VISION AIR
Lighting
The Next Generation

tamlite.co.uk/visionair

Contents

Over the course of the last decade, the lighting industry has seen its objectives drastically change. Where once it was energy efficiency, lifespan and ease of install, the coming of LED made this much simpler. What architects, contractors and end users need from their lighting system now is control, flexibility and connectivity.

VISION AIR

With VISION AIR, wirelessly manage facility energy consumption, create holistic estate-wide lighting networks, and schedule automatic emergency lighting tests to give you peace of mind.

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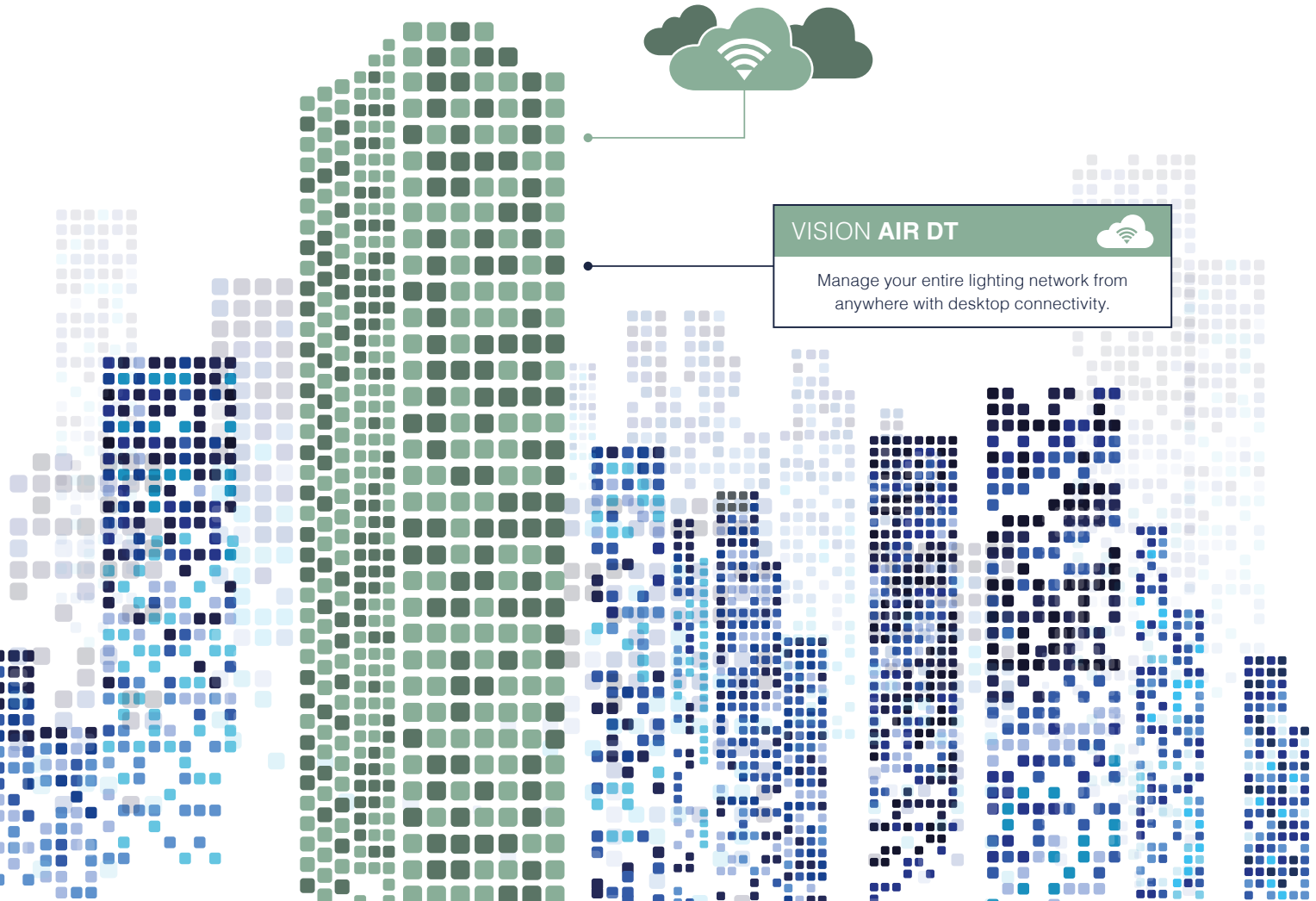
VISION **AIR**

