

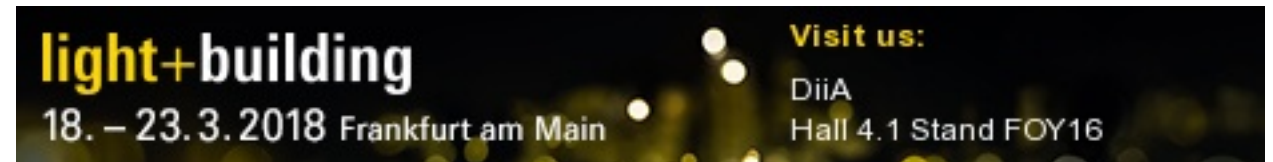


- Recent developments in the IEC 62386 standard and impact on lighting technology

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Key facts

Digital Addressable Lighting Interface

- Technically managed in the open standard **IEC 62386**
- Driven by the Digital Illumination Interface Alliance (DiiA)
- **Worldwide standard** for lighting control communications
- Ensures **interoperability** through **testing, certification and registration** with trademark use
- **Control, configuration & querying** of devices
- **Individual, group & broadcast** addressing to any DALI device
- DALI and DALI-2 trademarks owned by  Digital Illumination Interface Alliance

The IEC 62386 standard

IEC 62386

101 – General requirements – System (V1 & V2)

104 – General requirements – Wireless and alternative wired system (in progress)

105 – General requirements – Firmware update (in progress)

102 – Control gear (V1 & V2)



207 LED (V2 in progress)	208 Switching	209 Colour Control	in progress (control gear functions):		
204 LV Halogen	205 Incandescent Dimmer	206 Conversion to DC (0/1-10 V)	225 Colour Tc	226 Colour xy	224 Integrated Light source
201 Fluorescent (V1 & V2)	202 Self-contained Emergency (V2 in progress)	203 HID	222 Thermal lamp information	223 Light compensation over time (on hold)	221 Load shedding
			219 Power measurement (on hold)	220 Central emergency	218 Dimming curve selection
			216 Load referencing	217 Thermal gear information	

103 – Control devices (V2)

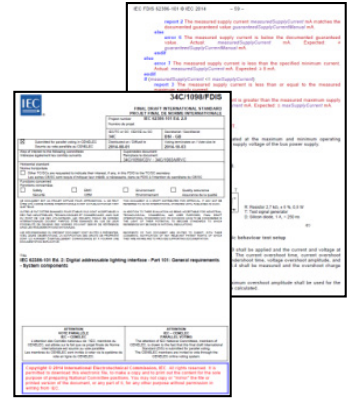


Input devices:		
307 Relative input devices (on hold)	332 Feedback	333 Manual configuration (in progress)
304 Light sensor	305 Colour sensor (future part)	
301 Push Buttons	302 Absolute input devices	303 Occupancy Sensors

Why choose ?

Some of the many improvements and additions in DALI-2 include:

- **Improved interoperability**
- The technical specifications in the standard (IEC 62386) were clarified and improved.
- Test procedures are much more thorough.
- Optional features were removed, or moved into separate parts of the standard.
- Control devices were standardised for the first time.



Control devices

Control devices are new to the DALI-2 standard (IEC 62386-103:2014). There are two types:

- **Application controllers**

- The “brains” of the system.
- Use information from any source, make decisions and can send commands to the control gear.



