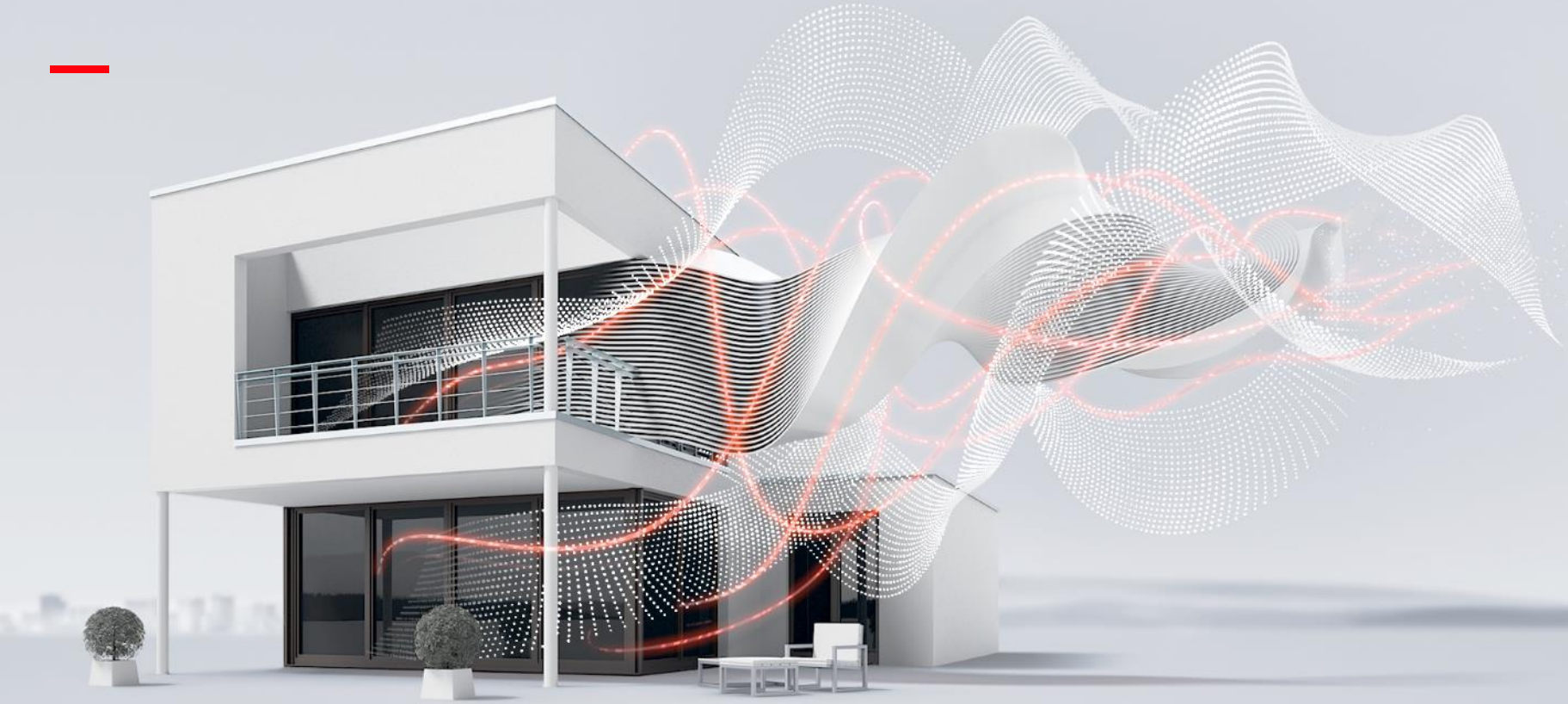


APRIL 2020

KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session – Competence Center Europe – Smart Buildings

Thorsten Reibel, Jürgen Schilder, Stefan Grosse, Martin Wichary & Ilija Zivadinovic

 Document ID.: Rev.:

Online Learning Session – Competence Center Europe - Smart Buildings

NEW !!!

From home office to home office

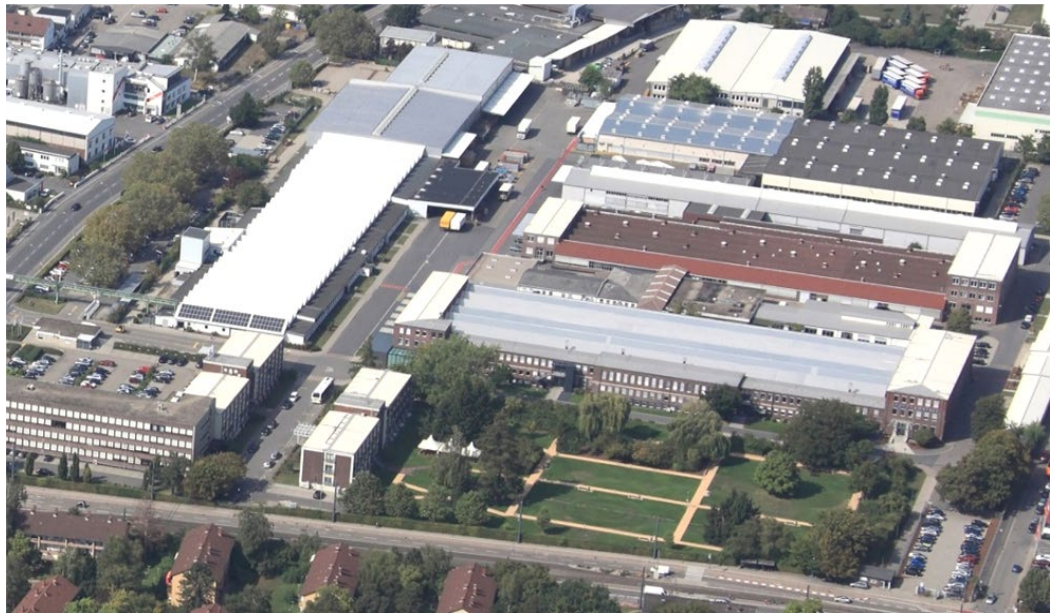
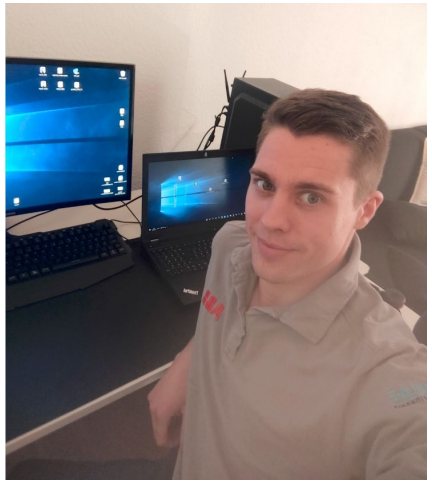


ABB STOTZ-KONTAKT GmbH
Heidelberg / Germany



Agenda

What is “Dim2Warm”?