VISION **AIR**

Wireless control for lighting systems with dimming, grouping and switching via Bluetooth.

VISION **AIR E**

Wireless emergency lighting testing with scheduling and reporting.


VISION AIR DT
Manage your entire lighting network from anywhere with desktop connectivity.

Our Vision

Tamlite believes a circular economy, occupant wellbeing and safer buildings through the power of smart lighting are the future.

Lighting Controls Made Easy

If you have any questions about how smart lighting can benefit your facility, building or lighting design, we are here to help.

Visit www.tamlite.co.uk/visionair

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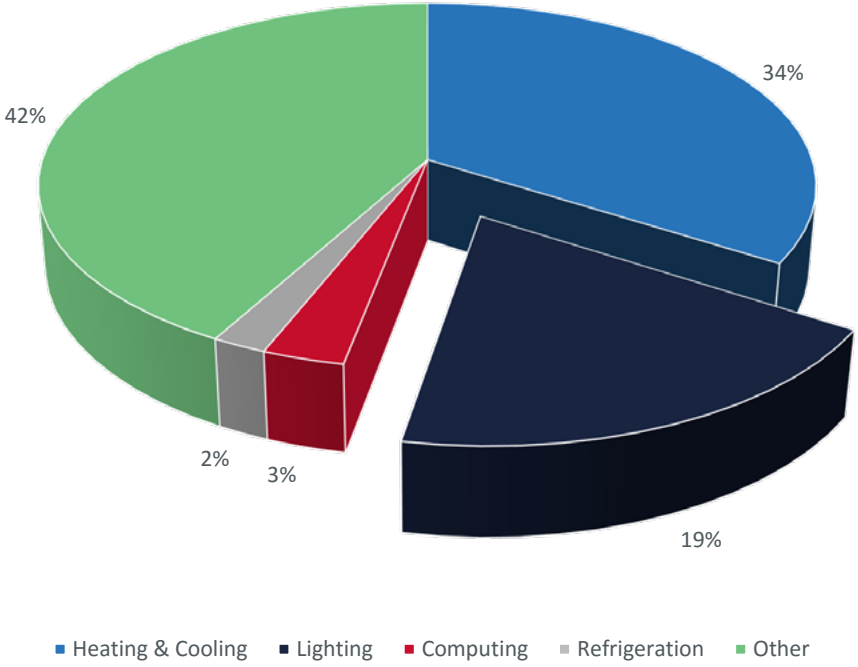
Energy Consumption by End Use 2010-2016



Source: The Department of Business, Energy and Industrial Strategy

The Next Generation of Lighting?

Out of the major building services, lighting has seen one of the biggest improvements in energy efficiency in the last decade, and is predicted to rise further. The latest technologies, including DALI connected networks, have been at the forefront of decreasing energy consumption within lighting.

But is it enough?

