Introducing the Digital Illumination Interface Alliance

The global industry alliance for DALI lighting control

January 2020
DiiA: The global industry alliance for DALI®

- DiiA – the Digital Illumination Interface Alliance – is an open, global consortium of lighting companies.

- Our aim is to grow the market for lighting-control solutions based on DALI®

- DALI is an established protocol (language) for bi-directional, digital communication between lighting-control devices.

- DALI-2 is the latest version of the DALI protocol.
DALI-2:

The global standard for smart, digital lighting control

- Worldwide standard for lighting control communications
- Technically managed in the open standard IEC 62386

- DALI-2 is driven by DiiA
- Ensures interoperability through testing and certification with trademark use

- Control, configuration & querying of devices over a 2-wire bus
- Individual, group & broadcast addressing to any DALI device

- DALI, DALI-2 and D4i trademarks owned by DiiA
The strengths of DALI ...

- DALI is a dedicated, standardized protocol for digital lighting control.
- DALI lighting systems are robust, scalable, cost-effective, reliable and flexible.

... are extended and enhanced in DALI-2

- DALI-2 is setting the standard for smart lighting control
- Focused on interoperability, backed by DALI-2 certification
Key features of DALI-2

DALI-2 focuses on **multi-vendor interoperability**, backed by certification.

DALI-2 includes more features and clearer specifications.

DALI-2 has much more detailed and comprehensive testing requirements.

DALI-2 includes input devices (e.g. sensors), application controllers, and bus power supplies for the first time. DALI-2 now extends to all devices in a lighting-control system.

DALI-2 is designed for backwards-compatibility with older DALI systems.
DiiA membership

- Over 200 members worldwide

- Membership types:
  - Regular
  - Associate
  - Community registration for luminaire makers

- Membership allows certification or registration of products:
  - Over 750 DALI-2 certified products
  - Over 1,250 DALI version-1 registered products

- Membership allows DALI trademark use
Introducing the Digital Illumination Interface Alliance (DiiA) members.
# DALI trademarks and logos

- DALI, the DALI Logo, DALI-2, the DALI-2 Logo, DiiA, the DiiA Logo, D4i and the D4i Logo are trademarks in various countries in the exclusive use of DiiA.
- Trademarks (logos and wordmarks) **may be used by DiiA members ONLY.**

<table>
<thead>
<tr>
<th>DiiA logo:</th>
<th>DALI logo:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Illumination Interface Alliance</td>
<td>![DALI Logo]</td>
</tr>
<tr>
<td>• Used to show membership of DiiA</td>
<td>• Used on DALI version-1 registered products</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th>DALI-2 logo:</th>
<th>D4i logo:</th>
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<td>![DALI-2 Logo]</td>
<td>![D4i Logo]</td>
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<td>• Used on DALI-2 certified products only</td>
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</tbody>
</table>
DALI-2 Specifications & Certified Products
Introducing the Digital Illumination Interface Alliance

DALI product types

One example of a DALI lighting-control system. The DALI bus carries DALI power and data on the same pair of wires. Control devices include application controllers and input devices such as sensors, switches and push-button devices. A bus power supply is required, either separate or integrated with an existing device. More than one application controller is allowed on the DALI bus.
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DALI product types

DALI bus

- Bus power supply
- Application controller
- Gateway

- Control gear
- LED driver
- LED lamp
- DALI photosensor
- DALI push-button input device

- Emergency lighting & signage

Each DALI subnet can have 64 control gear AND 64 control devices.

DALI-2 certification is available for these device types, and others.
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DALI-2 specifications

IEC 62386 Standard (multiple Parts)

DALI-2 Test Procedure specifications

Created & maintained by DiiA

DiiA Specifications (e.g. Parts 25x)
Introducing the Digital Illumination Interface Alliance (DiiA)

The Digital Illumination Interface Alliance (DiiA) is an organization that develops and maintains specifications for lighting control systems. DiiA specifications are provided to the International Electrotechnical Commission (IEC) for inclusion in the IEC 62386 standard. The IEC 62386 standard covers various aspects of lighting systems and includes multiple parts. DiiA specifications include test procedures and are maintained by DiiA. Feedback and amendments from DiiA are provided to IEC to ensure the standards are up-to-date and meet the needs of the industry.
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DALI-2 specifications and certification

- IEC 62386 Standard (multiple Parts)
  - DiiA specifications provided to IEC for inclusion in IEC 62386
  - DiiA Specifications (e.g. Parts 25x)
  - Created & maintained by DiiA

- DALI-2 Test Procedure specifications
  - DiiA feedback & amendments provided to IEC
  - Third-party software provider (Lichtvision)

- DALI-2 Test Sequences (software)
  - Test hardware (ProbitLab or ProbitLab2)

- DALI-2 testing (by DiiA member or Accredited Test House)
  - Verification (by DiiA)

- DALI-2 Certification

Created & maintained by DiiA feedback & amendments provided to IEC

Third-party software provider (Lichtvision)

Certification

Verification (by DiiA)

DALI-2 testing (by DiiA member or Accredited Test House)

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DALI-2 testing (by DiiA member or Accredited Test House)

Test hardware (ProbitLab or ProbitLab2)

DALI-2 Test Sequences (software)
Part 101: General requirements – System components

Part 102: General requirements – Control gear

Part 104: General requirements – Wireless and alternative wired systems

Part 103: General requirements – Control devices

Parts 2xx: Particular requirements for control gear

Part 105: General requirements – Firmware update (In progress)

Parts 3xx: Particular requirements for control / input devices

Published:
- Part 201: Fluorescent lamps
- Part 202: Self-contained emergency lighting
- Part 203: Discharge lamps (excluding fluorescent lamps)
- Part 204: Low voltage halogen lamps
- Part 205: Supply voltage controller for incandescent lamps
- Part 206: Conversion from digital signal into DC voltage
- Part 207: LED modules
- Part 208: Switching function
- Part 209: Colour control

