

# LEDVANCE BIOLUX FOCUSING ON PEOPLE WITH HUMAN CENTRIC LIGHTING



SEPTEMBER 2022



# MORE LIGHT, MORE POWER

## DAYLIGHT DETERMINES OUR QUALITY OF LIFE

Artificial light has revolutionized our lives. We can work anywhere at any time – and of course that has made us more productive. But does it also make us healthier? For a healthy, efficient rhythm of life, we need the natural changes in daylight. Working indoors in poor light makes us tired, depressed and listless.



### LACK OF LIGHT, AN UNDERESTIMATED PROBLEM



Sunny day  
100 000 lux



Cloudy day  
10 000 lux



In offices  
500 lux



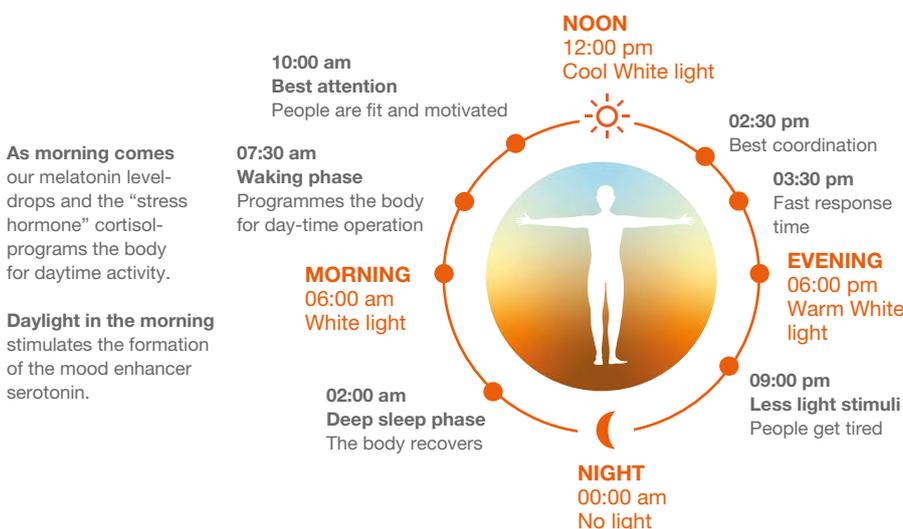
We spend on average  
90 % of our time indoors

Source: LightingEurope

### MODERN LIVING CONDITIONS – POOR LIGHT QUALITY

Offices with little daylight, dark meeting rooms and artificial light until late at night – in our modern society, we are moving further and further away from our natural environment. Daylight is one of the most important sources of energy for our biological rhythm. A lack of daylight can cause serious disruption to our day/night rhythm (our “inner clock”), and massive degradation in our performance and overall well-being.

### CIRCADIAN RHYTHM – THE BODY’S 24-HOUR CYCLE



If we receive too little light during the day, our melatonin level falls too low. As a result, we do not sleep well at night, and we are sluggish, tired and listless during the day.

In the evening without any light stimulus the body produces melatonin (sleep hormone).

Source: LightingEurope

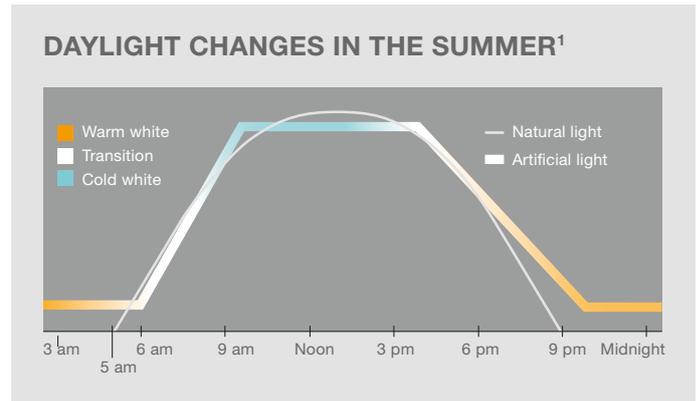
# HUMAN CENTRIC LIGHTING FOCUSING ON PEOPLE

Lighting solutions for modern work environments must be designed to promote creative thinking and high levels of concentration at desks, on computers and in factories. Human centric lighting places the focus on people and their need for natural light. Flexible, healthy and effective.

