



Tunable White
Customise your environment

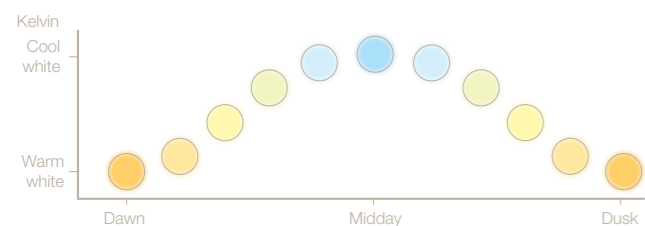


Creating dynamic spaces

Today's interiors are dynamic, changing spaces. Whether in a commercial, healthcare or education environment, spaces need to be flexible and adapt to a variety of uses. Lighting plays a key part in setting the mood of a space and colour temperature can have a dramatic affect on the feel of any interior. The widespread adoption of LED technology allows the lighting designer to now not only choose a particular colour temperature, but allow this to be altered dynamically to suit the varying use of the space.

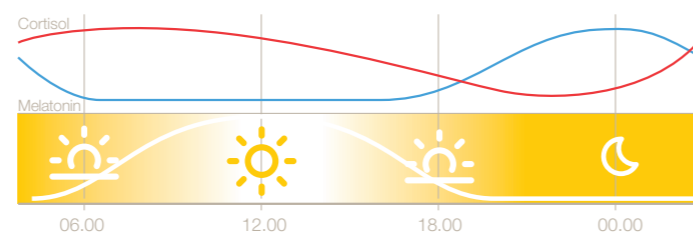
Lighting for mood

There is a wide variety in what is considered 'white light'. White is considered to reflect natural daylight, but this changes during the course of the day from a warm white at the start and end of the day to a very cool white at midday. Most standard white lighting solutions are 4000K, which is pitched near the centre of its range. Differing temperatures change the mood of a space with warmer temperatures being more relaxing; cooler temperatures creating a more motivating space.



Lighting for people

Light does not only affect the mood of a space, but it impacts on the mood of the people occupying the space. Our bodies are tuned to a natural circadian rhythm, with our hormones affected by colour temperature, making us naturally more alert at certain times of day. The lack of change in colour temperature in an indoor environment can have a negative affect on our well-being, resulting in lethargy and tiredness. Changing the colour temperature during the course of the day helps to keep us alert and attentive.



The graph above shows how our natural hormones are affected by the passage of time and changes in colour temperature. Cortisol is our waking hormone whilst Melatonin controls our sleep patterns.

In a commercial environment, tunable white lighting can:

- improve productivity
- improve staff welfare
- create a vibrant workplace
- bring flexibility to multi-use spaces





Selectable white

The simplest way to create tunable white lighting is by implementing a selectable white system. This is a simple system that is pre-programmed with a series of different colour temperatures, controlled by a scene-setting wall plate. From this the user can simply select the desired colour temperature.

Putting the user in control

In smaller applications such as meeting rooms, classrooms or ward areas, our Freedom stand-alone system combined with any of our tunable enabled luminaires will allow the user independent control of their environment. For building-wide solutions our Command Elite lighting control system can achieve the same levels of control with a simple wall-switch in each control area.

Pre-programmed scenes

Whichever control system you choose, a series of pre-programmed scenes can be simply selected, changing the mood of the space to meet the demands of the user. A choice of pre-programmed scenes are available to suit different applications, whether commercial, healthcare or education. Selectable white systems can add flexibility to any space, allowing the user to choose the right colour temperature for any task. This is particularly useful in multi-use spaces, which may require a motivating ambiance for meetings, whilst a more relaxed environment may be sought for social occasions.



Command Elite scene plates allow simple control over the lit environment

In a healthcare environment, tunable white lighting can:

- decrease recuperation time
- improve patient sleep patterns
- give patients control over their environment
- enhance quality of care

2700°K



3000°K



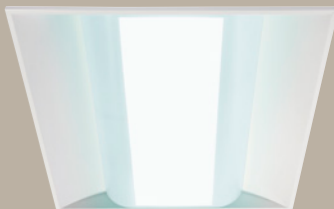
4000°K



5000°K



6500°K

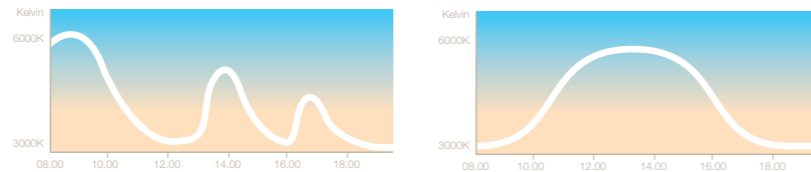


Dynamic white

Natural light is constantly changing. From dawn to dusk the colour temperature will vary dramatically, and our bodies respond to this change. This circadian rhythm helps us to concentrate at certain times and relax at others. Dynamic white systems will change the light over time, creating a lit environment in step with our physical patterns. Whether a standalone room or an entire building, our control systems and luminaires can be used to bring lit environments to life, creating the most naturally lit spaces.

