B“ - 95 mm min. 350.000 Lux @ focus „C“ - 190 mm	up to 1.200.000 Lux for „Tube light“ for „Dark field“ up to 800.000 Lux up to 12.000 cd/m ² for „Bright field“	
Luminance (white 5500 Kelvin)	–	up to 280.000 cd/m ²	–	up to 140.000 cd/m ² @ bright field „H“	–	
Available module length	170 mm to 1360 mm			170 mm to 680 mm		
Step size	170 mm					
LED colors	Red (632 nm)	X	X	X	X	X
	Green (520 nm)	X	X	X	X	X
	Blue (452 nm)	X	X	X	X	X
	White (5500 Kelvin or 3500 Kelvin)	X	X	X	X	X
	IR (850 nm or 940 nm)	X	X			X
	UV (365 nm or 395 nm) SWIR (1100, 1350, 1450 or 1550 nm)	X				
LED-Ports per 170 mm segment	1	1	High bright: 2 Ultra high bright: 4	1		
Communication ports	1" C port for temperature control and identification					
Cable length	Standard length 2,5 m or 5 m Up to 15m length or drag chain cable on request					
Protection class	IP 54	IP 54	IP 20	IP 54	IP 20	
Operating temperature	10° C to + 70°C (housing temperature)					
Certifications	CE, FCC compliant, RoHS, REACH					