# Eyes On...
DALI Alliance

A1 Lighting speaks to Paul Drosihn, General Manager of the DALI Alliance, about the organisation and this sector of the industry.

Please tell our readers about the organisation and its key focuses and goals within the lighting industry.

The DALI Alliance is the global industry organisation for DALI (Digital Addressable Lighting Interface), the internationally standardised protocol for digital communication between lighting control devices. Last year we changed our brand name from the Digital Illumination Interface Alliance (DiiA) to DALI Alliance as it explains the core purpose of the organisation more clearly: to support the market's adoption of DALI lighting control technologies, systems and solutions. As a not-for-profit consortium of lighting specialists, we develop the specifications that allow companies to test and certify their products for compliance with DALI requirements. Notably, DALI is an open protocol, so performance is globally standardised and predictable, allowing the mixing and matching of certified products.

You recently launched a new brand, DALI+. Please tell us more about this innovation.

In simple terms, DALI+ is still DALI but with the ability to use Internet Protocol (IP)-based or wireless carriers instead of the usual dedicated pair of wires (known as the DALI bus) that carries the DALI commands. DALI+ gives lighting system designers what they need – options, but with standardised and interoperable lighting behaviour. Now they have an alternative to adding new cables whenever there's a need to introduce an extra control device, such as a switch or sensor, or when upgrading or retrofitting lighting systems (although luminaires still need power). With a DALI+ bridge you can connect an existing wired DALI installation to a DALI+ wireless or IP-based system. In short, DALI+ provides DALI users with even more future-proofing, particularly for IoT-based installations. Buildings such as office blocks need to adapt to new rules and priorities post-COVID-19, with big implications for light management. Fortunately, DALI lighting control is all about being adaptable and future-proof. These attributes are inherent to the protocol as it's possible to deal with changes to the way the space in a building is configured and used by software reprogramming rather than rewiring.
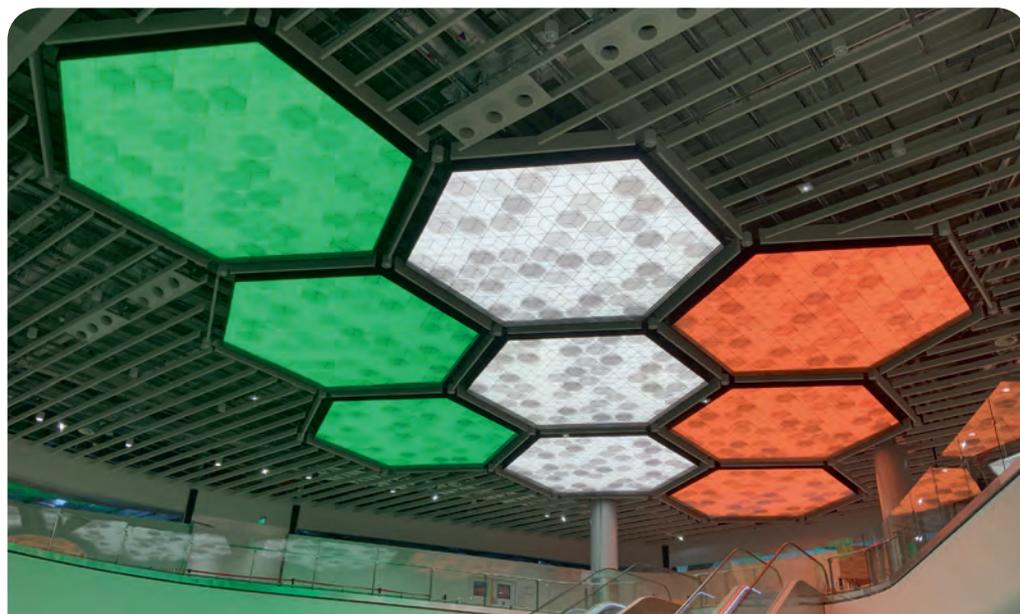
What are the main differences between DALI+ and other DALI brands?

