Introducing the Digital Illumination Interface Alliance

The global industry alliance for DALI lighting control

March 2019
DiiA: The global industry alliance for DALI

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

• We aim to grow the market for lighting-control solutions based on DALI.

• DALI, or Digital Addressable Lighting Interface, is an established protocol for bi-directional, digital communication between lighting-control devices.

• DALI-2 is the latest version of the DALI protocol.
Member companies

Regular Members (43)

Member companies

Associate Members (12)

Member companies

Community Members (8)

Member companies
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.
DALI-2 Certification
DALI-2 certification: Overview

• DiiA operates the **DALI-2 certification and logo-licensing program**
  – DiiA member companies can to show compliance of lighting devices with IEC 62386

• The DALI-2 logo can only be used on certified products.
  – All DALI-2 certified products are listed in the online [DiiA product database](#).
  – Only DiiA members can certify their DALI-2 products.

• DALI-2 certification involves **verification of test results** by DiiA.
  – In contrast, DALI version-1 product compliance is based solely on self-declaration, which has led to interoperability issues in the market.
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**DALI version-1 vs. DALI-2**

**DALI version-1 registration**
- Successful test for compliance
- Register product with DiiA
- Only possible for control gear
- No verification step for DALI version-1 registration
- Using latest DALI version-1 test sequences

**DALI-2 certification**
- Successful test for compliance
- Submit results to DiiA
- Results verified by DiiA
- Success
- Failure
- Using latest DALI-2 test sequences
- DALI-2 certification granted
- Product listed in DiiA online database
- Product can display DALI-2 logo
- Product can display DALI version-1 logo
DALI-2 vs. DALI version-1

- DALI-2 certification brings the promise of **significantly improved multi-vendor interoperability** compared with DALI version-1 systems.
- Testing procedures for DALI-2 are **much more detailed and comprehensive**, and are reviewed and updated as required.
- DiiA organizes regular test events to enable validation and further improvement of test sequences.

- DALI version-1 registration only applies to control gear.
  - All other product types are NOT eligible to carry the DALI version-1 logo.
  - All registered DALI version-1 devices are listed in the [Product Database](#).
  - Registration is compulsory for control gear carrying the DALI version-1 logo.
# DALI-2 vs. DALI version-1

<table>
<thead>
<tr>
<th>Feature</th>
<th>DALI-2 certification</th>
<th>DALI version-1 registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>More-comprehensive Test Specifications that are focused on product interoperability?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>New and updated Test Sequences supplied by DiiA to members?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Includes control devices (input devices, application controllers)?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Test results verified by DiiA?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>All products displayed on DiiA website?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Fee for each product?</td>
<td>Yes (except luminaires)</td>
<td>No</td>
</tr>
</tbody>
</table>
### DALI-2 certification: Key steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1    | DiiA creates and maintains DALI-2 Test Specifications  
• DALI-2 Test Specifications are based either on IEC 62386 or on new DiiA Specifications |
| 2    | DiiA develops software Test Sequences on approved test equipment  
• DiiA members can download the current Test Sequences from our website >> [Link](#) |
| 3    | Member companies execute the required tests for each product  
• Members can also use the services of accredited DALI test houses >> [Link](#) |
| 4    | If all tests pass, the member company submits the results via the DiiA website  
• Certification credits (one per product) must be pre-purchased before products are submitted |
| 5    | DiiA verifies the results. If all data is OK, then DALI-2 certification is granted  
• The member company may use the DALI-2 logo on the certified product |
| 6    | Relevant data is displayed in the online DiiA Product Database  
• Visibility of a product in the database confirms that the product is certified >> [Link](#) |
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DALI-2 certification: Detailed process

1. Obtain latest test sequences (From DiiA website)
2. Test for compliance
   - Pass? Yes → Analyze results
   - Pass? No → Anayze results
3. Analyze results
   - Yes → Waiver?
   - No → Submit results
4. Submit results
   - Results verified by DiiA
   - Purchase certification credits
5. Credits visible on website (On DiiA website)
6. Products displayed in online database
7. Certification granted
   - Yes → Inform member
   - No → Waiver?
   - Yes → Waiver?
   - No → Inform member

From IEEE-ISTO

Verification by DiiA Certification Manager

On DiiA website

Credits visible on website

Products displayed in online database

Certification granted

Inform member

Purchase certification credits

Results verified by DiiA

No
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DALI-2 Specifications & Certified Products
DALI-2 specifications and certification

- DiiA Specifications provided to IEC for inclusion in IEC 62386
- DiiA specifications (e.g. Parts 25x)
- IEC 62386 Standard (multiple Parts)
- DALI-2 Test Procedure specifications
  - Created & maintained by DiiA
- DALI-2 Test Sequences (software)
- Test hardware (ProbitLab or ProbitLab2)
  - Third-party software provider (Lichtvision)
- DALI-2 testing (by DiiA member or Accredited Test House)
- Verification (by DiiA)
- DALI-2 Certification

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Part 101: General requirements – System components

Part 102: General requirements – Control gear

Part 104: General requirements – Wireless and alternative wired systems  In progress

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

For Parts 207, 209 and others, DiiA adapts DALI version-1 test specifications for use with DALI-2.

