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# KNX DALI Gateway DG/S – Partial Failure

Practical Learning Session – Competence Center Europe – Smart Buildings

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# KNX DALI Gateway DG/S – Partial Failure

Practical Learning Session

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## Practical Learning Session

### Overview

- Slides & videos of Webinars, Learning Sessions → [T&Q Database](#)
- KNX DALI Gateway **Basic** DG/S x.64.1.1
  - DG/S 1.64.1.1 (one channel, 64 ballasts)
  - DG/S 2.64.1.1 (two independent channels, 2 x 64 ballasts)
- KNX DALI Gateway **Premium** DG/S x.64.5.1
  - DG/S 1.64.5.1 (one channel, 64 ballasts)
  - DG/S 2.64.5.1 (two independent channels, 2 x 64 ballasts)
  - Additional DT8 colour lighting functions (change of colour temperature  $T_c$ , Human Centric Lighting and Dim2Warm)
- Flexible combination of DALI groups, ballasts or KNX groups
- Parameter templates for ballasts/groups and emergency lighting
- Special functions such as slave, staircase light, **partial failure**, blocking, burn-in lamps, forced operation and disable, ...
- ABB i-bus® Tool for diagnostics and commissioning, ...



DG/S 1.64.x.1



DG/S 2.64.x.1

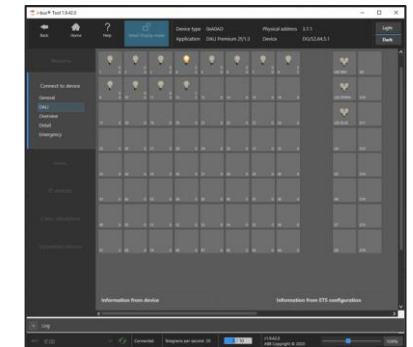
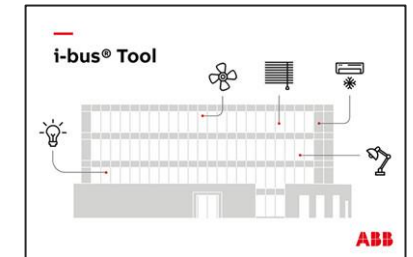


ABB i-bus® Tool

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### Application examples

**Target:** In the event of a failure or malfunction, other devices are switched with a higher priority

- Switch on other devices to compensate for brightness loss, e.g. in a hall when a certain number of lamps or ballasts fails
- In the event of emergency lighting, turn on with maximum brightness the additional lighting for the escape and rescue routes, e.g. all corridor and staircase lighting in an office building
- Switching off the lighting in areas that should not be entered
- Usage for a further priority operation below “Forced Operation” and “Disable” function
- Forwarding to KNX
  - Integration of further KNX devices (other DALI Gateways, Switch Actuators, Shutter Actuators, send alarm messages, ...)
  - Failure of the supply voltage on the DALI Gateway, e.g. Phase failure



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### Partial failure in relation to other commands in DG/S

- If “Partial failure” function is activated, the DALI Gateway executes incoming KNX commands only in the background
  - Control via another group objects is ignored
- Switching, brightness value and scene commands are invisibly updated in the background
- Dimming commands are ignored
- When the “Partial Failure” function ends, the values are restored as before or the values updated in the background are applied



DG/S 1.64.x.1



DG/S 2.64.x.1

# KNX DALI Gateway DG/S – Partial Failure

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### Output – Parameter

A partial failure of the lighting is defined as (OR linked)

- Supply voltage failure or a DALI voltage fault (short circuit)
- Active emergency lighting event (minimum number)
- Lamp/ballast fault (minimum number)

The functions have a priority order:

1. Forced operation/Disable function
2. **Partial failure function**
3. Manual operation
4. Slave/Staircase lighting, scene function and normal KNX commands

The screenshot shows the configuration interface for 'A Output'. The 'Functions' tab is selected. A red box highlights the 'Partial-failure criterion' section, which includes the following settings:

