PHILIPS

Networked Lighting

Tunable white

LED

You need lighting that is as fluid as your life

Philips tunable white lighting solutions provide more than illumination. Through a combination of light quality, color, and intensity, they help create environments that can be tailored to occupants' needs and preferences.

The effect of lighting on daily life

Lighting has a profound effect on the human body. It's more than just how we see. It also affects how we feel and how we function. Philips tunable white solutions are designed to help maximize the influence of lighting on your daily life.
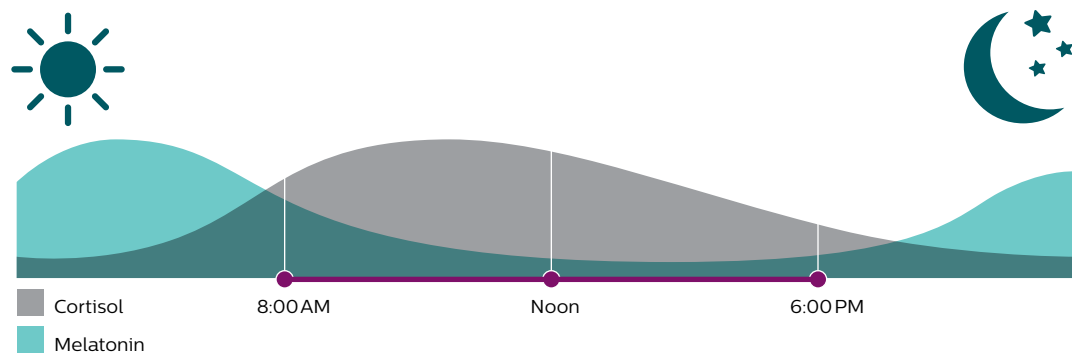
Watch Video: https://www.youtube.com/watch?v=Oe3WLnvBT9A
Search: 'Philips Tunable White' on YouTube'

Lighting affects
your biological clock

■ Cortisol	8:00 AM	Noon	6:00 PM
■ Melatonin			

The effect of light on our biological clock is important as it influences many aspects of our physical and emotional well-being. This biological clock is regulated by light and darkness, by the daily cycles of night and day and the time we spend asleep and awake.

In the morning, as the sun comes up, light levels increase, the color of light shifts towards cooler color temperatures, and we wake up and become active. On the other hand, in the evening, as the sun goes down and the color of light shifts towards warmer color temperatures, we unwind, relax and prepare for sleep.

Our body's hormone levels rise and fall with these light cycles. Cortisol production increases with morning light and decreases throughout the course of the day. Melatonin levels increase as darkness sets in and decrease as morning approaches.

In our modern society, we spend much of our time indoors – at home, in a school, office, shop or hospital. Those who have to stay indoors for significant parts of their time under static lighting conditions run the risk of disrupting their biological rhythms.

Explore **lighting that adapts to your life**

Philips tunable white solutions offer the freedom to create different ambiances in offices, schools, retail spaces, and healthcare environments.

Dynamics

The dynamic feature of Philips tunable white solutions allow you to automatically mimic daylight patterns by adjusting color temperature and brightness levels with respect to the time of day.

Scene set

A combination of predetermined presets instantly sets the scene for room ambiance that supports the next scheduled task or spontaneous activity. These preset settings have been shown to help people stay focused and alert. By default, the system offers 4 different presets – Standard, Presentation, Focus and Calm. These presets can be altered and customized to suit your unique needs.
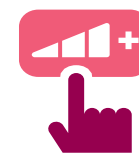
Personal control

Get more flexibility and easily change LED intensities and correlated color temperature (CCT) from warm white (2700K) all the way to cool white (6500K).

Create engaging work spaces

Provide the right light, with the right spectral content, at the right time.

Philips tunable white solutions provide illumination that allows employees to focus on the task at hand and keep people involved and engaged throughout the day.

Optimize performance and enhance collaboration

Achieve more visual variation in the office by gradually changing intensity and color temperature during the day and support general well-being of your employees[1,2].

Increase space usage with presets

Flexibility in ambiance setting gives the opportunity to use the same space for different activities. For functional activities, lighting can be adjusted to cooler temperatures and higher intensities to support concentration and focus. For activities requiring creativity and cooperation, lighting can be adjusted to warmer temperatures and lower intensities[3,4].