Commissioning of the Colour function “Dim2Warm”

- ETS parameter
- Group objects
- Assignment of group addresses

Activation/deactivation of the colour function “Dim2Warm”

ABB i-bus® Tool

Practical demonstration

KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

KNX DALI Gateway Premium DG/S x.64.5.1

Online Learning Session

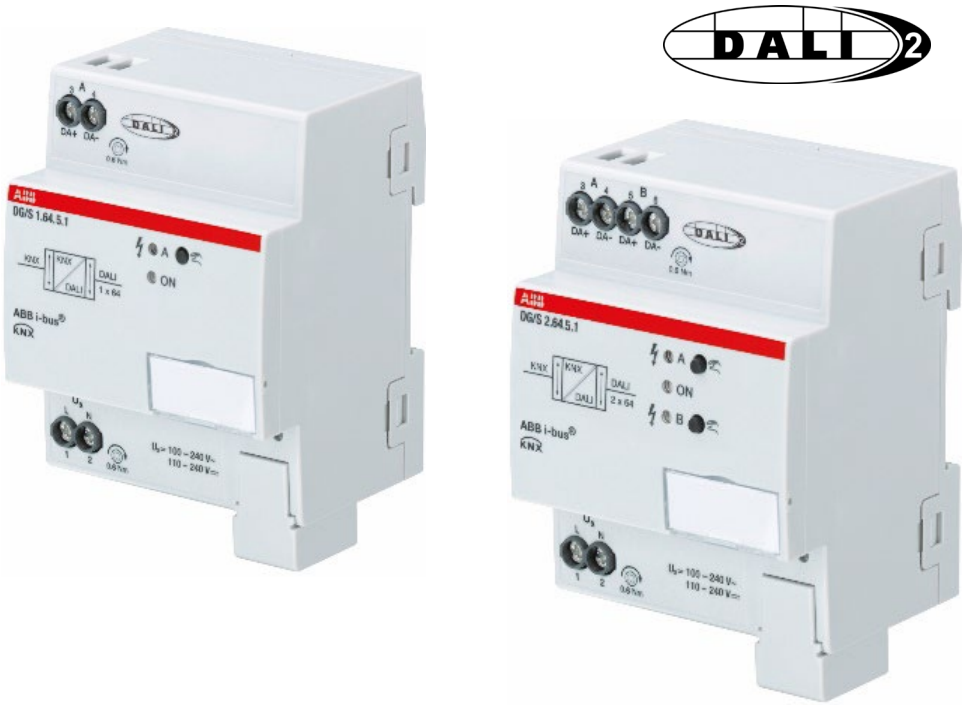
KNX DALI Gateway Premium DG/S x.64.5.1

Hardware

- DG/S 1.64.5.1 (one channel, 64 ballasts)
- DG/S 2.64.5.1 (two independent channels, 2 x 64 ballasts)

The following ballast can be operated on the gateway

- Normal DALI ballasts (device type 0)
- DALI single battery emergency lighting converter (device type 1)
- Colour-controlled DALI ballast (device type 8)
- Functions
  - Flexible combination of DALI groups or single control
  - ABB i-bus® tool support
  - Templates
  - Tunable white
  - **Dim2Warm**
  - Human Centric Lighting
  - Standby switch-off
  - …



KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

Dim2Warm

The following consideration is behind “Dim2Warm”

- The good old light bulb was never economical, but it could be dimmed so wonderfully: When we turned the dimmer down, the light became weaker and warmer at the same time
- A strongly dimmed light bulb no longer appears warm white, but already clearly orange
- When dimming LEDs, however, the colour temperature usually does not change
- No matter how far down a warm white LED strip is dimmed, it always remains constant - depending on which LED strip is used
- This is where Colour function “Dim2Warm” comes in, which simulate exactly this behavior

KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

What is “Dim2Warm”?

→ A change in colour temperature during dimming

Applications

- Quite a few people associate the change in colour temperature when dimming in the direction of warmer colours with cosiness and comfort
  - At home in the bedroom or in the living room like in the glow of candles or by the cozy fireplace
- To give the feeling of the warm and welcoming atmosphere
  - Hotel bar, restaurant, … in the evening
  - In the morning at breakfast
- …

KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

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Colour function “Dim2Warm”

What is “Dim2Warm”?

The DALI Gateway has an additional function called “Dim2Warm”, which changes the colour temperature based on the brightness

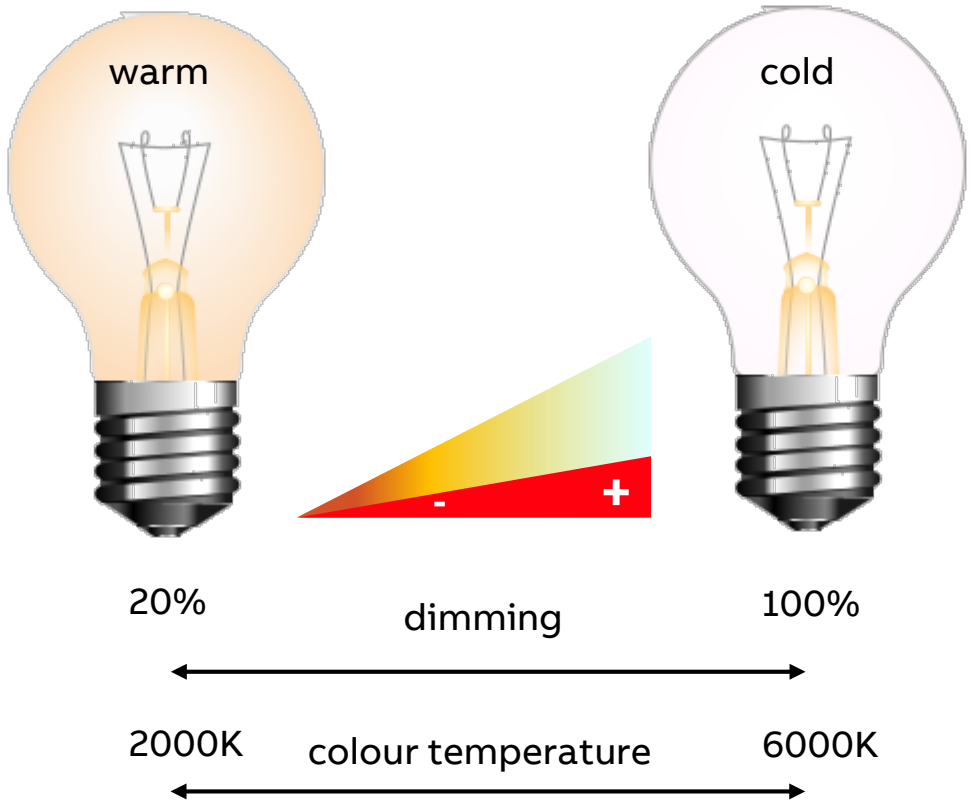
The colour temperature changes proportionally to brightness