- Enable group object "Flexible dimming/fade time ...":  No  Yes
- Enable function "Partial failure":  No  Yes
- Partial-failure criterion:
  - DALI voltage fault:  No  Yes
  - Active em. lighting event reported by em. lighting converter:  No  Yes
  - No. of detect. em. lighting events must be greater than or equal to: 1
  - Lamp/ballast fault:  No  Yes
  - No. of detect. lamp/ballast faults must be greater than or equal to: 2
- Forward partial failure information:
  - Internal to DALI output:  No  Yes
  - Externally via group object "Activate partial failure/Status":  No  Yes
  - Enable group/ballast participation on page "Group x/ballast x functions":  No  Yes
- Fct. Enable standby switch-off:  No  Yes

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### Output – Parameter

- Forward partial failure **internal to DALI output**:
  - All DALI groups and ballasts, which are to consider the partial failure function, go to the parameterized brightness value
- Forward and receive partial failure **externally via object** “Activate partial failure/status”
  - Forward  
A telegram with the value “1” is sent via this communication object, e.g. to switch further lighting circuits of other DALI-Gateways, Switch Actuators, ...
  - Receive  
A telegram with the value “1” is received via this communication object, e.g. from another DALI-Gateway and the partial failure is triggered internally at the output

General

– DALI output A

A DALI configuration

– A Output

Status

Fault

Functions

Colour functions

+ A Group x/ballast x template

+ A Groups

+ DALI output B

Enable group object "Flexible dimming/fade time ..."

No  Yes

Enable function "Partial failure"

No  Yes

Partial-failure criterion:

- DALI voltage fault

No  Yes

- Active em. lighting event reported by em. lighting converter

No  Yes

No. of detect. em. lighting events must be greater than or equal to

1

- Lamp/ballast fault

No  Yes

No. of detect. lamp/ballast faults must be greater than or equal to

2

Forward partial failure information

Internal to DALI output

No  Yes

Externally via group object "Activate partial failure/Status"

No  Yes

Enable group/ballast participation on page "Group x/ballast x functions"

Nui	Group Add	Name	Object Function	Length	Data Type
33		Output A	Activate partial failure/Status	1 bit	start/stop

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### Group/ballast – Parameter

- Selected ballasts or groups can have an adjustable brightness level in case of a partial failure
- Parameter page
  - Group x/ballast x template functions
  - Group x functions
  - Ballast x functions

The screenshot displays the configuration interface for a KNX DALI Gateway, showing parameters for Group 2 and Ballast 1. The interface is divided into two main sections: "A Groups" and "A Ballasts".

**Group 2 Configuration:**

- Group 2 status
- Group 2 fault
- Group 2 functions
- Enable function Lamp burn-in Group object "Burn-in lamps":  No  Yes
- Factor in function Partial failure:  No  Yes
- Brightness during partial failure: 50% (128)
- Enable function "Partial failure" on page Output functions

**Ballast 1 Configuration:**

- Ballast 1 status
- Ballast 1 fault
- Ballast 1 functions
- Enable function Lamp burn-in Group object "Burn-in lamps":  No  Yes
- Factor in function Partial failure:  No  Yes
- Brightness during partial failure: 65% (166)
- Enable function "Partial failure" on page Output functions

A dropdown menu on the right side of the interface shows the following options:

