

Introducing DALI-2 and DiiA



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DALI-2: Smart, digital lighting control







Digital Addressable Lighting Interface

- DALI® is an established protocol (language) for bi-directional, digital communication between lighting-control devices.
- Technically managed in the open, global standard IEC 62386
- DALI-2™ is the latest version of the DALI protocol.
- DALI-2 is driven by DiiA
- Ensures interoperability through testing and certification with trademark use
- DALI, DALI-2 and D4i trademarks owned by DiiA



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.**

<p>DiiA logo:</p>  <ul style="list-style-type: none">• Used to show membership of DiiA	<p>DALI logo:</p>  <ul style="list-style-type: none">• Used on DALI version-1 registered products• Used to show membership of DiiA
<p>DALI-2 logo:</p>  <ul style="list-style-type: none">• Used on DALI-2 certified products only	<p>D4i logo:</p>  <ul style="list-style-type: none">• Used on D4i certified products only

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 DALI-2 **certification**.

DALI-2 includes **more features** and **clearer specifications**.



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

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

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

DiiA: The global industry alliance for DALI®

- The Digital Illumination Interface Alliance (DiiA) is an open, global consortium of lighting companies that aims to grow the market for lighting-control solutions based on DALI.



- Over 230 members worldwide
- Three membership types:
 - Regular, Associate, Community registration for luminaire makers
- Membership allows certification or registration of products:
 - Over 900 DALI-2 certified products
 - Over 1,350 DALI version-1 registered products
- Membership allows DALI, DALI-2 and D4i trademark use



DiiA members













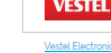


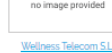








































Regular Members (27)

 Acuity Brands Lighting Inc.	 BEGA GmbH & Co. KG	 Cooper Lighting LLC	 CP Electronics	 Carlo Gavazzi Controls S.p.A.	 Casambi Technologies Oy	 Cincon Electronics Co., Ltd.	 Clevertronics Pty Ltd	 Hytronik Industrial Co., Ltd.	 HLED SL	 ICE Gateway GmbH	 Industrial Technology Research Institute, Center for Measurement Standards	 polynom ag	 Projektleuchten GmbH	 Prolojik Limited	 QUALTRON SRL
 DEKRA Certification BV	 Delta Electronics Inc.	 ERCO GmbH	 ESYLUX GmbH	 Comlight AS	 Coolon Pty. Ltd.		 Daisalux SAU	 Intesis Software S.L.	 Inventronics Europe BV	 IPAS GmbH	 Je Woo Corporation Ltd	 SELIC Ireland Ltd.	 Self Electronics Co., Ltd.	 SG Automation A/S	 Shanghai Euchips Industrial Co., Ltd.
 Helvar Oy Ab	 Ideal Industries Inc.	 LEDVANCE GmbH	 LEEDARSON Lighting Co., Ltd.	 Dalcnet srl	 Delmatic Ltd.	 Delta Dore	 DEUTA Controls GmbH	 Josef Barthelma GmbH & Co. KG	 Kao Power Electronics Co., Ltd.	 Kinolux Co., Ltd. (K&L) China	 KLIC Systems Australia Pty Limited	 Shanghai Institute of Quality Inspection and Technical Research	 Shanghai MOONS' Automation Control Co., Ltd.	 Shenzhen City Hengyao Lighting Technology Co., Ltd.	 Shenzhen Longwin Lighting Electric Appliances
 Lutron Electronics Co.	 Norge ED&S Ltd. (A Honeywell Company)	 OSRAM	 Silvair Inc.	 Dialight	 EOXE	 DPPUL	 EAGLE RISE	 LCI - Lighting Components	 Ledlight Sweden AB	 LEDsGO	 Lightline GmbH	 Shenzhen Merrytek Technology Co., Ltd.	 Shenzhen Moso Electronics Technology Co., Ltd.	 Shenzhen Sosen Electronics Co., Ltd.	 Shenzhen Sunricher Technology Limited
 Siemens Schweiz AG	 Signify Netherlands BV	 OSRAM	 Silvair Inc.	 Dialight	 EOXE	 DPPUL	 EAGLE RISE	 LCI - Lighting Components	 Ledlight Sweden AB	 LEDsGO	 Lightline GmbH	 Shenzhen Merrytek Technology Co., Ltd.	 Shenzhen Moso Electronics Technology Co., Ltd.	 Shenzhen Sosen Electronics Co., Ltd.	 Shenzhen Sunricher Technology Limited
 Simon S.A.	 STEINEL GmbH	 Telensa Ltd.	 Tridonic GmbH Co. KG	 ELT	 Elitako GmbH	 Emergency Lighting Products Limited	 Entity Electronics Srl	 Lumenpulse Group	 Lumitech Produktion und Entwicklung GmbH	 Lunatone Industrielle Elektronik GmbH	 Mackwell Electronics Ltd.	 Suzhou Opple Lighting Co., Ltd.	 Synapse Wireless	 TCI Telecommunications Italia	 TE Connectivity Nederland B.V.
 TRILUX Group (ITZ GmbH)	 WAGO Kontakttechnik GmbH & Co. KGs	 Zencontrol Limited	 Silvair Inc.	 Dialight	 EOXE	 DPPUL	 EAGLE RISE	 LCI - Lighting Components	 Ledlight Sweden AB	 LEDsGO	 Lightline GmbH	 Shenzhen Merrytek Technology Co., Ltd.	 Shenzhen Moso Electronics Technology Co., Ltd.	 Shenzhen Sosen Electronics Co., Ltd.	 Shenzhen Sunricher Technology Limited



www.dali2.org/membership/member-companies.html

Associate Members (153)