Simpler Smart Lighting

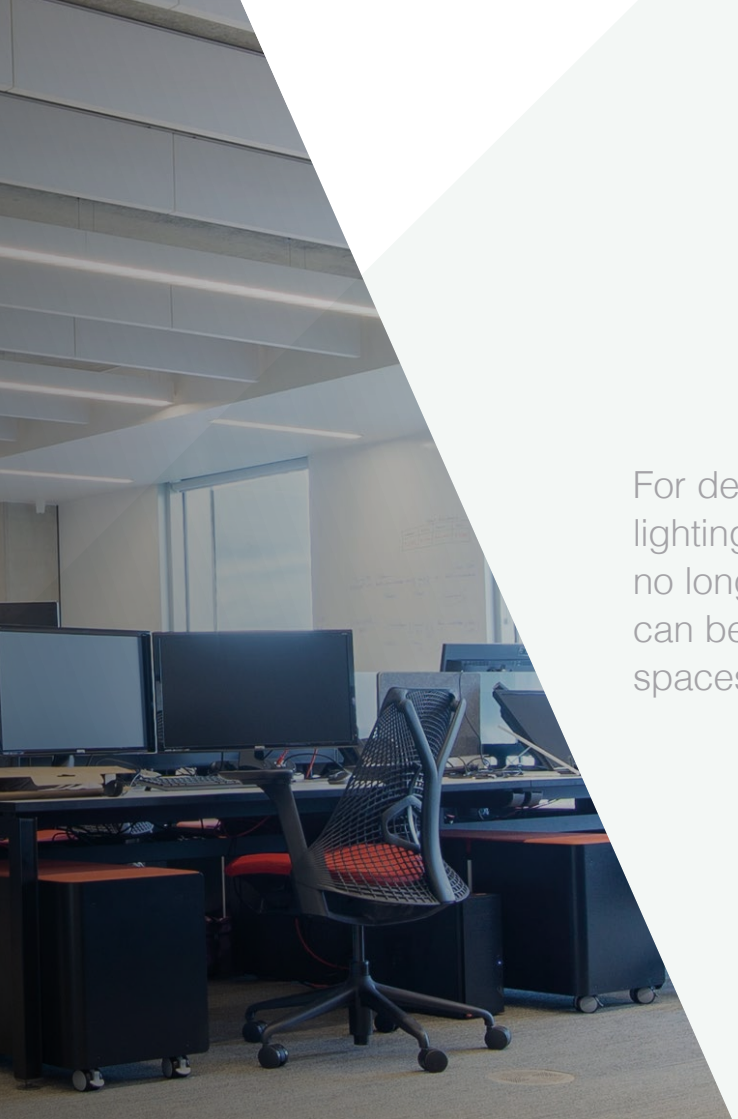
A circular economy aims to design out waste, maximise value, improve maintenance and return materials into the cycle at the end of their lives.

Smart Lighting utilises the latest wireless technology, reducing the need for cabling and precious earthly elements such as copper, as well as reducing the reliance on plastic.

Consuming less energy, and using fewer components, wireless technology means that the new generation of simpler, smart lighting systems are changing the way buildings are managed.

From Classroom to Campus
From Office to Estate

In a smart lighting system, each luminaire has its own integral wireless node. A designer can therefore scale up the lighting from one room, to a whole building, to an entire estate.



For designers and consultants, this means that lighting installations at the time of commissioning no longer need to be set in stone. Instead, they can be adjusted as the usage patterns of individual spaces or entire buildings change.

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Energy Monitoring

Smart lighting systems are capable of live “energy interrogation”, luminaires providing an ongoing breakdown of how much energy is being used, from a single room to multiple sites.

Energy interrogation makes it easier for decision makers to better understand their energy consumption, and make informed decisions about their building.

Making Perfect Sensors

Wirelessly connected luminaires are fitted with PIR sensors, delivering additional control and reducing energy consumption by **up to 30%**. Daylight harvesting sensors can deliver a **further 40%** energy savings.

Smart sensors can be changed to suit the requirements of the space, with longer or shorter switch-off times depending on the room usage.

35-40% of European offices are not in use during work hours.

Source: CIBSE

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Emergency manual testing costs on

Average

£2,800 p.a.

Simplified Emergency Lighting

The law, such as BS 5266, dictates that emergency luminaires must be tested monthly and annually. However, employing a contractor to do this can be costly over the course of a year.

Basic self-test emergency systems will remove this cost, by conducting tests automatically. However, these occur at random, which can cause disruption to building managers, employees and visitors.

