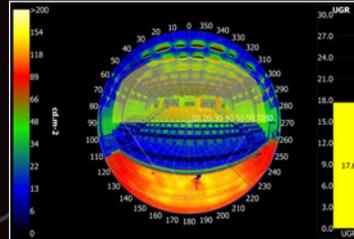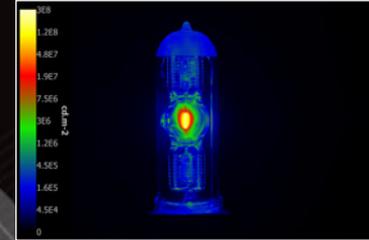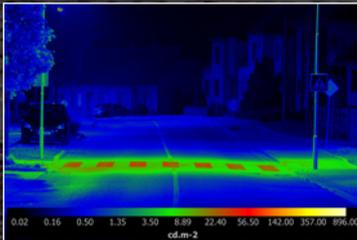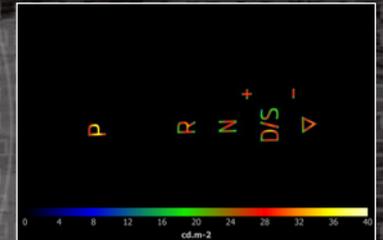# Luminance Analyser **LumiDISP – LDA ML7**

Road lighting

UGR

Light source luminance analysis

Crosswalk

Displays and imagers

Scientific measurements

Disturbing light, light pollution

Building and advertising luminance analysis

Lumi DISP

www.lumidisp.eu

BRNO UNIVERSITY OF TECHNOLOGY
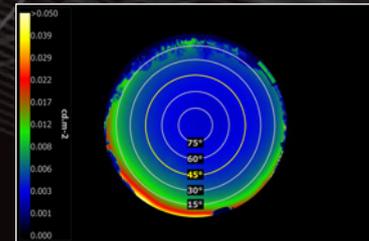
What is the LumiDISP — LDA ML7?

The LumiDISP — LDA ML7 luminance analyser is a unique calibrated photometric device capable of quickly and conveniently measuring luminance at more than 24 million points practically with the push of a button. This is the seventh generation of this internationally popular measuring device. The entire measuring system is based on a spectrally modified digital mirrorless camera with a professional image sensor, which allows the operator to leverage the benefits of this concept, especially in the field. Compared to previous generations, the new generation offers significantly faster processing, higher image quality thanks to completely new lenses, fast autofocus in low light conditions, higher reliability, and lower measurement uncertainties. The device is equipped with an independent battery power supply and internal memory storage, allowing you to work without a computer and with a minimum of accessories. Together with the high-quality optics supplied, the device delivers results comparable to those of much more expensive measuring devices and, in terms of its parameters and reliability, is on a par with measuring devices from renowned manufacturers.

The acquired data can be evaluated later from the comfort of your office or, using a portable computer, directly at the measurement site. The package also includes the LumiDISP software, which has been developed over many years and is capable not only of remotely controlling the camera, but also of analysing a wide range of lighting parameters from the measured data, such as UGR, DGP, luminance uniformity on roads, TI, etc. An indisputable advantage is that all data records are stored in a database structure, which allows for very fast searching based on key parameters such as GPS location, roll, pitch and yaw sensor angle or time of image capture. The evaluation software is also equipped with a statistical and arithmetic module, thanks to which the user can write their own evaluation algorithms that can streamline their daily work.

Users will certainly appreciate the completely redesigned custom-designed foam inlay of the carrying case, which is adapted for comfortable everyday handling of the device.

High luminance capabilities
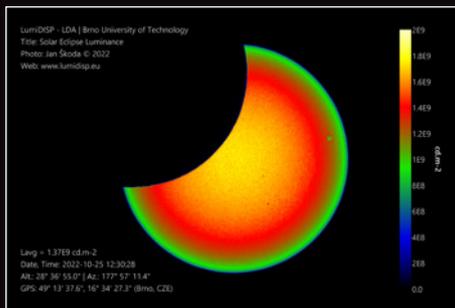
Thanks to a state-of-the-art sensor and precision optics combined with a neutral density (ND) filter, it is possible to evaluate even extremely high luminance levels, such as the luminance of the sun. Naturally, all built-in evaluation functions can also be used for such high values in the billions of cd/m².