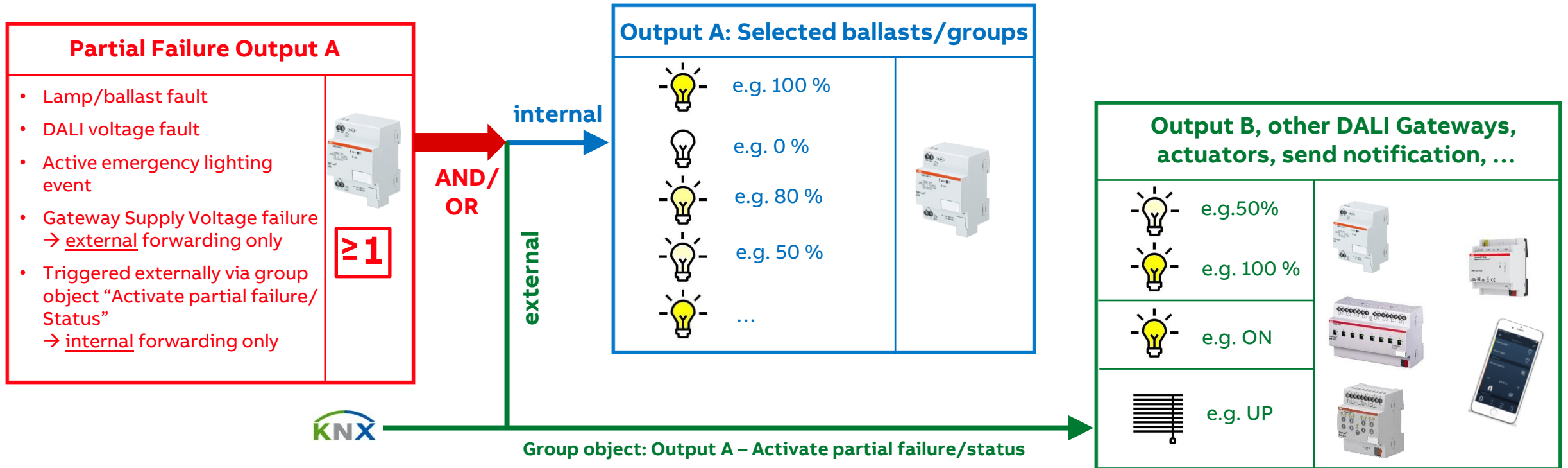
- 100% (255)
- 99% (252)
- 98% (250)
- 0.8% (2)
- 0.4% (1)
- 0% (OFF)



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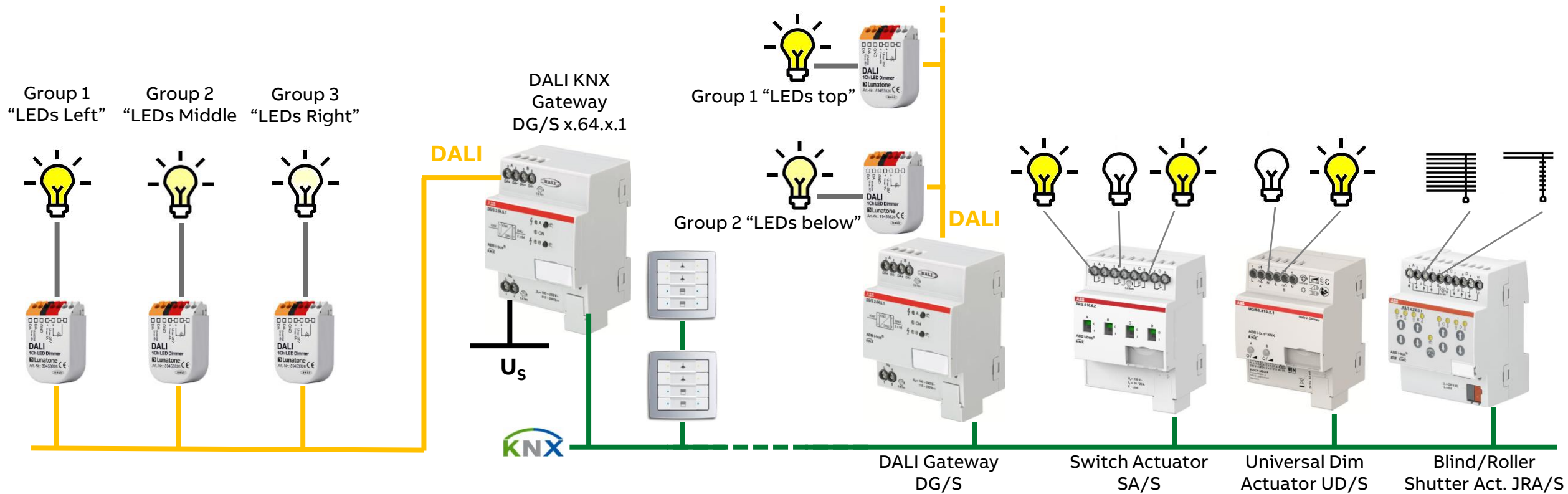
### Overview



