Human Centric Lighting

HCL
ESSE-CI

esse-ci
LIVING LIGHT

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HUMAN CENTRIC LIGHTING

Light as a source of wellness

HUMAN CENTRIC LIGHTING

It is a system that demonstrates the **beneficial and positive effects of light on health, general wellbeing, quality of life** and daily activities of people, with short and longterm effects.

CLEVER LIGHT

Light can perform different tasks depending on the area which is called to enlighten, but its role can be more clever thanks to its ability **to blend with the environment** and create an ecosystem aimed at **maximizing the welfare of people living it,** be it a private home or a workspace.

HCL technology allows to **act on some elements of artificial light** to improve the relationship between man and space, closer to the perception of nature.

**IT IMPROVES
THE SIGHT**

**IT FAVOURS THE
BIOLOGICAL NEEDS**

**IT REDUCES
WASTE**

Thanks to the **ESSE-CI kit for light management,** the most advanced **Tunable White** technologies have made possible the easy creation of dynamic profiles for the **regulation of the lighting according to routines** that respect the **Human Circadian Rhythm.**

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HUMAN CIRCADIAN RHYTHM

Natural light plays a fundamental role in the regulation of the natural day-night rhythm and in the **correct stimulation of the "biological clock".**

DAWN 4000K

MIDDAY 5000K

DUSK 2700K
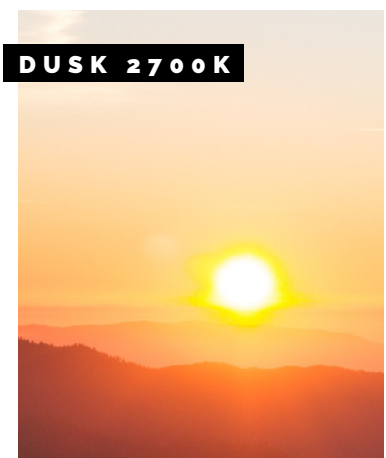
The change of the light colour temperature between cool white and warm white aims to stimulate the activities that take place over during the day.

"According to our natural biorhythm, we humans do not maintain the same level of performance and motivation throughout the day."

Today the dynamic lighting solutions are able to offer valid instruments to replicate and simulate indoor light with conditions of intensity, wavelength and duration, similar to the natural light.

The light cycle dedicated to melanopsin activation is designed to **improve concentration** and **prevent tiredness** by introducing a cold colour temperature at the right time, and to **promote relaxing** increasing performance / productivity through a warmer colour temperatures.

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HUMAN CIRCADIAN RHITHM

Human Centric Lighting is an ambient lighting system that has been conceived considering several factors such as the **quality of the vision, the emotional and biological needs of the people and the reduction of energy waste.**

Given its relevant benefits, such technology can be applied to locations including **educational** establishments (schools, institutes), **commercial** premises (shops, offices), **factories, health areas** (hospitals and nursing homes), **wellness, residencies**, as well as **specific geographical places** or spaces lacking natural light.
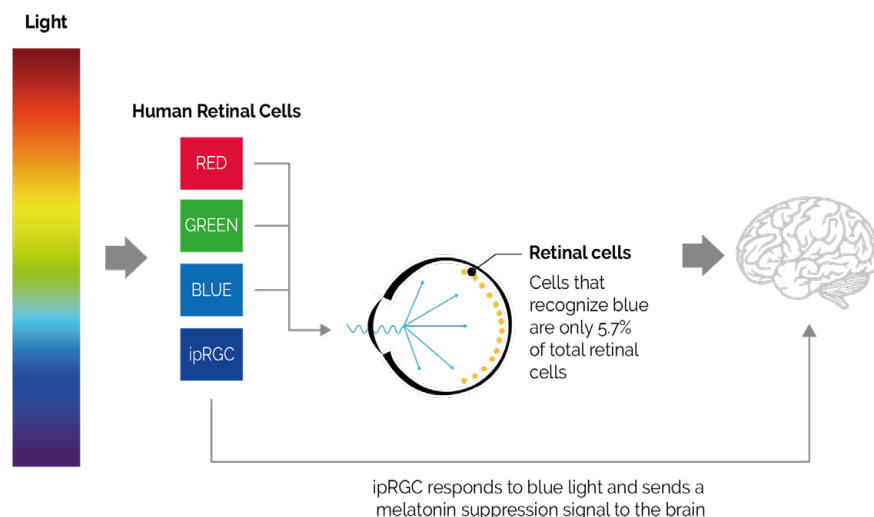
HUMAN CIRCADIAN RHYTHM