– Dimming up: Increasing of colour temperature
→ cold white

– Dimming down: Decreasing of colour temperature
→ warm white

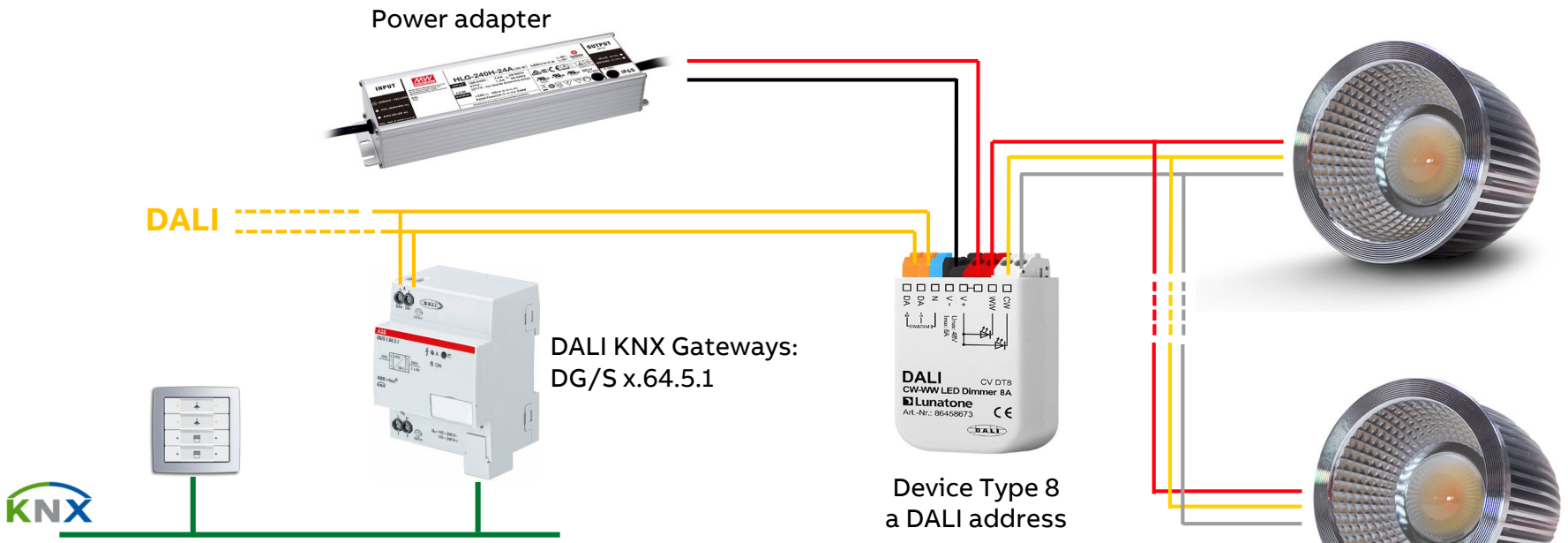
Dim2Warm can be activated on a group or a ballast

This dependency is similar to the dimming behavior of a light bulb (light bulb effect)



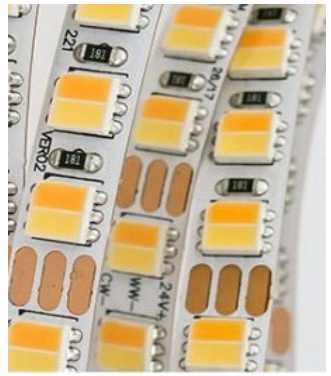
KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm” – Example: Hardware for Tunable White with DALI and KNX



For example:
DALI CW-WW LED-Dimmer CV
12V DC – 28V DC, 4A, 3000-6500K
Manufacturer: Lunatone
Manufacturer number: 89453836

For example:
Spot Deep Tunable white CV
8 W, 750 lm, 2200-6500 K
Manufacturer: ConstaLED
Manufacturer number: 31362



Source: Internet

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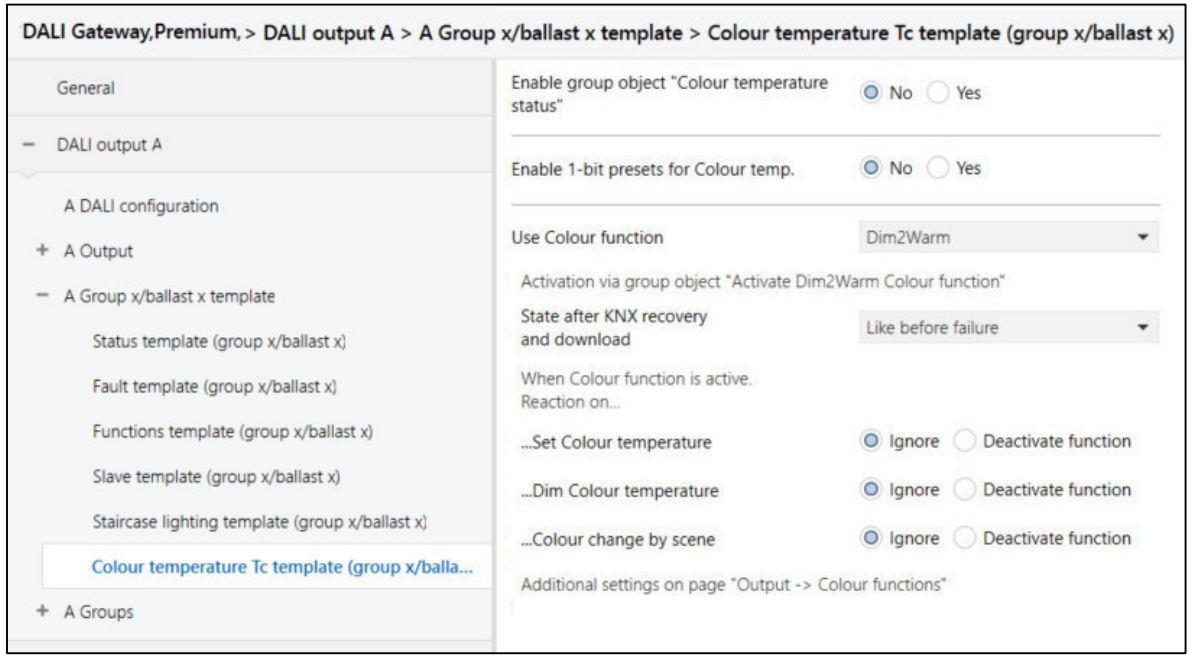
Colour function “Dim2Warm”

Commissioning of the Colour function Dim2Warm

- Set ETS parameter: DALI Output A → Group X or ballast X → Colour functions … (template or individual)
  - Enable colour function “The Dim2Warm” for the group/ballast
  - “State after KNX recovery and download”
  - Reaction on “Set colour temperature, “Dim colour temperature” and “Colour change by scene” when Colour function is active
- Set ETS parameter: DALI Output A → Output → Colour functions
  - Enable the group object “*Output – Activate Dim2Warm colour function”* (if necessary)
  - Limitation of the proportional and Colour temperature range (if necessary)



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Colour function “Dim2Warm”

