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Dynalite

**DALI lighting
control solutions**

A new benchmark for intelligent lighting

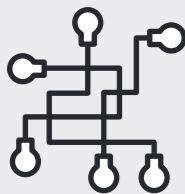
Entering the age of digital lighting

The evolution of lighting controls

At one point in time, lighting control meant lighting or blowing out a candle. As technology developed, it meant flicking a simple switch. Today, lighting control is a powerful tool used to transform environments and enhance people's lives.

The transition from analog to digital lighting control has been critical to the advancement of this field. With digital lighting control, buildings can be brought to life faster and more affordably than ever before.

Analog lighting control



Separate groups of lighting fixtures use **significantly more cabling**, making them more complex to install, maintain, and troubleshoot.



Analog dimming **signals are imprecise** and susceptible to electrical interference.



Different analog fixtures produce an **inconsistent dimming** response and only provide a fixed color temperature, which can negatively impact comfort, productivity, and health.



Changes require **manual rewiring**, causing disruption to occupants and adding considerable labor costs.

Digital lighting control



Simplified polarity-agnostic wiring is **cheaper and easier to install**, while automated performance monitoring and fault diagnosis improves reliability and reduces maintenance costs.



Robust digital signalling and standardized driver responses ensure **precise dimming and accurate colour control**. Digital addressing also allows multiple lighting groups to operate on a single network.



Additional features such as **tunable white and RGB**, controlled by user input and/or automated daylight routines, keep occupants comfortable, energized, and focused.



Lighting groups can be **reconfigured instantly** with no wiring changes or physical intervention, eliminating disruptions while saving time and money.



Advantages of digital systems

The establishment of the DALI industry standard completed the missing digital link, allowing full digital communication between the control system and each lamp driver.

Digital lighting enables facility managers to modify lighting groups without making any physical changes to the wiring. From a remote connection, lighting changes can be made to meet the demands of flexible floor space with just the click of a mouse. Digital lighting also brings extra dimensions of control such as tunable white and RGB that would require considerably more cabling using analog methods.

To leverage the advantage of smart digital lighting, a control system needs to support driver status querying and other related services provided by sensors, dry contacts, and lamp drivers. It must then present this information in an intuitive and meaningful way through user-friendly tools.

Dynalite in the digital age

Dynalite has been delivering scalable lighting control systems for over 30 years. With the evolution of LED and DALI, lighting control is now fully digital at the field level — but real system performance depends on how these networks are designed, integrated, and managed.

By combining the open DALI protocol with the Dynalite DyNet system architecture, Dynalite extends DALI beyond individual networks — enabling coordinated, scalable, and high-performance lighting control across entire buildings and campuses.

This approach ensures that the benefits of digital lighting — flexibility, diagnostics, and efficiency — are delivered consistently across every project.

What is DALI?

DALI (Digital Addressable Lighting Interface) is defined by the IEC 62386 standard and governed by the Digital Illumination Interface Alliance (DiiA).

DALI-2 certification ensures that devices are independently tested for compliance, improving interoperability between manufacturers.

Why DALI?

DALI improves on the unidirectional broadcast-like operation of 1-10V analog control. It allows digital two-way communication so that devices can report on their health, status, and other information.

Wiring is very simple; DALI power and data is carried by the same pair of wires. DALI wiring is polarity-agnostic, eliminating the wiring errors common in 1-10V systems.

DALI allows drivers on the same network to be addressed individually and assigned dynamically to virtual lighting groups. With DALI, architects and designers can create high-performance lighting solutions that are perfectly matched to the needs of the building's occupants.

- DALI is an industry standard.
- Simpler and faster installation.
- Communicate with lamps and lamp groups.
- Feedback on lamp status.
- Lamp life tracking.
- Rearrange lamp grouping with software.
- Control light intensity and color.
- Optimize energy savings.
- Lighting control flexibility.
- Lamp and driver failure reporting.
- Compatibility and interchangeability.
- Emergency lighting and battery testing.

Leveraging DALI

DALI ensures device-level compatibility, while overall performance depends on system design. This includes controller architecture, power design, management software, and network integration.



DALI today

The Digital Illumination Alliance (DiiA) continues to evolve DALI standards to meet modern-day lighting control needs.

DALI

DALI covers a wide range of different physical attributes and logical functionality

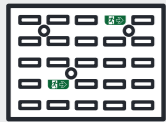


SIMPLIFIED WIRING



DALI is a robust protocol that allows the use of cost-effective twin cabling and star wiring for project flexibility, and hassle-free installation next to mains wiring, making it perfect for field wiring requirements. Dedicated wiring and standardised baud rates ensure reliable, error-free communication without the risk of interference inherent to wireless control systems.