OFFICE
- SECURITY
- EFFICIENCY
- FOCUS
- PRODUCTIVITY

HEALTH CARE
- ELIMINATES THE SLEEP/WAKE DISORDERS
- LIMITS THE GROWTH OF DISEASES
- IMPROVES THE MOOD
- FAVOURS THE WELLBEING

WELLNESS
- PROMOTES RELAXATION
- FAVOURS GENERAL WELLBEING
- IMPROVES THE MOOD
- ENHANCES ARCHITECTURE

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LED with low
Blue light emission

Natural light, depending on time, has a different spectrum of light with different wavelengths.

DAWN 4000K

MIDDAY 5000K

DUSK 2700K
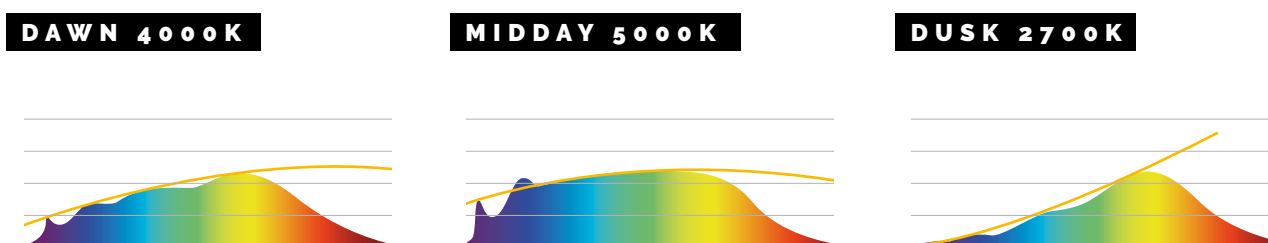
LEDs generally have a high emission in the wavelength of blue which is partially filtered by phosphors.

What is normally called **Blue** is the light composed by the radiation of the visible spectrum with short wavelengths, **between 380 and 500nm.** Therefore, they are potentially **harmful for both eyes and health** as they have an incidence on the sensitive cell ipRGC and they can **affect the production of melatonin** thus disturbing our biological clock and altering the sleep-wake rhythm.
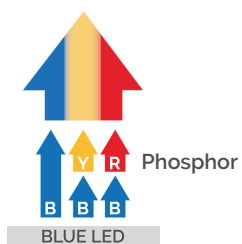

Light

Human Retinal Cells

RED

GREEN

BLUE

ipRGC

Retinal cells
Cells that recognize blue are only 5.7% of total retinal cells

ipRGC responds to blue light and sends a melatonin suppression signal to the brain

Light that enters the eye

LEDs with high level of blue light can be harmful

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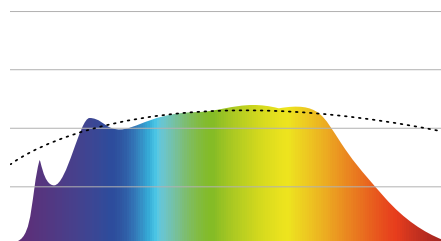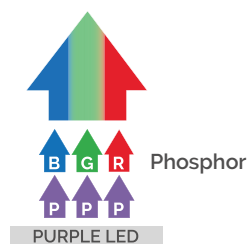LIVING LIGHT

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In HCL system ESSE-CI integrates a new LED technology that can **reproduce the spectrum of natural sunlight,** thanks to the use of purple LED light and a sophisticated combination of phosphori that minimizes the amount of light in the blue range.
This allows to have a **light source with the same features of the natural light.**

BLUE LEDS

Phosphor

Y R

B B B

BLUE LED

ESSE-CI PURPLE LEDS

Phosphor

B G R

P P P

PURPLE LED

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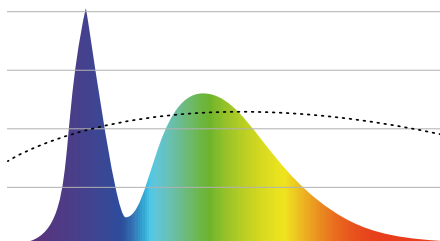
Tunable White technology working for HCL

It is a latest generation LED technology that allows the management of **tunable color temperatures along the Planck curve** from 2.700K to 6.500K, from a warm to a cold light.