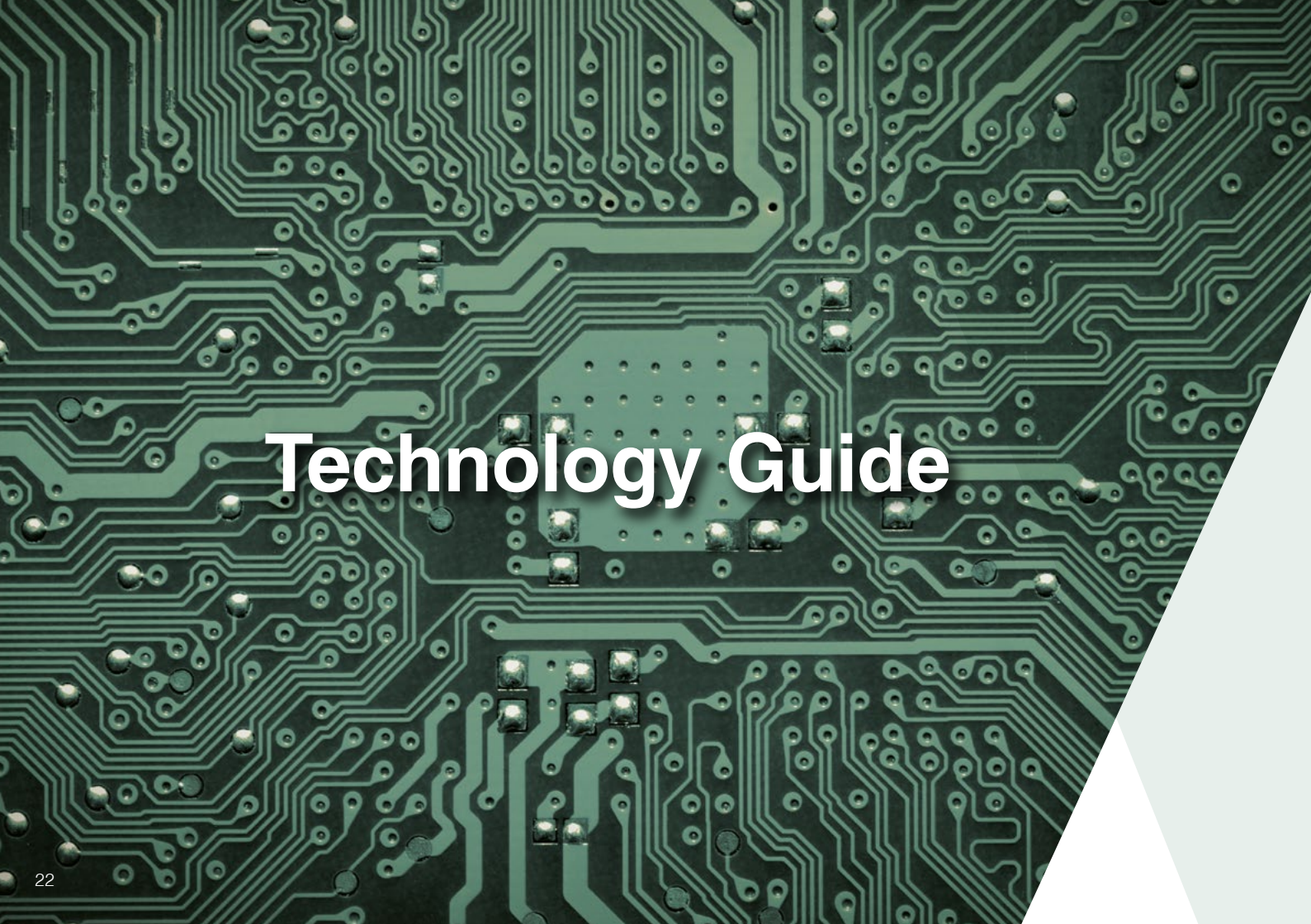
Smart wireless emergency systems allow specific scheduling of monthly and annual tests, providing peace of mind and minimal disruption.