BUS CAPACITY



A single DALI bus can manage up to 64 light points that can be individually addressed and assigned to up to 16 areas. Each DALI driver can be moved from one addressable area to another with a simple software configuration change, eliminating any need for rewiring.

LIGHTING DESIGN



As DALI is the lighting industry's leading open protocol with a wide selection of lamps and drivers, lighting designers have greater flexibility in selecting the perfect lighting option to meet each project's needs.

DALI POWER SUPPLY



The DALI bus must be connected to a certified network power supply that supports all communication between DALI devices. Each DALI bus supports a maximum of 250 mA. As detailed in IEC62386 multiple power supplies should never be used.

LIGHTING SCENES



Each of the 16 addressable areas supports up to 16 scenes, defining each lighting point's brightness and fade time from 1 second to 16 minutes.

ROBUST PERFORMANCE



As a DALI network uses basic isolation from mains, all DALI ports need to withstand a potential exposure to mains supply and self-shutdown to restart after a short circuit has been cleared.

FAILURE NOTIFICATION



Querying the current status of individual drivers and lamps allows the control system to directly test if a lamp or driver has prematurely failed, streamlining maintenance and maximizing uptime.

DALI-2

The introduction of DALI-2 certification provides the market with assurance that those devices have been independently tested and verified to meet stringent performance expectations.



DALI LOAD CONTROLLERS

Load controllers with native DALI-2 functionality provide DALI bus management, configuration, control and status queries, for devices such as drivers, interfaces and sensors.



DALI-2 LAMP DRIVERS

Lamp drivers with native DALI-2 functionality deliver a consistent industry standard for lighting performance and greater operational flexibility than ever before.



COLOR CONTROL

Along with basic dimming (part 207), DALI now supports tunable white and full RGBWAF (part 209) control of both individual lighting points and scenes, adding a dimension of light control previously only available to advanced theatrical lighting systems.



DEVICES ON THE DALI BUS

All DALI-2 input devices are independently tested to DiiA standards. Connecting input devices onto the same bus as the lamp drivers, reduces the cost and complexity of installation on any project. DALI-2 input devices such as sensors and user interfaces allow the control system to respond to changes in occupancy, ambient light levels, or other environmental conditions, with no additional physical wiring beyond the existing DALI bus.



EMERGENCY LIGHTING

DALI part 202 enables control and battery duration testing of emergency lighting fixtures.

D4i DIGITAL ILLUMINATION

D4i is the latest standard from the DiiA designed to give greater visibility and feedback to the control system of lighting performance (All D4i devices are also DALI-2 devices).



LUMINAIRE DATA

DALI part 251 enables polling of drivers for additional data such as light output, CCT (Correlated Color Temperature) and CRI (Color Rendering Index), light distribution, lamp color and more.



ENERGY DATA

DALI part 252 enables querying of each driver's power consumption for monitoring and reporting.



DIAGNOSTIC DATA

DALI part 253 gives insight into lighting performance and is a leading indicator of potential issues for preventative maintenance.

Creating smart buildings through digital lighting



Developing DALI

DALI is managed by a consortium of 260 of the world's leading lighting organisations, making it a truly universal protocol for field lighting control. From its inception to the present day, Signify and Dyalite continue their active contribution to its ongoing development and promotion.

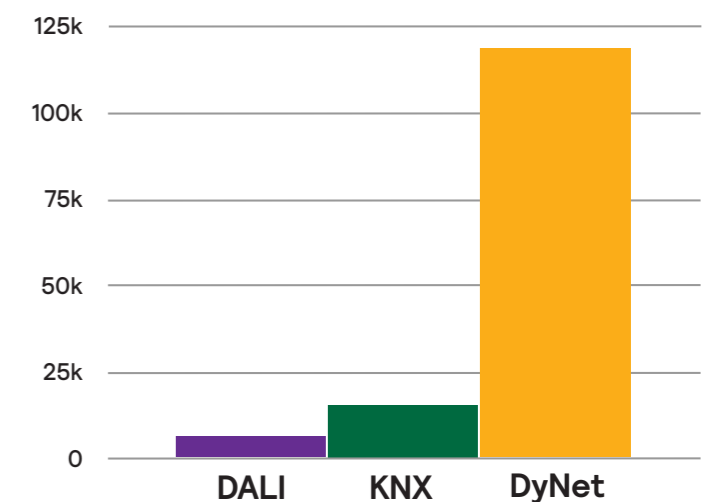
DALI development has progressed beyond basic dimming with the addition of many new features such as tunable white, full color control, lamp checking, driver status monitoring, emergency battery testing, driver energy usage, driver running temperature, UI inputs, occupancy reporting, and environmental light level monitoring.