The **Tunable White LED modules for HCL applications** contain two close diodes that emit 2700K and 6500K light. By mixing the emissions, all the shades of middle color temperature can be obtained.

The high technology allows steady flux emission in all the colour temperature range.

Using the new DIMKIT-HCL you can exploit Tunable White technologies to create a complete HCL system.

Tunable White is the technology that regulates the color temperature from a warm to a cold white light.

HCL is the transformation of Tunable White technology into an automatic color temperature adjustment system based on the human circadian rhythm to stimulate wellbeing in the interiors.

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Human Centric Lighting

ESSE-CI brings well-being into spaces through light, creating products that can be integrated with Human Centric Lighting technology.
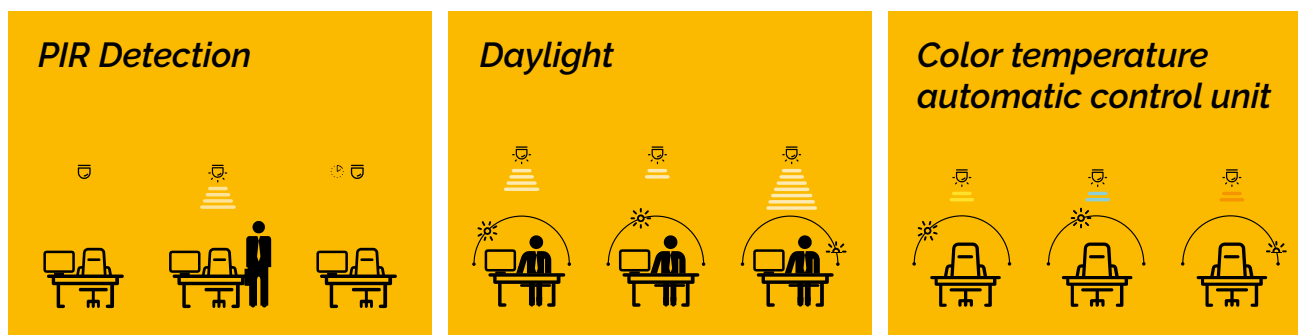
DIMKIT-HCL

From the most advanced Tunable White technologies, ESSE-CI has designed an intelligent system able to create dynamic profiles for the **light management according to the personalised daily routine.**

The HCL light management offer by ESSE-CI, **through the DIMKIT-HCL sensor,** is the advanced and flexible solution to allow you to design the light environment according to the **needs of the user's wellbeing.**

The DIMKIT-HCL sensor performs 3 main functions:

PIR Detection

Daylight

Color temperature automatic control unit

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The kit includes DIMKIT-HCL sensor and infra-red programming unit for setting of predefined discrete parameter values and programmable functions.

