

LMK 6 & LMK 6 color

Sensor

[12 Bit digital, CMOS]

LMK 6-5 luminance/color

Sony IMX250 [2464 x 2046]

LMK 6-12 luminance/color

Sony IMX253 [4104 x 3008]

LMK 6-30 luminance/color

Sony IMX342 [6480 x 4860]

Dynamic range

Color High Dynamic measurement
[1:10,000,000 (~140 dB)]

Data transmission

Gigabit Ethernet Interface (GigE®)

Spectral matching¹

$V(\lambda)$ [$f_1 = 3\%$]²

$X(\lambda)$ [$f_{1,E} = 4\%$]³; $Y(\lambda)$ [$f_1 = 2.5\%$]³; $Z(\lambda)$ [$f_{1,E} = 5.5\%$]³

Measuring quantities

Luminance: L (cd/m²)

Chromaticity coordinates: (x,y)

Supported color spaces:

RGB, XYZ, sRGB, EBU-RGB, User, Lxy, Luv, Lu'v', L*u*v*, C*h*s*uv, L*a*b*, C*h*ab, HIS, HSV, HSL, WST⁴

Further measuring quantities can optionally be defined via scaling factors.

Measuring range⁵

Integration/exposure time from 100 μ s to 15 s

1 ms \approx max. 10,000 cd/m²

3 s \approx max. 3.3 cd/m²

The detection limit⁶($f_{3,0}$) for all integration/exposure times is about 0.04 % relative to the given maximum luminance value.

Higher luminance can be measured using optional neutral density filters.

Calibration uncertainty⁷

fix focused lenses ΔL [$< 2\%$]

focusable lenses ΔL [$< 2.5\%$]

Repeatability⁸

ΔL [$< 0.1\%$]

$\Delta x,y$ [< 0.0001]

Measuring accuracy

ΔL [$< 3\%$] for CIE standard illuminant A

$\Delta x,y$ [< 0.0020] for CIE standard illuminant A

$\Delta x,y$ [< 0.0030] for white phosphor converted LED

$\Delta x,y$ [< 0.0100] set of test colors⁹

Uniformity⁶

f_{21} [$< 2\%$]

Fields of application

laboratory measurements, field measurements, industry automation

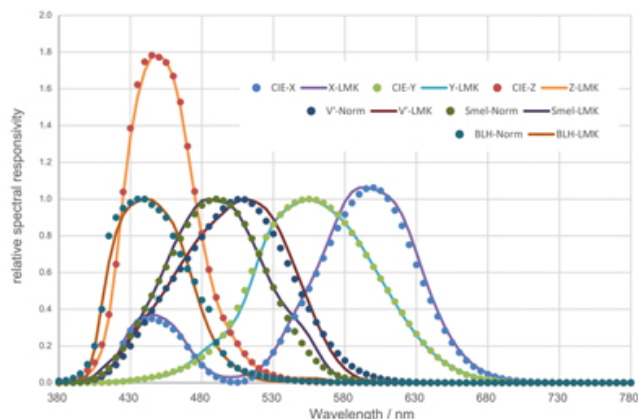
The **LMK 6** features small dimensions, low weight at high sensor resolution, an optimized stray light, and high filter transmissions. In addition, it offers full sensor control for customized image sizes. This allows task-specific data transfer rates for high speeds while reducing data size. A special readout mode allows an image content based trigger for precise timing in dynamic scenarios.



LMK 6 monochrome / color

The **LMK 6 color** equipped with an internal filter wheel offers a total number of six full glass filters. Four of them are used for color measurements according to the CIE 1931 standard colorimetric observer. This allows to measure both luminance and color data. The remaining free slots on the filter wheel can be equipped with special filters:

- Scotopic filter $V'(\lambda)$
- Melanopic filter $s_{mel}(\lambda)$ (ipRGC, acc. to CIE S 026:2018)
- Infrared filter (NIR range of 780 – 1,100 nm)
- Blue light hazard filter (acc. to IEC 62471)
- BK7 glass filter to work with the spectral responsivity of the sensor directly



Spectral matching of the **LMK 6 color**

1 typical average result for entocentric lenses, specific results available with calibration certification or on request | 2 Spectral mismatch f_1 , according to ISO/CIE 19476:2014 | 3 Typical result for LMK color model type | 4 Dominant wavelength, saturation, correlated color temperature | 5 The luminance value stands for the measuring range end value at the specified exposure/integration time | 6 Definition and measurement according to CIE244:2021 | 7 Measurements according to CIE244:2021 using a luminance standard traceable to the PTB (Physikalisch-Technische-Bundesanstalt, the National Metrology Institute of Germany) | 8 Measurement performed on a stabilized white LED light source $L=100$ cd/m² - mean value over 100 x 100 camera image pixel | 9 Maximum difference of the measured value to the reference measurement using 12 LED-based luminance/color standards