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
In progress:
Part 219: Power measurement
Part 223: Light-output compensation over lifetime
Part 225: Colour Tc
Part 226: Colour xy

In progress:
Part 219: Power measurement
Part 223: Light-output compensation over lifetime
Part 225: Colour Tc
Part 226: Colour xy

Future part:
Part 305: Colour sensor

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 307: Relative input devices

Published:
Part 301: Push buttons
Part 302: Absolute input devices
Part 303: Occupancy sensors
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Part 333: Manual configuration

In progress:
Part 307: Relative input devices

For Parts 207, 209 and others, DiiA adapts DALI version-1 test specifications for use with DALI-2.

Updated: Dec 2018

Purchase standards via the IEC website
More details on IEC 62386: DiiA website
DiiA specifications (Parts 25x and Aux)

- DiiA published a set of five new specifications in 2018
- Integrated DALI power supplies, auxiliary power supplies, and data storage/retrieval for asset management, energy reporting and diagnostics >> More details

<table>
<thead>
<tr>
<th>Specification</th>
<th>Name (notes)</th>
<th>Specification</th>
<th>Name (notes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALI Part 250</td>
<td>Integrated Bus Power Supply</td>
<td>DALI Part 251</td>
<td>MB1 Extension (Luminaire data for asset management)</td>
</tr>
<tr>
<td>AUX Power Supply</td>
<td>(Does not involve DALI memory banks)</td>
<td>DALI Part 252</td>
<td>Energy Reporting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DALI Part 253</td>
<td>Diagnostics &amp; Maintenance</td>
</tr>
</tbody>
</table>

- DiiA is currently developing a new name and logo to indicate products with the features and functions defined in these new specifications.
DALI-2 certification: Product types

DALI-2 certification has already been achieved for the following product types:

- LED drivers (control gear for LED modules)
- Single-master application controllers (control devices)
- Multi-master application controllers (control devices)
- Standalone bus power supplies
- Bus power supplies integrated with control gear or control devices

DALI-2 certified products can carry the DALI-2 logo.

DALI-2 certified products are traceable via the online, public database.
**DALI-2 certification**

Diagram shows one possible example of a DALI system.

* Application controllers and input devices are two different types of control device.
DALI-2 certification: Next steps

- Further product types, features and functions will be added to the DALI-2 program.
- DiiA is writing test procedures for the following Parts:

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Subject</th>
</tr>
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<tbody>
<tr>
<td>Parts 301 to 304</td>
<td>Input devices (push buttons, occupancy sensors, light sensors)</td>
</tr>
<tr>
<td>Part 209</td>
<td>Colour control gear</td>
</tr>
<tr>
<td>Parts 25x</td>
<td>New DiiA specifications for data storage/reporting and power-supply</td>
</tr>
<tr>
<td>Part 202</td>
<td>Self-contained emergency lighting</td>
</tr>
</tbody>
</table>

- See our [Timeline](#) for updates.
DALI-2 LED drivers

- Many DiiA members have certified DALI-2 control gear (LED drivers)
DALI-2 control devices & bus power supplies

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

DALI-2 multi-master application controller

DALI-2 standalone bus power supply
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
DALI trademarks and logos

- DiiA has the rights to registered Trademarks relating to DALI lighting products
  - DALI and DALI-2 wordmarks
  - DALI and DALI-2 logos
- DALI Trademarks can be used only by DiiA members
  - Subject to the DiiA Trademark Guidelines

<table>
<thead>
<tr>
<th>DALI-2 logo:</th>
<th>DALI logo:</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="DALI-2 logo" /></td>
<td><img src="image2" alt="DALI logo" /></td>
</tr>
<tr>
<td>• Used by DiiA members on their certified products only</td>
<td></td>
</tr>
<tr>
<td>• Products must be listed in the online Database</td>
<td></td>
</tr>
<tr>
<td>• May not be used for general marketing</td>
<td></td>
</tr>
<tr>
<td>• Used by DiiA members on their DALI version-1 registered products</td>
<td></td>
</tr>
<tr>
<td>• Products must be listed in the online Database</td>
<td></td>
</tr>
<tr>
<td>• May also be used for general marketing e.g. to show that companies are a DiiA member</td>
<td></td>
</tr>
</tbody>
</table>
DiiA member benefits

- There are two membership classes: Regular & Associate

- All DiiA members (Regular & Associate):
  - Can certify DALI-2 products and register DALI version-1 products
  - Receive updated DALI-2 Test Sequences
  - Can use the DALI & DALI-2 Trademarks, according to DiiA rules
  - Have access to the DiiA member website
  - Can participate in the DiiA General Assembly

- In addition, Regular members:
  - Can participate in Work Groups
  - Can participate in interoperability test events (plugfests)
  - Have access to draft DiiA deliverables e.g. new specifications
  - Are eligible for Board of Directors membership
DiiA contact information

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