DALI Introduction

Armin Wegener
Introducing DALI

- **Digital Addressable Lighting Interface**
  - dedicated protocol for digital lighting control
  - robust, scalable and flexible lighting networks
  - up to 64 devices on one DALI line, each with own address
  - accessible by address, in groups or broadcast
  - configuration of up to 16 scenes and 16 groups
  - provide information such as failure, status and parameter

- Trademark Version 1

- Trademark Version 2

- Gateways for integration in home and building control, like KNX, are available
DIC 62386

- at first time DALI was introduced in the beginning of 1990 as a part of IEC 60929
- The own standard IEC 62386 was launched in 2009
- an activity group was formed at ZVEI to establish the new standard in the market
- only members of DALI AG were allowed to use the trademark and logo on their products
- no official certification was needed
- the general requirements part -101 -102 -103 were published in their 2nd edition in 2014
- with IEC 62386 ed2, part 103: ‘General requirements - Control devices’ has been added
- In accordance with the request from the ZVEI Board of Directors, the former DALI working party was dissolved on 30th March 2017
- Since 9th June 2017, Digital Illumination Interface Alliance (DiiA) certifies DALI equipment. DiiA is a Partner Program of IEEE-ISTO
- DiiA and its members are working on the 2nd edition of the other parts in IEC 62386 and on future parts that enable new functionality.
Comparison DALI ed.2 to ed.1

- Part 103: ‘General requirements – Control devices’ added to standard
  - in ed.1 not standardized
- Parts 3xx: ‘Particular requirements for control / input devices’ added to standard
  - Push buttons, Occupancy sensors, …
  - in ed.1 not standardized
- Features that were optional in parts 201-209: ‘Particular requirements for control gear’ ed.1 are moved in separate parts -2xx (i.e. Dimming curve selection, Thermal gear protection, Colour Tc, …)
  - in ed.1 many features were optional
- Multi-Master-Mode supported
  - in ed.1 only single master
- 24Bit Frames for communication between masters
  - in addition to the 64 control gear addresses, further 64 sensor addresses were added
  - in ed.1 only 64 control gear addresses
- Certification needed to use the DALI trademark and logo
  - in ed.1 no official certification necessary, leading to not completely interoperable devices

Features in progress

- Part 104: General requirements – Wireless and alternative wired systems
- Part 105: General requirements – Firmware update
DiiA - Digital Illumination Interface Alliance

- The Digital Illumination Interface Alliance (DiiA) is an open, global consortium of lighting companies, and was established in response to industry requests for an independently-verified certification program that covers the functionality specified in the latest version of the IEC 62386 family of standards.
- Through its certification program, the DiiA will enable continuous improvements in multi-vendor system interoperability, which is a key customer requirement.
- Certified products will be eligible to carry the certification mark, issued by DiiA, which signifies interoperability on a global basis according to IEC 62386. Only certified products can carry the certification mark, and only DiiA members can certify their products.
- Going forward, DiiA members will work collaboratively to develop new functionality beyond the current IEC 62386.
- DiiA was formed by seven leading lighting companies: Erco, Helvar, Insta, Lutron, Osram, Philips Lighting and Tridonic.
- DiiA is an open, not-for-profit consortium, and new members are welcome.
- The Digital Illumination Interface Alliance is organized as Partner Program of IEEE-ISTO.
DALI

IEC 62386 standard

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 –
Part 3xy: Particular requirements for control / input devices

Published:
Part 217: Thermal gear protection
Part 218: Dimming curve set
Part 222: Thermal lamp protection
Part 224: Integrated light source

In progress:
Part 216: Load referencing
Part 219: Power measurement
Part 220: Centrally-supplied Dimmable lamp
Part 221: Load shedding
Part 223: Light-output comparator
Part 225: Colour Tc
Part 226: Colour xy

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

Future part:
Part 305: Colour sensor
DALI

Network – various constellations are possible

Input Devices

BUS Power Supply

Control Gear

Control Gear

Control Gear

Control Gear

Control Gear

Control Gear

Control Gear

Control Gear

free topology except ring
New LED Driver

LT50-24/2100 DALI CV

► Technical Data
- AC input: 230 V
- DC input: 176 V – 276 V DC
- Output: 24V / 2100 mA
- Operating mode: Constant Voltage
- Approval: ENEC; EL; CE; DALI 2

► Special Features
- small dimensions 240 x 30 x 21 mm
- Dimmable via DALI (new DALI 2 standard) or PUSH-DIM
- suitable for emergency lighting (EN61347-2-13 Annex J)
- high efficiency > 85%
Qualität.
Service.
Kompetenz.
Made in Germany.
Kapazität.
Flexibilität.
Innovation.
Eine Sprache.
Eine Zeitzone.
Ein Partner.
Eine Lösung.
FRIWO.