DIMKIT-HCL

DIMHCLPROGRAMMER

WIRING DIAGRAM

L 220~240 VAC
N
DA
DA

DADA N L

P1P2

DIMKITHCL

The sensor controls 40 DALI devices
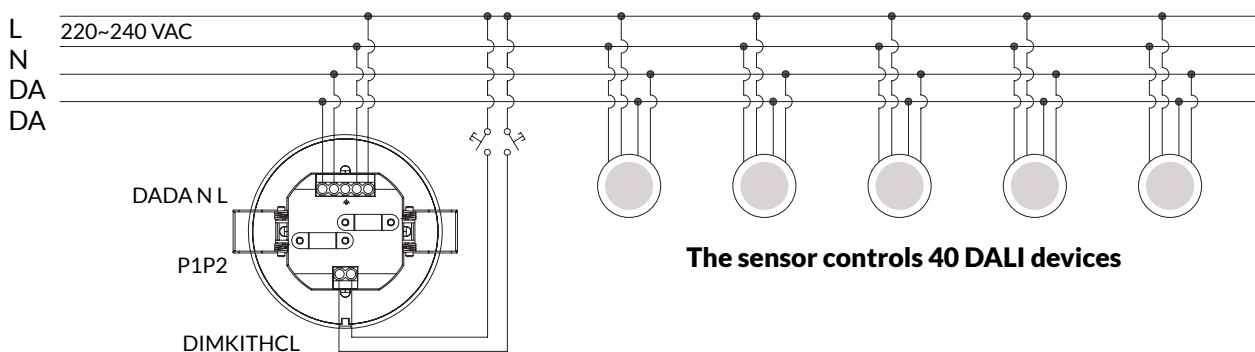
The system works automatically along the day according to the selected mode, presence detection and daylight.
By the way you can have **2 push buttons** to **Switch on/off/Dimm** and select a **temporary color temperature or preconfigured profile.**

DETECTION ZONE

Radius
6m

6m (H)

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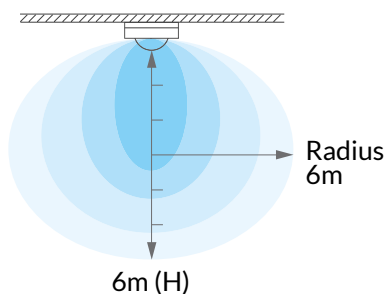
How it works

INITIALIZE & CALIBRATE
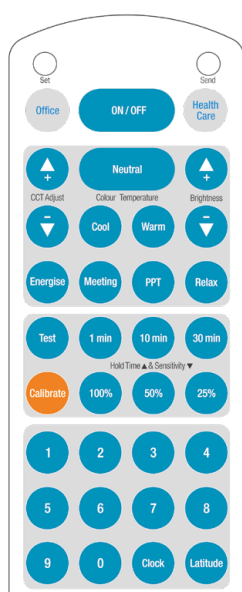
Set-up DIMHCLPROGRAMMER

The Remote control need to be set-up with:

- Time and date
- Latitude adjustment (needed for Healthcare mode)

Calibrate and manage DIMKITHCL

- Upload **Time/date and Latitude** on each sensor
- Set **hold time occupancy sensor** (1,10,30 min)
- Set **Direction range**
- Select from **9 profile modes: Office** (1) or **Healthcare** (8)
  Manual temporary or saved profile can be created
- **Scene Selection** (Energise, Meeting, PPT, Relax, Neutral, Cool, Warm).
  Manual temporary or saved profile can be created

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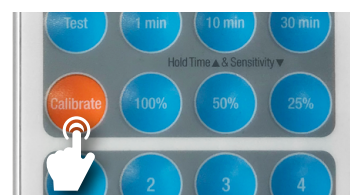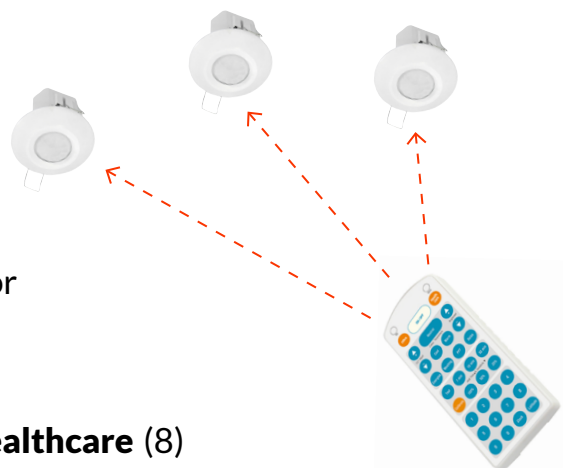
EXAMPLE OF HOW IT WORKS - OFFICE
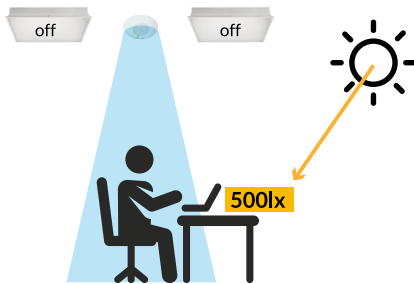
🕐 *8:00 AM*

