



# THE NEW AGE OF LIGHTING

**HUMAN CENTRIC LIGHTING (HCL)**

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A serene beach scene at sunset. The sun is low on the horizon, casting a warm, golden glow over the sand dunes and the ocean. The sky is a mix of soft pinks, oranges, and blues. In the foreground, there are several stalks of beach grass, some in sharp focus and others blurred. The overall mood is peaceful and contemplative.

LIGHT IS CRUCIAL FOR  
**how we feel**  
DAY & NIGHT

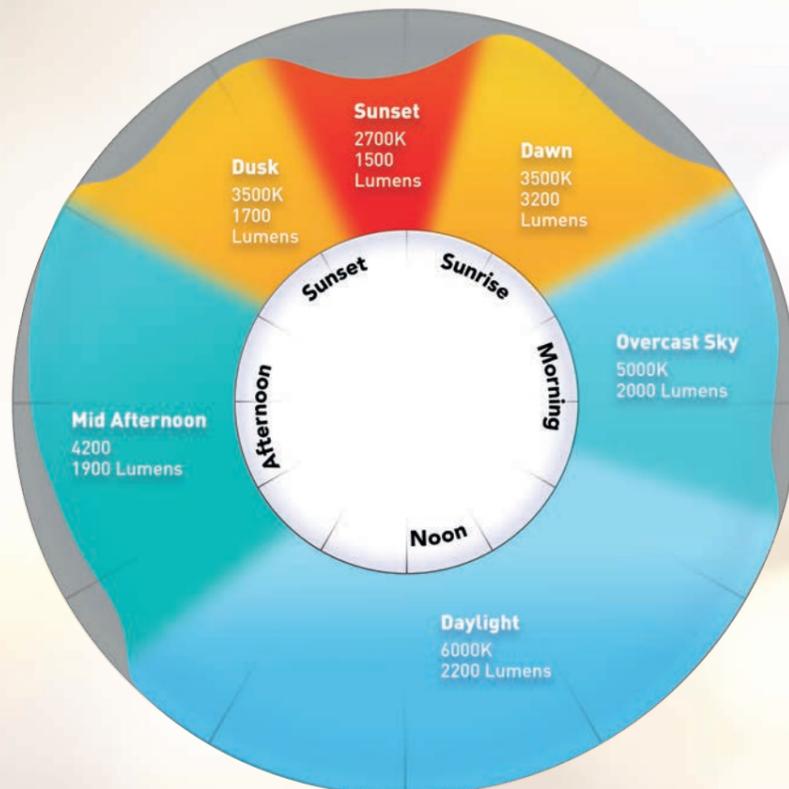


# HOW HUMAN-CENTRIC LIGHTING WORKS?

Human Centric Lighting (HCL) systems feature controllable lighting that sits on a spectrum of correlated colour temperatures (CCTs). The systems are designed to evoke human biological responses and support health, well-being, and performance. CCTs are measured in Kelvin (K) and range from 2700k (warm) to 6500K (cool), a broad spectrum that gives them the ability to evoke different responses on a biological level.

Humans have developed to respond to the light around them: they are most alert during the middle of the day and are attuned to the rising and setting sun as its time changes throughout the year. HCL lighting systems can trigger this response if natural light is unavailable. CCT levels have three central agencies; cool (blue) temperatures are used to keep us alert, warm (yellow) temperatures are calming and are often used in healthcare facilities to enhance patient comfort, and medium (white) temperatures may improve the quality of sleep.

## CCT 24 HOUR DISTRIBUTION



# BENEFITS OF HUMAN CENTRIC LIGHTING:



## IMPROVED HEALTH AND SLEEP

HCL can significantly boost patient and staff comfort, in turn helping to achieve high health outcomes. Additionally, it can regulate the production of important hormones and helps in proper functioning of circadian rhythm.



## PRODUCTIVITY AND ENHANCED PERFORMANCE

According to Lighting Society Europe, HCL significantly enhances performance and wellbeing, to the point of enhancing productivity by 4.5%, reducing errors by 2%, and slashing absentee rates.