Source: https://www.electricalsafetycertificate.co.uk/emergency-light-testing/

Security

Wireless lighting systems that operate outside of Wi-Fi frequencies, create an exceptionally secure link that is still as flexible and user-friendly as a Wi-Fi based network. These networks are also free from regular internet interference, ensuring that they run quickly and smoothly.

Smart lighting systems work on dedicated networks, and do not need to be integrated into existing IT systems. This reduces the risk of a security breach whilst controlling your lighting which is a comfort for facility managers.



Technology Guide

Infrared

Infrared (IR) is a wireless technology used for device communication over short ranges. It is a common, inexpensive and easy-to-use system, with a wavelength undetectable to the human eye, making it perfect for wireless communication.

IR encounters some limitations because it requires line-of-sight, has a short transmission range and is unable to penetrate walls. This means that it is a simple way to control luminaires directly.

Benefits
- Very reliable
- Inexpensive

Considerations
- One way communication
- Requires line of sight transmission

Ideal Applications
- Suitable for applications where individual control and setup is required

Wi-Fi

Wi-Fi creates a network in your home or office, through the use of radio waves. This zone is sometimes referred to as a WLAN (Wireless Local Area Network).

The router converts the information into a radio signal and sends it. The router acts as a mini radio station, broadcasting these signals.

The ‘audience’ for these transmissions is the luminaire node which receives the radio signal via a gateway.

The whole process, meanwhile, works in reverse, with the luminaire node sending information to the gateway. It then converts them and sends the information back to the router.

Benefits

- Robust solution for commercial and domestic installs

Considerations

- Gateways normally have a maximum range and cannot transmit radio signal through concrete

Ideal Applications

- Suitable for commercial and domestic installs. When partnered with other systems it can be suitable for larger applications

BLE

BLE, also known as Bluetooth 4.0, is a short range wireless signal. BLE uses less battery power and provides higher data speeds than previous versions of Bluetooth, but it isn't compatible with older Bluetooth devices.

Bluetooth mesh allows us to establish a many-to-many (m:m) relationship between wireless devices. A device can indirectly relay data to a second device out of radio range, by passing the message through other devices. In this way, mesh networks can span very large physical areas and contain large numbers of addresses.

This new mesh capability enables many-to-many (m:m) device communications and is optimized for creating large-scale device networks. It is ideally suited for building automation, sensor networks, and other IoT solutions where tens, hundreds, or thousands of devices need to reliably and securely communicate with one another.

Benefits

- Low energy consumption
- High data rates

Considerations

- Very Short Range
- Requires key coordination at both endpoint and access point
- Needs access point

Ideal Applications

- Bluetooth mesh networking is the most robust and powerful low-power radio technology for connected lighting in commercial spaces

POE

Power over Ethernet (POE) is a technology that lets network cables carry electrical power.

In lighting, a control system normally requires two connections to be made when it is installed:

- A network connection, in order for the luminaire to be able to communicate with the control system
- A power connection, to deliver the electrical power the luminaire needs to operate

However, if the lighting is POE-enabled, only the network connection needs to be made, as it will receive its electrical power from this cable as well.

Benefits

- Without being tethered to an electrical outlet, devices can be located wherever they are needed most

Considerations

- Not compatible with emergency lighting
- Is a wired-wireless solution as network cable is required to all fittings

Ideal Applications

- Suitable for large area application where network wiring can be installed

868MHz

Short Wave Radio Devices (SRD'S) are frequencies which can be used for industrial, scientist and medical applications.

The unlicensed ISM bands below 1GHz are widely used for various consumer and industrial applications where long range, system cost, and long battery life concerns are critical.

The transmission is not disturbed by obstacles such as human bodies. Interferences are rare because this frequency is only used for industrial, scientist and medical applications.