DALI+ devices communicate using the same DALI commands as the wired DALI-2 and D4i options and provide the same DALI lighting control features along with valuable luminaire, energy and diagnostics data. The key difference is that DALI+ enables the use of wireless or IP-based carriers. All the

Above - DALI Lighting Awards winner Laing O'Rourke utilised DALI within the Manchester Airport Terminal 2 Extension and New Piers project (www.dali-alliance.org/awards/winners.html).

Image courtesy of Laing O'Rourke.
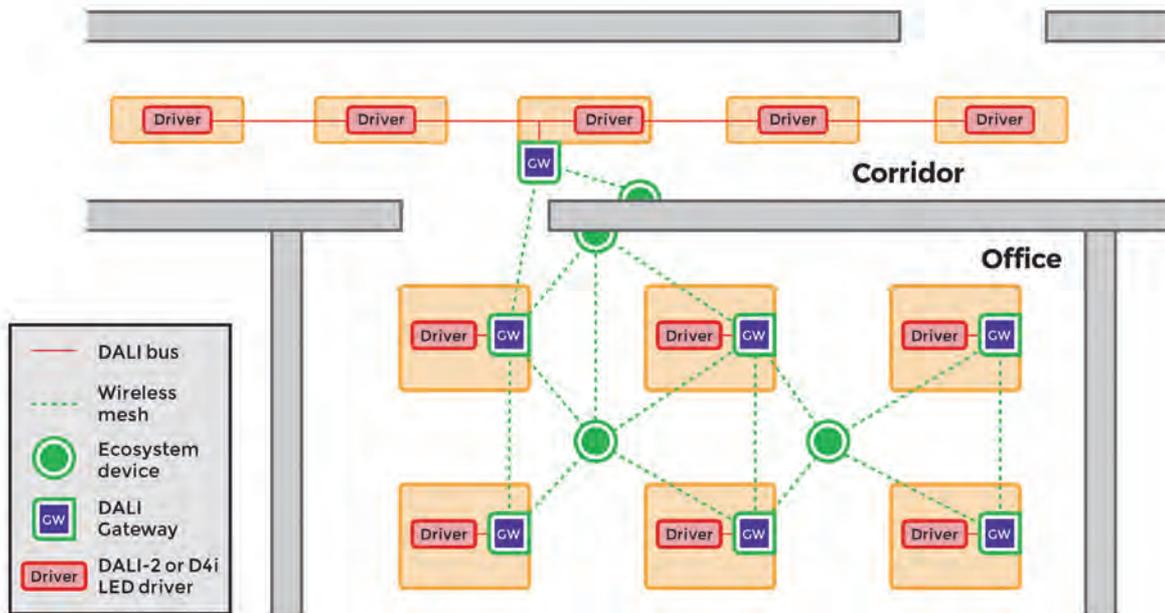
In this scenario, the office luminaires each have a gateway that forms part of the wireless network. In the corridor, a wired DALI line connects all the luminaires with a single gateway that also participates in the wireless ecosystem. Image courtesy of the DALI Alliance.

DALI+
DALI lighting control plus wireless and IP-based networking

"Ultimately, wireless networking has many potential benefits, not least the ability to integrate lighting with other building management systems."

Paul Drosihn, General Manager, DALI Alliance.

brands share another key feature: certification enabling standardised, interoperable performance. DALI+ products will be certified to operate with a specific carrier. First up is Thread, a low-power wireless mesh networking protocol based on the universally supported IP and built using open and proven standards. As a result, designers can be confident that lighting behaviour will always be DALI-standardised, be that DALI-2, D4i or DALI+. Further DALI+ certification programmes utilising carriers other than Thread are expected to follow soon.

What are the new specifications for Wireless to DALI Gateways and how will these benefit the lighting industry?