Tunnel luminance measurement
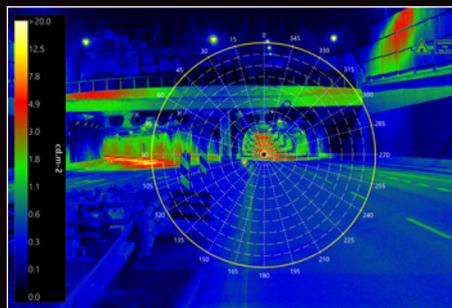
In combination with suitable optics, the device is also suitable for measuring luminance ratios in the entrance, exit, and interior sections of tunnels. Thanks to sophisticated algorithms, the required 20° detector for this measurement can be placed almost anywhere in the image area without the need for additional special geometry calibration.

Automotive applications
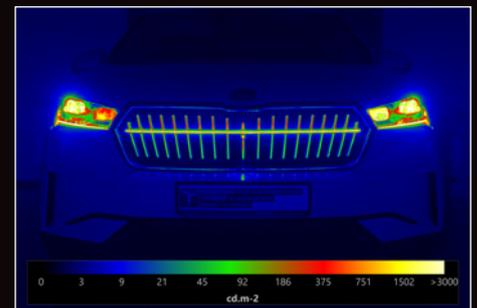
The relatively flexible software environment and built-in powerful arithmetic module allow the device to be used even in demanding automotive conditions, where the built-in functions can be used to easily set up a regloscope (headlight aimer) adjustment or beam analysis. Bulk export of binary data for connection to third-party software is of course possible.

#luminanceanalyser, #lightpollution, #disturbinglight

Benefits and Technical Specifications

Complete instrument with calibration certificate
Control directly from the instrument or via computer
Convenient data processing later in the office
Storage of data in a PC database or on an SD card
Easy export of tables, graphs, images
Batch processing of large numbers of measurements
Wide range of detectors, user templates
Arithmetic module for custom algorithms

Typical Spectral Response:

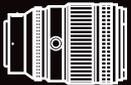

$f_1' < 3\%$

- V(λ)
- LDA(λ)
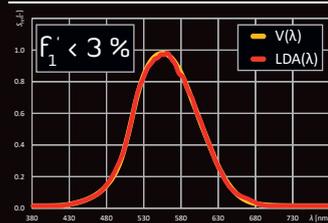
Hardware:
Sensor: BSI CMOS 24.5 Mpx
A/D: 14 bit / 16,383 levels
Measure Range: 0.001—10,000,000 cd/m²

Software: 2× licence of LumiDISP ver. 3.1

Optional Accessories: Tripod, ND filter

NIST Traceable
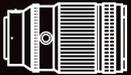
Lenses (field of view / minimal focusing distance)

Nikon NIKKOR Z 135mm f/1.8 S Plena
15° (H) x 10° (V), 19° (D) / 82 cm

Nikon NIKKOR Z 50mm f/1.2 S
40° (H) x 27° (V), 47° (D) / 45 cm

Nikon NIKKOR Z 35mm f/1.2 S
54° (H) x 38° (V), 63° (D) / 30 cm

A high-end lens with very low distortion and a large aperture, particularly suitable for analysing roadways, pedestrian crossings, displays, and, with the addition of an ND filter, for analysing the luminance of light sources and luminaires. It is suitable for scientific purposes where great attention is paid to detail.