Group x/ballast x templates

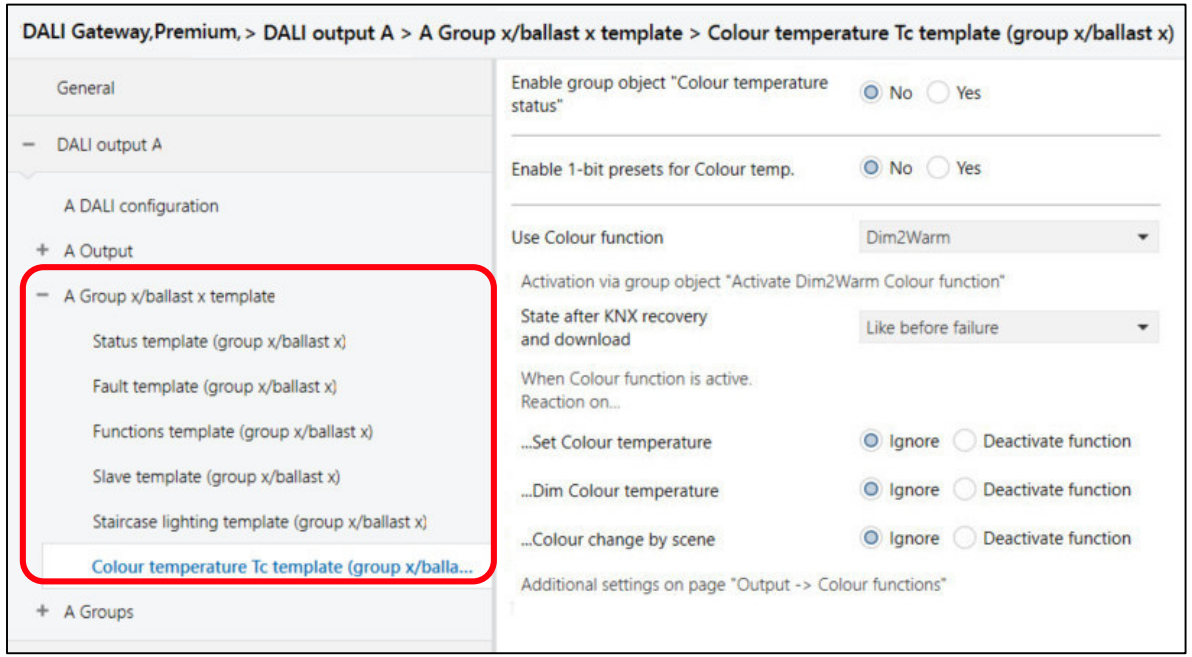
In the ETS application of the gateways, up to 64 individual ballasts or up to 16 DALI groups can be parameterized per channel with different parameter (e.g. status, burn-in, partial failure)

Normally not necessary to make individual parameter settings for each ballast or group

This is very time-intensive so that simplify-cation is useful for identical or slightly different settings

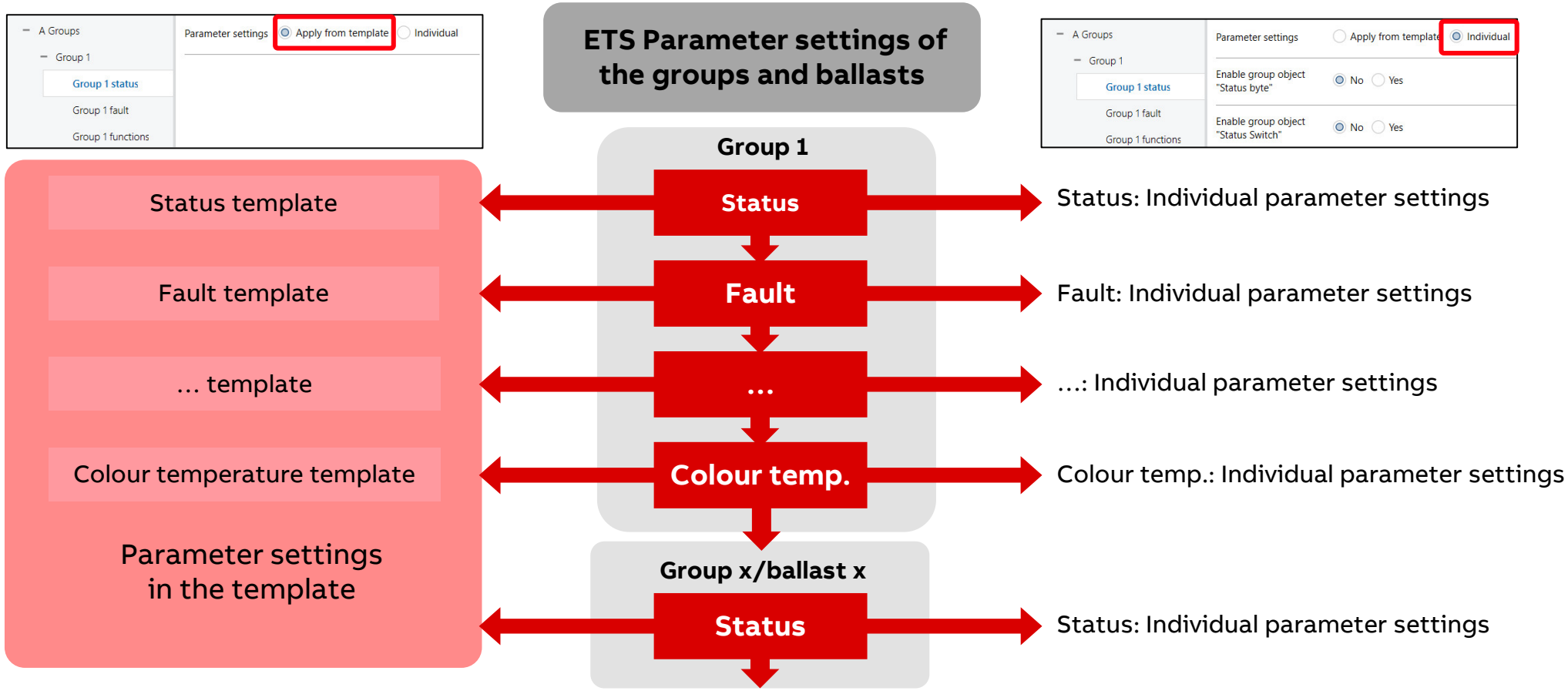
The template is used in the ETS application of the KNX DALI-Gateways divided into the six parameter menus mentioned plus general parameter

For the individual ballasts, DALI groups and for output A or B (Broadcast) you have the choice between using the template or individual parameter settings



KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm” – Group x/ballast x templates



KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

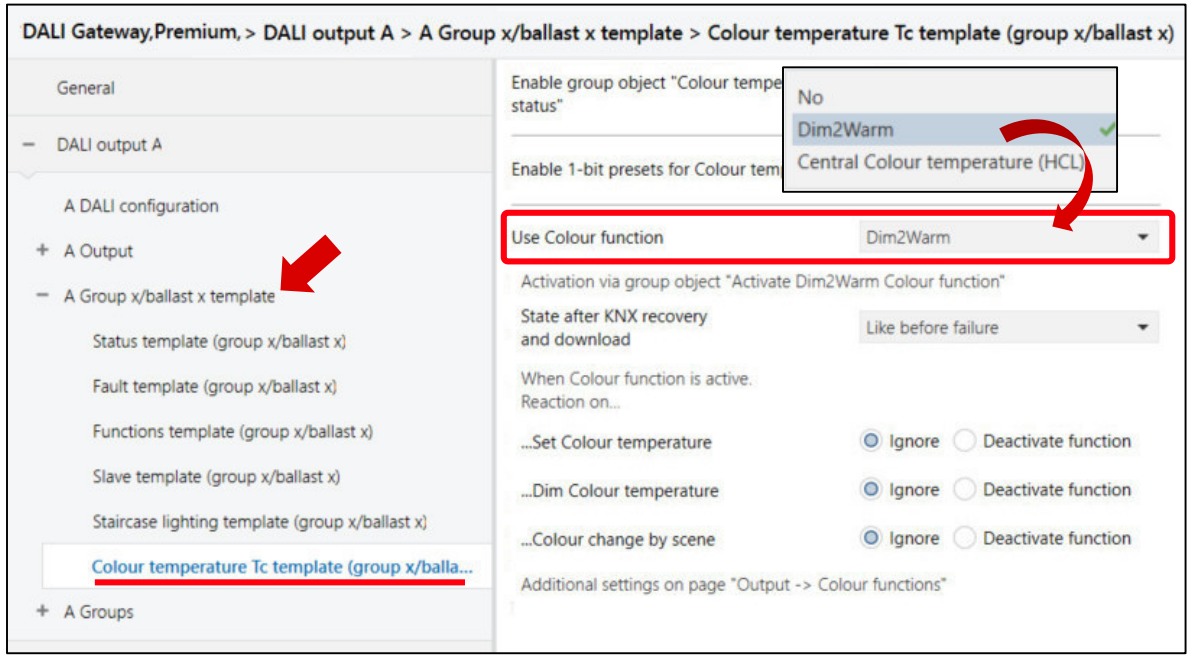
Use colour function (per group/ballast)

The settings can be made per ballast/group or in the template

This parameter determines whether a colour function is used

Only the Dim2Warm or HCL colour function can be used per group/ballast

- No
  - No colour function is used
- Dim2Warm
  - The Dim2Warm colour function is used
  - All Dim2Warm settings are active
- Central colour temperature (HCL)
  - The central colour temperature (HCL) colour function is used
  - All HCL settings are active



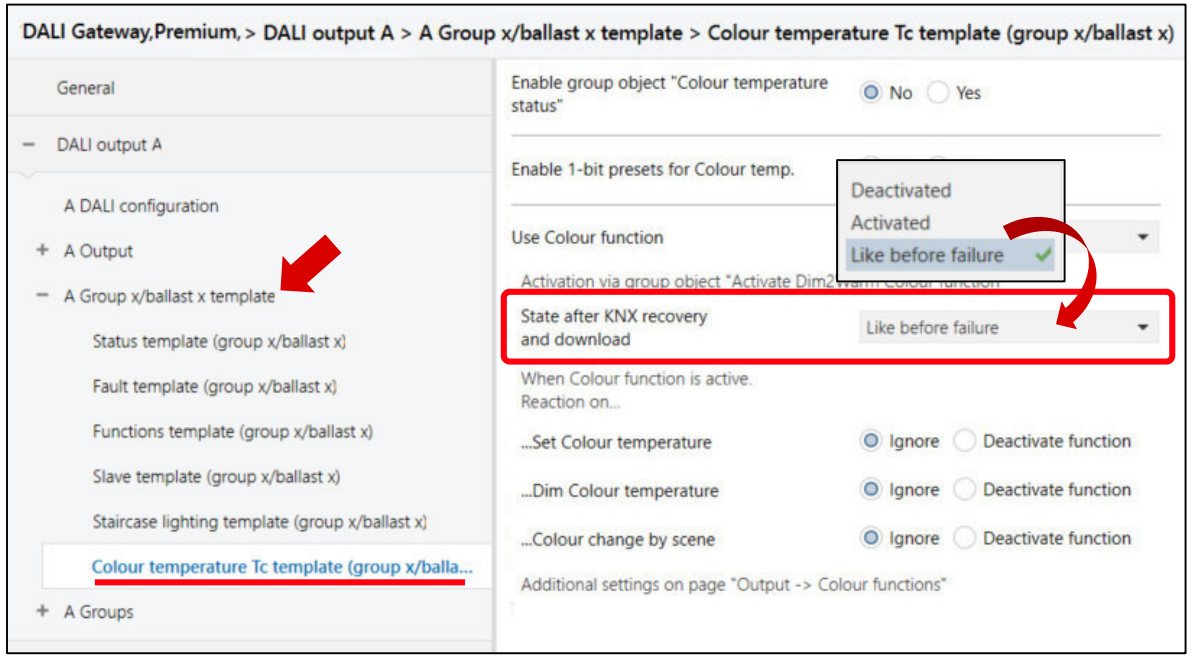
KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

State after KNX recovery and download (per group/ballast)

This parameter defines the state of the Colour function after KNX bus voltage recovery or a download

– Deactivated
  - The Colour function is deactivated after KNX bus voltage recovery
  - The group/ballast reacts like a normal group/ballast without an additional function
– Activated
  - The Colour function is activated after KNX bus voltage recovery or a download
– Like before failure
  - The Colour function retains the operating state (activated or deactivated) that it had before the KNX bus voltage recovery or download