CONDITIONS

- Presence in the office – **lighting target 500lx**
- **Natural light is enough** to achieve the lighting target

ACTION

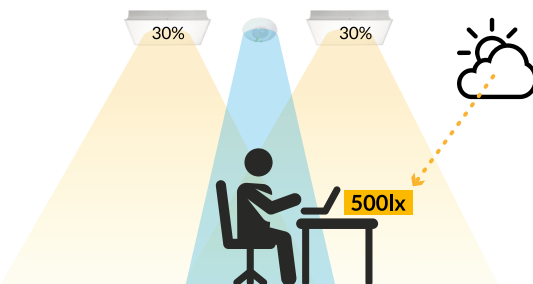- The sensor **doesen't turn on the luminaires**
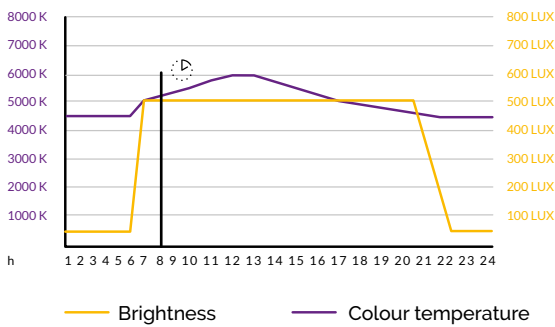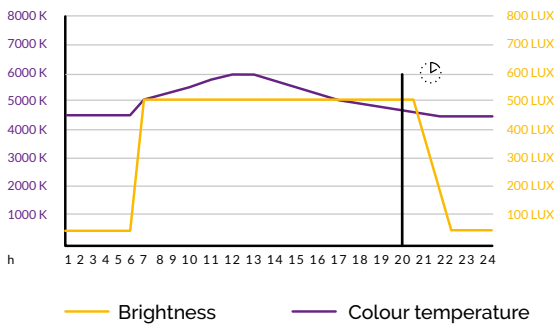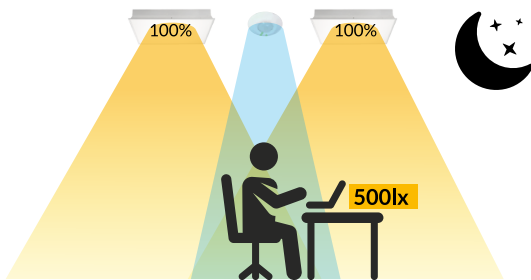

🕐 *12:00 AM*

CONDITIONS

- Presence in the office – **lighting target 500lx**
- The selected **mode Office is 6000K**
- **Natural lighting is low** due to weather conditions and **insufficient** to fully achieve the target

ACTION

- The sensor **partially dimms** the luminaires up to achieve the target

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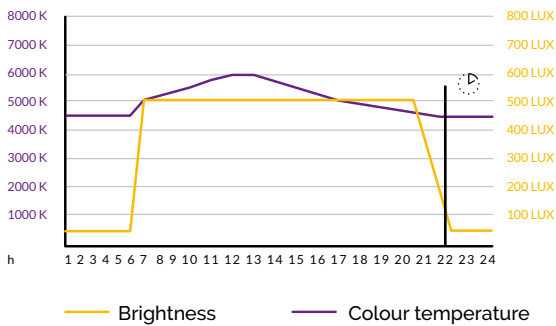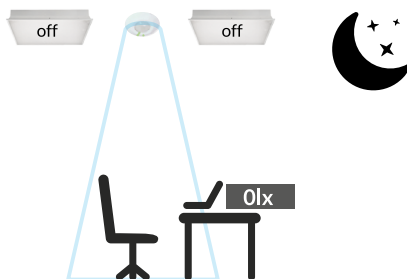
HUMAN CENTRIC LIGHTING
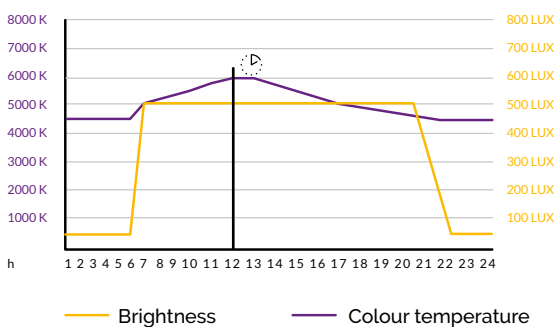
⏱ *8:00 PM*