Cost-effective cabling and flexible installation ensure that DALI caters to the physical realities of project installation and maintenance. However, the available bandwidth and per-bus device and area limits mean that DALI communication is relatively slow compared to other lighting systems.

While DALI is highly effective as a field-level protocol, it is not designed to coordinate communication between multiple networks.

Dyalite uses DyNet as a high-speed backbone, linking multiple DALI networks into a single coordinated system without added latency or complexity.

Network speed in bits per second



Scaling DALI

Since its introduction, DALI has brought significant changes to the lighting control market by delivering a true universal field communication protocol.

Creating a unified DALI system

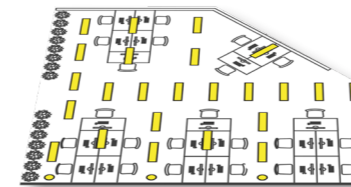
On its own DALI has no way to coordinate lighting control between networks. The DALI specification does not define any communication, addressing, or logical linking options between separate physical networks, instead treating each DALI bus of 64 fittings as an isolated standalone system. Scaling DALI to meet larger project requirements means adding more standalone DALI networks, which quickly becomes cumbersome without the means to connect and coordinate them into a coherently responsive system.

Dynalite overcomes these limitations by mapping DALI networks onto the DyNet architecture.

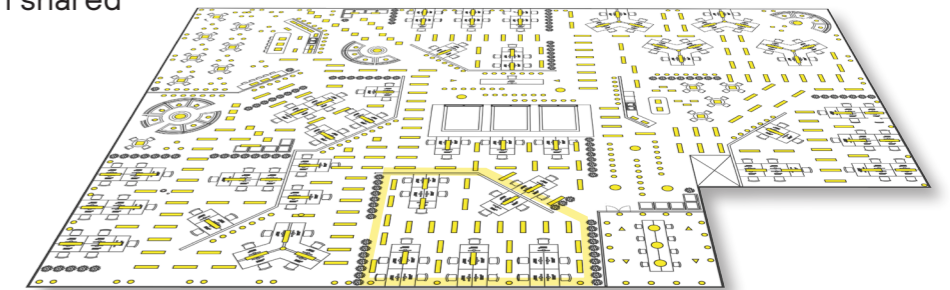
This enables multiple DALI networks to operate as a single system, with shared

logic, consistent behaviour, and simplified configuration – regardless of project scale. This creates scalable, addressable multi-network groups, with simplified configuration. Additional control methods can share the same DyNet addressing layer, including non-DALI lamps, sensors, interfaces, motorized blind/curtain controls, and other integrated solutions for a range of hybrid control possibilities.

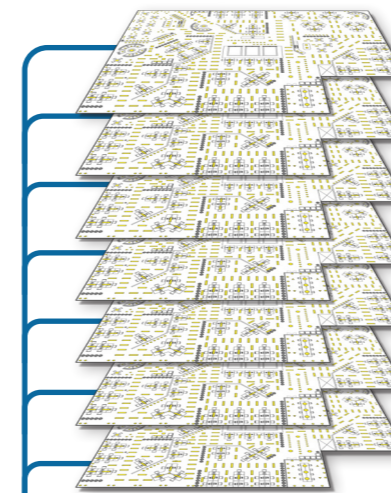
Turning a collection of separate networks into a unified system that effortlessly delivers the embedded benefits of the DALI protocol to any project, no matter how large, is where Dynalite truly shines.



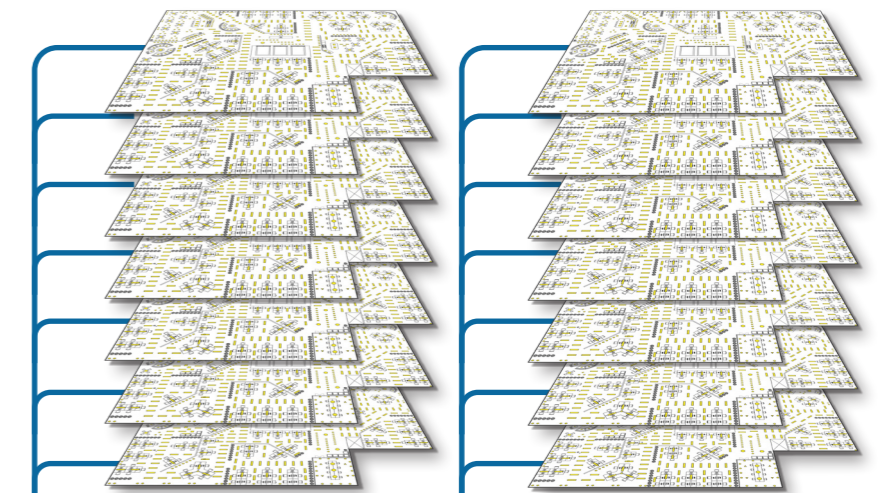
Single suite



Whole floor



Entire building



Multiple buildings

Dynalite has applications in projects of all scales, from single suites to multi-campus buildings.

