



HUMAN CENTRIC OFFICE LIGHTING SOLUTION

SLE[®]
smart lighting engineering



LIGHT QUALITY
CIRCADIAN RHYTHM
HUMAN CENTRIC LIGHTING
FUNCTIONALITY
HCL SYSTEM
BENEFITS

HUMAN CENTRIC OFFICE

LIGHTING SOLUTION

Good lighting has many positive effects that are vital: it influences human health, productivity and the feeling of well-being. As the modern man spends most of his time with indoor activities, improving the inside circumstances has never been more important.

With Human Centric Lighting the office becomes an inspiring space that is able to stimulate people's mood, behaviour and energy level. It also supports higher performance efficiency, the ability to concentrate, and it increases the comfort level as well.

Human Centric Lighting is a new land waiting to be explored.

Join SLE on this journey!



“ The quality of our lives depends on light

LIGHT QUALITY

THE SPECTRUM OF LIGHT

With the latest technology we can utilise the complete white light spectrum – from cold white, through neutral white to warm white – to follow the natural rhythm of the daylight. The colour rendering index is excellent throughout at CRI > 90. The key to this high colour fidelity and colour rendering quality are the LED modules.



LIGHT QUALITY differences are clearly visible on the the scale (top right). Sunlight is the reference: sunlight spectrum, measured at a cloudy sky at 10 a.m., is compared to the spectrum of a fluorescent lamp T5 - used for standard office lighting, and to the spectrum of the new LED technology luminaire. Standard office lighting is very poor in rendering the green, yellow and red colours. The spectrum achieved with the new LED technology is very similar to the spectrum of the Sun, which is comfortable for the eyes.

100%
NATURAL



THE BIOLOGICAL EFFECT OF LIGHT

Photoreception in the human eyes leads not only to vision but also has effects on human physiology, often summarised as non-visual effects of light. As a result, light has influence on the daily hormone level, initiating continuous changes as the day progresses. It is supporting the circadian rhythm, which is responsible for the human biological clock, determining the sleep-wake cycle of the human body.