## WHAT CAN HUMAN CENTRIC LIGHTING DO?

With the right light at the right time human centric lighting (HCL) creates a working environment that simulates the changes in natural daylight with its visual, biological and emotional effects. To achieve this, the luminaires are controlled by an intelligent control system with appropriate light profiles.

Through color temperatures and illuminance levels, human centric lighting (HCL) can simulate the course of natural daylight in such a way that it provides positive support for the human circadian rhythm (our "inner clock"). A neutral or cold white light color, for example, can energize in the morning. Warm white light is relaxing and ideal for the evening. HCL supports health, well-being and performance.



HCL is based on the natural changes in daylight. This has a positive effect on people.

## HCL HAS A POSITIVE IMPACT – ALSO ON THE PERFORMANCE OF YOUR COMPANY<sup>2</sup>

HCL promotes and supports the most valuable resource you have: your employees. That is reflected in their productivity.



**OFFICE**  
12 % higher employee performance in offices



**PRODUCTION**  
Worker productivity increases by up to 18 %



**EDUCATION**  
14 % improvement in learning and better grades



**RETAIL**  
Up to 25 % increase in sales

## EXAMPLE CALCULATION FOR BIOLUX HCL: COMPANY WITH 40 EMPLOYEES/WORKPLACES

### INVESTMENT FOR THE OWNER<sup>3</sup>

**Material costs:**

- 60 BIOLUX HCL luminaires
- 2 control units

**Installation costs:**

- Installer (Germany)
- 2 days/2 installers

Σ 30000 €

### SAVINGS FOR THE USER<sup>3,4</sup>

- 40 employees/desks
- 10 million € turnover
- 5 % profit = € 500 000
- € 40 000 annual salary per employee



↑ Increase in productivity by +10 %<sup>5</sup> = € 50 000  
↓ Reduction in sickness costs by -1 %<sup>6</sup> = € 16 000

Σ 66 000 €



**PAYBACK TIME:  
6 MONTHS**

Plus additional energy savings thanks to LED modernization and automatic lighting control such as presence sensors.



<sup>1</sup>Source: [www.licht.de/de/grundlagen/nicht-visuelle-lichtwirkungen/praxisbeispiele/biologisch-wirksames-licht-im-buero](http://www.licht.de/de/grundlagen/nicht-visuelle-lichtwirkungen/praxisbeispiele/biologisch-wirksames-licht-im-buero) | <sup>2</sup>Source: [www.ecodesignconsultants.co.uk/healthy-buildings](http://www.ecodesignconsultants.co.uk/healthy-buildings) | <sup>3</sup>Illustrative example and prices. Prices may vary in your country. | <sup>4</sup>Compared to conventional lighting, e.g. T8 fluorescent lamp | <sup>5</sup>Source: CBRE Healthy Offices, The snowball effect of healthy offices, (2017) | <sup>6</sup>Source: AT Kearney, Quantified benefits of Human Centric Lighting, (2015)

# THE BIOLUX SYSTEM

## NATURAL LIGHT

## WHATEVER THE TASK

The BIOLUX HCL system from LEDVANCE automatically adapts artificial light to changes in daylight thanks to an intelligent, patent-pending algorithm – allowing users to choose the right dynamics for them at any time.

### NATURALLY SMART!



### INTELLIGENT AND POWERFUL WITH HCL

The heart of our innovative, biologically effective lighting system is the BIOLUX HCL control unit. In combination with the BIOLUX HCL products, it always provides the right light at the right time of day. To adapt the system even more to your individual needs, you can also choose different lighting mood profiles, such as “RELAX” and “BOOST”.