Dynalite enhancing DALI



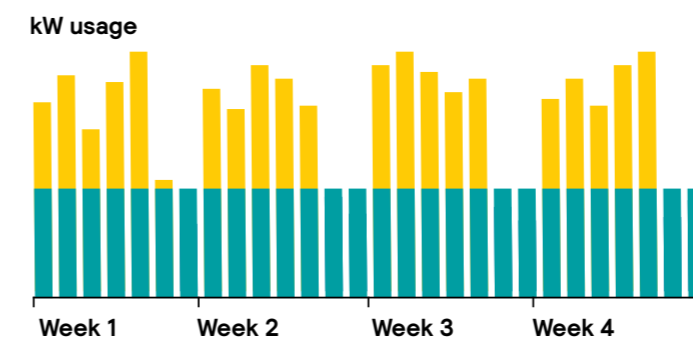
Eliminating standby power

The lights may be off, but the power still flows. Even with the lamps off, wired or wireless smart drivers still consume around 0.5 Watts in standby mode, waiting for their next command that may be hours, days, or even weeks away. Large projects can easily involve thousands of lamps that are off most of the time, but still collectively consume significant standby power for no benefit.

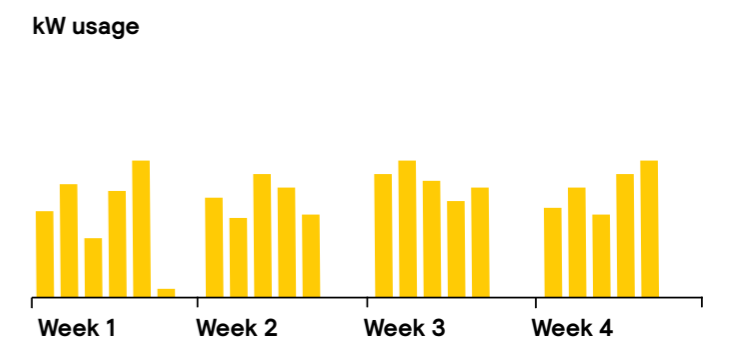
Dynalite DALI controllers include a power relay for each DALI bus. This relay opens whenever all drivers on the bus are turned off, eliminating unnecessary standby power consumption. When the lights are turned on, the controller automatically restores power to the drivers, delivering the same functionality without wasting power and without impacting the occupants.

An additional benefit of isolating DALI driver power while the lamps are off is reduced thermal wear on the drivers, which improves their life span. Eliminating the heat produced by standby power consumption also reduces demand on HVAC systems, resulting in even greater energy savings.