Complementing DALI+, we have also created specifications leading to fully certified gateways that can allow DALI products to participate in other networks. Indeed, we have already published specifications for gateways between DALI and Bluetooth mesh and between DALI and Zigbee. We're standardising these gateways to ensure that the mapping is consistent and that the behaviour on the DALI side is always the same. The DALI side could be, for example, a D4i luminaire with an intra-luminaire DALI bus that connects the gateway with the other D4i components such as LED drivers and sensors.

Or the DALI side could be a wired DALI-2 network. In either case, the standardised gateways enable wired DALI networks and luminaires to be incorporated into the Zigbee or Bluetooth mesh wireless ecosystem.

Ultimately, wireless networking has many potential benefits, not least the ability to integrate lighting with other building management systems. However, lighting was not the main focus when today's most widely used wireless protocols were developed. In contrast, lighting was front and central to the development of DALI, which means it offers many dedicated features relating to dimming, colour control, sensing and emergency lighting, and the availability of luminaire, energy and diagnostics data. We should also point out that DALI is based on a global standard; other protocols cannot offer the same rich set of standardised, lighting specific features.

Do you offer any certification programs, and why are these important for the industry?

We are all about certification. Our DALI-2 certification program builds on the existing DALI standards and enables cross-vendor interoperability of certified products. We drive the DALI-2 certification program and develop and maintain DALI-2 test procedures for different parts of the IEC 62386 standard.

"Membership is particularly beneficial for luminaire makers that wish to use the DALI trademarks on any of their fixtures that contain certified components from other DALI Alliance members. There is a free of charge Community Member option for eligible luminaire manufacturers."

Paul Drosihn, General Manager, DALI Alliance.

The introduction of DALI-2 has been incredibly successful, and we have certified almost two thousand lighting control products of different types from member companies across the globe.

On top of that, there is further momentum around D4i, an extension of DALI-2 certification for products with a minimum specific set of features, including luminaire, energy and diagnostics data. D4i also enables Zhaga-D4i, a joint certification programme with the Zhaga Consortium; they provide the mechanical specifications for various connector interfaces. Together we're enabling 'plug and play' standardisation of luminaires and luminaire mounted control devices (such as sensors or wireless gateways) where Zhaga is the 'plug' and D4i is the 'play'. In essence, D4i targets intra-luminaire use, where DALI is inside the luminaire and makes it easy to add or upgrade standardised sensors and/or communication nodes to light fixtures. This future-proofing of luminaires allows customers to keep pace with rapid developments in digital networking and sensing technology.

Which part of our readership do you feel would benefit from becoming a member of the DALI Alliance?
Membership is particularly beneficial for luminaire makers that wish to use the DALI trademarks on any of their fixtures that contain certified components from other DALI Alliance members. There is a free of charge Community Member option for eligible luminaire manufacturers. Those developing and marketing DALI-based products, such as drivers, controllers, sensors and gateways, need to be members so that they can certify their products and use our trademarks.

Notably, DALI Alliance Regular Members can join our working groups and participate directly

Above - DALI Lighting Awards entrant Delmatic highlights its use of DALI on CrossRail – Elizabeth Line (www.dali-alliance.org/awards/winners.html). Image courtesy of Delmatic.

in developing new specifications and adding new features into our different certification programs. They can also gain access to draft specifications and test sequences, potentially giving them a head start on new product development and certification.

Alternatively, the Associate Membership option is for those companies that do not require as much access, participation and active leadership within our organisation.

What can we expect from DALI lighting control in the future?
Firstly, we must deliver on the certification programs for specifications, including gateways and DALI+ as well as features such as DALI emergency and colour control. As certified products become more widely available, lighting designers, architects, facility maintenance teams and all

downstream DALI users will all benefit from further project innovation.