**A real highlight – the BIOLUX HCL control unit is so easy to install and use:**

- Wireless communication between the control unit and luminaires
- Easy switching between different lighting moods using an intuitive rotary switch
- Artificial light based on changes in natural light accurate for the day and location – with the best possible biological effect

**These five HCL light profiles are available:**

- **BOOST** Highest concentration for highly detailed and particularly demanding tasks
- **FOCUS** Enhanced concentration, e.g. in meetings
- **NATURAL** Default setting
- **CREATIVE** Creativity in workshops, e.g. in brainstorming sessions
- **RELAX** e.g. during breaks in meetings

The BIOLUX system from LEDVANCE is ideal for single room solutions with up to 48 BIOLUX HCL products (luminaires/LED strips/occupancy sensors) such as meeting rooms or offices with little or no daylight.

With the recently launched firmware update the control unit can be used to switch the lights on and off. The benefit is that a separate light switch is no longer needed.

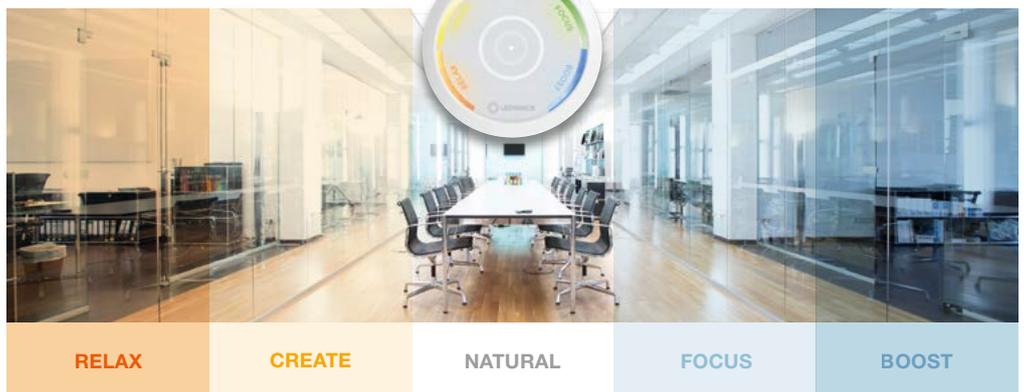
### THROUGH THE DAY WITH HCL

**Morning to midday/after lunch:** bright, energizing cool white light with a high blue content (e.g. 6500 K at an illuminance of 450 lux at the eye).

**Toward the evening:** direct warm white light with low blue content (e.g. 2700 to 3000 K) which helps the body relax and prepare for the night.

### LEDVANCE BIOLUX SYSTEM

### THE FIVE LIGHT PROFILES



RELAX

CREATE

NATURAL

FOCUS

BOOST

**FAST & EASY**



To allow entire teams in larger open-plan offices and across whole floors to benefit from the positive effects of HCL light, the BIOLUX HCL luminaires and LED strips can also be used in combination with the VIVARES light management system. Learn more about VIVARES HCL here: [ledvance.com/vivares](http://ledvance.com/vivares)



**BIOLUX – THE SMART ENTRY-LEVEL HCL SYSTEM**

**INSTALLATION – fast and easy thanks to wireless technology**

- No control cables required for luminaires
- The control unit only needs to be connected to the mains power supply
- The HCL products communicate wirelessly via Zigbee

