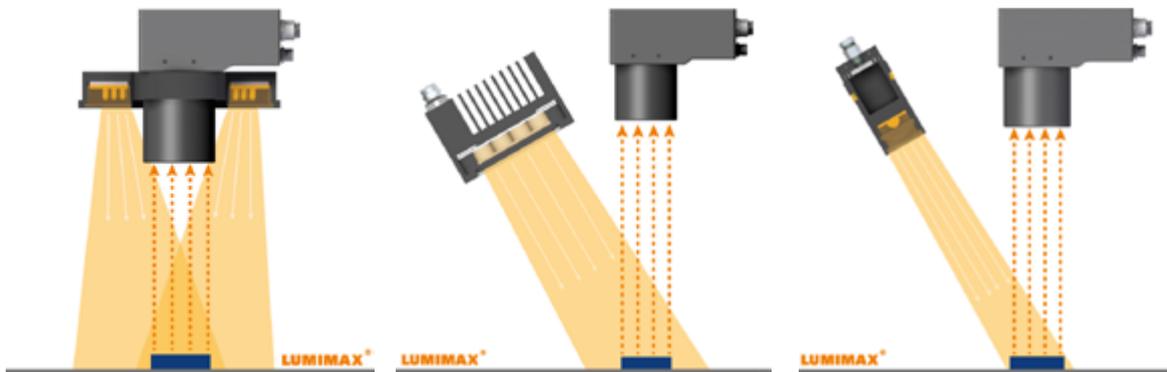


## 1.2 Reflected light – partial bright field

The partial bright field arrangement is the lighting setup that is most commonly used. Unlike the bright field arrangement described in chapter 1.1, the angles of incidence and reflection are less important in this lighting setup. A camera-mounted ring light is used to produce the light beam or spot/area lighting is used to direct light onto the test object at a slight angle:



The goal of this type of illumination is not to highlight surface defects, edges or irregularities: instead, this approach aims to provide homogeneous, intense light over the entire image field. As such, the partial bright field setup is especially suited to the uniform lighting of rough and matt objects.

### Typical applications for a partial bright field arrangement:

- Assembly, type and position detection
- Printed material inspection
- OCR/OCV

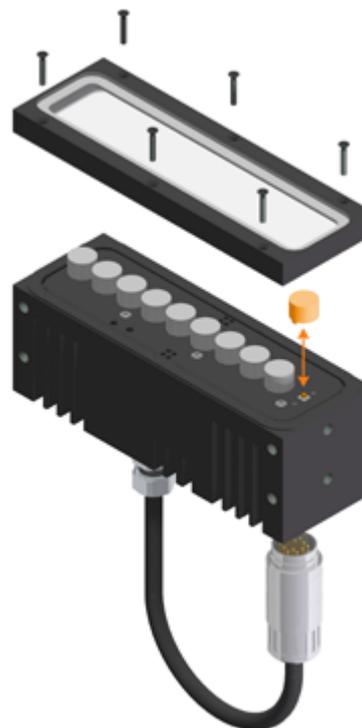
Thanks to a wide variety of lighting accessories, including diffusor plates, polarisation filters and Fresnel lenses, the lighting setup can be adjusted to accommodate a huge variety of application specifications and ambient conditions.

For large working distances and strongly absorbent objects, High Power LED Lighting is especially suitable. Very high intensity LEDs, combined with integrated controller and performance electronics guarantee luminous intensities of well over 1 million lux in flash operation and offer excellent lighting for the objects under inspection – even at a working distance of several metres.

Since the lenses in front of the LEDs can be swapped out in LUMIMAX<sup>®</sup> High Power LED Lighting, the lighting setup can be adjusted to meet a broad range of requirements. By using lighting with a tight beam angle, for example, objects several metres away can still be lit at a high luminous intensity. A broad beam angle, on the other hand, creates homogeneous lighting even at shorter distances, while also providing high-intensity lighting for larger objects.



High Power Lighting: left with 49° lenses, right with 10° lenses (at a working distance of 1.5 m)



Swapping out a lens on the LUMIMAX<sup>®</sup> LB125 Bar Light

Influence of the lighting angle

Wavelengths

Optical filters

Flash vs. continuous

Fluorescence applications

Lighting systems for the reading and verification of codes

Lighting technology for shape-from-shading