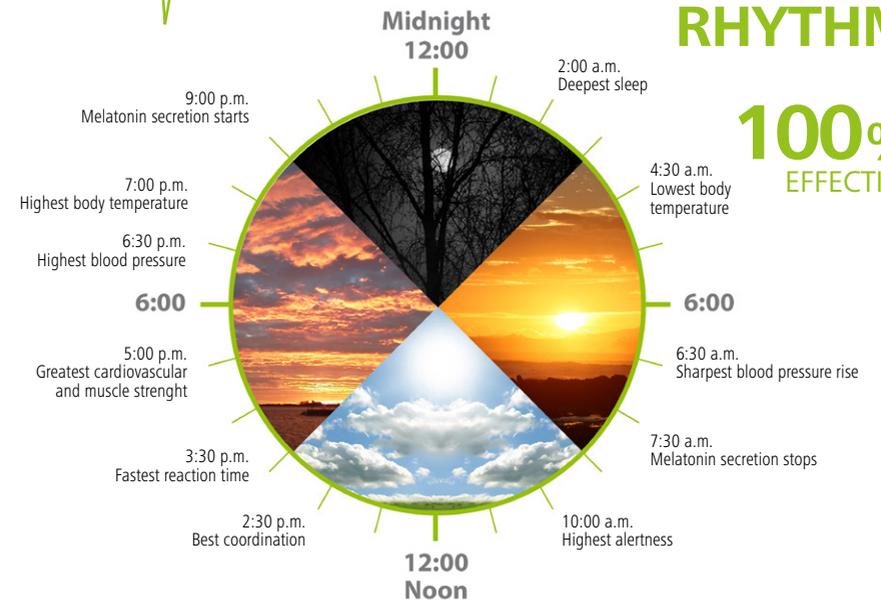




“ Follow the rhythm of the day

CIRCADIAN RHYTHM

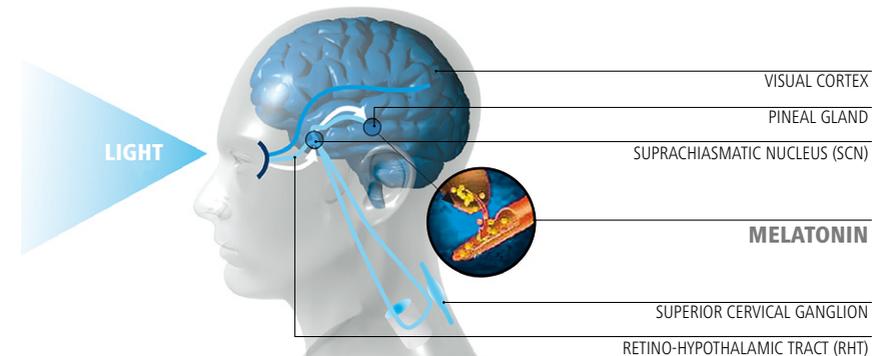
100%
EFFECTIVE



Keeping the circadian rhythm in balance is essential to our physiological well-being. It regulates the sleep-wake cycle, therefore, it has influence on the core body temperature and hormone secretion.

Two hormones are determining the human biological clock:

Melatonin is the principal hormone produced by the pineal gland. It is responsible for our sleep. Cortisol enables the active hours, and its level is increasing in the morning. It is proven that light exposure drives cortisol level in the morning further up, while it is able to suppress the secretion of melatonin during the day.



| Light pathway from the eye to the brain

HUMAN CENTRIC LIGHTING

Lighting that is adapted to the natural rhythm of the human body is able to improve vitality and concentration. The development of human

100%
CONCENTRATION



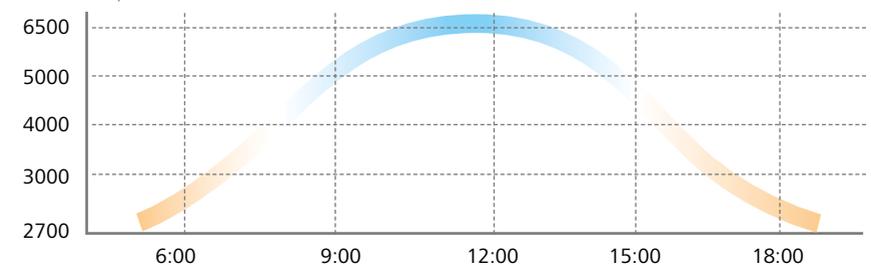
centric lighting has led to a modern indoor solution that simulates daylight as the day progresses. It is based on the smart use of brightness, colour temperature and light direction to positively influence the human body. Office use can enhance concentration and performance during working time and aid relaxation and rejuvenation at the end of the day.

PERCEPTION OF COLOUR TEMPERATURE

2700K: Low CCT lighting correlates in general with positive characteristics (calming and cosy).

6500K: Higher CCT lighting creates a bright office space (energising and stimulating).