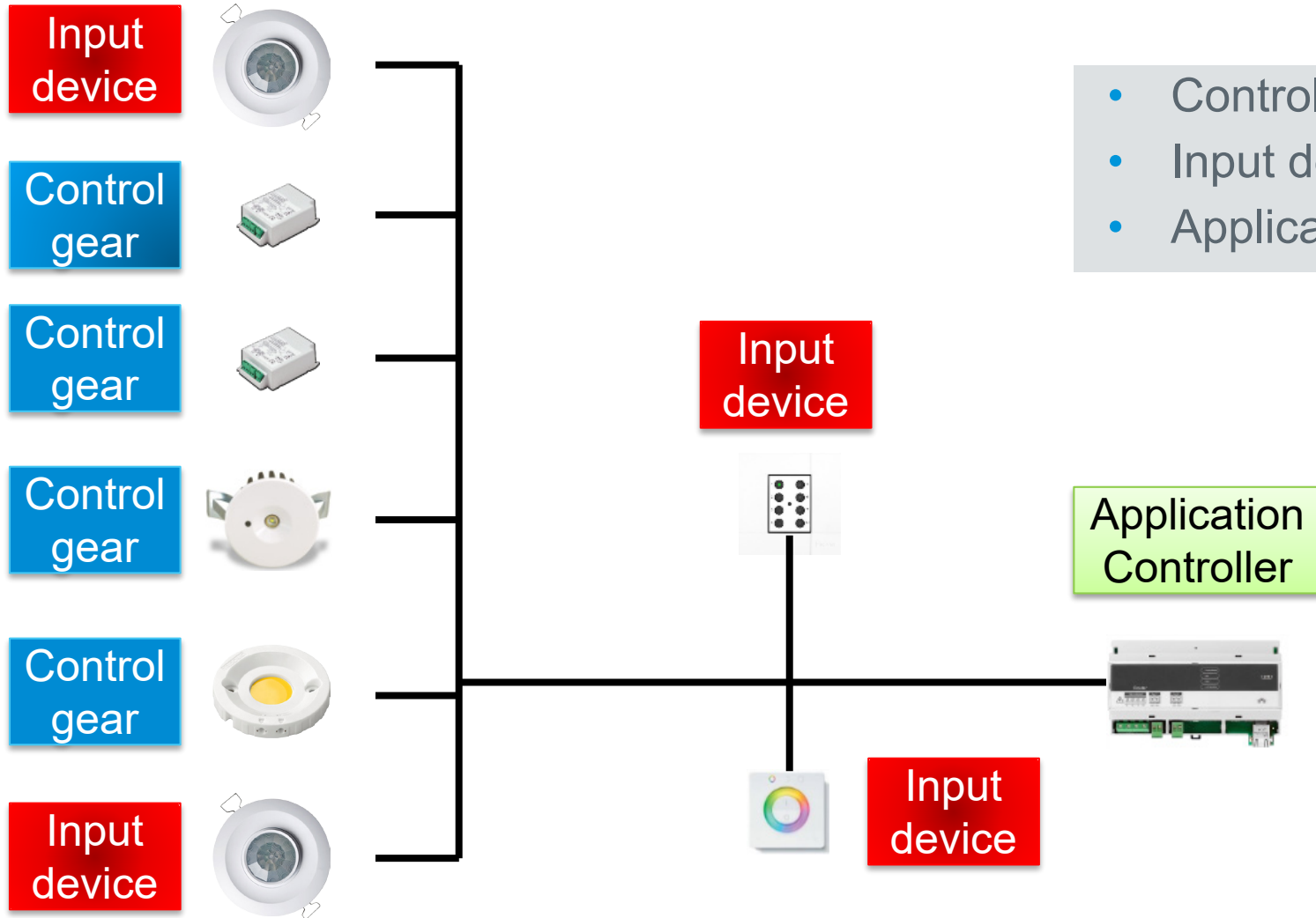
- **Input devices**

- Fairly simple devices that provide information to the system.
- Examples include push-buttons, sliders, occupancy sensors, and light sensors.



- The following page shows **one example** of a system including control devices.

System example



- Control gear
- Input devices (control devices)
- Application controller (control device)

Note:

- Systems can contain more than one application controller.
- A bus power supply is required, either separate or integrated with an existing device.

Bus power supplies

- Every DALI system needs at least one bus power supply.
- This is often built into the application controller, but is also commonly a separate product.
- DALI-2 makes it easier to plan a system, by requiring every bus power supply to show two figures:
 - Guaranteed supply current
 - Maximum supply current



Bus power supply currents

- *Guaranteed supply current*

- This figure shows the current available to power devices and the bus.



Example:

- A bus has three bus-powered sensors, each requiring 10 mA, and 10 LED drivers, each requiring 2 mA.
- Allowing 20% extra, this gives a total requirement of $(3 \times 10 + 10 \times 2) \times 1.2 = \underline{60 \text{ mA}}$.
- A bus power supply with a *Guaranteed supply current* of 60 mA or greater, is sufficient.

- *Maximum supply current*

- This figure is used to determine if multiple bus power supplies can be used together on a bus.
- *Maximum supply current* figures must total no more than 250 mA.

What about mixed systems of DALI and DALI-2?

- Look for the  or  trademarks on products.
- **Control devices** before DALI-2 are proprietary, and are not allowed to use the DALI version-1 trademarks.
- There were no tests for **bus power supplies** before DALI-2, so these are not allowed to use the DALI version-1 trademarks.

What about mixed systems of DALI and DALI-2?

- **Using DALI-2 control gear in older systems:**
 - No problems are expected.
- **Using DALI version-1 control gear with DALI-2 application controllers:**
 - Check that the DALI version-1 control gear has been successfully tested.
 - No problems are expected, but the DALI version-1 control gear will not have the new DALI-2 features such as extended fade times.



What about mixed systems of DALI and DALI-2?

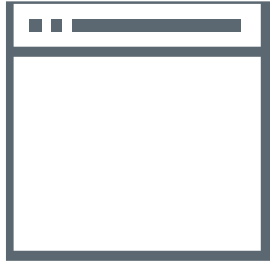
- **Using bus power supplies that are not DALI-2 certified:**
 - There is no certainty that these will work, because there were no tests for bus power supplies before DALI-2.
- **Using control devices that are not DALI-2 certified:**
 - There are no standards and no tests for control devices before DALI-2.
 - Contact the control device manufacturer for compatibility.

in luminaires

- DALI-2 certified control gear is required
 - Many products are already on the market.
- If DALI sensors or other control devices are also inside the luminaire, these must also be DALI-2 certified.
 - Input devices (push-buttons, sensors, sliders, rotaries) will soon be testable in DALI-2
- Control gear and control devices can be from different manufacturers.

Further questions?

- Find us at Light+Building: **DALI Alliance (DiiA), Hall 4.1, FOY16**



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