Optimising the environment

Dynamic white systems can be used to mimic the natural cycle of daylight, or can be programmed to create specific scenes at certain times of the day. You may choose longer periods of more motivating light at peak times, or to seamlessly move between relaxing and motivating lighting scenes to match work and break times during the day. Systems can be pre-programmed to meet the demands of the user, or commissioned on site and updated at any time.



Command Elite dynamic white controls can be programmed to change light over time, either to match the natural circadian rhythm or to provide motivating peaks at times where our bodies are naturally lethargic.

9.00 AM



3000K

11.00 AM



4500K

1.00 PM



6000K

3.30 PM



5000K

5.30 PM



3500K

In an education environment, tunable white lighting can:

- improve concentration
- improve learning outcomes
- create a dynamic learning environment
- match the lighting to the learning need

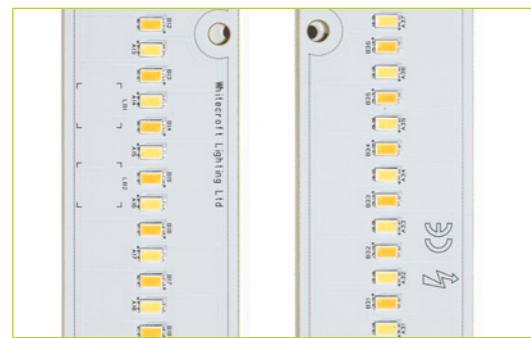
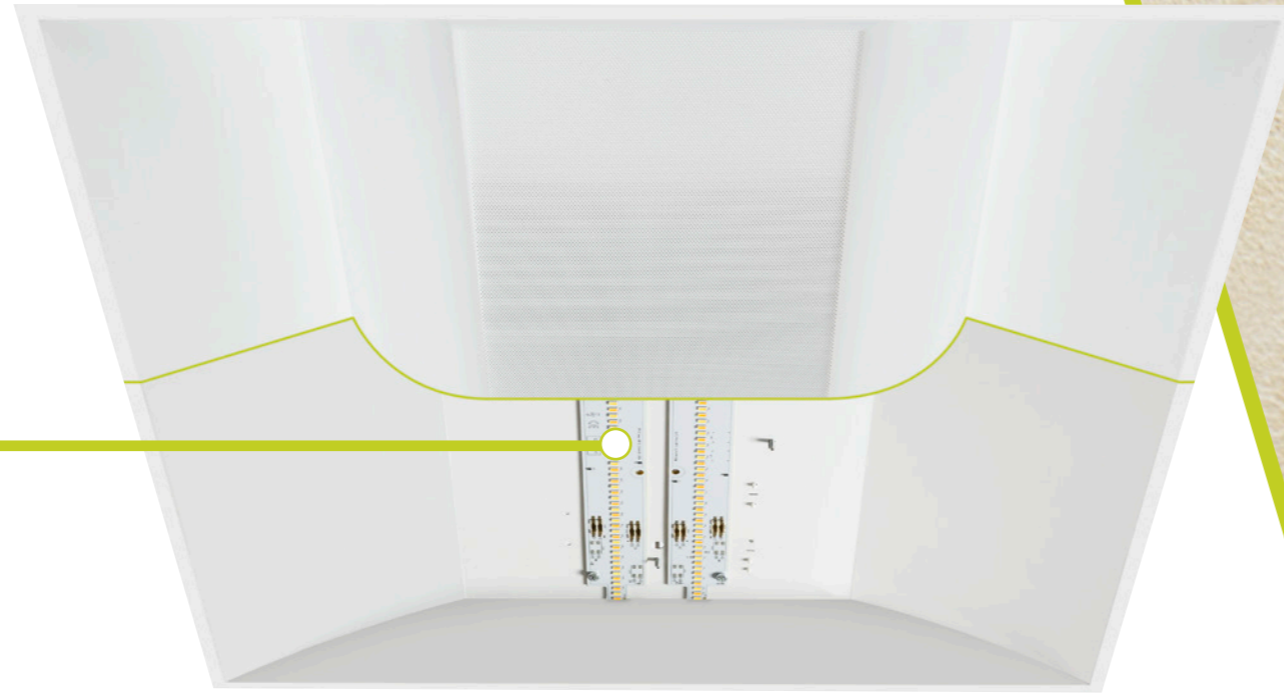


How the system works

Tunable white systems consist of two elements. A tunable luminaire which uses a combination of different colour temperature LEDs, and a control system that either automatically changes the colour throughout a defined period or a manual control interface which allows the user to select the desired colour temperature.