Without standby power management



With standby power management

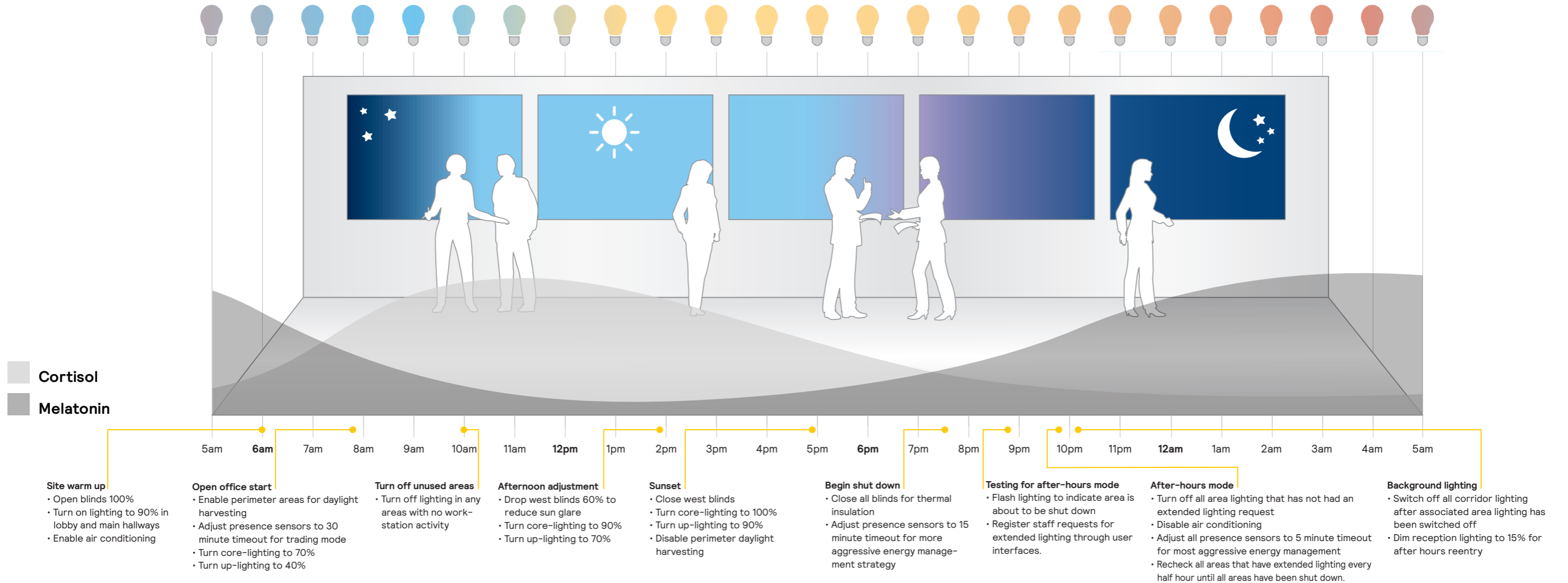


Consumption Standby Power Consumption

Bio-dynamic lighting

Dynalite controllers can control the light intensity and the color temperature of DALI lamps. This delivers a more natural indoor lighting experience by mimicking the natural daylight cycle with a slow transition from a low level blue-white light in the morning, to high level white light in the middle of the day and then to a low level warm red-white light in the evening.

Automatic control system actions



Our proprietary lighting recipes



Standard:

This setting activates standard bright white light designed to help occupants stay alert while carrying out their daily activities.



Presentation:

This setting generates warmer color temperature light at lower intensities to enhance discussions and presentations.



Focus:

Cooler color temperatures at higher intensity levels provide illumination designed to help people focus on the task at hand.



Calm:

This setting is recommended for creative and brainstorming sessions where cooperation and engagement is desired.

Beyond DALI



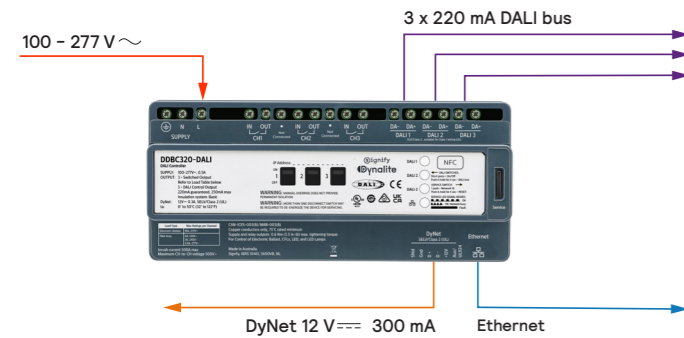
The value of hybrid network control depends on the components and their unified cooperation as part of a larger system. Dyalite products are designed with this in mind, combining robust individual performance with seamless integration for a streamlined, intuitive user experience.

Consistent design

Regardless of controller type, Dyalite devices are designed with consistent orientation and terminal layout to simplify installation, wiring, maintenance, and troubleshooting. Our architecture benefits any project, and the savings quickly scale up with project size and complexity.

Network communication

All Dyalite devices use the same DyNet port, allowing direct communication with each other. Firmware and software configuration is upgradable over the network without requiring physical access to devices. The Dyalite System also does not require any central processors, protocol gateways, IT infrastructure, or cloud connections to perform its core functions. Each Dyalite DALI input device communicates directly to its controller, which then rebroadcasts messages to other Dyalite devices.