CONDITIONS

- Presence in the office – **lighting target 500lx**
- The selected **mode Office is 4500K**
- **Insufficient** lighting by **natural light**

ACTION

- The sensor **fully turns on** the luminaires to achieve the target

⏱ *10:00 PM*

CONDITIONS

- No presence in the office

ACTION

- The sensor turns off the light according to the **selected hold time** (1, 10, 30 min)

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Solutions that can integrate DIMKIT-HCL

OUR OFFER

Contact our Sales Office to check the availability of other products with HCL technology

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A B S E N T   H C L

O P T I C

· DPL: Diffuser in Diamond Prism LED Technology with
  UGR<19 for ambient with display screen equipment.
· PG: Diffuser for diffused emission with UGR<22

85 | 597 | 597
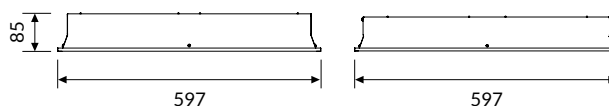
IP 40 A⁺⁺

V E R S I O N S //

D P L

COD	💡	lm
41DPL38HCL	38W	3840

P G

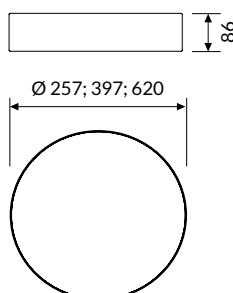| COD	💡	lm
41PG38HCL	38W	3994

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K
· DALI DT8 Driver
· Controllable with N/A button or DIMKITHCL management system

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B E N   H C L

O P T I C

PG diffuser, frosted Acryl-Satiné and impact resistant with perimeter silk-screen printing, UGR<22.

86

Ø 257; 397; 620

IP 40   A⁺

V E R S I O N / /

COD		lm	Ø (mm)
10PG24HCL	24W	2208	257
10PG32HCL	32W	2944	397
10PG80HCL	80W	7360	620

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K

· DALI DT8 Driver

· Controllable with N/A button or DIMKITHCL management system
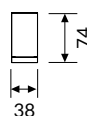
esse-ci
LIVING LIGHT
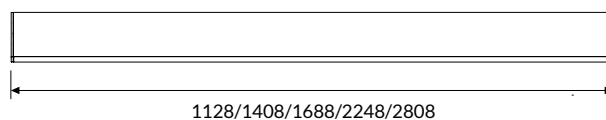
HCL
ESSE-CI

HUMAN CENTRIC LIGHTING

B R I G H T   H C L

O P T I C

· DPL technology diffuser to control glare UGR <19

· PG diffuser for soft diffusion with UGR<22

74

38

IP 40   A⁺⁺

1128/1408/1688/2248/2808

V E R S I O N S //

D P L

COD	💡	lm	mm
80DPL48HCL	48W	3480	1128
80DPL60HCL	60W	4350	1408
80DPL72HCL	72W	5220	1688
80DPL96HCL	96W	6960	2248
80DPL120HCL	120W	8700	2808

P G

COD	💡	lm	mm
80PG48HCL	48W	4260	1128
80PG60HCL	60W	5325	1408
80PG72HCL	72W	6390	1688
80PG96HCL	96W	8520	2248
80PG120HCL	120W	10650	2808

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K

· DALI DT8 Driver

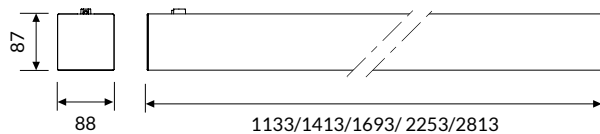· Controllable with N/A button or DIMKITHCL management system

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G R O O V E   H C L

O P T I C

Direct emission with DPL technology diffuser (UGR<19).

