独家专访 | Scott Wade: 解码 DALI-2 定义智能照明控制新形态

Exclusive Interview | Scott Wade: Decoding DALI-2 defines a new form of intelligent lighting control

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>> Link to DiiA China Summit event information on DiiA website

1. **DALI protocol is a mainstream dedicated protocol for digital lighting control that enables the easy installation of robust, scalable and flexible lighting networks. Could you please introduce the main features and functions of DALI protocol?**

DALI (Digital Addressable Lighting Interface) is a protocol, or language, for bi-directional digital communication between lighting-control products. The same pair of wires is used for both communication (sending commands/data) and for supplying power to some devices.

DALI enables precise control, configuration and querying of devices on the DALI bus. Communication is robust, due to the digital nature of DALI, and is also bi-directional, enabling feedback. Commands can be addressed to individual devices, or to a group of devices, or can be broadcast to all devices. This makes communication very efficient.

Each DALI subnet has a maximum of 64+64 addresses, meaning that 64 control gear (e.g. LED drivers) AND 64 control devices (e.g. sensors or application controllers) can be connected on the same DALI bus. DALI allows flexible reconfiguration of groups using software, rather than via rewiring, while “out-of-box” operation is also possible for simpler networks.

The use of pre-programmed scenes allow fast and efficient recall of light levels across the system. Also, the dimming curve for DALI control gear is standardised and tested, which provides device-to-device consistency in light output. DALI also specifies methods for colour control. And, importantly, DALI also includes emergency lighting, allowing periodic, automated self-testing, which is a legal requirement in many countries.

As discussed below, the introduction of DALI-2 and D4i is providing a whole range of new features and benefits.

2. The DALI-2 certification program which is building on the long-established benefits of DALI, has lots of new improvements. Please tell us some major changes from DALI version-1 to DALI-2, such as in protocol content, application scenarios, product certification, etc.

DALI-2 refers to the latest version of IEC 62386, the international DALI standard. Compared with DALI version-1, DALI-2 includes more features and more product types, and has a strong focus on product interoperability.

For the first time, DALI-2 brings standardization to control devices such as sensors and other input devices, as well as application controllers, which are the "brains" of a DALI system. Control devices were not included in DALI version-1.

DALI-2 incorporates much more detailed and rigorous testing requirements, which ensure that products from different suppliers are able to work together. To support this interoperability promise, DiiA introduced the DALI-2 certification program, which includes verification of test results before certification is granted. DiiA organizes regular test events (Plugfests) to enable validation and further improvement of the DALI-2 test procedures.

Compared with DALI version-1, DALI-2 includes clearer specifications for control-gear features such as timing, fading, power-on and start-up, as well as new features such as extended fade times. DALI-2 is designed for backwards compatibility, so DALI-2 control gear can be used in older systems.

3. We have learned that the development of various sub-standards and certification testing process based on DALI-2 protocol are still in intensive planning. What new lighting subdivisions will DALI-2 protocol cover in the future. And what new directions for its future development?

During 2019, DiiA introduced DALI-2 certification of sensors and other input devices, which was a key milestone for DALI-2. Also, the DiiA Technical & Certification Work Group (T&C WG) continues to make strong progress in a number of other areas via its many subgroups.

The next addition to DALI-2 certification will be the D4i specifications for LED drivers. D4i is aimed principally at intra-luminaire DALI, where DALI-2 devices are connected by a DALI bus inside the luminaire. D4i specifies LED drivers with Smart Data capabilities; such devices can store and report data related to the light source, driver and luminaire, for enhanced asset tracking and performance monitoring. D4i also takes care of the power-supply requirements for the DALI bus and for control devices such as sensors or wireless communication devices that are attached to the luminaire. D4i is already proving extremely beneficial for street-lighting applications and city-wide lighting networks. Also, DiiA is working closely with the Zhaga Consortium to combine D4i luminaires with Zhaga connectors, enabling plug-and-play interoperability of luminaires, sensors and communication nodes.

Other T&C WG subgroups are working hard to bring other new features into the scope of DALI-2 certification. These include colour control, self-contained emergency lighting, and new sensor types. Two new subgroups are looking at DALI and wireless; one is looking at the implementation of DALI-2 over different wireless carriers, while the other is discussing specifications for standardized gateways between DALI-2 and existing wireless protocols.

4. **What do you think of the prospect of DALI-2 in China Market? And what influence will it bring to China's lighting industry, especially the field of intelligent lighting?**

We believe that the lighting market in China will benefit greatly from the adoption of DALI-2. DiiA already has a large number of members in China and the wider Asia-Pacific region. As a global standard, with a focus on product interoperability, DALI-2 creates a level playing field for suppliers to compete in international markets. With its specific focus on lighting, and its rich feature set, DALI-2 provides many benefits and enables lighting systems that are robust, scalable, cost-effective, reliable and flexible. Moreover, the new D4i specifications enable data-rich luminaires that can function as intelligent nodes in the IoT.

5. **DiiA China Summit 2019 will be held in Shanghai on November 1. We are very pleased to invite you as a representative of DiiA to share with us the latest technology applications of DALI-2. Could you please tell us some exciting content what you will share in the upcoming event?**

I am very pleased and honoured to represent DiiA and its member companies at the DiiA China Summit in Shanghai. As well as the latest DALI-2 updates and the development of new specifications including D4i, I look forward to sharing some insights into the future of DALI. In particular, I will discuss the intersection of DALI and wireless technologies in future lighting networks.