

Sun-like?

Modern lighting technology has for too long been oriented toward an ideal that is biologically problematic: the unfiltered light of the midday sun – in deserts, steppes, or today in urban concrete landscapes with reflective glass façades.

Humans, however, are not evolutionarily adapted to permanent High-Noon light at around 5700 kelvin.

On the contrary, our visual system is optimized for the light conditions beneath a leafy canopy – a fact clearly reflected in the V-lambda curve: *Forest light*.

Most of human evolution did not take place in open landscapes under direct sunlight, but beneath tree canopies, in vegetation-filtered diffuse light, in the long-wavelength light of dusk, and in the glow of fire at night.

The optimal light environment is therefore:

- spectrally harmonious
- free of short-wavelength peaks
- rich in long-wavelength components
- physiologically restrained

This allows regulation rather than forcing adaptation.

Sun-like. Different.

Sunlight has many facets. For us, “sun-like” therefore means far more than just *High Noon*.

We consider orientation toward the blackbody curve to be a more open and more physiologically appropriate description of natural, human-compatible light environments. The blackbody characteristic encompasses all solar states as well as the light of fire and incandescent sources.

We place blackbody-like spectra at the center of our approach – spectra found in nature, in fire, and in the transitions between day, sunset, and night. These spectra share a high degree of biological compatibility and all include near-infrared components.

Blackbody-like!

Learn more:

www.heliolumen.com

heliolumen retrofit LED lamps – a sustainable approach to high-quality light.

Giving iconic luminaires a second life.

Re-use. Re-think. Illuminate.

QED: *heliolumen*!

Less HEVL and blue light. More near-infrared. Optimal color rendering. Intelligent electronics completely eliminate light flicker. Brightness control and color selection are operated directly via the light switch, independent of dimmers, Wi-Fi, or remote controls.

Designed in Germany by Dr. Alexander Wunsch.

Available for order via:
Innovative Eyewear International GmbH
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www.innovative-eyewear.de
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Tel.: +49 881 13 59 40 70

heliolumen vario S

4500 K 100 % CRI > 92
2700 K 100 % CRI > 98
2000 K 40% CRI > 92
1200 K 12% CRI > 70
100 V - 250 V
10 W max.

8 %
40 %
100%
1200 K
CRI > 70
10 W max.
100 V - 250 V

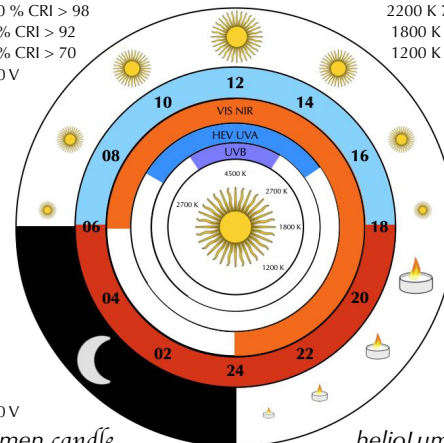
heliolumen candle

heliolumen vario N

2700 K 100 % CRI > 98
2200 K 70 % CRI > 96
1800 K 40% CRI > 98
1200 K 12% CRI > 70
100 V - 250 V
10 W max.

8 %
40 %
100%
2700 K
CRI > 98
10 W max.
100 V - 250 V

heliolumen classic



heliolumen® E26/E27

The Art of Perfect Light

Conventional Form Factor

Unique Spectra



Human Physiology is Perfectly Attuned to Three Fundamental Lighting Environments:



Desert, Steppe, Direct Sunlight

In direct, unfiltered sunlight, the spectral range around 480 nm predominates.

This short-wavelength component is detected in the human retina via melanopsin-containing ganglion cells and is processed as a non-visual signal, acting primarily on vegetative and hormonal regulatory systems.

The spectral composition of sunlight in open landscapes promotes comprehensive physiological adaptation to high environmental and performance demands. This includes increased alertness and responsiveness, mobilization of energy reserves, adjustments in fluid and mineral balance, as well as changes in stress hormone levels and glucose regulation.

The visible short-wavelength component characteristic of direct sunlight functions as a central trigger for this hormonal shift. It signals a dominant performance- and activity-oriented state and supports the organism's preparation for sustained physical exertion under potentially challenging environmental conditions.



Forest Light = V-Lambda-Light

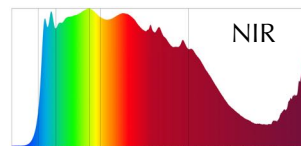
The correspondence between the human eye's luminous efficiency curve and the emission and reflection characteristics of the plant pigment chlorophyll is remarkable.

It is within this light environment that the human eye evolved. Rainforests, tree canopies, and shaded zones of dense vegetation shape a light that is predominantly diffuse, spectrally smoothed, and low in short-wavelength components. Under these conditions, the visual system operates close to its physiological optimum: contrasts are balanced, colors appear stable, and spatial orientation occurs without pronounced vegetative activation.

Beneath green vegetation, more near-infrared than green light reaches the eye. This long-wavelength environment creates a light quality that supports visual presence without inducing adaptive pressure—a state of functional calm and sensory stability.

helioLumen retrofit lamps use and combine the following dedicated LED-types with physiologically optimized spectra and plenty of NIR:

helioLumen-LED 4500 K

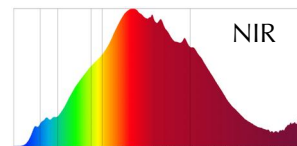


The spectral composition emphasizes the range around 480 nm and reduces HEVL < 450 nm progressively.

CRI > 92 & NIR.

vario S

helioLumen-LED 2700 K

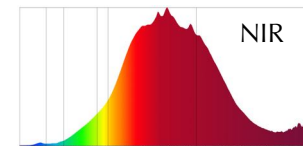


Smooth spectral composition without the typical blue peak at 450 nm and with NIR.

CRI > 98 & NIR.

classic, vario N, vario S

helioLumen-LED 1800 K

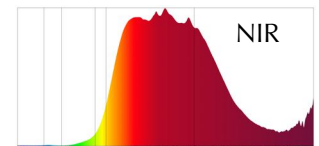


The spectral composition is practically free from blue and HEVL, ideal for light sensitivity.

CRI > 98 & NIR.

vario N

helioLumen-LED 1200 K



Smooth spectral composition, free from blue and HEVL. Ideal für evening and night hours.

CRI > 70 & NIR.

candle, vario N, vario S



Sunset Glow and Fire Light

Firelight is characterized by a strongly long-wavelength, continuous spectrum.

Short-wavelength light is virtually absent, overall light intensity is low, and the spectral distribution is clearly shifted toward the red and near-infrared range.

This type of light has little activating effect on melanopsin-mediated (OPN4) signaling pathways. Instead, it promotes a state of vegetative calming and inner orientation. Alertness is not driven upward but maintained at a low, stable level.

Firelight therefore supports a physiological transition state: social closeness, regeneration, and the synchronization of internal rhythms. It marks the end of performance-oriented demands and creates a light environment that allows the organism to move into a state of recovery and inner coherence.