## VISUAL ACUITY

Lighting has a direct impact on visual acuity. Light sources with higher amounts of blue light stimulate the intrinsically photosensitive retinal ganglion cells (ipRGC) photoreceptors, which in turn cause the pupils to contract. This contraction results in better visual acuity and allows clearer vision for longer, as the eye accommodates – rather than is stressed by – the light. While this clarity is not ideal at all times of day, it may aid healthcare and aged care employees in working effectively for extended periods of time.



## SAFETY

As HCL systems significantly improve visibility, they can reduce the risk of trips and falls, which can be a major cause of injury in Australian workplaces.



# HCL AREAS OF APPLICATION



## WORKPLACES/OFFICES

HCL can help improve learning, increase concentration and performance, improve efficiency and accuracy and contribute to positive social behaviour and circadian rhythm. It can also assist in reducing fatigue and errors in the day-to-day work.



## EDUCATION/SCHOOLS

HCL can help in increasing efficiencies and performance in studies by promoting circadian rhythm. In some cases, it can assist in promoting better sleep.

An HCL for the classroom can consist of 5 controls – general light (classroom light), reading, concentration, energy boost, relaxation.



## HEALTHCARE & AGED-CARE

HCL can assist in improving learning and concentration in aged care facilities. It can also help to improve human well-being and health by adapting to support circadian rhythm, potentially assisting with cognitive function amongst aged patients.

For hospital staff working at night, HCL can reduce fatigue and help them to serve their patients better.

By providing improved circadian rhythm from by Human Centric Lighting, we can get better sleep which can assist in achieving better health.



**ENHANCING LIFE'S EXPERIENCES**  
through creating innovative and  
sustainable lighting solutions

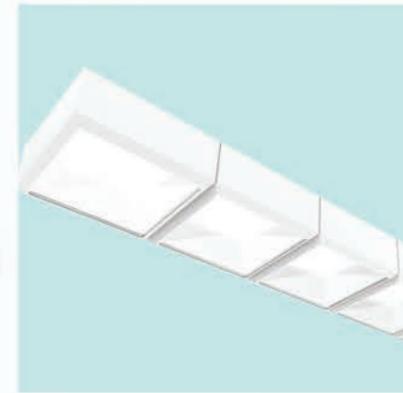


## LUMINAIRES FOR HCL TUNABLE RANGE FROM GERARD LIGHTING

For years, GLG has led the Australian market in manufacturing and distributing premium residential, commercial, roadway, and infrastructure lighting solutions. GLG's expert in-house engineering and design team allows the swift development of cutting-edge products and bespoke lighting solutions.

GLG now offers tunable troffers that can assist in achieving desired outcomes for HCL systems. Products such as GenLED, DLED and Scriptus can now be used in projects that are being designed to achieve WELL standard certification.

**siteco**



Siteco Scriptus

**PIERLITE**  
professional lighting solutions



PIERLITE DLED

**PIERLITE**  
professional lighting solutions



PIERLITE GenLED

These are recommended tuneable white products that may assist Lighting Designers to achieve certain colour temperatures during certain time frames, hence supporting Human Centric Lighting. The HCL system needs to be designed and warranted by the lighting designer/architect or the contractor involved.