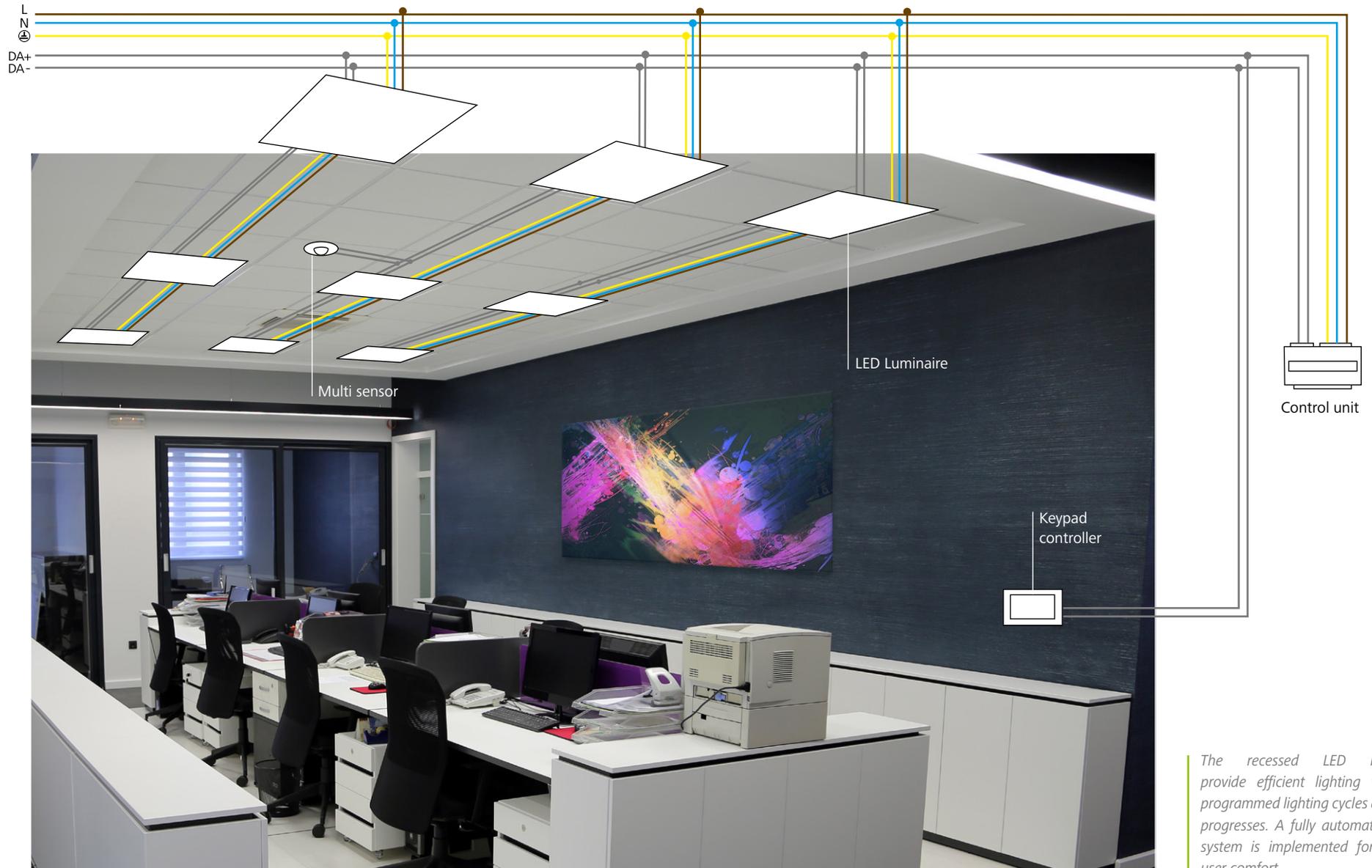
Colour temperature (K)



Time of the day (h)

“ The office becomes an inspiring space

FUNCTIONALITY



The recessed LED luminaires provide efficient lighting with pre-programmed lighting cycles as the day progresses. A fully automatic control system is implemented for ultimate user comfort.



“ Fully automatic control system

HCL SYSTEM



MULTI SENSOR

To maximise efficiency, multi sensor is implemented in the solution. It has two functions in one: both daylight intensity and presence of people in the room are detected. By presence detection we eliminate unnecessary lighting hours as the system switches OFF automatically when there is no movement and ON only when needed.

LUMINAIRE WITH THE LATEST LED TECHNOLOGY

The latest technology enables changing the spectral qualities and the colour temperature of the light within an automated system.



100%
USER FRIENDLY



KEYPAD CONTROLLER

It is possible to disable the automatic cycle and choose a predefined lighting scene via a keypad controller mounted on the wall.

CONTROL UNIT

The control unit manages a DALI-based plug-and-play control system which fulfills the basic needs in offices with maximum energy saving options by daylight harvesting and presence detection.

BENEFITS

100%
ENERGISING

RESEARCH RESULTS

Human centric lighting has several proven benefits. It has positive influence on the prevailing mood and on bodily functions, next to its positive effect on depression and certain anxiety states, and on convalescence dynamic.

Research results showed increase of

- work performance** (≈ 19 %)
- reduction of fatigue** (≈ 27 %)
- concentration** (≈ 37 %)
- enhancement of alertness** (≈ 23 %)

and higher employee satisfaction.

PRODUCTIVITY

People who work in a human centric office report that they feel more energised, they are more productive and overall more satisfied in comparison with working in an office with traditional lighting.



“ Enhanced productivity and alertness



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