Accessories not required

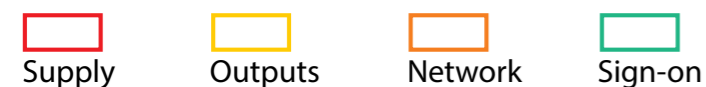
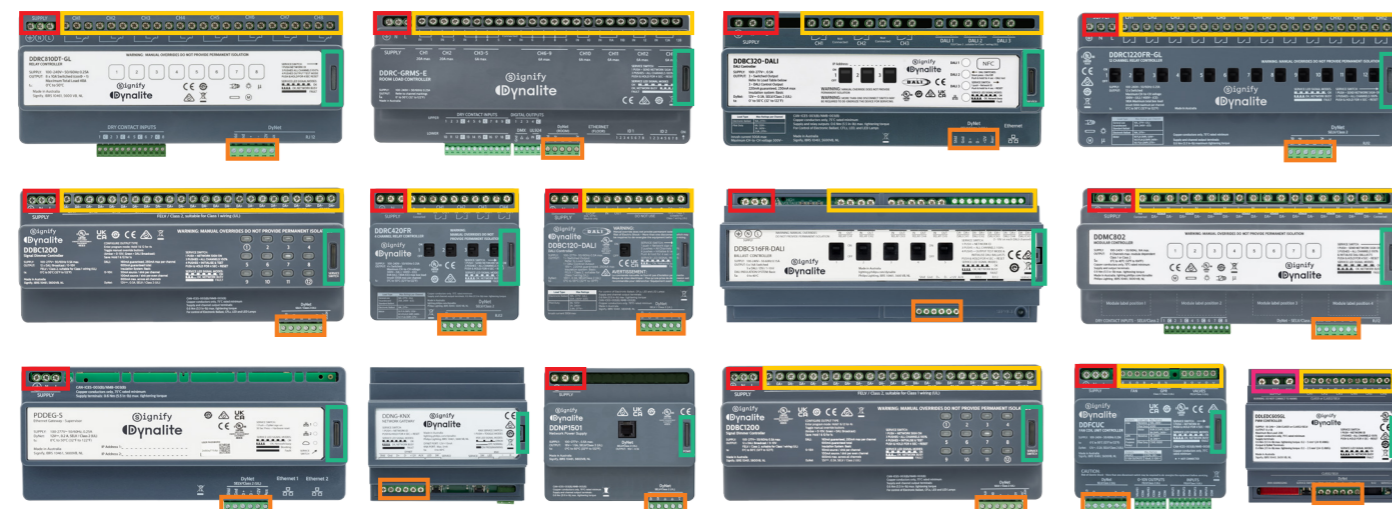
Dyalite controllers are mains supplied, supporting internal DALI power supplies, network power, and communication interfaces within a single device. This eliminates the need for external power supplies, gateways, or additional controllers – reducing installation complexity and total system cost.

Wide range of controllers

Dyalite offers a variety of controllers to support flexible hybrid control solutions including relay switching, DALI, 1-10V, PWM LED lighting, phase-cut dimming, motorized blinds, fan coil units, and more.

High-capacity modular load controllers

The Dyalite DMC range provides an all-in-one solution for projects with large lighting groups that require high-capacity outputs. Choose any combination of output modules including 1-10V, software-selectable phase-cut dimmers, relays, and DALI controllers to match your project.



ELEVATED PERFORMANCE

At Dyalite, our approach has always been to combine open standards with a modular system architecture, ensuring that interoperability is not just theoretical, but delivered reliably across every project.



COMPATIBILITY

Our control systems are fully flexible and have a rich library of features to handle anything from standard LED lighting with occupancy sensing up to multi-building hybrid solutions catering to many different types of spaces and applications.

Our controllers are compatible with a wide range of DALI drivers and devices including fluorescent drivers, electronic low voltage transformers, LED fixtures, emergency lighting fixtures and Dyalite DALI sensors and user interfaces.



INTEGRATION

Dyalite provides a native hybrid solution with DALI tightly integrated into the system. Dyalite overcomes DALI size limitations by overlaying DALI with DyNet addressing allowing multiple DALI networks to be presented alongside non-DALI control elements. This ensures DALI controllers, devices, and drivers provide coherent, consistent responses on the Dyalite network in the same way as native DyNet devices.

Our control systems can be fully integrated with a variety of building management systems, motorized window coverings, AV, HVAC, Security, and other third-party systems. Dyalite unlocks the full potential of DALI by coordinating system responses with additional inputs from the BMS, scheduling and management software, and third-party systems.



RELIABILITY

The Dyalite product range is the result of over 30 years of active research and development to meet real-world applications in multiple markets and segments. Every Dyalite device, feature, and function is designed and developed in-house, with rigorous testing of core functions as well as full system cross-testing with the rest of our range.

We aim for flawless performance, in any combination, at any scale, with zero dependence on third-party add-ons. This strategy allows us to deliver complete systems with consistent installation, streamlined commissioning, and incredibly reliable operation.



NETWORK SECURITY

Network security is an ever-growing concern, and lighting control networks are no different. As part of the Signify group, Dyalite is committed to rigorous security standards across our DALI controller range.

Dyalite devices with Ethernet ports incorporate dedicated TPM-based certificate storage and TLS encryption, with no 'developer' ports left exposed on any device. Firmware is securely loaded onto all new devices before they leave our factory to prevent the introduction of unauthorized modifications or backdoors.