 ABB	 ACTEC Electronics Co., Ltd.	 ALVIT SRL	 Artemide SpA	 FSP Technology Inc.	 Fulham Electronics Co., Ltd.	 Gerard Lighting Pty Ltd	 GEWISS S.p.A.	 Ninbo Violet Lighting Electric Co., Ltd.	 Norka Automation GmbH	 NormaGrup Technology SA	 Novaccess SA	 Vestel Electronics	 VIMAR	 Virtual Extension Ltd.	 Wellness Telecom SL
 Artilect Green Co., Ltd.	 Aurex Industrial	 B.E.G. Brjck Electronic GmbH	 Beckhoff Automation GmbH & Co. KG	 Glamox AS	 Goone Limited	 GRE Alpha Electronics Limited	 Hadler GmbH	 Nuvoton Technology Corporation	 NVC Lighting	 Occhio GmbH	 OMS as	 Wieland Electric GmbH	 XAL GmbH	 Xeneroi Ltd.	 Xiamen KAOTEC Electronic Technology Co., Ltd.
 Beghelli SpA	 Bes A Electronics	 Bridgelux Inc.	 Bridgetek Pte Ltd	 Hager/Berker Holding GmbH	 Hangzhou Youte Power Co., Ltd.	 HEP Tech Co., Ltd.	 Herbert Waldmann GmbH & Co. KG	 One-LUX Ltd.	 Optogal AB	 Ozuno	 Phoenix Contact GmbH & Co. KG	 Xiamen Yankon Electronic Lighting Co., Ltd.	 Zhejiang Kile Lighting Holdings Co., Ltd.	 Zhongshan AiDimming Electronics Co., Ltd.	 Zuhai Tech Technology Co., Ltd.
								 One-LUX Ltd.	 Optogal AB	 Ozuno	 Phoenix Contact GmbH & Co. KG	 Xiamen Yankon Electronic Lighting Co., Ltd.	 Zhejiang Kile Lighting Holdings Co., Ltd.	 Zhongshan AiDimming Electronics Co., Ltd.	 Zuhai Tech Technology Co., Ltd.

DiiA member benefits

- Two membership classes: **Regular & Associate**
- **Community** registration is open to luminaire makers
- **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

	ASSOCIATE MEMBER	REGULAR MEMBER	COMMUNITY (note 2)
Access to DiiA test sequences	X	X	
Certification of DALI-2 products, use of DALI-2 logo on certified products	X	X	
Use of logos (DALI-2, DALI version-1) on luminaires containing DALI devices from DiiA members	X	X	X
Use of DALI version-1 logo on products other than luminaires	X	X	
Use of DiiA logo and DALI version-1 logo for marketing materials	X	X	X
Access to members-only website	X	X	
Participation in General Assembly meetings	X	X	
Receive membership communication	X	X	X
Access to draft deliverables (test sequences, specifications)		X	
Approval of final deliverables		X	
Participation and voting in working groups. Contribute to DiiA roadmap and development of test specifications.		X	
Participation in interoperability events (Plugfests)		X	
Eligible for Board of Directors membership		X	



www.dali2.org/membership/benefits.html

DALI-2 certification & specifications

DALI-2 certification: Overview

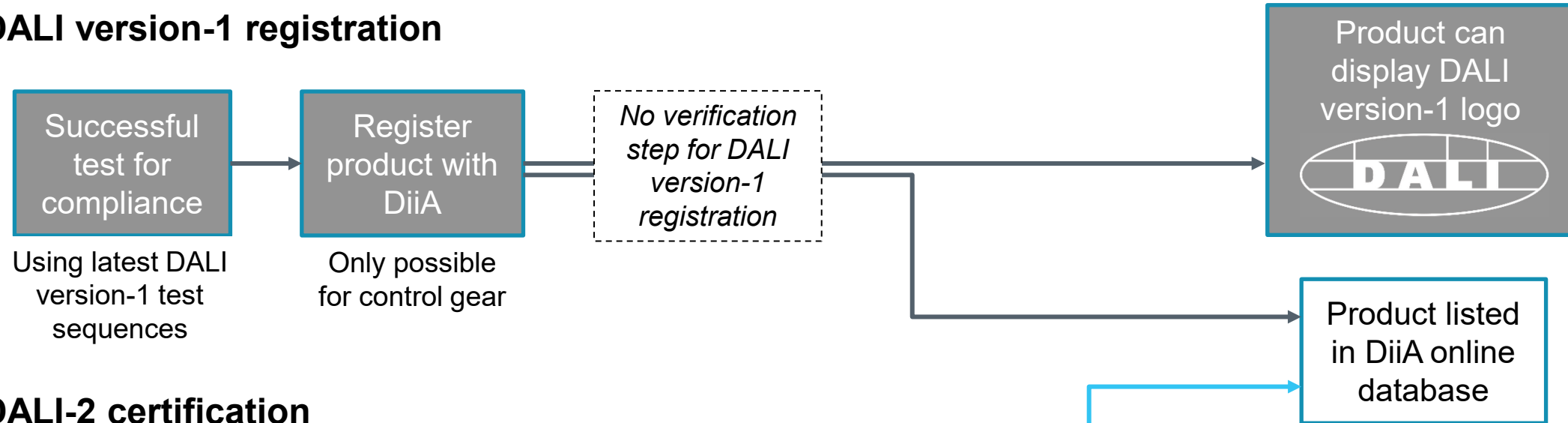
- DALI-2 certification indicates **multi-vendor product interoperability**
- **Rigorous and detailed testing**, followed by **verification** of test results
- Allows **trademark use**
- Products are **traceable** in the DiiA database (www.dali2.org/products)
- DiiA drives the DALI-2 certification program
 - First DALI-2 products (LED drivers) certified in September 2017
 - Ongoing addition of new features and new products types
- DiiA creates DALI-2 Test Procedure specifications
 - Test Sequence software is provided to members
 - Members can perform testing, or use accredited test houses