87

88   1133/1413/1693/ 2253/2813

IP 40   A++

V E R S I O N / /

D P L

COD	💡	lm	mm
43DR48DPLHCL	48W	3840	1133
43DR60DPLHCL	60W	4800	1413
43DR72DPLHCL	72W	5760	1693
43DR96DPLHCL	96W	7680	2253
43DR120DPLHCL	120W	9600	2813

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K

· DALI DT8 Driver

· Controllable with N/A button or DIMKITHCL management system
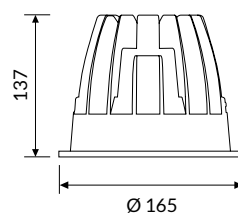
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H A L L   L E D   P R O   H C L

O P T I C

Internal aluminum reflectors with transparent glass:

10° - 20° - 40° - 70° beam angles.

CUT OFF > 30°.

137

Ø 165

Ø 150

* For hole 200mm see the accessory
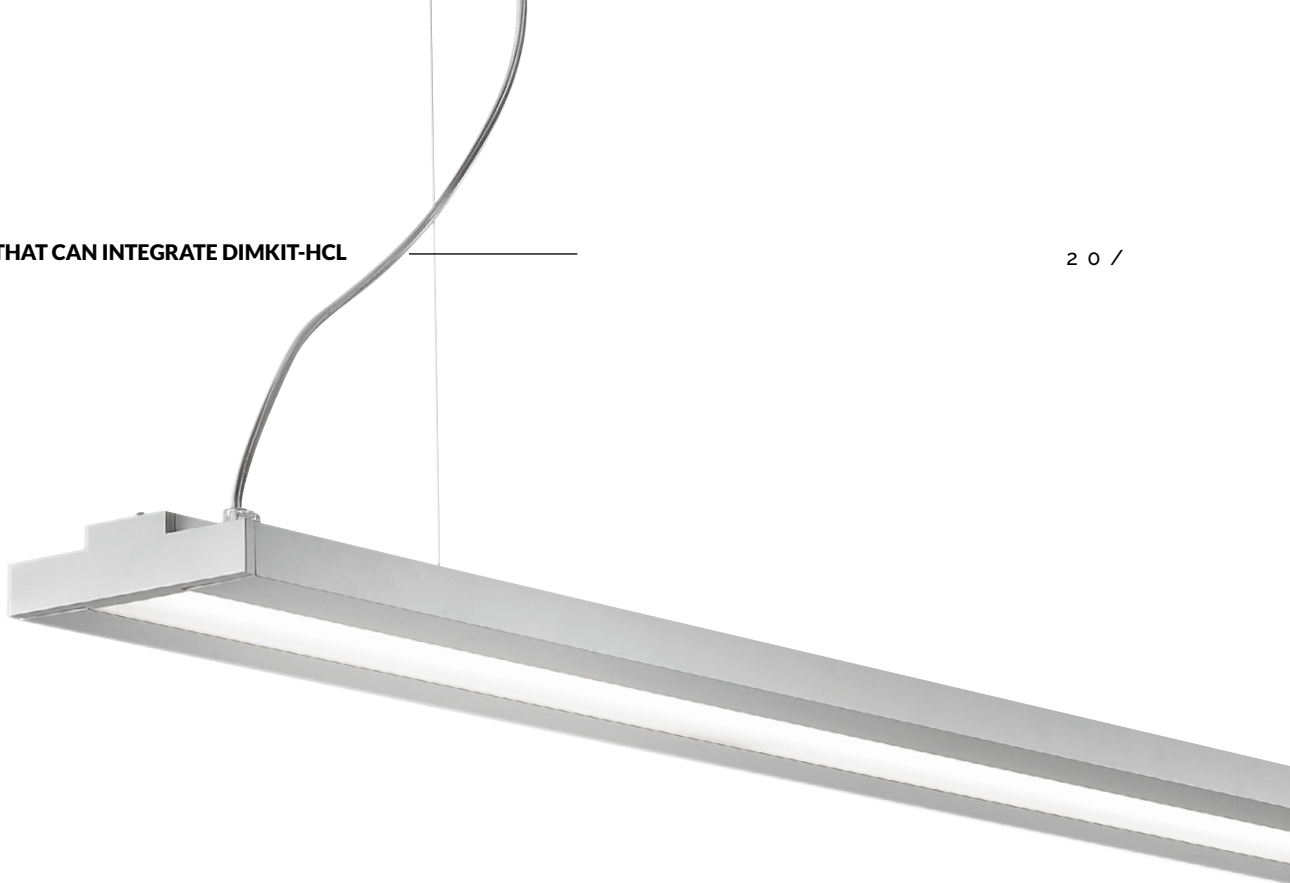
IP 44   A ▶