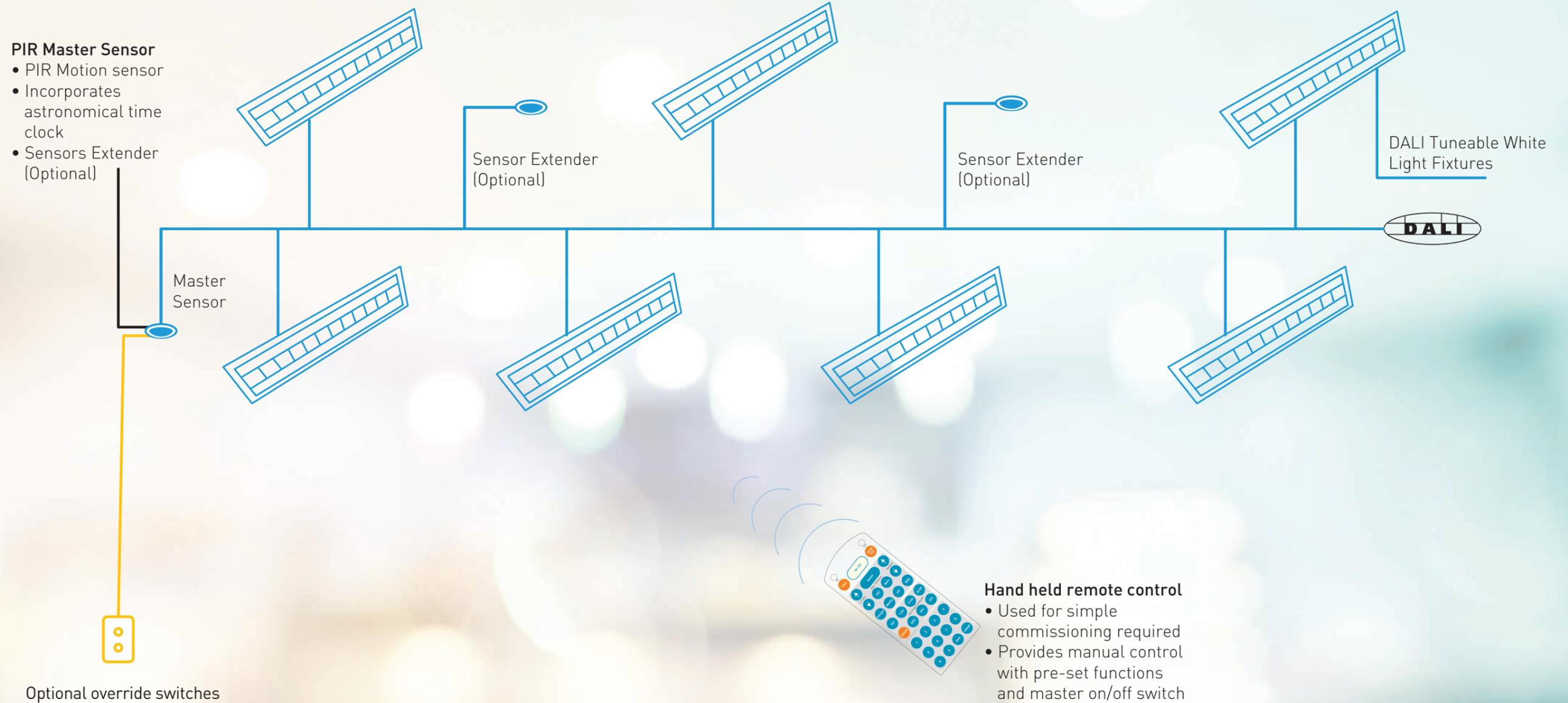
# THE TECHNOLOGY BEHIND HCL

## OPTION 1: SMALL TO MEDIUM INSTALLATION

THE RIGHT LIGHT FOR OUR ACTIVITIES,  
AT THE RIGHT PLACE AND THE RIGHT TIME

### SMALL TO MEDIUM SOLUTION

- A simple de-centralised human centric lighting solution designed for small to medium installations
- Astronomical time clock in-built
- Simple to commission with the IR remote control handset



# THE TECHNOLOGY BEHIND HCL

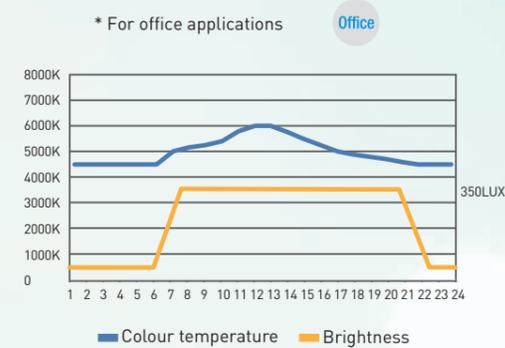
## OPTION 2: FOR LARGE INSTALLATION

The RAPIX Lighting Control System is designed to communicate directly with both Ethernet and DALI. Ideal for larger installations including multi-level commercial applications and a wide range of industrial applications. Simple, fast and scalable, the RAPIX Integrator software is used to quickly and easily configure lighting zones/groups and scenes throughout a building.