Empower to achieve more

By fine-tuning lighting to individual needs and preferences, employees are empowered to achieve more. Optimization of color temperatures and brightness provide for better visual comfort, leading to increased satisfaction[5,6,7].

Application: Office

Standard:
This setting activates standard white light that is designed to help your employees be more alert while carrying out their daily functional activities[3,4,8,9].

Presentation:
This setting generates warmer color temperature light at lower intensities for more discussions and presentations[3,4,8,9].

Focus:
Cooler color temperature at higher intensity levels provides illumination that is designed to help employees focus on the task at hand[3,4,8,9].

Calm:
This setting is recommended for creative and brainstorming sessions where employee cooperation and engagement is desired[3,4,8,9].

Unlock
student potential

Use light to focus, motivate, and achieve.

Philips tunable white solutions allow teachers to easily activate multiple lighting scenes from a Philips Antumbra keypad.

Enhance learning

Help maximize student learning potential by allowing for indoor lighting to mimic the natural patterns of daylight that human bodies respond to and help students stay focused and alert[4,9].

Get in control and transform educational spaces

With a simple touch of a button, teachers can activate one of the presets and can easily change the lighting depending on the activity, the time of the day, or the atmosphere in the class.

Illuminate the task at hand

For a more personalized learning environment, teachers can override the presets and achieve more granular control by altering color temperatures and intensity levels separately.

Application: Education

Standard:
Bright light is preferred for everyday activities/interactions[3,10,11].

Presentation:
Warmer light with lower intensities is preferred for more "emotional" activities, such as an interactive learning or a class assignment showcase session[3,10,11].
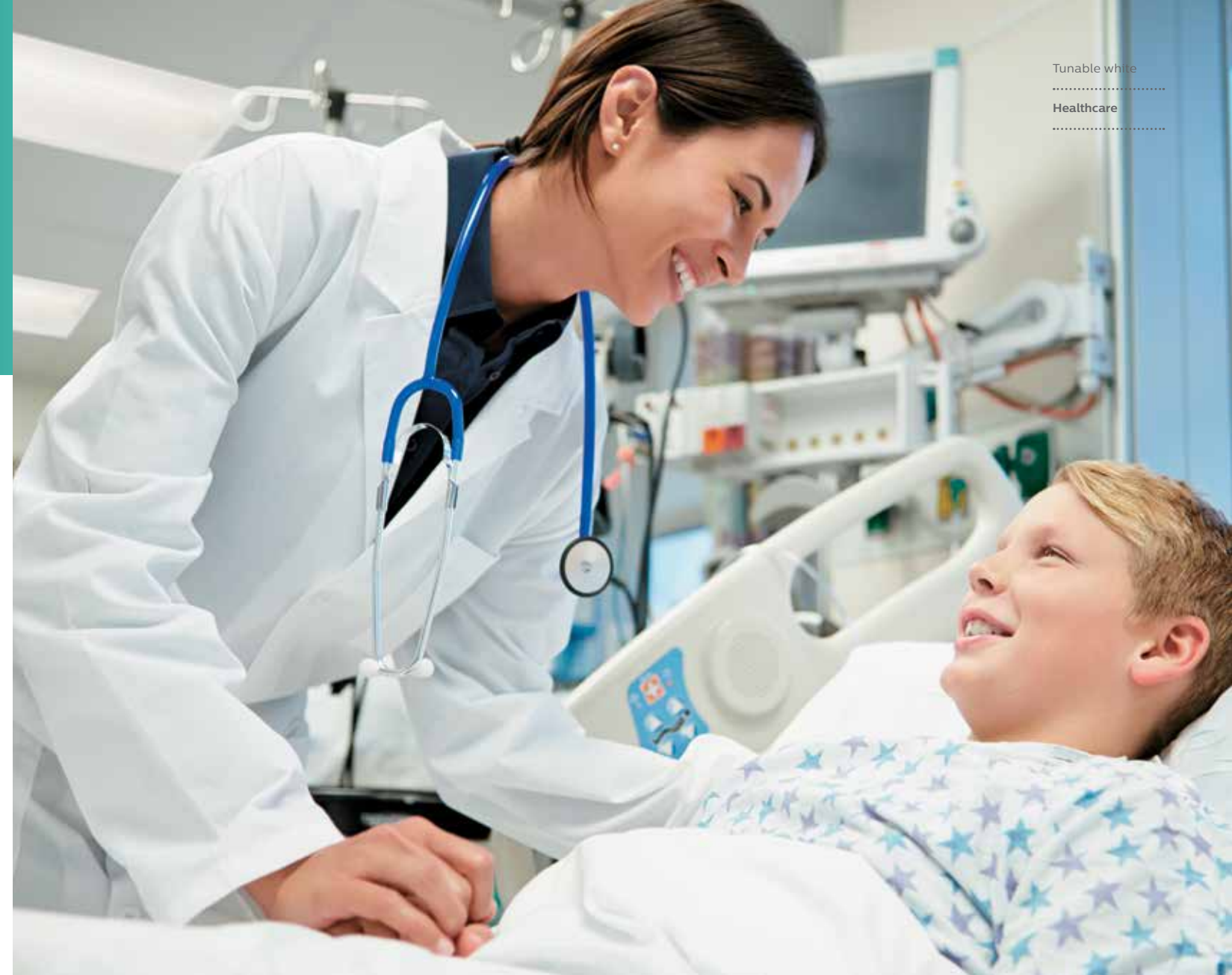
Focus:
Bright light at higher intensities is best during instructions and exams when students are expected to focus and concentrate[3,10,11].