**SETUP – easy via the smartphone BIOLUX HCL system app**

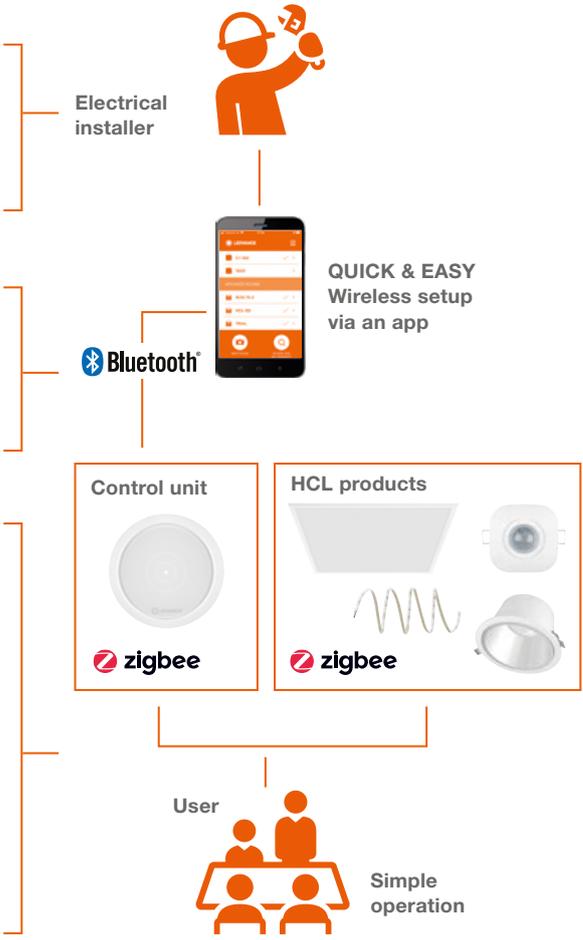
- Luminaires are registered and added to the system using a smartphone to scan QR codes from the BIOLUX HCL products
- No programming required
- Location and time automatically detected via the app

**OPERATION – intuitive via the control unit**

- Preprogrammed lighting profiles can be selected via a rotary switch on the control unit
- Lighting profiles adjusted automatically to your location and local time
- No programming required

**FUNCTION – independent of any light management systems (LMS) or cloud**

- Autonomous system
- No complicated integration in an existing LMS
- No data storage, internet connection, cloud functions or registration – privacy is protected

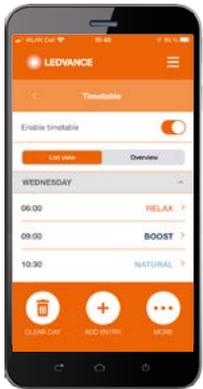


# USE NEW FUNCTIONS WITH THE UPDATED BIOLUX HCL APP



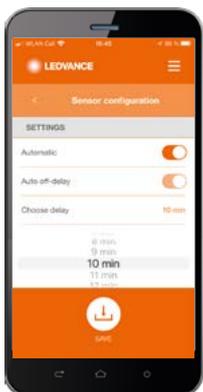
The updated BIOLUX HCL app gives you intuitive access to all the new functions of the BIOLUX HCL system. As a new customer, simply download the app or update your existing app and benefit from all the innovative features of BIOLUX HCL – such as greater energy efficiency, an extended user application and additional system functionality. The app is available from the Apple and Android stores.

## ONE APP, MANY BENEFITS:



### TIMETABLE FOR WELL-BEING:

The new Timetable feature automatically switches to different lighting modes based on a customizable schedule. This is particularly helpful where the same day-to-day routines are in place, such as in hospitals, nursing homes, schools and kindergartens.



### LIGHT ON DEMAND:

The Sensor Configuration mode enables users to adjust the motion sensor so the light is only switched on when required. This automatic lighting control can deliver energy and cost savings of up to 30 %.



### ALWAYS UP TO DATE:

The navigation section of the app contains all the essential information about your BIOLUX HCL system, including FAQs, product data and installation instructions.



### INTEGRATED HELP:

The app's automatic troubleshooting feature helps with possible problems during setup of the system.



### EVEN MORE LANGUAGES:

The BIOLUX HCL app now supports Spanish and Italian in addition to English, German, French and Chinese.



1

### CONTROL UNIT

After the app has been updated, which takes place automatically, you can update the firmware of the HCL control unit. Just follow the pop-up prompt after opening the app. The new on/off function means there is no longer any need for an additional light switch for controlling the BIOLUX HCL system.