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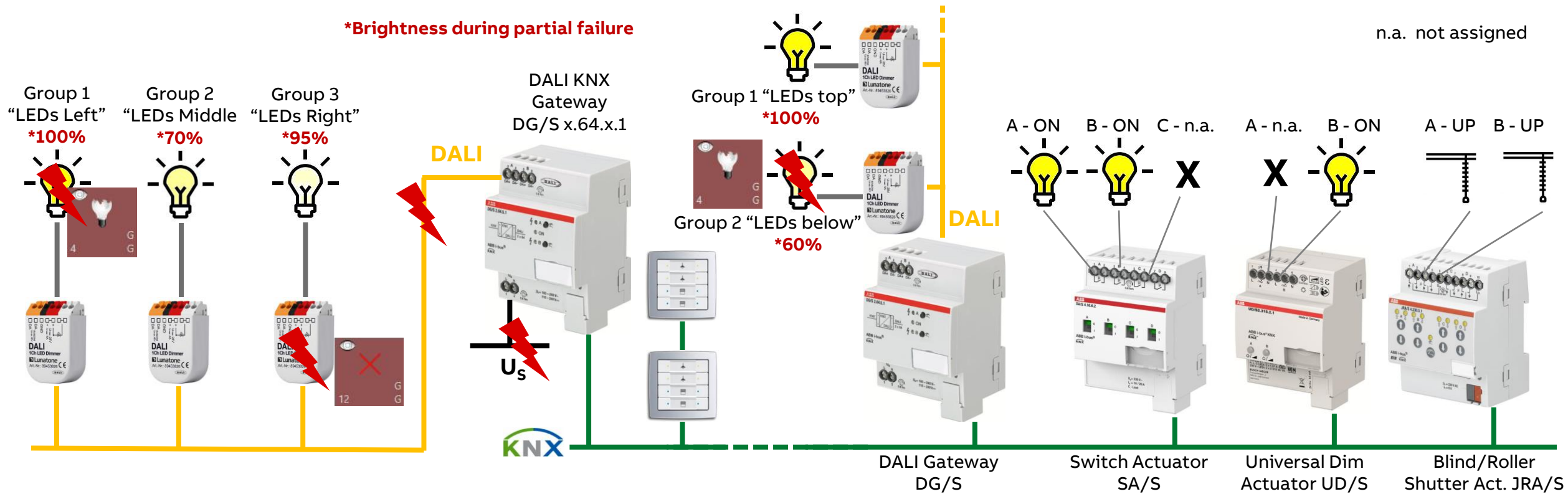
### Practical exercise with live demonstration



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### Practical exercise with live demonstration



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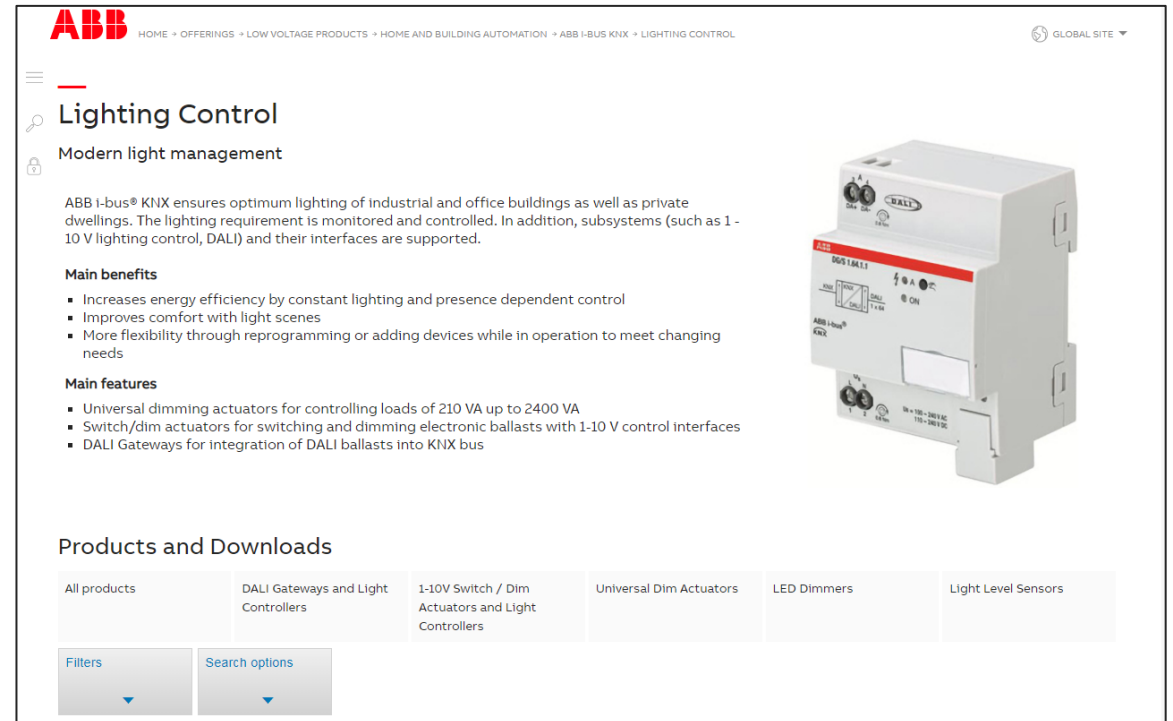
## Practical Learning Session