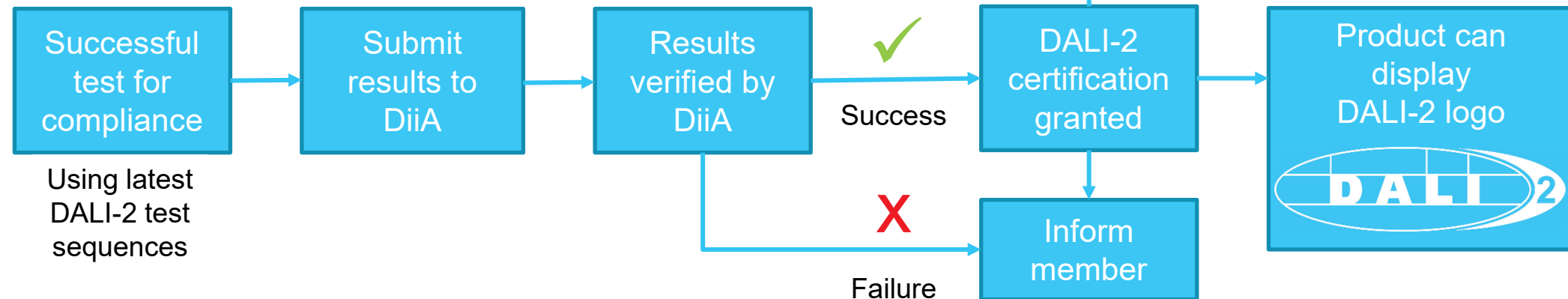
DALI-2 certification

Overview and comparison with DALI version-1

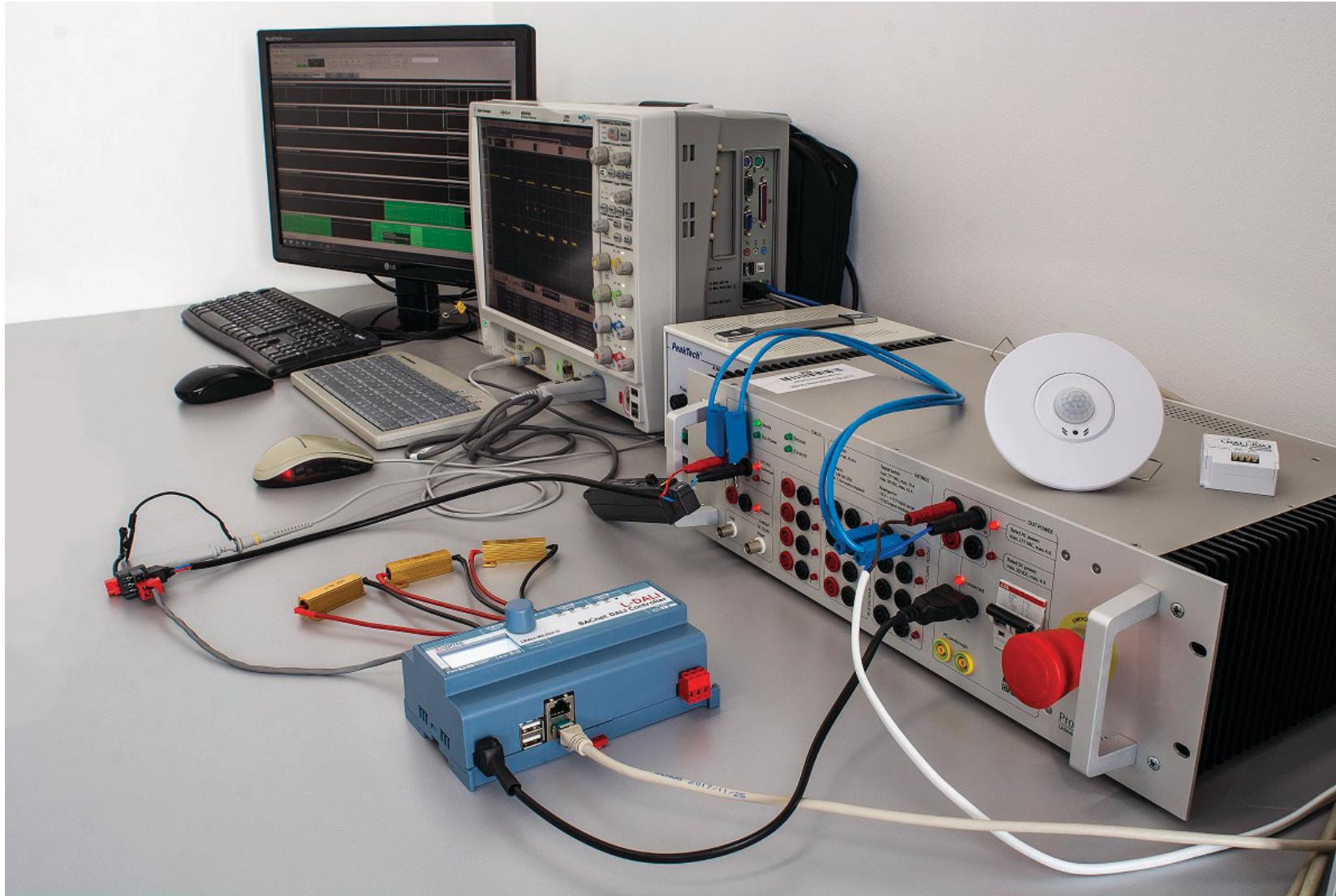
DALI version-1 registration



DALI-2 certification



DALI-2 testing: Typical set-up

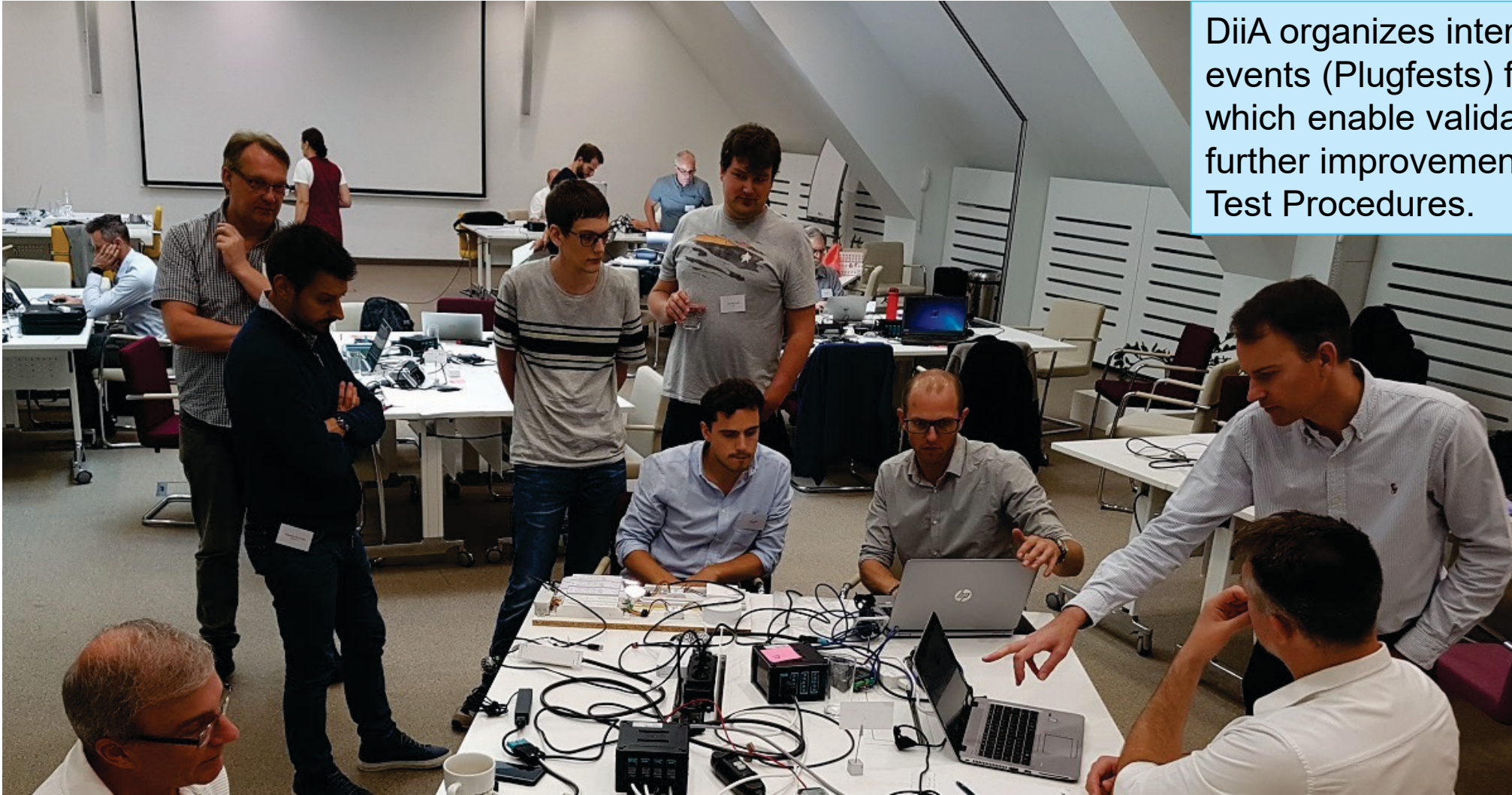