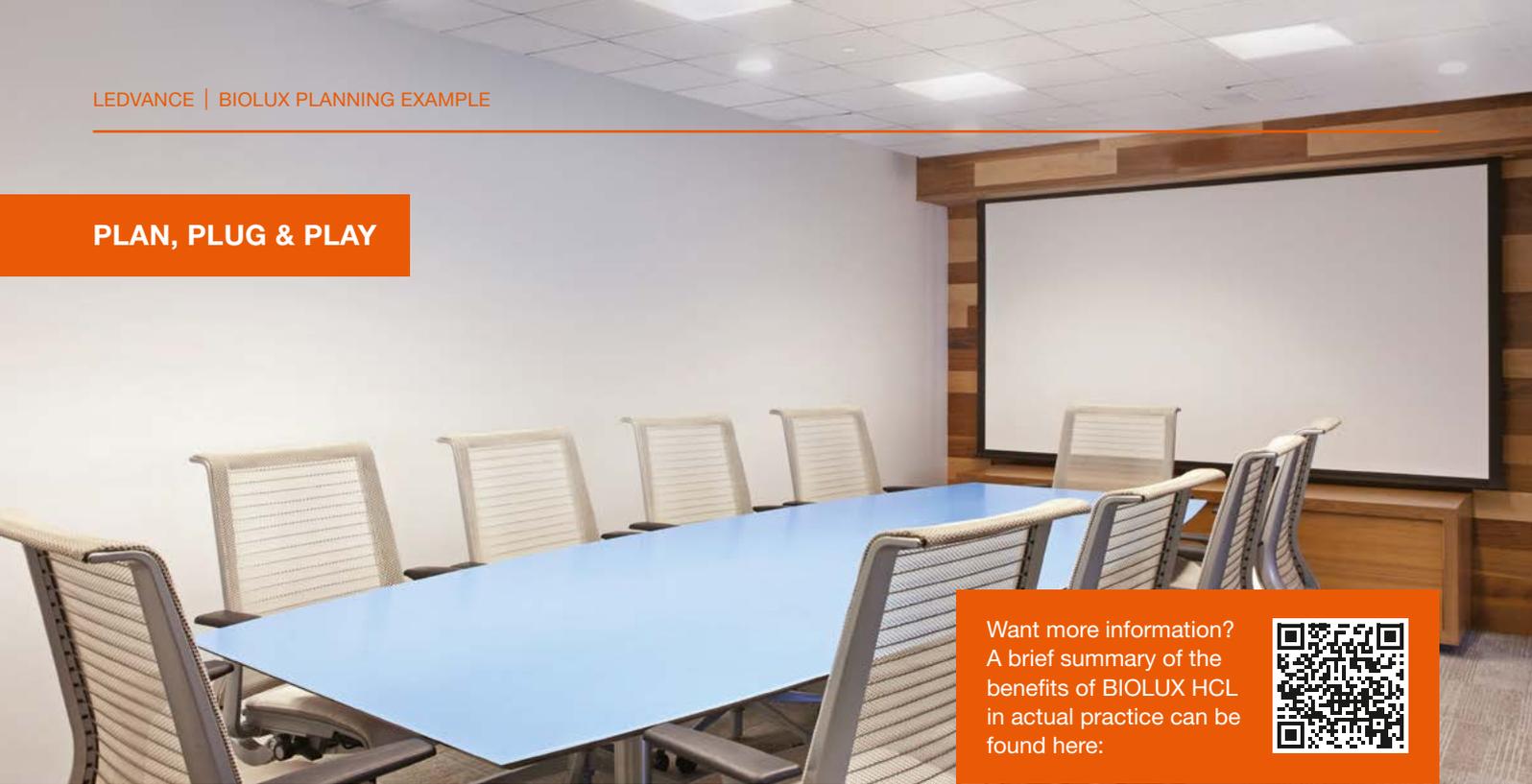
2

### MOTION SENSORS

The updated BIOLUX HCL app allows several sensors to be controlled within the system. The setting options for the sensors are stored in the app. The wireless Zigbee 3.0 presence sensors are ideal for use in offices, for example, because they can be discreetly integrated in ceilings.