MULTI-MASTER COMMUNICATION

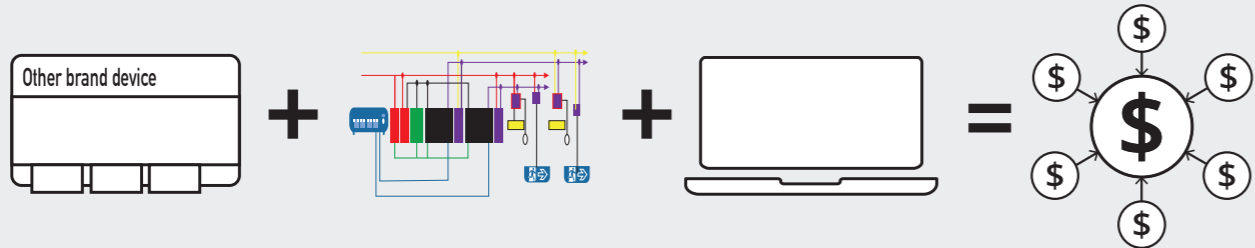
DALI defines the field protocol. However, real project performance and rock-solid stability depends on how the control system manages the architecture, power, commissioning, diagnostics, and scale.

Device cost versus total system cost

System deployment challenges

Within any network system design, the off-the-shelf cost of components rarely reflects the total system cost. Other systems rarely advertise that their devices require additional peripherals to provide network power, translate messages, organize multiple devices or can only be networked in a very limited way. Moreover, some may require direct physical access, additional plugins, multiple third-party commissioning tools or a cloud connection to gain access to each device's configuration.

Other systems



A network device has an off-the-shelf cost. However, this is not the only cost associated with delivering an interconnected control system.

Some systems must be supplemented with supporting accessories, adding cost to installation and consuming valuable distribution board real estate.

Then there is the cost of device configuration. After installation, devices need to be addressed and identified on the network to be part of the system and then configured to assign specific functionality.

Only once all of these steps have been taken into consideration can the true system cost be recognized.

Leading the way with transparent, holistic pricing

Dynalite overcomes these system deployment challenges by taking a holistic approach to system deployment.

All of Dynalite's control devices are completely self-supporting with direct mains power, internal DALI and network power supplies, and direct communication to all devices without the need for a central processor or cloud connectors. This means there are no additional third-party components required to make our products work, and that our off-the-shelf component costs more accurately reflect the total system costs.

Dynalite devices can be fully programmed over the network and our commissioning software is ready to setup any combination of devices for any project. With direct access to all device configurations, the system can be configured from a project floor-plan perspective, breaking away from the need to micro-manage individual components and enabling powerful template tools for faster deployment.



DALI Controllers

DALI has improved consistency, compatibility, and provided the industry with a recognised benchmark. By specifying DALI-2 certified devices, validating performance through testing, and taking a considered approach to system design, the industry can deliver on the original promise of DALI: lighting control systems that are flexible, scalable, and reliable in practice — not just in theory.



DDBC120-DALI Multi-Master DALI-2 Controller



Enabling a full DALI universe including tunable white drivers, DALI sensors and user interfaces.

DDBC120-DALI is a compact all-in-one controller with integral DALI power supply, feed-through relay, manual override, bus protection, diagnostics, driver standby power elimination, and support for Dyalite DALI-2 sensors and interfaces.



DDBC320-DALI 3-universe Multi-Master DALI-2 Controller



Enabling three full DALI universes including tunable white drivers, DALI sensors and user interfaces.

DDBC320-DALI is a larger-scale controller with three DALI lines, internal power supply, feed-through relays, secure Ethernet, manual override, diagnostics, driver standby power elimination and Dyalite DALI-2 input device support.



DDBC516FR Signal Dimmer Controller

Flexible control of 1-10V and DALI drivers

The Dyalite DDBC516FR is a five-channel device for controlling DALI drivers. It includes five feed-through relays for saving power on the DALI driver mains supply. Each control output is selectable to DALI broadcast, DALI addressable, DSI or 1-10V.



DDBC1200 Signal Dimmer Controller

Multi-protocol control solution

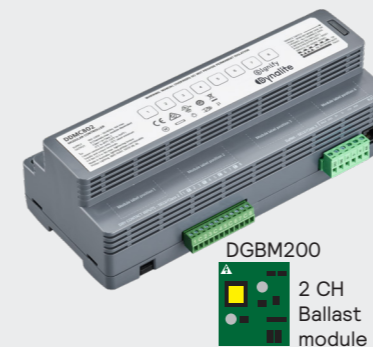
The Dyalite DDBC1200 features 12 independent output channels, each selectable to DALI Broadcast, DSI or 1-10 V.