Testing procedures for DALI-2 are **much more detailed and comprehensive** than for DALI version-1, and are reviewed and updated as required.

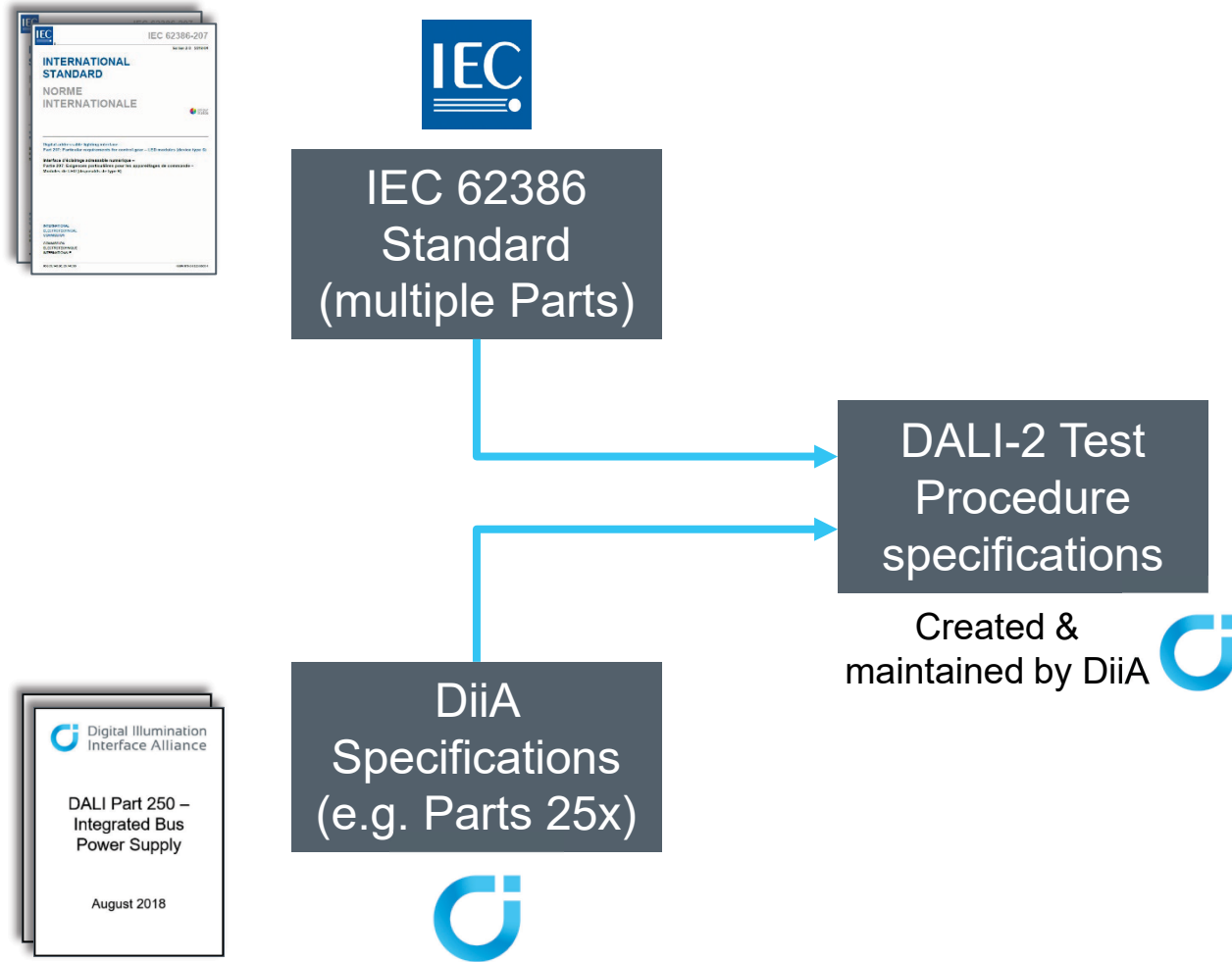
Photo: LOYTEC GmbH

Plugfests (interoperability test events)