Calm:
Warm, dimmed lighting conditions support relaxed activities, cooperation, and creativity[3,10,11].

Deliver high quality
care environments

Optimize the healing environment with lighting.

Philips tunable white lighting solutions support recovery efforts and overall well being of patients and staff alike. In healthcare spaces, elderly care places, and assisted living facilities, tunable white technology allows for lighting to easily be adjusted to the needs of the people in that space.

Synchronize the need for daylight with tunable white

Lighting has a strong impact on the timing and strength of the circadian sleep–wake rhythm. Being able to mimic the natural cycle of daylight by electric light in our indoor environments supports wakefulness and greater wellbeing[1].

Improve patient satisfaction

Giving a patient control of their own light means they can feel comfortable at any time of day: cool light for reading and meeting visitors, and warm light for relaxation.

Create a stimulating workplace

A stimulating workplace engages healthcare professionals and supports the well-being and performance of staff[5,6].

Application: Health care

Standard:
Cooler color temperature at normal intensity is recommended when physicians are sharing information with patient and family members

Presentation:
Warmer light with lower intensity is recommended for times of personal interaction

Calm:
Warmest color temperature with lowest intensity is recommended to help patients relax and rest.

Distinguish the retail experience

Give retailers looking to stand out from their competition an extra edge.

Incorporate Philips tunable white lighting solutions to create a unique in-store experience

Stay ahead of the trend

The dynamic feature of Philips tunable white solutions lets retailers highlight various store areas in the most visually engaging manner possible by automatically changing color temperatures and intensity levels throughout the day in response to retailer's merchandise changes or promotions.

Maximize customer engagement

Enrich the overall shopping experience by tailoring lighting moods to individual displays/products and themed days. Create varying custom lighting scenes and control zones that suit your store layout the best.

Gain control of the shopping experience

In addition to personal control for stores, Philips controls offers flexibility to scale the system for additional functionalities such as energy management, BMS integration, and scheduling management.

# How it works, **one platform for all your needs**

Optional

· Centralized management and monitoring of your entire lighting system – Tunable white, PoE, static luminaires, etc.

