



Vision Smart Lighting How DALI Benefits Wireless Controls

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Understanding of DALI



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.

History of DALI

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.

Key Points

One circuit has a maximum of 64 DALI addresses

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

A DALI Circuit

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A DALI circuit is the wiring that connects DALI devices together, and starts off at the main controller.

A DALI circuit:

- Can be run up to 300 metres using 1.5mm² cable
- Does not require termination of the line
- Can have a maximum of 64 DALI addresses

Multiple DALI circuits can be utilised in the same installation, and relay to the same network point.

Key Points

Multiple circuits can be housed in a single DALI network

General DALI Rules

DALI is a flexible control system. However there are some key considerations before installing a DALI system.

- 300 metres is the maximum length of one DALI circuit.
- 2-core 1.5mm² cable is required for the DALI circuit.
- Mains-rated cable. DALI is approx. 20 V, but treat it as if it is mains cable.
- You can have no more than 64 DALI addresses on one circuit.
- A luminaire can have more than 1 DALI address i.e. 2 drivers, a sensor and a DALI emergency module. Potentially, one luminaire could have 4 DALI addresses.
- Multiple DALI circuits can be housed in a DALI network enclosure.
- A DALI network enclosure is required to house the circuit, and a DALI Router is used within a design, to allow multiple circuits to be controlled from a single point.

DALI for 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 device's current battery status, LED board status, and if the device completed the mandatory 3 hour discharge.

Key Points

DALI facilitates full monitoring and testing of emergency lighting systems

Overview of DALI Benefits

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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
- Simple interface with building management systems
- Increased energy savings
- Integration of standard and emergency lighting

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

Understanding of DALI 2



Why a New DALI Standard

Full compliance with DALI standards ensures that our products function as expected to ensure a consistent experience through the systems life cycle.

With DALI-2 lighting control has been simplified further. Now the switching and sensor devices which were normally locked to a proprietary control system, or contained within another protocol have been moved onto the DALI line.

This increases freedom, availability and choice for the installers and customers as now they can choose from a large number of compatible products.

Why Choose DALI 2

DALI is an international standard with support from many manufactures, suppliers and installers. Using a DALI 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 manufactures 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. DALI 2 also covers the integration and compliance of

- Occupancy sensors
- Light sensors
- Input devices including sensors and switches
- Control system
- Power supplies

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

Additionally the updated standards provide;

- Backwards compatibility with traditional DALI
- Full set of standards, test flows and test equipment and certification

DALI 2 Internal Power Supply

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One of DALI 2s main benefits is its utilization 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 for Wireless Controls

With built in microprocessors into the componentry luminaires now have the ability to provide luminaire diagnostics and bi-communication without the need of DALI cables.

This can reduce the requirements of cabling, expensive routers or DALI power supplies. There is also no need to restrict the amount of fittings per circuit as a DALI subnet is not required to power the devices.

DALI 2 Advantages

- Simpler wiring – one line for lighting, emergency, switches and sensors
- Endorsed & compliant switch and sensor devices
- Cross manufacture compatibility
- Lower over-all costs
- Published under IEC 62386
- Certification of the control system component

Lighting for **a Living**



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