ELECTRIC-SPECIAL
Photronicsysteme GmbH

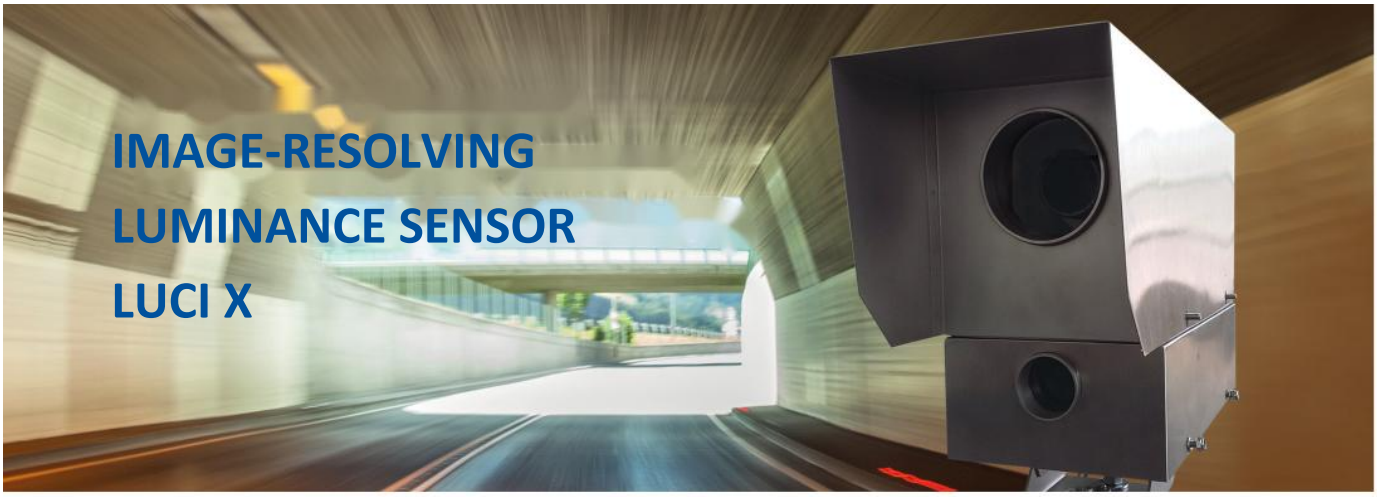


IMAGE-RESOLVING LUMINANCE SENSOR LUCI X

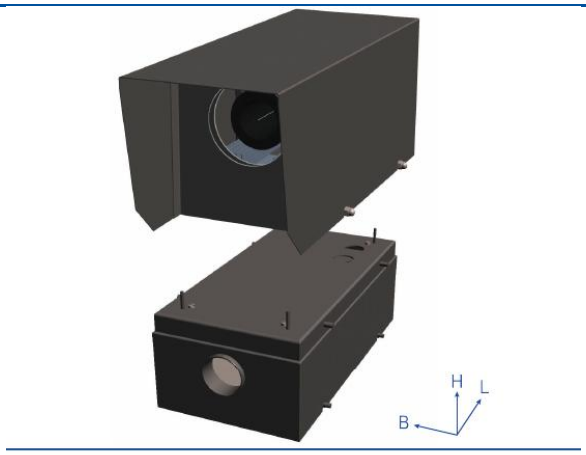
These luminance sensors measure the average luminance of the tunnel surroundings over the stopping sight distance, using an adjustable field-of-view angle, as the target value for lighting control.

The LUCI X luminance sensor measures L20 luminance in accordance with CIE and, in addition to the actual measured value, also provides the video image from the sensor. The separate digital image analysis also provides a second measurement channel.

The sensor alignment can therefore be checked remotely. Any photometric sources of interference, e.g. caused by glare, can subsequently be excluded from the measurement by software or taken into account as location-specific conditions during measurement.