Looking further ahead, we see opportunities for industry harmonisation and convergence in currently isolated building systems such as HVAC, lighting, security and IT. That's why we recently joined IP-BLiS, the IP Building & Lighting Standards market interest group, which promotes alignment around IP-based networks for enhanced building control and management. With extensive data from DALI sensors and controllers, there are clear opportunities to better connect with other building systems. Of course, all this will be while maintaining our continued core focus on interoperability and future-proofing through globally recognised standardisation and certification.

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DALI for Wired and Wireless Connectivity

DALI+ and Wireless to DALI Gateways Boost Connectivity Options for DALI Lighting Networks

DALI+ delivers DALI lighting control over wireless and IP-based networks. With a carrier such as Thread, DALI+ enables true wireless DALI, without translation between protocols. DALI+ offers the same DALI features as wired (DALI-2 and D4i) options, with access to the same rich set of data.

DALI⁺ ™

○ DALI Gateway
○ Ecosystem device
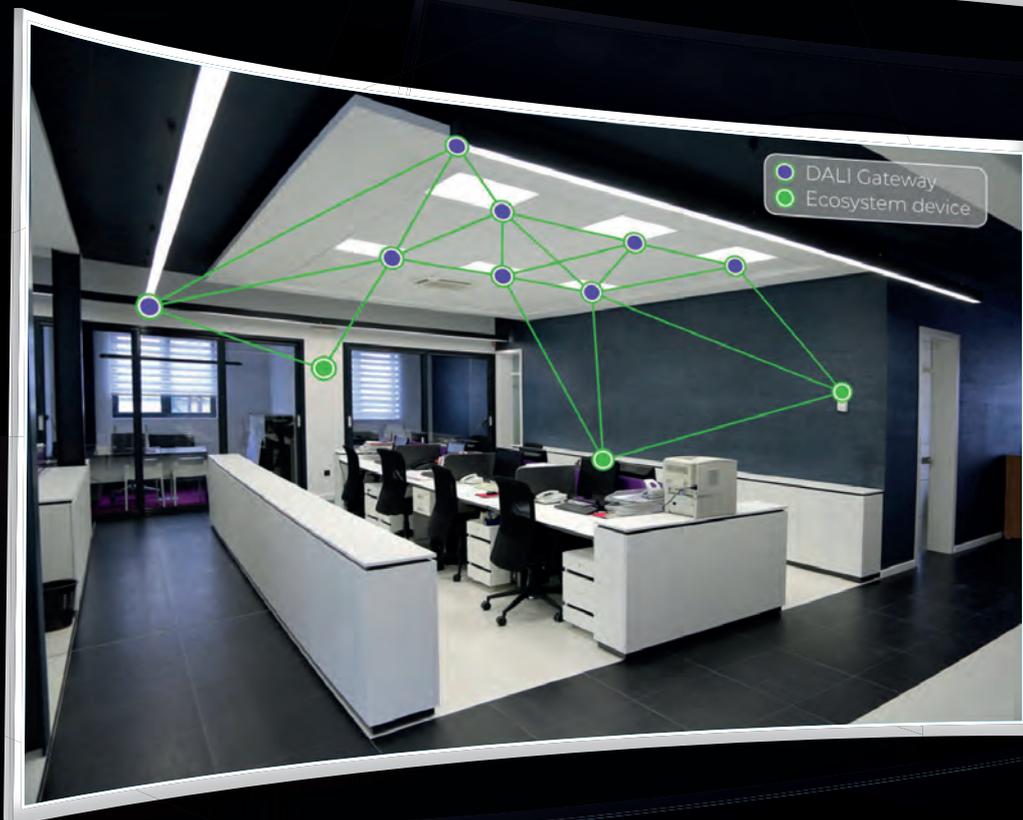
Standardized gateways allow existing DALI wired products to be used in either Bluetooth® mesh or Zigbee® wireless ecosystems. Gateways translate between protocols, and DALI control gear can report luminaire, energy and diagnostics data to the wireless network.

To learn more, visit **www.dali-alliance.org**
For membership enquiries, email info@dali-alliance.org

DALI® Alliance