Published:
- Part 216: Load referencing
- Part 217: Thermal gear protection
- Part 218: Dimming curve selection
- Part 220: Centrally-supplied DC emergency operation
- Part 221: Load shedding
- Part 222: Thermal lamp protection
- Part 224: Integrated light source

Published:
- Part 301: Push buttons
- Part 302: Absolute input devices
- Part 303: Occupancy sensors
- Part 304: Light sensors
- Part 332: Input control devices - Feedback
- Part 333: Manual configuration

In progress:
- Part 305: Colour sensor

DiiA creates DALI-2 Test Specifications based on these individual Parts of IEC 62386, enabling DALI-2 certification.
DiiA specifications

- The following DiiA specifications are available from the [DiiA website](#):

<table>
<thead>
<tr>
<th>Specification</th>
<th>Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>DiiA Part 150*</td>
<td>AUX Power Supply</td>
<td>v1.1, Oct 2019</td>
</tr>
<tr>
<td>DiiA Part 251*</td>
<td>DALI-2 Luminaire Data</td>
<td>v1.1, Oct 2019</td>
</tr>
<tr>
<td>DiiA Part 252*</td>
<td>DALI-2 Energy Data</td>
<td>v1.1, Oct 2019</td>
</tr>
<tr>
<td>DiiA Part 253*</td>
<td>DALI-2 Diagnostics Data</td>
<td>v1.1, Oct 2019</td>
</tr>
<tr>
<td>DiiA Part 351*</td>
<td>Luminaire-mounted Control Devices</td>
<td>v1.0, Oct 2019</td>
</tr>
<tr>
<td>DiiA Part 306</td>
<td>General-purpose Sensors</td>
<td>In development</td>
</tr>
</tbody>
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* Included in DiiA certification program
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Part 101: General requirements – System components

Part 102: General requirements – Control gear

Part 207: LED drivers
Part 250: Integrated bus power supply
Part 251: Luminaire data
Part 252: Energy data
Part 253: Diagnostics data

Part 103: General requirements – Control devices

Part 301: Push buttons
Part 302: Absolute input devices
Part 303: Occupancy sensors
Part 304: Light sensors

In progress:
Part 209: Colour control
Part 202: Self-contained emergency lighting
Part 206: Conversion from digital signal to DC voltage
Part 208: Switching function

In progress:
Part 351: Luminaire-mounted control devices

DALI-2 Parts available for certification

Bus power supplies
Application controllers
Input devices
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DALI-2 Certification
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DALI-2 testing

Testing procedures for DALI-2 are much more detailed and comprehensive than for DALI version-1, and are reviewed and updated as required.

Photo: LOYTEC GmbH
Plugfests (interoperability test events)

DiiA organizes regular interoperability test events (Plugfests) to enable validation and further improvement of test procedures.
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**DALI-2 certification**

**Overview and comparison with DALI version-1**

**DALI version-1 registration**

1. Successful test for compliance
2. Register product with DiiA
3. No verification step for DALI version-1 registration
4. Only possible for control gear
5. Product can display DALI version-1 logo
6. Product listed in DiiA online database

**DALI-2 certification**

1. Successful test for compliance
2. Submit results to DiiA
3. Results verified by DiiA
4. Success
   - DALI-2 certification granted
   - Product can display DALI-2 logo
5. Failure
   - Inform member

Using latest DALI version-1 test sequences

Using latest DALI-2 test sequences
<table>
<thead>
<tr>
<th>Step</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DiiA creates and maintains DALI-2 Test Specifications&lt;br&gt;• DALI-2 Test Specifications are based either on IEC 62386 or on new DiiA Specifications</td>
</tr>
<tr>
<td>2</td>
<td>DiiA develops software Test Sequences on approved test equipment&lt;br&gt;• DiiA members can download the current Test Sequences from our website &gt;&gt; <a href="#">Link</a></td>
</tr>
<tr>
<td>3</td>
<td>Member companies execute the required tests for each product&lt;br&gt;• Members can also use the services of accredited DALI test houses &gt;&gt; <a href="#">Link</a></td>
</tr>
<tr>
<td>4</td>
<td>If all tests pass, the member company submits the results via the DiiA website&lt;br&gt;• Certification credits (one per product) must be pre-purchased before products are submitted</td>
</tr>
<tr>
<td>5</td>
<td>DiiA verifies the results. If all data is OK, then DALI-2 certification is granted&lt;br&gt;• The member company may use the DALI-2 logo on the certified product</td>
</tr>
<tr>
<td>6</td>
<td>Relevant data is displayed in the online DiiA Product Database&lt;br&gt;• Visibility of a product in the database confirms that the product is certified &gt;&gt; <a href="#">Link</a></td>
</tr>
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</table>
DALI-2 LED drivers are available from a large number of suppliers.
DALI-2 control devices & bus power supplies

DALI-2 single-master application controllers, with integrated bus power supplies

DALI-2 standalone bus power supply

DALI-2 multi-master application controller
DALI-2 sensors and other input devices

DALI-2 input device (push-button switch)

DALI-2 push-button coupler

DALI-2 occupancy and light sensor
Community members and DALI-2 luminaires

• Luminaire makers are eligible for Community registration

• **No fee** for Community registration, and **no fee** to use the DiiA Trademarks (including DALI logos) according to DiiA’s rules.
  – See [DALI for luminaire makers](#)

• DALI-2 luminaires contain DALI-2 certified components
  – Listing of DALI-2 luminaires is open to Community members, as well as registered brands of Regular and Associate members
DiiA contact information

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