DBC905 Signal Dimmer Controller

Easy to install controller with flexible mounting options

The Dyalite DBC905 is a nine-channel signal dimmer controller, designed for use with DALI, DSI or 1-10V dimmable drivers and direct installation within ceiling cavities. The device incorporates structured wiring connectors, to enable ready connection without the use of tools.



DDMC802 with DGBM200 module

Control different load types with one device

The Dyalite DDMC802 provides up to eight configurable output channels, controlled by up to four interchangeable control modules. A selection of control modules is available for different load types. The DGBM200 module supports DALI209 tunable white in broadcast mode.



DMC2/DMC4 with a range of DMD modules

Control different load types with one device

The Dyalite DMC2 provides multichannel control via two interchangeable output modules. The device is available with a variety of control modules to handle various load types and capacities.

The Dyalite DMC4 provides multichannel control via four interchangeable output modules. The device is available with a variety of control modules to handle various load types and capacities.

DALI Input Devices

Dynalite DALI input devices are designed to operate directly on the DALI network, providing sensing, user input, and integration without additional wiring or control layers.

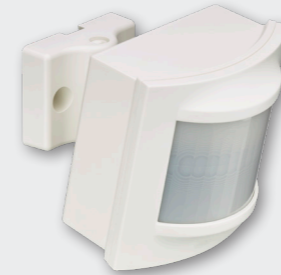
This simplifies installation while enabling responsive, intelligent lighting control.



DNS360LB-CR-PIR-DALI Multifunction Sensor



Low-profile recessed 360° ceiling sensor powered by the DALI network
The Dynalite DNS360LB-CR-PIR-DALI is a recess mountable 360° multifunction sensor that combines motion detection (PIR), infrared remote control reception (IR), and ambient light level detection (PE) in one device. The sensor draws 5.5 mA and is powered and communicates via the DALI bus. Paired with the Dynalite system the sensor can perform advanced functions such as dynamic responses, multiple area responses, and corridor hold-on.



DUS30LHB-D Multifunction Sensor

Long-range high bay DALI network sensor

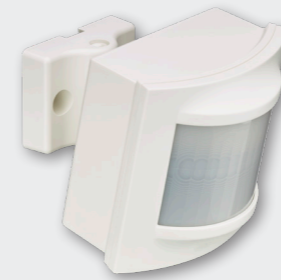
The Dynalite DUS30LHB-D is a 30 degree multifunction sensor that combines motion detection (PIR) and ambient light level detection (PE) in one device. The sensor uses the DALI protocol for power and communications to a network control system, eliminating the need for additional network field wiring. This sensor is useful for long-range detection.



DNS360LB-CS-PIR-DALI Multifunction Sensor



Surface mount 360° ceiling sensor
The Dynalite DNS360LB-CS-PIR-DALI is a surface-mountable 360° multifunction sensor that combines motion detection (PIR), infrared remote control reception (IR), and ambient light level detection (PE) into one device. The sensor draws 5.5 mA and is powered and communicates via the DALI bus. Paired with the Dynalite system the sensor can perform advanced functions such as dynamic responses, multiple area responses, and corridor hold-on.



DUS90WHB-D Multifunction Sensor

Wide angle high bay DALI network sensor

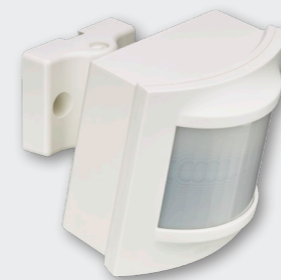
The Dynalite DUS90WHB-D is a 90° multifunction sensor that combines motion detection (PIR) and ambient light level detection (PE) in one device. The sensor uses the DALI protocol for power and communications to a network control system, eliminating the need for additional network field wiring. This is a wide angle, general purpose sensor.



DLLI5I-DALI Dry Contact Interface



Five-way DALI dry contact interface
The Dynalite DLLI5I-DALI enables mechanical and electronic switches such as dry contacts from button presses or low-level integration from security/HVAC or specialized third-party sensors, to interface directly with a Dynalite DALI-2 controller via the DALI bus.



DUS90AHB-D Multifunction Sensor

Aisleway high bay DALI network sensor

The Dynalite DUS90AHB-D is a 90° multifunction sensor that combines motion detection (PIR) and ambient light level detection (PE) in one device. The sensor uses the DALI protocol for power and communications to a network control system, eliminating the need for additional network field wiring. This sensor is ideal for overhead mounting between warehouse shelving.



To learn more about our control solutions
visit [dynalite.com](https://www.dynalite.com)

www.dynalite.com

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