DiiA organizes interoperability test events (Plugfests) for members, which enable validation and further improvement of DALI-2 Test Procedures.



DiiA creates DALI-2 Test Procedures



- DiiA creates DALI-2 **Test Procedures** for individual Parts of IEC 62386, and also for DiiA Specifications
- Test Procedures are maintained and updated by DiiA, with input from Plugfest events

IEC 62386 standard

Purchase standards via the [IEC website](#)
More details on IEC 62386: [DiiA website](#)

Red text = Parts
aligned with DALI-2

Part 101: General requirements – System components

Part 102: General requirements – Control gear

Parts 2xx: Particular requirements for control gear

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

Part 104: General requirements – Wireless and alternative wired systems

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

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

Part 103: General requirements – Control devices

Parts 3xx: Particular requirements for control / input devices

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:

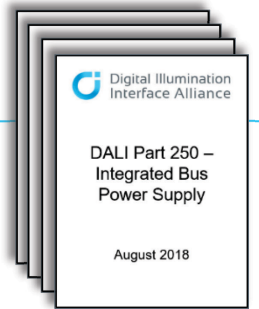
Part 305: Colour sensor

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

DiiA specifications

- DiiA specifications add new features and new product types to DALI-2

Specification	Name	Status
DiiA Part 150	AUX Power Supply	v1.1, Oct 2019
DiiA Part 250	Integrated Bus Power Supply	v1.1, Oct 2019
DiiA Part 251	DALI-2 Luminaire Data	v1.1, Oct 2019
DiiA Part 252	DALI-2 Energy Data	v1.1, Oct 2019
DiiA Part 253	DALI-2 Diagnostics Data	v1.1, Oct 2019
DiiA Part 351	Luminaire-mounted Control Devices	v1.0, Oct 2019
DiiA Part 306	General-purpose Sensors	In development



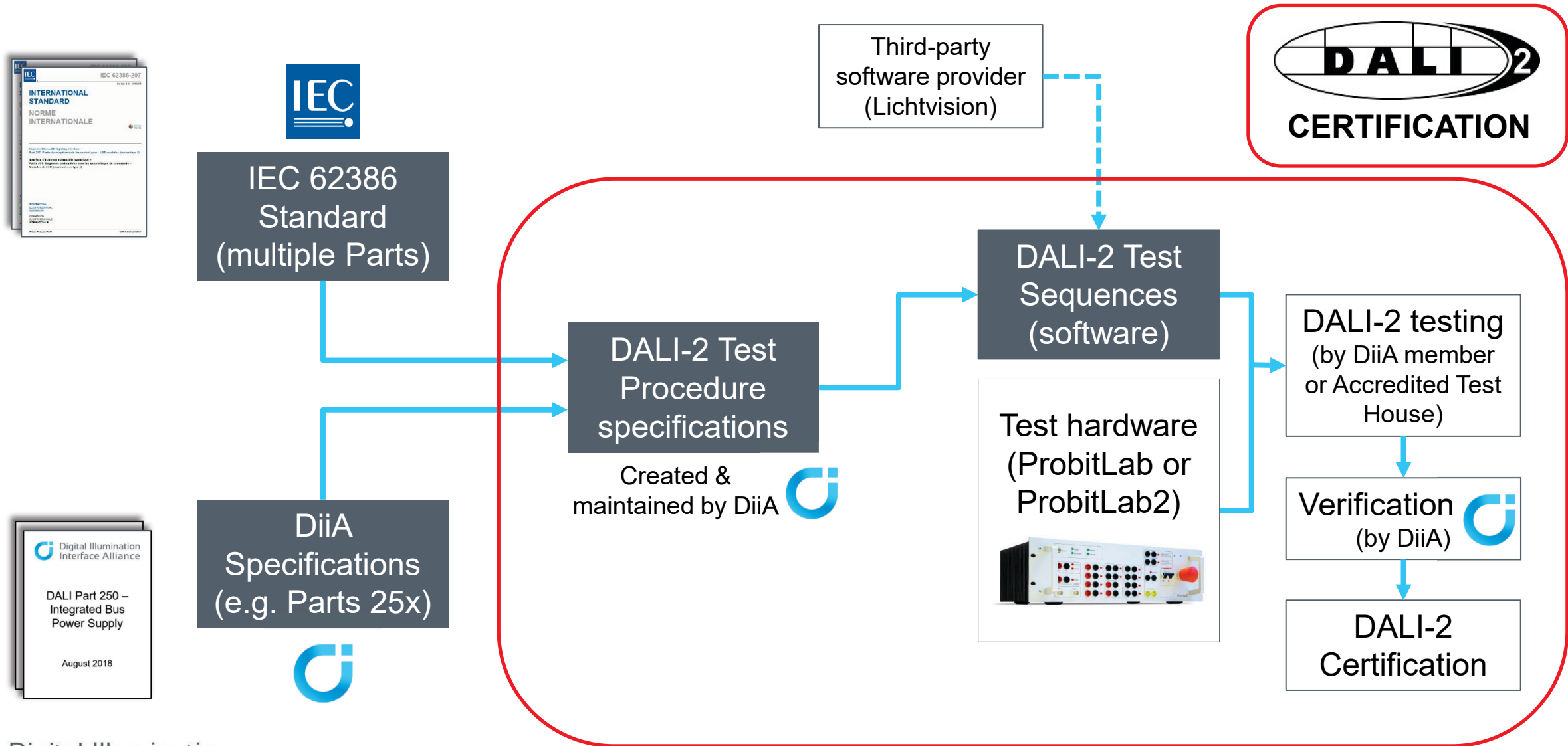
Included in D4i
certification
program

- Published DiiA specifications are available from the DiiA website:

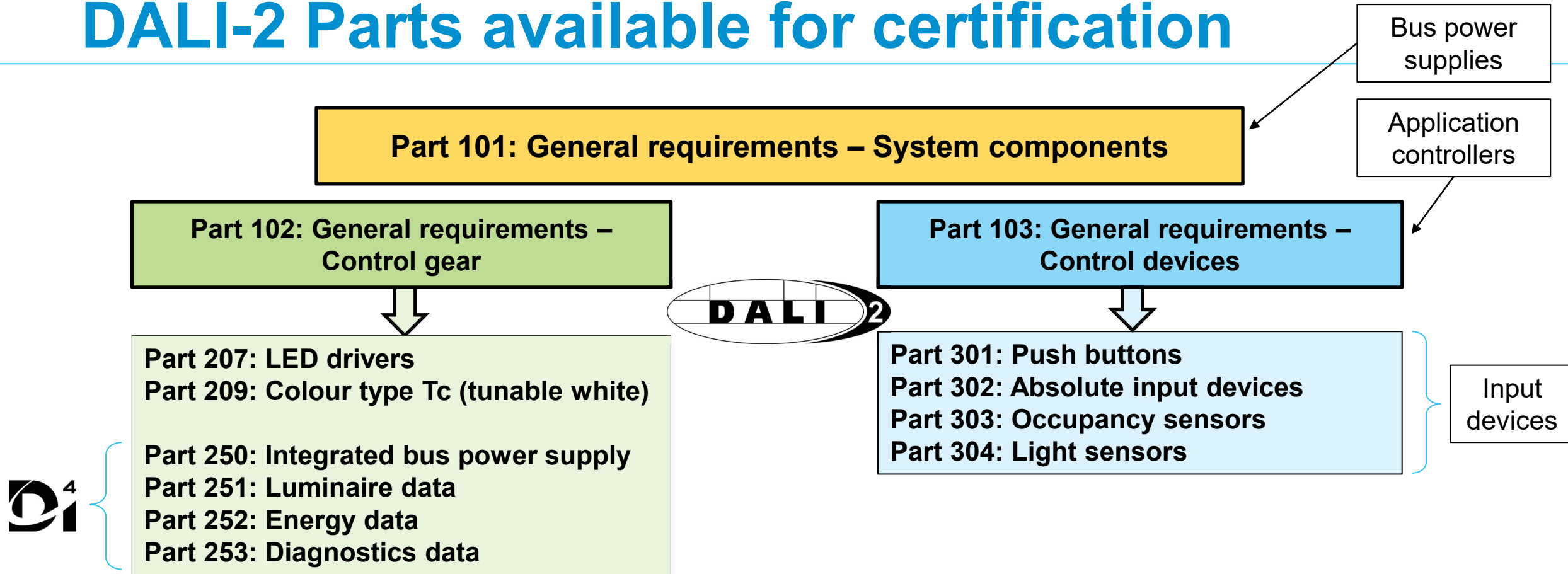


www.dali2.org/specifications/download.html

DALI-2 certification



DALI-2 Parts available for certification



In progress:

Part 209: Colour control (other colour types)
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