· Control link between the lighting and the BMS/HVAC systems

· App based wireless control of your lighting installation

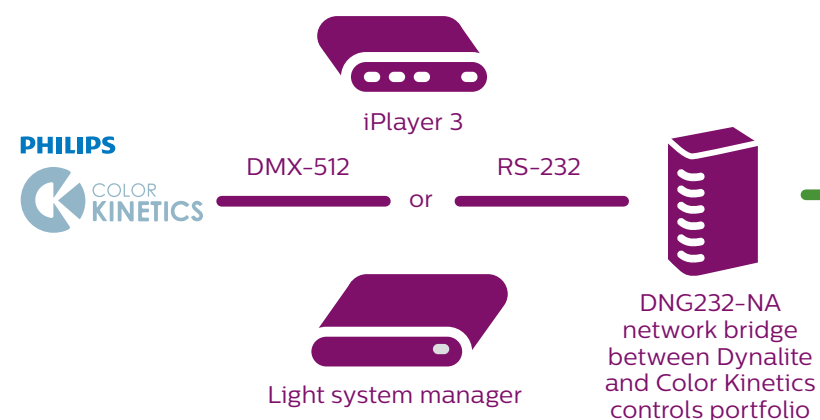· Dynamic feature set that automatically mimics daylight pattern with respect to the time of the day
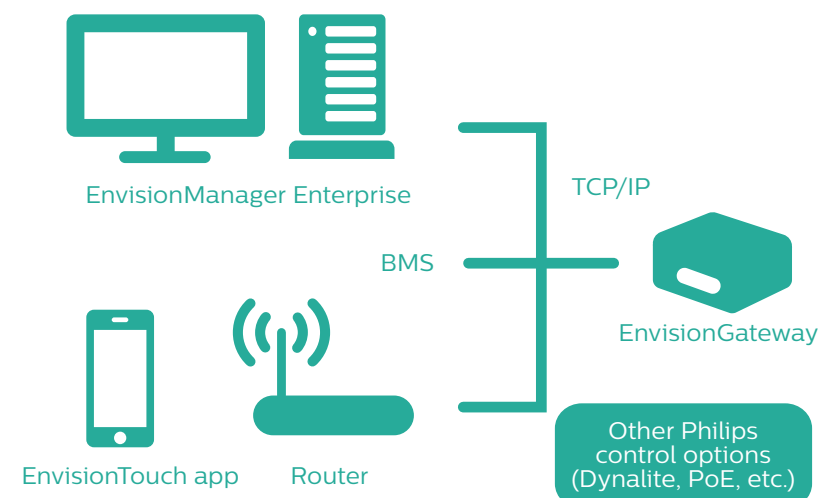
Optional

· To control your functional and architectural Color Kinetics luminaires together from a common Antumbra user interface or sensor

Connected Lighting

EnvisionManager Enterprise

TCP/IP

BMS

EnvisionGateway

EnvisionTouch app   Router

Other Philips control options (Dynalite, PoE, etc.)

Philips Color Kinetics Integration

iPlayer 3

PHILIPS COLOR KINETICS

DMX–512   or   RS–232

DNG232–NA network bridge between Dynalite and Color Kinetics controls portfolio
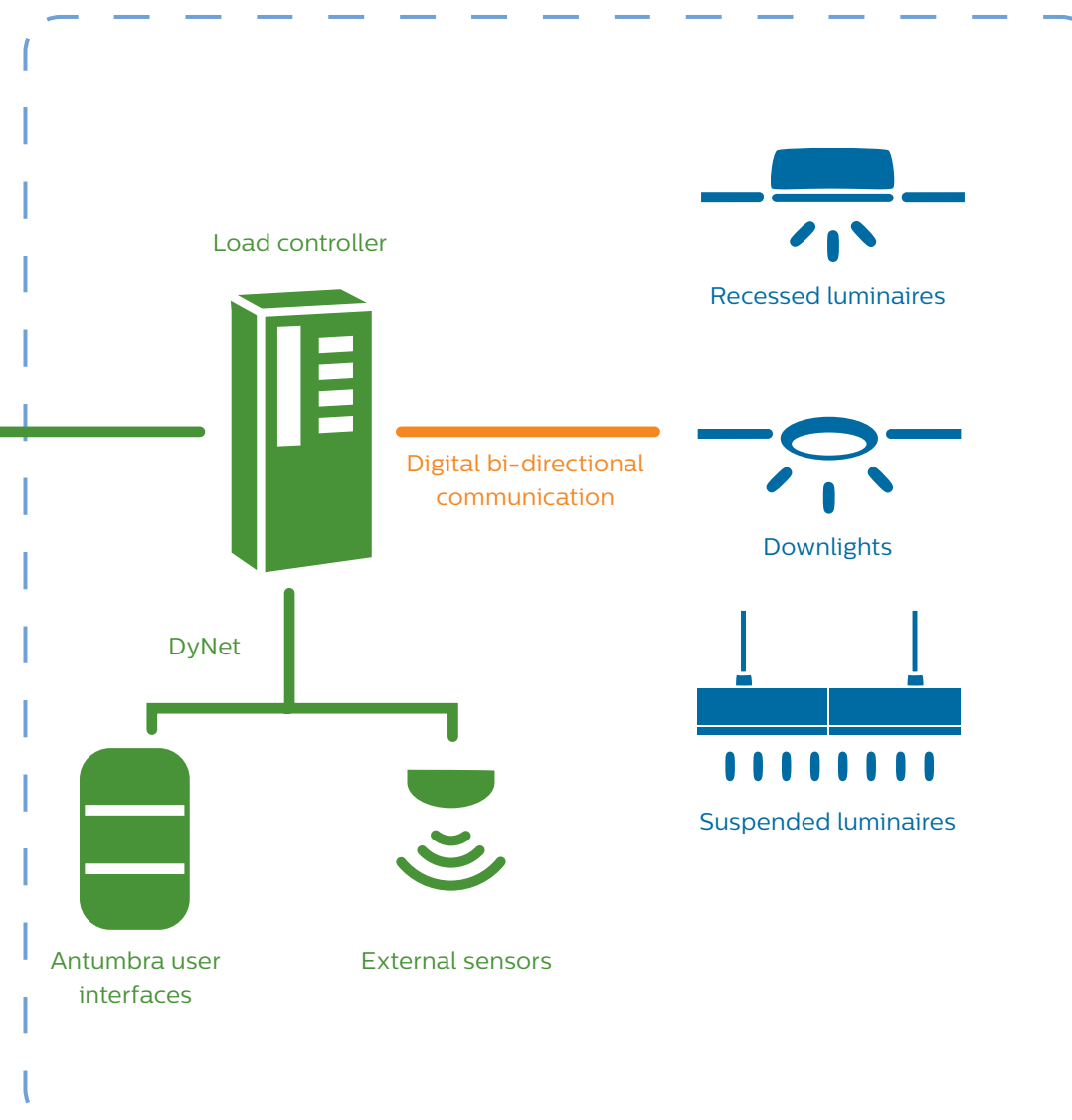
Light system manager