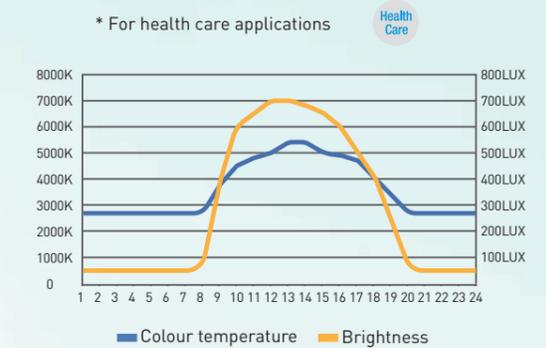
## SYSTEM OVERVIEW

### TYPICAL PROFILES FOR HEALTHCARE AND OFFICE



In these environments the brightness level does not change during business hours

The colour temperature starts at 4500k and rises to a maximum of 6000k around the middle of the day to simulate the most amount of sunlight.



In these environments the brightness levels change significantly between 9am to 12pm, and again from 12pm to 8pm.

The colour temperature starts at 2700k and rises to a maximum of 7000k around the middle of the day.

People in healthcare environments are exposed to artificial lighting for much longer periods than in an office environment, hence the larger shift in brightness and colour temperature simulating the rising and setting of the sun.

Building wide communication

Light fitting communication



### DAYLIGHT HARVESTING

Light level sensors help to cut energy use by reducing artificial light when adequate natural light is available.



### ENERGY SAVINGS

Well designed lighting control can save up to **\*60% of lighting energy**, without compromising light quality, user comfort or safety



### TIME-BASED CONTROL

Scheduling time based control on clock times, sunrise or sunset or for specific work tasks.



### SCENE SETTING

Pre-arranged lighting effects in each 'scene' can be configured to facilitate a range of activities



### OCCUPANCY-BASED CONTROL

Movement sensors can be used to automatically dim or switch off lights in unoccupied areas.



### PERSONAL TUNING

Giving employees the ability to personally 'tune' their lighting based on their task, mood and personal preferences.

## TYPICAL OFFICE APPLICATION



Light will not switch on when natural light is sufficient, even there is motion detected.

The light switches on automatically with presence when natural light is insufficient.

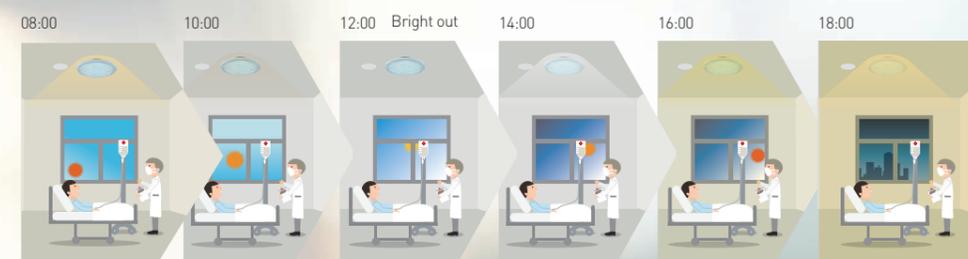
The light turns on at full or dims to maintain the lux level. The light output regulates according to the level of natural light available.



The light dims down and eventually turns off when the ambient natural light is sufficient.

The light switches off completely after hold-time.

## TYPICAL HEALTH CARE APPLICATION



\* Source: Green Building Council Australia

# NATURAL LIGHT 24 HOURS





[www.glg.lighting](http://www.glg.lighting)

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