Due to excellent propagation characteristics at sub-GHz frequencies, greatly extended ranges can be obtained at much lower current consumptions than from to the 2.4GHz band solutions.

In addition, these sub-GHz bands are free from microwave, WiFi and Bluetooth interference making links substantially more robust than their 2.4GHz counterpart solutions.

Benefits
- Easily configurable
- Very reliable
- Good line of site commissioning 100m

Considerations
- Cannot be fully enclosed in metal

Ideal Applications
- Most lighting applications

Zigbee

ZigBee is a standards-based wireless technology developed to enable low-power wireless machine-to machine (M2M) communication. ZigBee is a low-cost, low-power, wireless mesh network control.

Zigbee delivers low-latency communication, and ZigBee chips are normally integrated directly into devices.

ZigBee operates on a 2.4GHz bandwidth. It's low power consumption limits transmission distances from 10-100m line of sight. ZigBee's effectiveness does rely on the environment it is installed in.

It is very popular in domestic lighting controls as normally a hub/gateway is required to push a signal out to all luminaires in a close proximity.

Benefits

- Low energy consumption
- Mid range communication

Considerations

- Not compatible with emergency lighting
- Requires line of sight transmission
- Multiple gateways will be required on large applications and can become costly

Ideal Applications

- Suitable for domestic, commercial and small industrial installs

About DALI

Digital Addressable Lighting Interface, named DALI, is a communication language. DALI facilitates the communication and therefore control of multiple devices such as drivers, sensors and emergency modules.

A DALI system provides designers, installers, building owners, facility managers and end-users with a powerful and flexible digital lighting system.

DALI was born in Europe. In 1998, a consortium of European lighting manufacturers had developed the Digital Addressable Lighting Interface. A language or protocol for ballasts and relay switches, DALI was devised to control a small set of up to 64 intelligent luminaires per DALI controller.

DALI is managed by the DiiA (Digital Illumination Interface Alliance) a global consortium of lighting companies that aims to grow the market for lighting-control solutions.

DALI Basics

A DALI system provides total control of the lighting in a room, building, or series of buildings. A connected DALI system allows the control of:

- Lux levels
- Colour temperature
- Occupancy sensors
- Specific time-of-use controls
- Pre-set lighting scenes
- Tuneable white lighting
- Energy consumption, through the monitoring of each fitting
- Testing emergency lighting

This can all be controlled via software at a central point, rather than physically hard-wiring the fitting itself.

Key Points

DALI allows control of a range of lighting requirements

DALI Emergency

DALI Emergency Systems offer a flexible and professional automatic emergency testing solution, that allows for scheduled maintenance programs to be carried out without the need for walking around site and costly access.

DALI emergency systems allow for full monitoring of status and battery condition, and a communications protocol that allows for central monitoring and reporting, as well as remote access to the emergency lighting network for testing and real-time status. This can give facility managers peace of mind that their emergency lighting is functioning as it should be.

Key Points

Mandatory Emergency lighting tests can be carried out using DALI

DALI Emergency Testing

DALI emergency allows for emergency devices to run two key emergency tests as well as feeding back many other pieces of important information.

Function test

A monthly function test gives quick feedback on the current status of the device, battery and LED board.

Duration test

An annual duration test will test the battery periodically. This test can give feedback on the devices' current battery status, LED board status, and if the device successfully completed the mandatory 3 hour discharge.

Key Points

DALI facilitates full monitoring and testing of emergency lighting systems

Overview of DALI Benefits

In addition to being a cost-effective, future proof solution, using DALI has these additional benefits.

- DALI devices can work straight out of the box.
- DALI devices can be reconfigured to suit personal requirements without any rewiring.
- DALI circuits can be used for simple room based applications or can be scaled to suit large buildings.