Dual LED light engines

A tunable light engine consists of a series of pairs of LEDs, one 2700K, the other 6500K. Each pair is positioned on the light engine so that they can be seamlessly dimmed to any position on the colour temperature spectrum without affecting the lighting quality, thus allowing an unnoticeable transition between warm and cool white. High quality single bin LEDs are used to ensure a consistent appearance across all luminaires. Our in-house LED manufacturing capability ensures these rigorous quality standards are maintained.



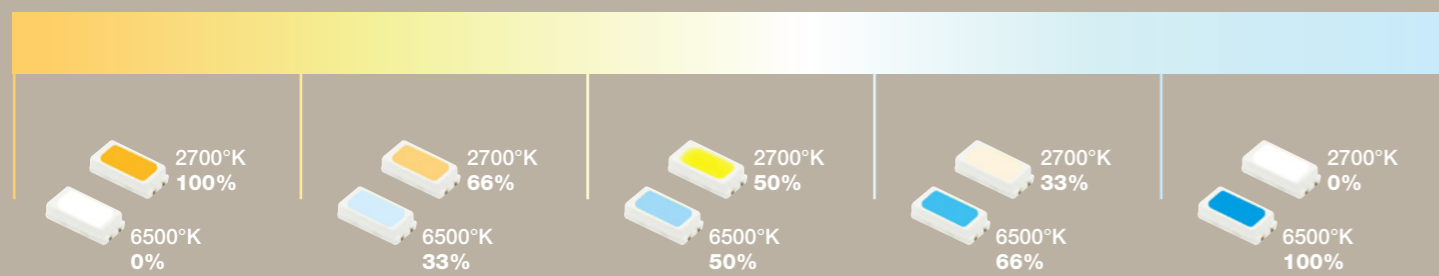
Control systems

The pairs of LEDs are linked to a DALI lighting control system which can dim between the coolest and warmest of whites. This can either be controlled by a manual interface, allowing the user to pick a suitable colour temperature for a given task, or be automated to allow the lighting to run through a pre-programmed cycle. These cycles can be specifically programmed to meet the need of the user, or a series of standard cycles can be selected.



2700°K

6500°K



Product solutions

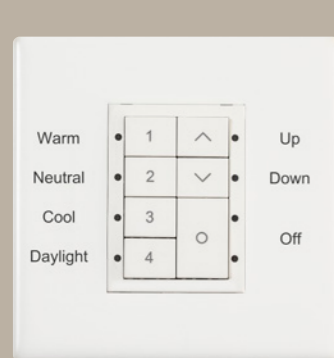
Local area controls

For small applications such as reception areas or boardrooms, the Freedom control system can deliver all of the benefits of tunable white. Simply controlled by a single touch screen panel, either selectable or pre-programmed dynamic white can be chosen. The touch screen panel controls both colour temperature and dimming, so the perfect mood can be set for any application. A single Freedom wall panel can control up to 16 drivers.



Building wide controls

When a larger application is required, our Command Elite system can be specified. Each router can control up to 128 devices (subject to load) and routers can be linked to provide true building-wide control. Individual rooms can be configured and programmed to follow completely customisable dynamic schemes, whilst a range of wall plates are available allowing individual override or control of local areas.



Compatible luminaires

Our tunable white system is available in a wide range of luminaires, suitable for a multitude of applications. All of the luminaires below can be specified with tunable white and are compatible with either local or wide area control systems.

Cascade LED

600mm x 600mm



Tegan

600mm x 600mm



Avenue (recessed and suspended)

1200mm



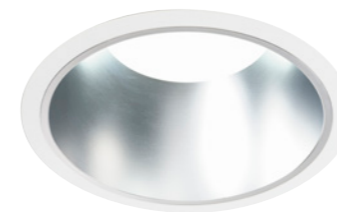
Cityline

1200mm x 300mm



Mirage LED

180mm Diameter



Careline

1200mm x 1800mm



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Total Project Solutions

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