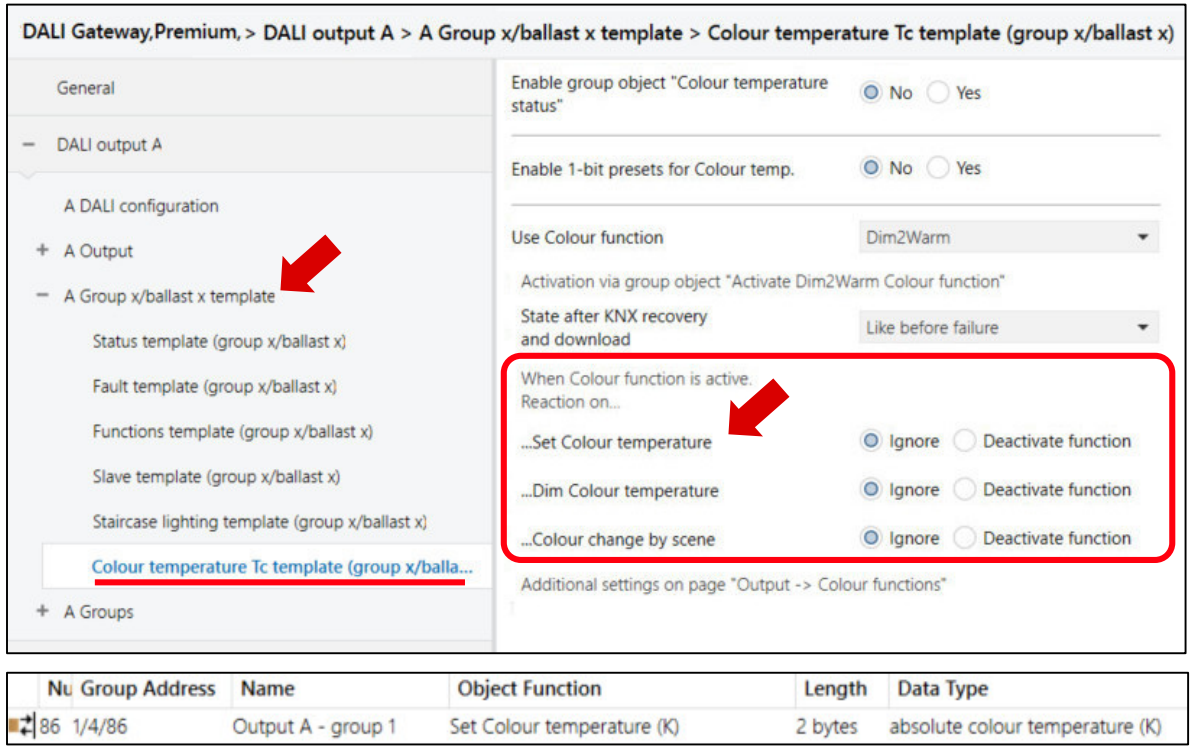
KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

Active Colour function: Reaction on “Set colour temperature”

This parameter describes how the group/ballast responds if a colour temperature is set while the colour function Dim2Warm is active

- Ignore
  - The colour temperature setting is ignored
  - The colour function remains active
- Deactivate function
  - Setting a colour temperature deactivates the colour function and the group/ballast adopts the set colour temperature



KNX DALI Gateway Premium DG/S x.64.5.1

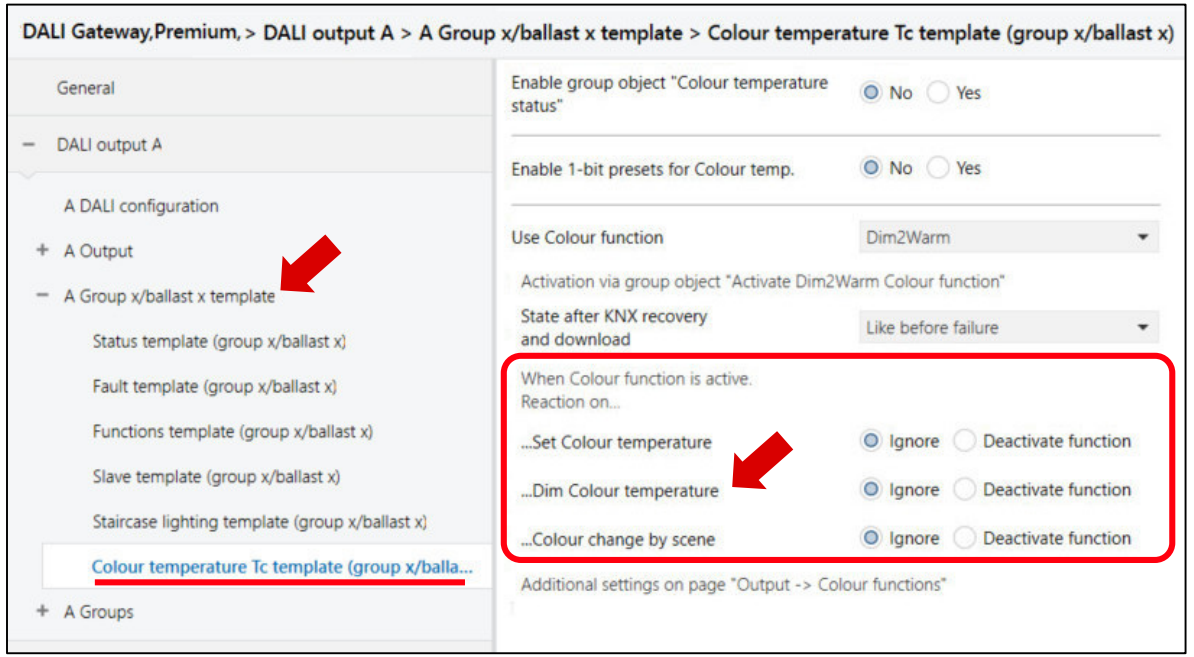
Colour function “Dim2Warm”

Active Colour function: Reaction on “Dim colour temperature”

This parameter describes how the group/ballast responds if the colour temperature is dimmed while the colour function Dim2Warm is active

– Ignore
  - The Colour function remains active and the colour temperature dimming is ignored

– Deactivate function
  - Dimming a colour temperature deactivates the colour function and the group/ballast adopts the dimmed colour temperature



KNX DALI Gateway Premium DG/S x.64.5.1

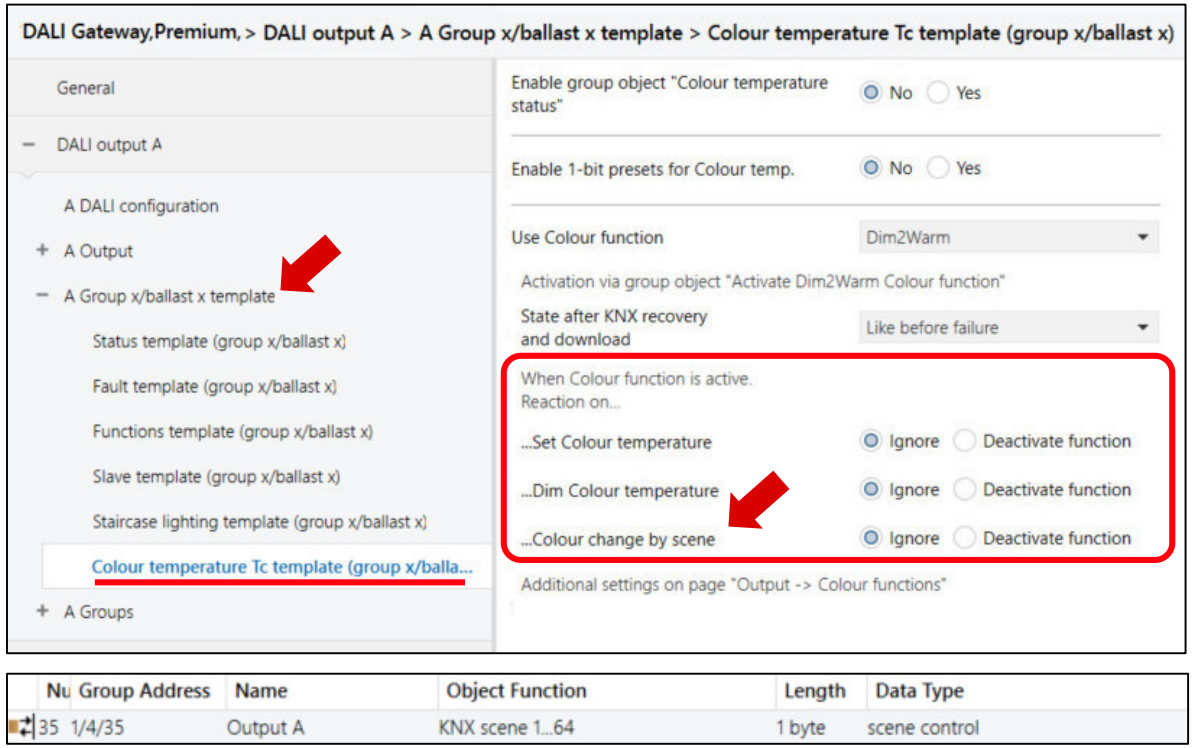
Colour function “Dim2Warm”