Essential

This side of the graphic represents the minimum stand alone controls platform needed for tunable white functionality, while components on the left side are optional.

The execution of Philips tunable white solutions is simple. Users interact with the Antumbra keypad for their desired setting which is then logically relayed to the tunable white and standard static luminaires by the load controller.

The load controller holds the controls logic of the system and is located in the electrical closet, while sensors (occupancy & daylight) and Antumbra keypads are mounted in the application space.

Load controller

Digital bi-directional communication

Recessed luminaires

Downlights

Suspended luminaires

DyNet

Antumbra user interfaces

External sensors

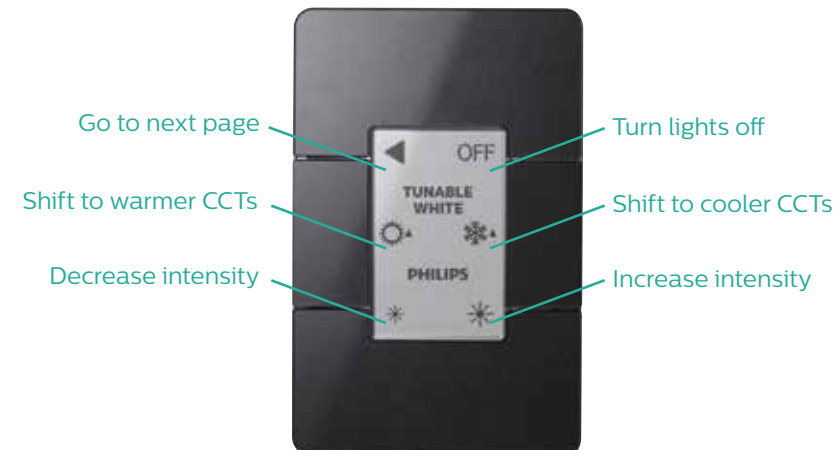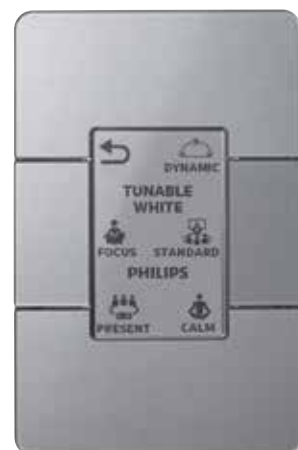# Personal control
with style and function

Philips Antumbra keypad offers multiple dynamic and static lighting scenes to enhance and personalize the user experience.

Antumbra user interfaces

To empower the user to change the lighting depending on the activity or the atmosphere in the space, we have developed predefined settings of color temperature and lighting intensity.

For more flexibility, AntumbraDisplay allows users to customize the light settings for a more personalized effect. Users could simply alter the color temperature levels between 2700K and 6500K or even change the intensity levels for a particular CCT setting or they can define up to 16 custom display pages with presets and button functionality of their liking.