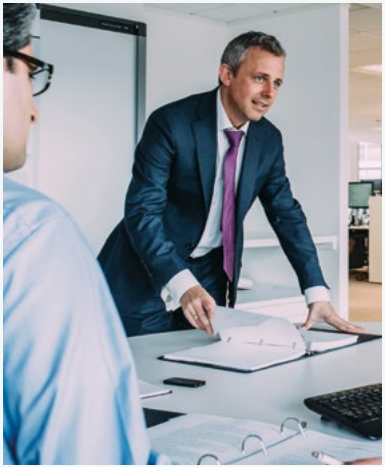
Key Points

Does not require rewiring of a fitting to reduce light output

DALI for Specifiers

DALI has many benefits for specifiers who need a robust, flexible control system. Such benefits are:

- Control of individual lights, groups and lines
- Easy configuration & reconfiguration for changing circumstances
- Increased energy savings
- Integration of standard and emergency lighting



Key Points

Can be used to control a room or building

DALI for End Users

DALI has many benefits for end-users who need a robust, flexible control system. Such benefits are:

- Tailored lighting preferences
- Ability to set and recall multiple room scenes
- Individual control
- Easy modification
- Ability to test and log all emergency lighting
- Status reporting of luminaires
- Lower maintenance costs
- Increased energy savings due to dimming and control capabilities
- Energy monitoring with live data readings

Key Points

Can tailor lighting preferences to the exact requirement of the space

Introducing DALI 2

DALI-2 extends and enhances the strengths of DALI as a dedicated, standardised protocol for digital lighting control. For many years, the lighting community has installed DALI systems that are robust, scalable, cost-effective, reliable and flexible.

But now, for the first time, DALI-2 has brought standardisation to products such as sensors and other input devices, as well as application controllers, which are the “brains” of a DALI system. Furthermore, with its rigorous testing and verification procedures, the DALI-2 certification program from DiiA brings the promise of significantly-improved interoperability of products from different vendors.

Why Choose DALI 2

DALI is an international standard with support from many manufacturers, suppliers and installers. Using a DALI 2 certified product ensures real interoperability and seamless integration.

Additionally, because of the large number of suppliers and third parties you are not locked into a single manufacturer's supply. This gives the customer confidence and choice in their buildings, multiple suppliers gives you greater freedom.

DALI 2 Benefits

DALI 2 offers several benefits over traditional DALI options including:

- Occupancy sensors
- Light sensors
- Input devices including sensors and switches
- Control system
- Power supplies
- Backwards compatibility with traditional DALI
- Full set of standards, test flows and test equipment and certification

This provides the ability to utilise several different manufacturers to create a Lighting Controls HUB.

DALI 2 Internal Power Supply

One of DALI 2s main benefits is its utilisation of Micro Processors. This now means the DALI 2 driver can be an internal power supply. This now allows for the reduction in internal or secondary power supplies traditionally used in DALI architecture.

This benefit also allows for a reduction in cabling requirements. The DALI is wired internally within the fitting but does not the external DALI cables.

DALI 2 Advantages

- Endorsed & compliant switch and sensor devices
- Cross manufacture compatibility
- Lower over-all costs
- Published under IEC 62386
- Certification of the control system component

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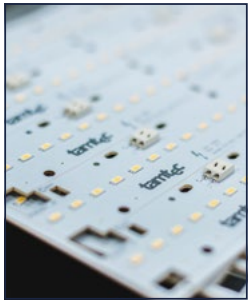

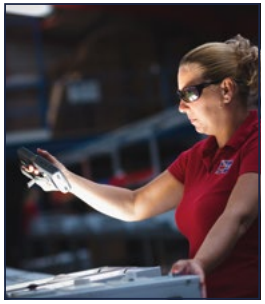

From our 4 UK factories across Redditch and Telford in the heart of the country, Tamlite Lighting designs, manufactures and delivers lighting solutions for a diverse range of sectors and applications.

As a member of Made in Britain, Tamlite offers assurance of being a high quality UK manufacturer of outstanding luminaires and lighting systems.

Smart Lighting for **a Living**

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