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Large-area lighting

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Large-area lighting

Homogeneous LED area lighting for large test parts

High flexibility and extremely fine feature detection in industrial machine vision are directly linked to intelligently controlled lighting quality. Modular LED systems in customised formats optimise precise image processing economically and technologically.



Homogeneous light from a 1,500 x 1,500 mm LED light enables precise inspection of adhesive application on an automotive parcel shelf, with reliable detection at 0.3 mm resolution.

Flexible automation requires increasingly fine detection of many different features on larger test objects under changing conditions. Optimising lighting quality through intelligent LED hardware and control software is therefore essential.

Illuminating large areas

For large test parts, Cretec offers a broad range of intelligent, large-area, modular LED lighting systems. These modules can be combined in variable geometric formats for backlighting extending to the edges or front lighting. They enable economically and technologically efficient vision solutions even for highly complex requirements.

Among other things, the way light travels from its source to the object and is reflected or scattered by it is decisive. This greatly influences the information ultimately captured through the lens on the camera sensor as an image.

Any geometric shape

The LED modules are designed for harsh industrial environments with protection up to IP67. Exactly the right light is available for each requirement. Basic LED modules can be arranged in any geometric format, for example bar lights for conveyor applications or other large-area arrangements. Illuminated areas range from 50 x 50 mm to 6,000 x 6,000 mm. All light colours are available in continuous or strobe mode. The LED boards are

developed in-house and fitted with white, red, green, blue, infrared, ultraviolet, RGB or RGBW LEDs.

In the backlighting module, the spacing between the dimmable LEDs and their distance from the cover - a special diffuser - are selected to create an optimised, homogeneous illuminated field extending to the edges. Openings for optics can be incorporated into the lights, allowing a camera behind the light to look through it. The lights are factory-adjusted and need no further manual adjustment when the application changes.

Improving reliable recognition of structures

Intelligent control of the individual LED colours (RGB/RGBW), combined with image processing using tone mapping, can considerably improve reliable recognition of structures. In strobe mode, synchronised in the microsecond range, the test objects are effectively frozen with high image sharpness. The extremely short flash duration permits operation at a rated current 300% higher, greatly increasing the available illuminance.

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