Different finish options are available for the fascia and rim of the panels – all color options can be mixed and matched. Customized labeling of text and icons can be added.

Go to next page
Shift to warmer CCTs
Decrease intensity
Turn lights off
Shift to cooler CCTs
Increase intensity

AntumbraButton

The AntumbraButton panels utilize large mechanical buttons.

Dimensions: 4.6" x 2.9" x 0.9" (116 mm x 75 mm x 23 mm)

Magnesium fascia with chrome rim
Silver fascia with magnesium rim
White fascia with white rim

AntumbraDisplay

The AntumbraDisplay panels utilize mechanical buttons and feature a central LCD display to present multiple pages of functions and system information.

Dimensions: 4.6" x 3.0" x 1.4" (116 mm x 75 mm x 36 mm)

Magnesium fascia with aluminium rim
Silver fascia with aluminium rim
White fascia with chrome rim

AntumbraTouch

The AntumbraTouch panels have a smooth glass finish and use 'capacitive touch' technology to detect the presence of a finger on various locations of the glass to trigger the button-press action.

Dimensions: 4.6" x 3.0" x 0.9" (116 mm x 75 mm x 22 mm)

Black fascia with aluminium rim
White fascia with chrome rim

Compatible
luminaires

PowerBalance

SmartBalance
(available in suspended and surface mount also)

LuxSpace Gen 3 Downlight

Supporting sources:

[1] White Paper: The effect of light on our sleep/wake cycle by Luc Schlangen, principal scientist at Philips.

[2] Viola AU, James LM, Schlangen LJ, Dijk DJ (2008) Blue-enriched white light in the workplace improves self-reported alertness, performance and sleep quality Scand. J Work Environ. Health 34(4) 297-306.

[3] P. J. C. Sleegers, N. M. Moolenaar, M. Galetzka, A. Pruyn, B. E. Sarroukh, and B van der Zande. Lighting affects students' concentration positively: Findings from three Dutch studies. Lighting Res.Technol. 45(2013), 159–175.

[4] Barkmann, 2010: Barkmann C, Wessolowski N, and Schulte-Markwort M, (2012) Applicability and efficacy of dynamic light in schools, Physiology & Behavior, 105, 3, 621-627.

[5] Veitch, J. A.; Newsham, G. R.; Boyce, P. R.; Jones, C. C. Office Lighting Appraisal, Performance and Well-Being:A Linked Mechanisms Map, Proceeding Book of 26th Session of the CIE; 2007. Vol.2 pp D3-61, Beijing, China,July 4–11.

[6] HermanMiller 2007, It's All About Me: The Benefits of Personal Control at Work.

[7] Boyce, P. R., Veitch, J. A., Newsham, G. R., Myer, M., & Hunter, C. (2003). Lighting quality and office work: A field simulation study (PNNL 14506). Richland, WA, USA: Pacific Northwest National Laboratory.

[8] Steidle, 2011: Steidle A, Hanke EV, Werth L (2011) Bright logic and creative shots in the dark: Illumination affects thinking styles and cognitive performance Proceedings of the 9th Biennial Conference on Environmental Psychology Eindhoven, the Netherlands.

[9] Galetzka, 2010: Galetzka M, Moolenaar NM, Sleegers PJC, Pruyn ATH (2010) Shedding light on learning: The impact of dynamic lighting on school outcomes Proceedings of the 9th Biennial Conference on Environmental Psychology Eindhoven, the Netherlands Frank van den Berg, internal research.

[10] Michael S. Mott, Daniel H. Robinson, Ashley Walden, Jodie Burnette, Angela S. Rutherford: Illuminating the Effects of Dynamic Lighting on Student Learning. SAGE Open, May 2012.

[11] Rautkylä E, Puolakka M, Tetri E, Halonen L (2010) Effects of correlated color temperature and timing of light exposure on daytime alertness in lecture environments J. Light & Vis. Env. 34(2):59-68.

PHILIPS

Philips Lighting New Zealand
Level 3, 123 Carlton Gore Road
Newmarket, Auckland 1023
New Zealand
Ph: 0800 454 448 / 0800 4 LIGHT
connected.anz@philips.com
www.philips.co.nz/lighting

Philips Lighting Australia
A sector of Philips Electronics
Australia Limited, 65 Epping Road,
North Ryde 2113, Australia
Ph: 1300 304 404
connected.anz@philips.com
www.philips.com.au/lighting