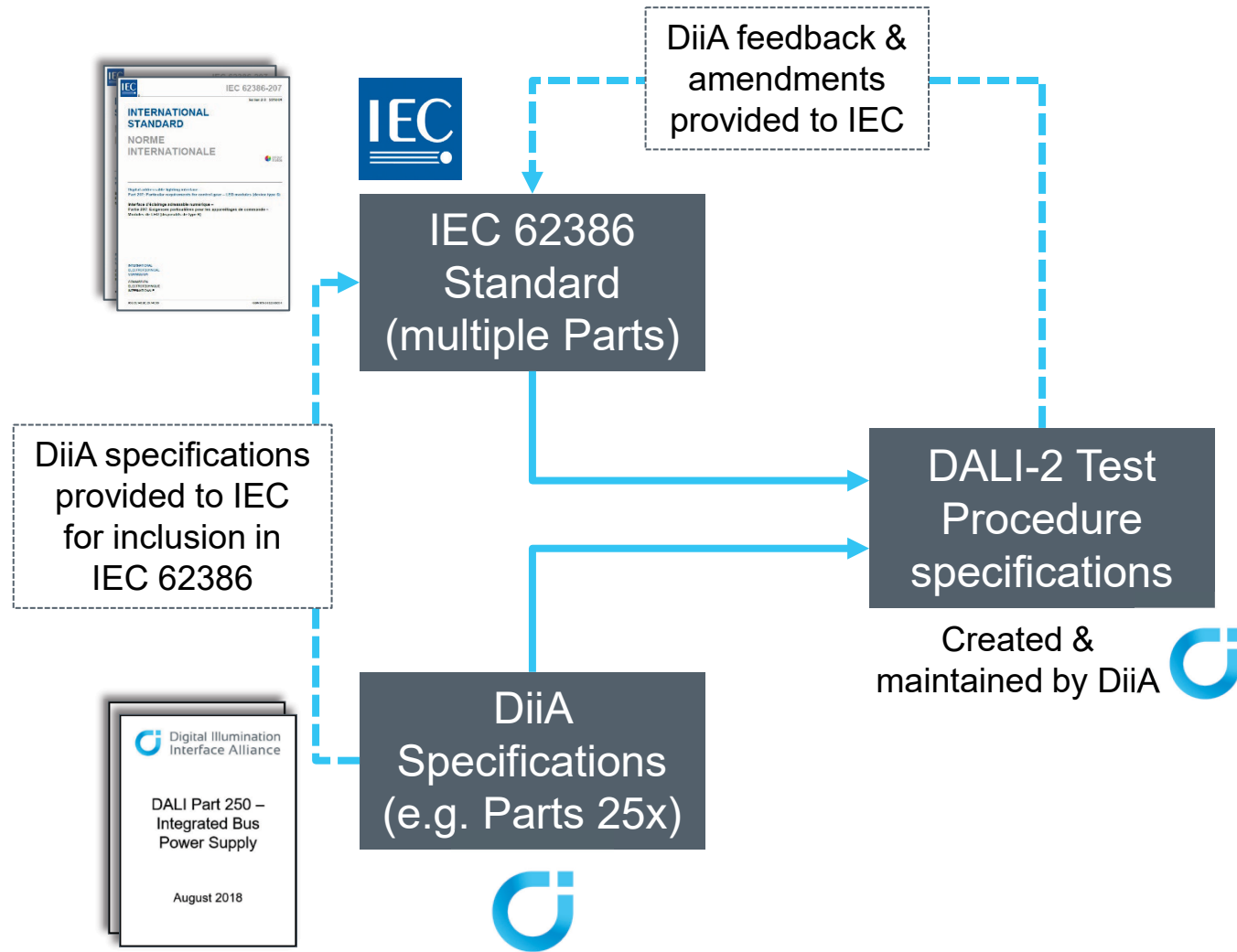


Current status:



www.dali2.org/dali2

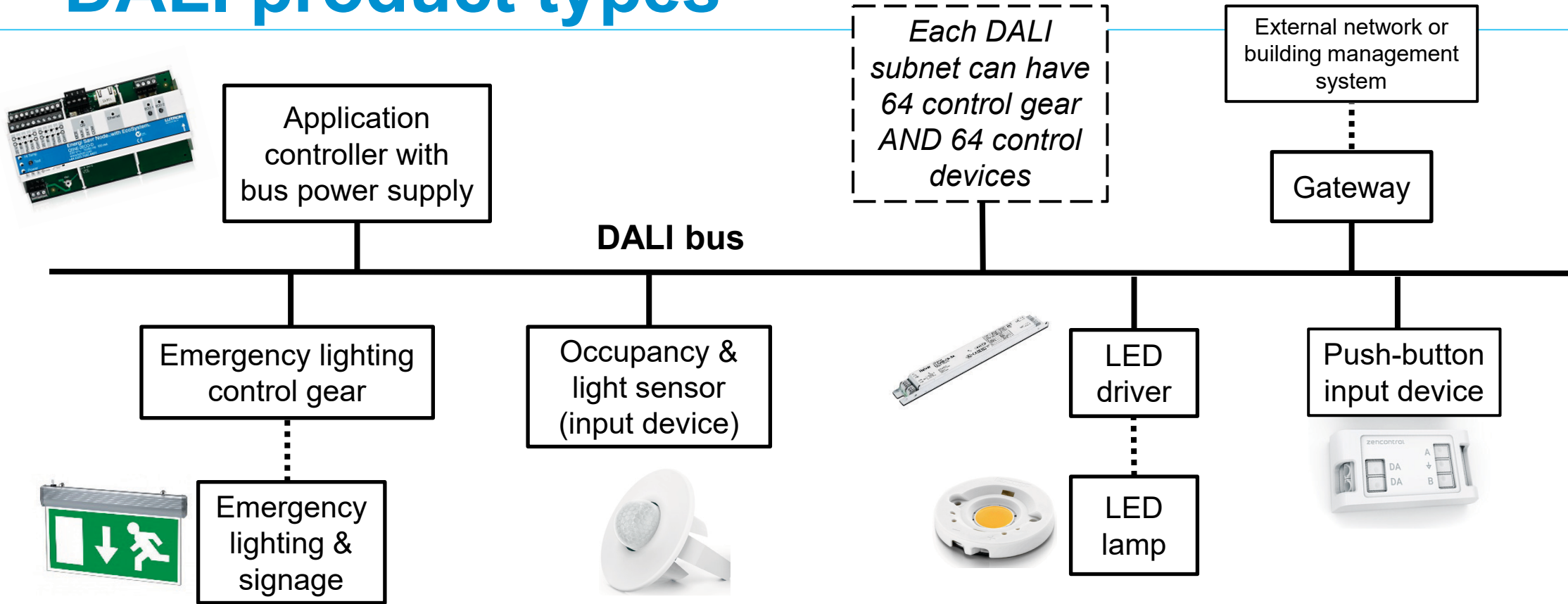
DiiA works closely with IEC



- DiiA participates in the **IEC work group WG 11** of TC 34.
- WG 11 **develops and maintains IEC 62386**, the international DALI standard.
- DiiA provides **Clarifications and Recommendations** to WG 11, which are used by IEC in future updates of IEC 62386.
- Separately, DiiA also writes new **DiiA Specifications**, which are then provided to IEC to be incorporated into IEC 62386.