Active Colour function: Reaction on “Colour change by scene”

This parameter defines how the group/ballast responds if a colour is recalled by a scene retrieval while the colour function Dim2Warm is active

– Ignore
  - The Colour function remains active and the scene retrieval colour change is ignored

– Deactivate function
  - The Colour function is deactivated as soon as a colour change is recalled by a scene retrieval
  - The group/ballast adopts the colour temperature of the scene



KNX DALI Gateway Premium DG/S x.64.5.1

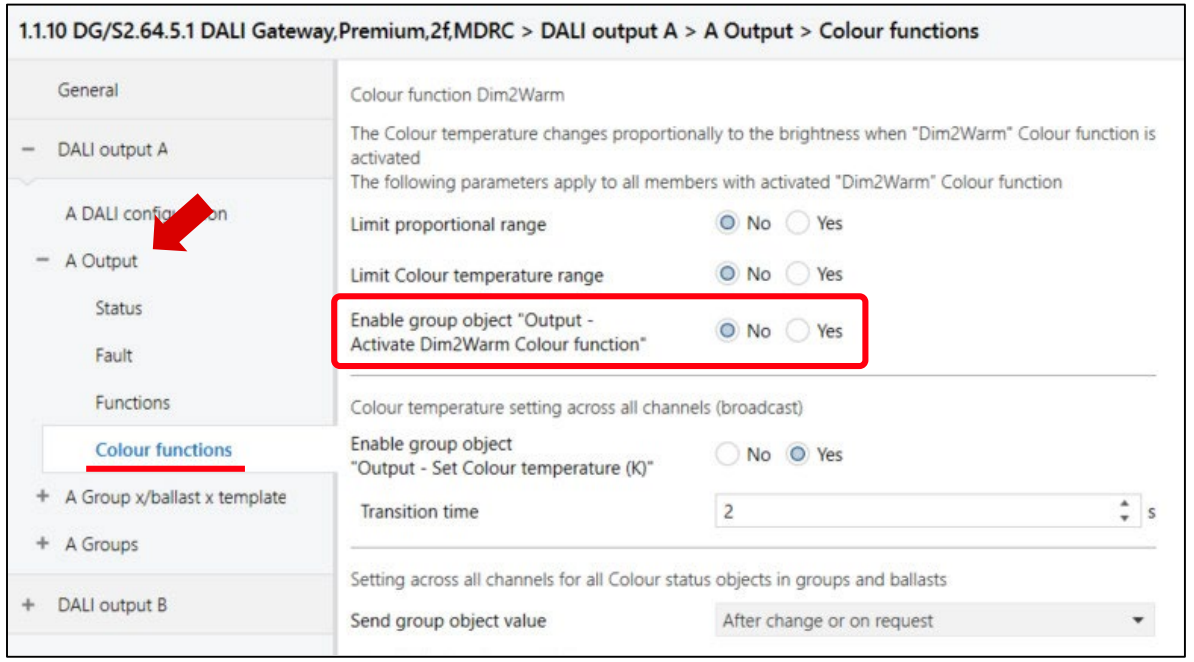
Colour function “Dim2Warm”

Group object “Output – Activate Dim2Warm colour function”

This parameter enables the “*Output – Activate Dim2Warm colour function”* group object, which activates/deactivates the Dim2Warm colour function

– No
  - The “*Output – Activate Dim2Warm colour function*” group object is not enabled
  - The Dim2Warm function is activated/deactivated for each parameterized group/ballast

– Yes
  - The “*Output – Activate Dim2Warm colour function”* group object is enabled
  - This group object also controls all groups/ballasts per output for which the Dim2Warm function is parametrized, i.e. the function can be activated/deactivated centrally



Nu	Group Address	Name	Object Function	Length	Data Type
65	1/4/65	Output A	Activate Dim2Warm Colour function	1 bit	start/stop

KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

Activation/deactivation of the Dim2Warm colour function

The Dim2Warm colour function is activated and deactivated via a group object

- Individually for each group
- Individually for each ballast
- Centrally for all group/ballasts per output for which the Dim2Warm function is parametrized

Telegram value:

- 1 = Activates the Dim2Warm colour function
- 0 = Deactivates the Dim2Warm colour function

Furthermore, the state after KNX recovery and download can be set (deactivated, activated or like before failure)

Nu	Group Address	Name	Object Function	Length	Data Type
89	1/4/89	Output A - group 1	Activate Dim2Warm Colour function	1 bit	start/stop

Nu	Group Address	Name	Object Function	Length	Data Type
359	1/4/248	Output A - ballast 3	Activate Dim2Warm Colour function	1 bit	start/stop

Nu	Group Address	Name	Object Function	Length	Data Type
65	1/4/65	Output A	Activate Dim2Warm Colour function	1 bit	start/stop

KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

Limitation of proportional and/or colour temperature range

The proportional range is the range with a linear relationship between colour temperature and brightness and refers to an output

– No limitation of the proportional range

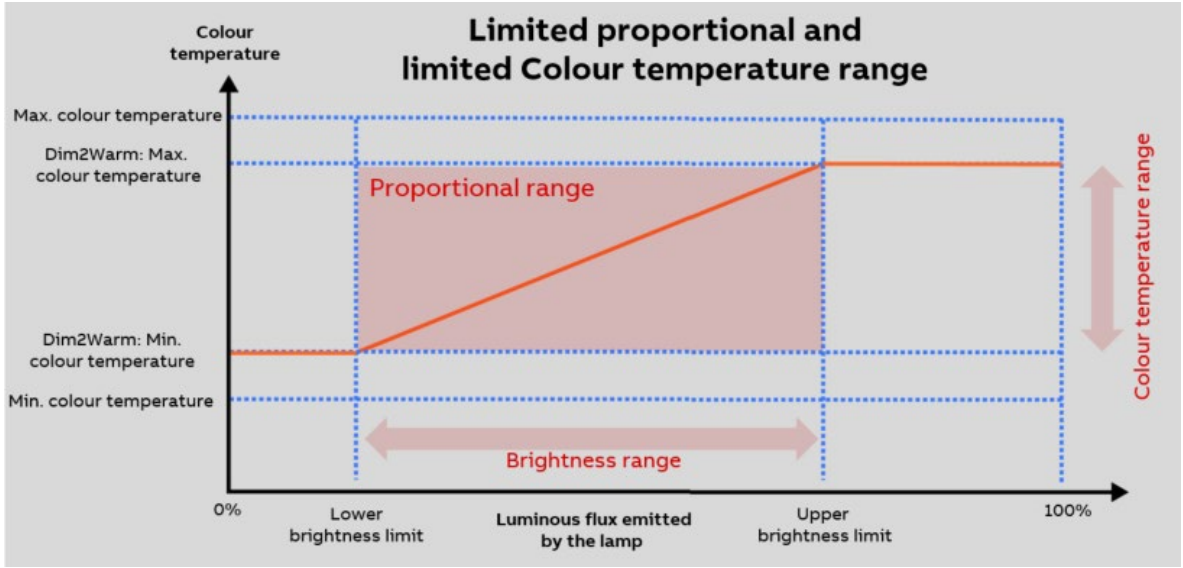
– There are two different factors that can limit this range