**PLAN, PLUG & PLAY**



Want more information?  
A brief summary of the  
benefits of BIOLUX HCL  
in actual practice can be  
found here:



# LIGHT AND SPACE – PLANNING FACTORS FOR HCL

The ideal HCL indoor lighting concept takes into account both the visual and the non-visual effects of light. The aim is therefore not only to ensure good visibility but also to apply the biological properties of light to people. Which planning parameters need to be taken into account? How many luminaires do I need and how should they best be arranged?

## PLANNING EXAMPLES FOR A MEETING ROOM

Room definition: 5.0 x 4.0 m = 20m<sup>2</sup> with little daylight  
Lighting requirements: 400 lux at the eye, 800 lux on the work surface  
Three possible lighting configurations would be suitable.

### OPTION 1:

- 1 BIOLUX HCL Control Unit
- 6 BIOLUX HCL Panel

### OPTION 2:

- 1 BIOLUX HCL Control Unit
- 4 BIOLUX HCL Panel
- 6 BIOLUX HCL Downlights

### OPTION 3:

- 1 BIOLUX HCL Control Unit
- 4 BIOLUX HCL Panel
- 9 Meters BIOLUX HCL LED Strip



Approximately 400 lux is achieved at the user's eye. Optimum support of the biological system for middle-aged users.

## POSITIVE EFFECTS THROUGH INDIVIDUAL HCL CONCEPT

### Short-term positive effects<sup>1</sup>

- After only a short time, HCL lighting has a positive effect on brain functions – performance and concentration levels are boosted

### Long-term positive effects<sup>2</sup>

- Supporting the circadian rhythm promotes well-being, performance and health
- Daylight simulation supports the sleep-wake cycle and therefore contributes to improved sleep, more rest and greater vitality
- Concentration and performance increase noticeably

Source: <sup>1</sup>Journal of Physiology & Behaviour, Vandewalle& Dijk 2009 | <sup>2</sup>www.licht.de/de/grundlagen/nicht-visuelle-lichtwirkungen/praxisbeispiele/biologisch-wirksames-licht-im-buero/

# THE BIOLUX HCL RANGE

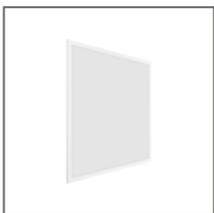


## BIOLUX HCL CONTROL UNIT

- Easy installation in standard flush-mounted boxes
- Automated startup and setup via the BIOLUX HCL app, no programming required
- **NEW:** Integrated On/Off function (like a lighting switch)
- Wireless communication between the control unit and the luminaires thanks to smart technology
- Intuitive control of up to 48 BIOLUX HCL products
- Easy selection of suitable lighting scenes for different work situations



Article name	Product number (EAN)	Ø x H [mm]
BIOLUX HCL Control Unit ZB	4058075308657	84 x 56



## BIOLUX HCL PANEL

- Individual HCL lighting solutions in conjunction with the BIOLUX HCL control unit
- Biologically optimized lighting by adapting the artificial light to the changes in natural daylight
- Through-wiring possible with included connector box
- Good anti-glare properties (UGR < 19)
- Dimming range: 1 – 100 %
- Ready for connection to the BIOLUX HCL control unit
- Low flicker light thanks to special electronic control gear
- **AVAILABILITY: December 2022**



Article name	Product number (EAN)	W	lm	lm/W	°	K	L x W [mm]
<b>NEW</b> BIOLUX HCL PL 600 S 40W TW ZB	4058075724549	40	4400	110	90	2700 – 6500	595 x 595
<b>NEW</b> BIOLUX HCL PL 625 S 40W TW ZB	4058075724563	40	4400	110	90	2700 – 6500	620 x 620
<b>NEW</b> BIOLUX HCL PL 1200 S 37W TW ZB	4058075724587	37	4100	110	90	2700 – 6500	1195 x 295