V E R S I O N   //

M e d i u m

COD	💡	lm
38VT22HCL10	22W 10°	1719
38VT22HCL20	22W 20°	1719
38VT22HCL40	22W 40°	1719
38VT22HCL70	22W 70°	1719

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K

· DALI DT8 Driver

· Controllable with N/A button or DIMKITHCL management system

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LIVING LIGHT

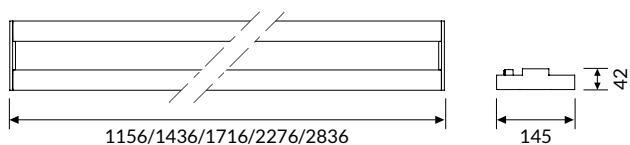HCL
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L I N T   E V O   H C L

O P T I C

· DPL (Diamond Prism LED) technology with UGR<19.
· PG diffuser for even diffused emission with UGR<22.

1156/1436/1716/2276/2836

42

145

IP 40   A⁺⁺

V E R S I O N S / /

D P L

COD	💡	lm	mm
79DI48DPLHCL	48W	3720	1156
79DI60DPLHCL	60W	4650	1436
79DI72DPLHCL	72W	5580	1716
79DI96DPLHCL	96W	7440	2276
79DI120DPLHCL	120W	9300	2836

P G

COD	💡	lm	mm
79DI48PGHCL	48W	3900	1156
79DI60PGHCL	60W	4875	1436
79DI72PGHCL	72W	5850	1716
79DI96PGHCL	96W	7800	2276
79DI120PGHCL	120W	9750	2836

S P E C I F I C A T I O N S
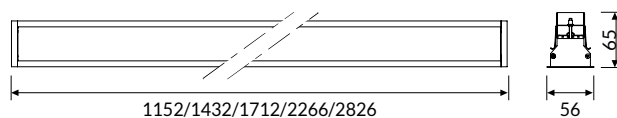
· Colour temperature range from 2700K to 6500K
· DALI DT8 Driver
· Controllable with N/A button or DIMKITHCL management system

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L I V I N G   L I G H T

HCL
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O V V I O   D I S P L A Y   L E D   H C L

O P T I C

PMMA diffuser for a soft emission with no shadow evident.

1152/1432/1712/2266/2826

56

.65

IP 40   A⁺⁺

V E R S I O N   / /

P G

COD	💡	lm	mm
40PG48HCL	48W	3780	1152
40PG60HCL	60W	4725	1432
40PG72HCL	72W	5670	1712
40PG96HCL	96W	7560	2266
40PG120HCL	120W	9450	2826

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K
· DALI DT8 Driver
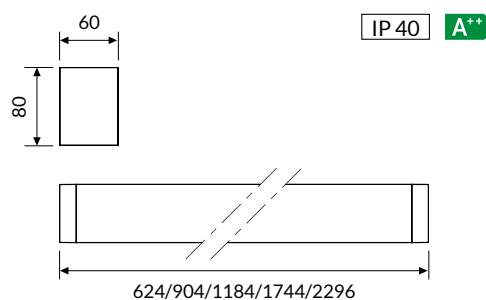· Controllable with N/A button or DIMKITHCL management system

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L I V I N G   L I G H T

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S E M P L I C E   L E D   H C L

O P T I C

PMMA technopolymer with surface treatment for comple-
tely uniform light distribution. Integrated LED technology.

60

80

IP 40   A⁺⁺

624/904/1184/1744/2296

V E R S I O N //

COD	💡	lm	mm
67PG24HCL	24W	1740	624
67PG36HCL	36W	2610	904
67PG48HCL	48W	3480	1184
67PG72HCL	72W	4350	1744
67PG96HCL	96W	6960	2296

S P E C I F I C A T I O N S

· Colour temperature range from 2700K to 6500K

· DALI DT8 Driver

· Controllable with N/A button or DIMKITHCL management system

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