This lens is suitable for contrast analysis (visibility of pedestrians or obstacles on the road), TI, or luminance analysis in tunnels. When used with a neutral filter, it is also suitable for analysing display areas, illuminated advertisements, and billboards.
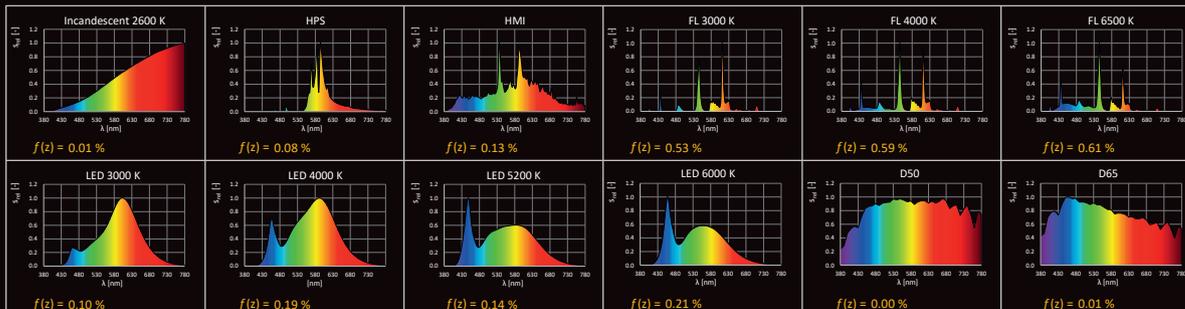
The lens with the widest field of view in our range, particularly suitable for analysing luminance distribution in interiors, measuring building facades, nearby objects, urban night scenes, or parking lots.
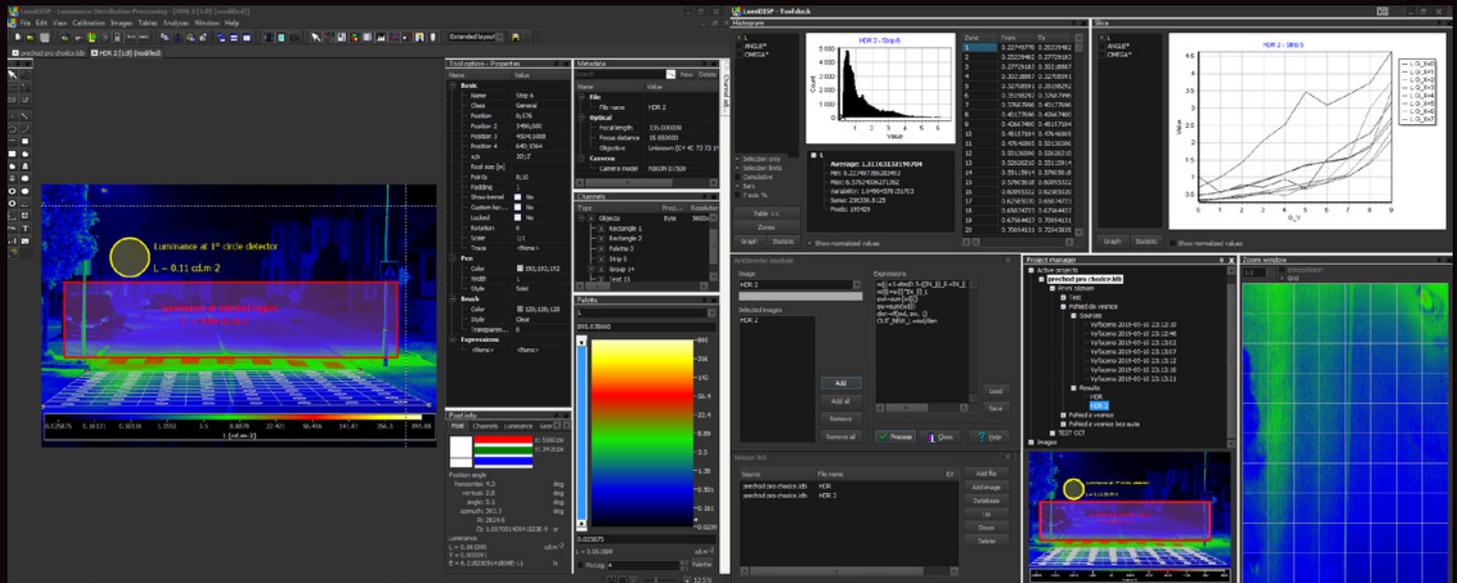
Fish-eye and other focal lengths available on request.

Typical Spectral Mismatch Errors

Incandescent 2600 K	HPS	HMI	FL 3000 K	FL 4000 K	FL 6500 K
$f(z) = 0.01\%$	$f(z) = 0.08\%$	$f(z) = 0.13\%$	$f(z) = 0.53\%$	$f(z) = 0.59\%$	$f(z) = 0.61\%$
LED 3000 K	LED 4000 K	LED 5200 K	LED 6000 K	D50	D65
$f(z) = 0.10\%$	$f(z) = 0.19\%$	$f(z) = 0.14\%$	$f(z) = 0.21\%$	$f(z) = 0.00\%$	$f(z) = 0.01\%$

Lumi DISP

#luminancecamera, #glare, #UGR

Software Interface LumiDISP 3.1

Contact

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Luminance **D**istribution **A**nalyser