- Sensors for ambient luminance measurement
- Measuring method: integral L20 luminance according to CIE / RABT / DIN 67524
- Long-term stable amplifier for high reliability
- Vario optics for setting the field of view
- Adapted to the spectral sensitivity of the human eye
- Image support from the proven analogue camera
- Digital image processing of the second camera
- Electronically controlled heating to prevent icing
- The front screen is largely protected against soiling by a special baffle ring, using the stagnation effect
- Fault signal output for collective fault message via potential-free contact

TECHNICAL DATA:



- Power supply: 230V AC ±10%, 45 ... 63Hz, 105VA
- Measuring method: L20 - CIE, RABT, DIN 67524
- Measuring range: 2 x 0 ... 10,000cd/m² = 4.0 ... 20mA
- Field of view: 10 ... 30°
- Output: 2 x 4 ... 20mA / 500 ohms
- Interference protection: varistor, fine-wire fuse, suppressor diode
- Connection: spring terminals 0.5 ... 2.5mm²
- Stainless steel, material no.: 1.4571 (V4A), double-walled
- Cable entry: 2 x M25
- Dimensions: L x W x H = approx. 455 x 175 x 280mm
- Weight: approx. 15kg
- Network: 1Gbit Ethernet on RJ45 socket
- Mobile connection: optional, max. 21.1 / 5.76Mbps
- Swivel base: horizontal ±28°, vertical ±50°

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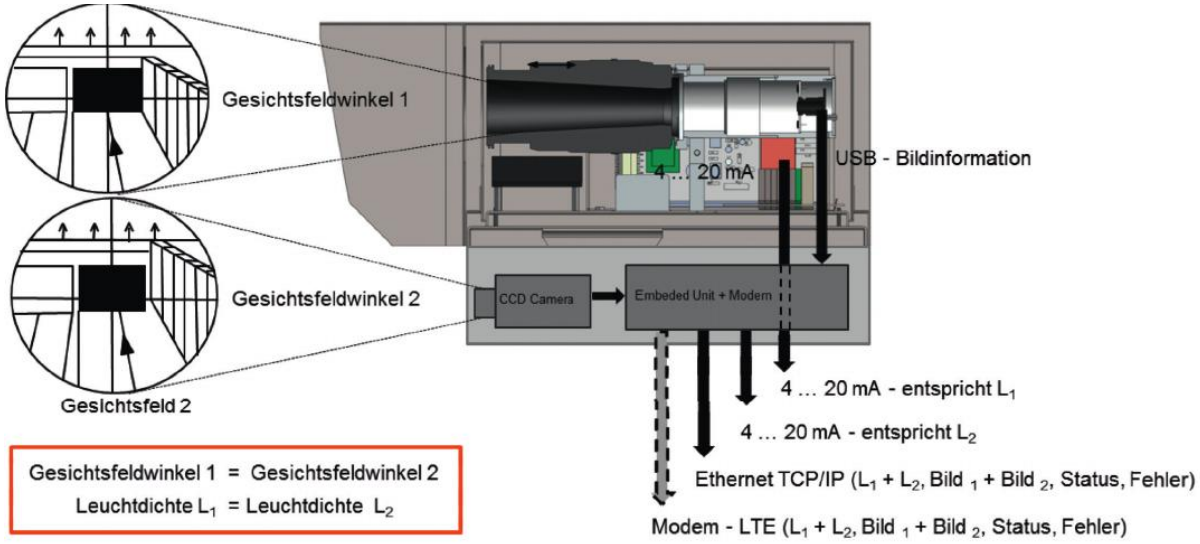
SOLUTION APPROACH:



Field of view 1
Field-of-view angle 1
Field-of-view angle 2
Field of view 2

Field-of-view angle 1 = field-of-view angle 2
Luminance L1 = luminance L2

USB - image information
4 ... 20 mA - corresponds to L1
4 ... 20 mA - corresponds to L2

Ethernet TCP/IP (L1 + L2, image 1 + image 2, status, fault)
Modem - LTE (L1 + L2, image 1 + image 2, status, fault)

FIGURE: Using the secured measured value of the image-supported analogue luminance camera (L1), the image-resolving digital luminance camera (L2) is continuously calibrated. After this calibration, the 20-degree luminance image can be edited and corrected pixel by pixel using image processing. L2 is therefore a corrected and adjusted luminance value.

The measured values of both cameras are available as 4 ... 20mA signals.
In addition, the video images of both fields of view are available for remote data transmission.

BENEFITS:

- Adjustable field of view, allowing local adjustments to be made
- Remote checking of the sensor alignment and thus ensuring traffic safety and energy efficiency of the lighting system
- Refinement of measurement without the use of lifting platforms on site
- Optimum adaptation of the sensor to the driver's perspective, there by increasing safety
- Optional mobile connection for remote maintenance
- Use of the video image as a webcam
- Pixel-accurate adjustable evaluation of the measuring field (masking) enables:
  - Exclusion of interference sources from the measurement result
  - Location-specific refined image analysis
  - Energy optimisation while maintaining traffic safety

Driver's perspective

Sensor perspective

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