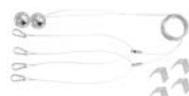
## BIOLUX HCL PANEL ACCESSORIES

### SURFACE MOUNT KIT/ MOUNT KIT VALUE



600 Mount Kit: 4058075472914  
625 Mount Kit: 4058075472938  
1200 Mount Kit: 4058075108820  
600 Mount Kit Value: 4058075402843  
625 Mount Kit Value: 4058075402867

### SUSPENSION KIT



600/625 Suspension Kit:  
4058075402928  
1200 Suspension Kit:  
4058075108844

### PANEL SECURITY KIT 4 x



4058075472990

### RECESSED MOUNT CLIPS 4 x



4058075409859

### RECESSED MOUNT FRAME



600 Frame: 4058075402881  
625 Frame: 4058075402904  
1200 Frame: 4058075472976

### PANEL 1200 SECURITY BRACKET



4058075108882

ON PHASE OUT WITH  
SUFFICIENT STOCK.



## BIOLUX HCL DOWNLIGHT

- Individual HCL lighting solutions in conjunction with the BIOLUX HCL control unit
- Biologically optimized lighting by adapting the artificial light to the changes in natural daylight
- Low flicker light thanks to special electronic control gear
- Good anti-glare properties (UGR < 19)
- Ready for connection to the BIOLUX HCL control unit
- Wireless communication between the control unit and luminaires via Zigbee protocol



Article name	Product number (EAN)	W	lm	lm/W	°	K	Ø x H [mm]
BIOLUX HCL DL DN150 ZB 20W TW	4058075400733	20	1800	90	60	2700 – 6500	175.4 x 89.9

# THE BIOLUX HCL RANGE



## BIOLUX HCL LED STRIP KIT

- Set contains: 1 × LED Strip Superior TW, OT Dali driver 160 W 2CH DT6/8, Zigbee Dali converter with strain relief ECO CI KIT
- Ready for connection to BIOLUX HCL Control Unit
- Biologically optimized lighting by adapting artificial light to natural daylight course
- Wide range of accessories such as profiles, covers, endcaps and mounting brackets available
- Smallest cuttable unit: 100 mm



Article name	Product number (EAN)	W	lm METER	lm	lm/W	°	K	IP
<b>NEW</b> BIOLUX HCL LS S TW ZB KIT	4058075 <b>671270</b>	108	W 950 / W 1060	9140	76	80	2700...6500	IP00
<b>NEW</b> BIOLUX HCL LS S TW IP67 ZB KIT	4058075 <b>671294</b>	108	W 900 / W 1010	8450	79	80	2700...6500	IP67



## SENSOR ZIGBEE

- Wireless Zigbee 3.0 presence sensor for ceiling integration
- Presence detection via passive IR element
- Mounting height: 2...5 m
- Works together with BIOLUX HCL Control Unit & components
- Easy installation and no control wires needed



Article name	Product number (EAN)	V <sub>IN</sub>	Hz	°	°	h m	Ta	Wrench	COLOR	L × W × H [mm] Ø × H [mm]
<b>NEW</b> VIVARES ZB 0 SENS 220-240	4058075 <b>544222</b>	220-240	50/60	90°	7m	5	-20...+50 °C	Recessed	White	85 × 85 × 64

<sup>1</sup>For precise terms and conditions go to [www.ledvance.com/guarantee](http://www.ledvance.com/guarantee)



## ABOUT LEDVANCE



# LEDVANCE

With offices in more than 50 countries and business activities in more than 140 countries, LEDVANCE is one of the world's leading general lighting providers for professional users and end consumers. Having emerged from OSRAM's general lighting division, LEDVANCE offers a wide-ranging portfolio of LED luminaires for a broad spectrum of applications, intelligent lighting products for Smart Home and Smart Building solutions, one of the most comprehensive ranges of advanced LED lamps in the lighting industry, traditional light sources, an LED Strip System and light management systems.

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