### Homepage

[www.abb.com/KNX](http://www.abb.com/KNX)

→ Products and Downloads  
→ Lighting Control  
→ Search Options DG/S

- ETS Application
- ABB i-bus® Tool
- Product Manual
- Engineering Guides
- Installation and Operating Instructions
- Specification Text
- ...



**ABB** HOME → OFFERINGS → LOW VOLTAGE PRODUCTS → HOME AND BUILDING AUTOMATION → ABB I-BUS KNX → LIGHTING CONTROL GLOBAL SITE ▼

### Lighting Control

Modern light management

ABB i-bus® KNX ensures optimum lighting of industrial and office buildings as well as private dwellings. The lighting requirement is monitored and controlled. In addition, subsystems (such as 1-10 V lighting control, DALI) and their interfaces are supported.

**Main benefits**

- Increases energy efficiency by constant lighting and presence dependent control
- Improves comfort with light scenes
- More flexibility through reprogramming or adding devices while in operation to meet changing needs

**Main features**

- Universal dimming actuators for controlling loads of 210 VA up to 2400 VA
- Switch/dim actuators for switching and dimming electronic ballasts with 1-10 V control interfaces
- DALI Gateways for integration of DALI ballasts into KNX bus

**Products and Downloads**

All products	DALI Gateways and Light Controllers	1-10V Switch / Dim Actuators and Light Controllers	Universal Dim Actuators	LED Dimmers	Light Level Sensors
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Filters Search options

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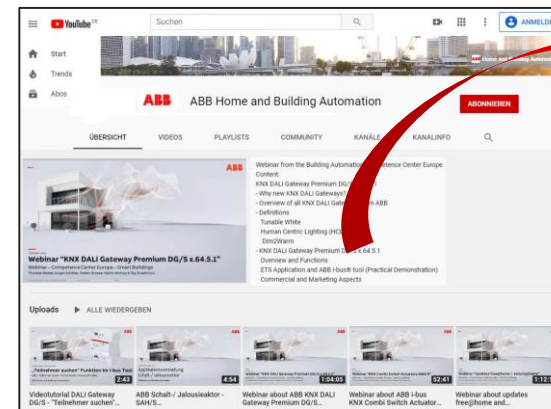
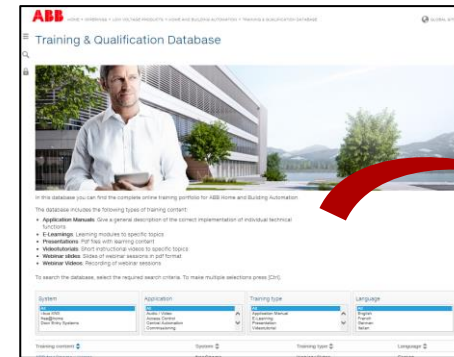
### Training Material

#### Training & Qualification Database

- The database contains extensive training content
  - Webinar, Learning Sessions, ... slides and videos
  - Presentations
  - Video tutorials
  - and more ...
  - <https://go.abb/ba-training>
  - [www.abb.com/knx](http://www.abb.com/knx) (→ Services & Tools → Training and Qualification → Training Database)

#### YouTube

- Channel “ABB Home and Building Automation”
  - <https://www.youtube.com/user/ABBibusKNX>



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