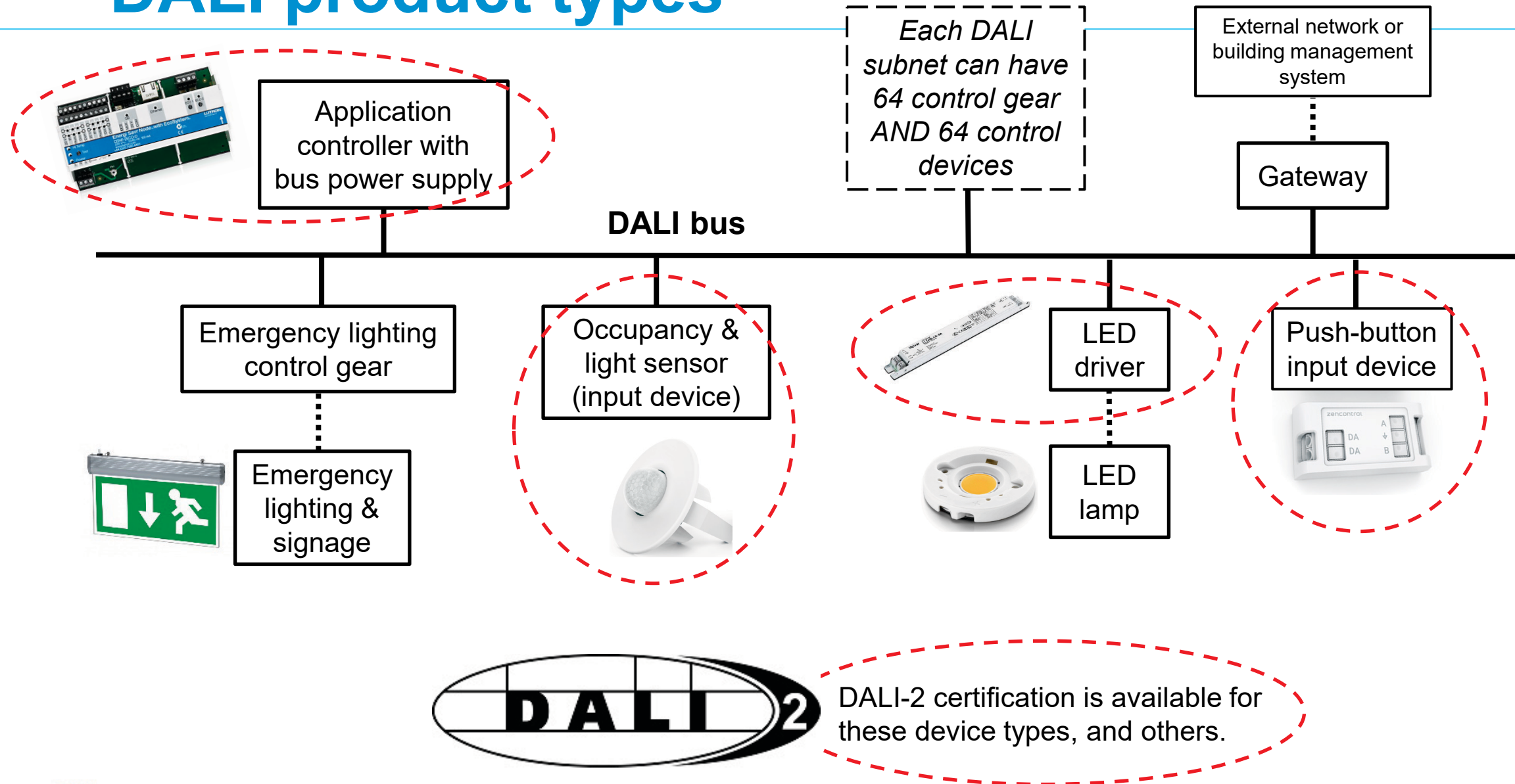
DALI-2 certified products

DALI product types



An example of a DALI lighting-control system. The DALI bus carries DALI power and data on the same pair of wires. Each DALI subnet can have 64 control gear and 64 control devices. Control gear provide power to LEDs and other light sources. Control devices include application controllers (which make decisions and send commands), and input devices such as sensors, switches and push-button devices. A bus power supply is required, providing up to 250 mA and typically 16V to the DALI bus. More: www.dali2.org/systems.

DALI product types



DALI-2 LED drivers



DALI-2 LED drivers are available from a large number of suppliers



LED driver with
DALI-2 **tunable**
white colour control



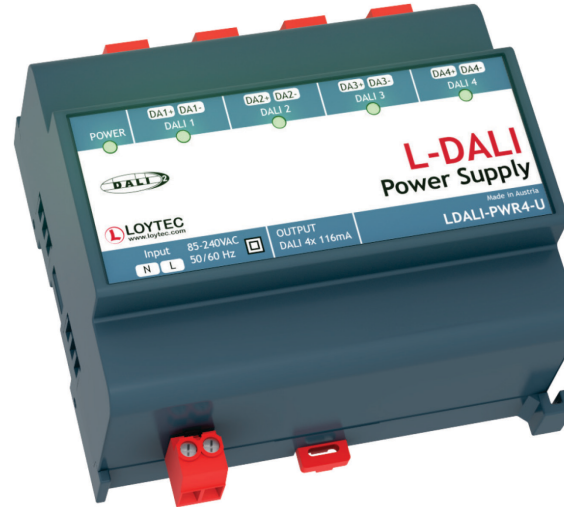
D4i-certified
LED driver



DALI-2 control devices & bus power supplies



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



DALI-2 standalone bus power supply



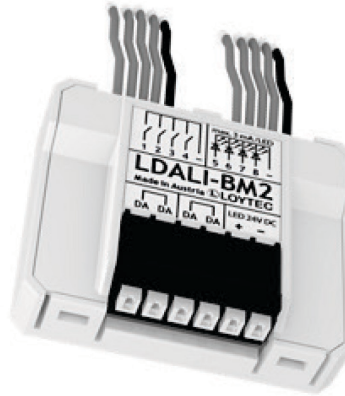
DALI-2 multi-master application controller



DALI-2 sensors and other input devices



DALI-2 input device (push-button switch)



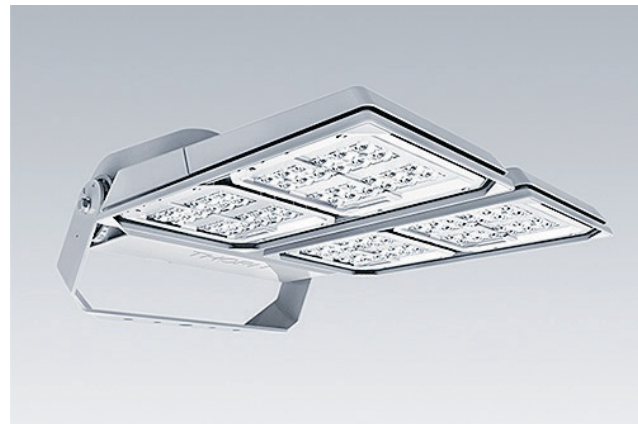
DALI-2 push-button coupler



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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