  • Reduction of the brightness range by setting an upper and lower brightness limit (limited proportional range)

  • Adjusting the colour temperature range by setting a minimum and maximum colour temperature value

The proportional area always stays within the parametrized limits (limited or not limited)

When the Dim2Warm function is active and a group/ballast is actuated with a brightness value outside the limits, its colour temperature remains at the value of the exceeded limits (Dim2Warm min or max colour temperature)



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The proportional range is the range with a linear relationship between colour temperature and brightness and refers to an output

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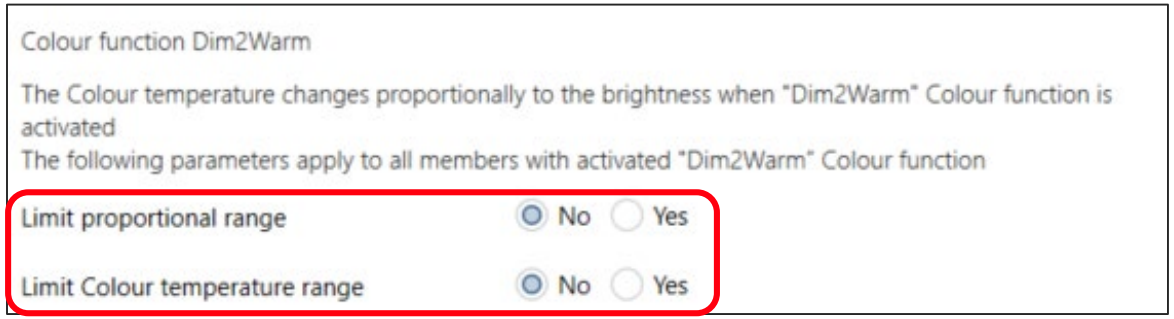
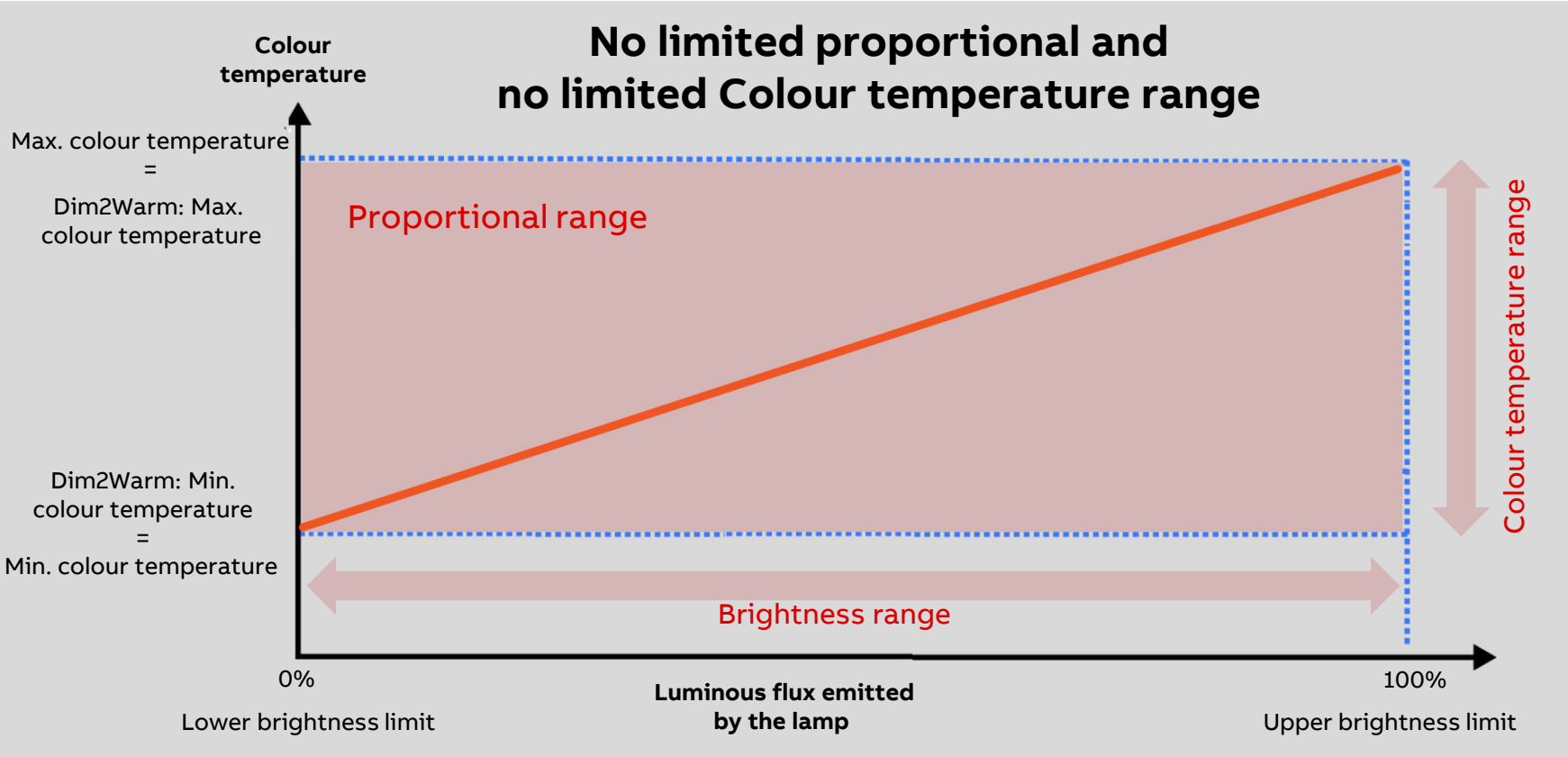
- Reduction of the brightness range by setting an upper and lower brightness limit (min/max level)
  → limited proportional range
- Adjusting the colour temperature range by setting a minimum and maximum colour temperature value (min/max colour temperature)



ETS Parameter:
A Output → Colour functions „Dim2Warm“

KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”



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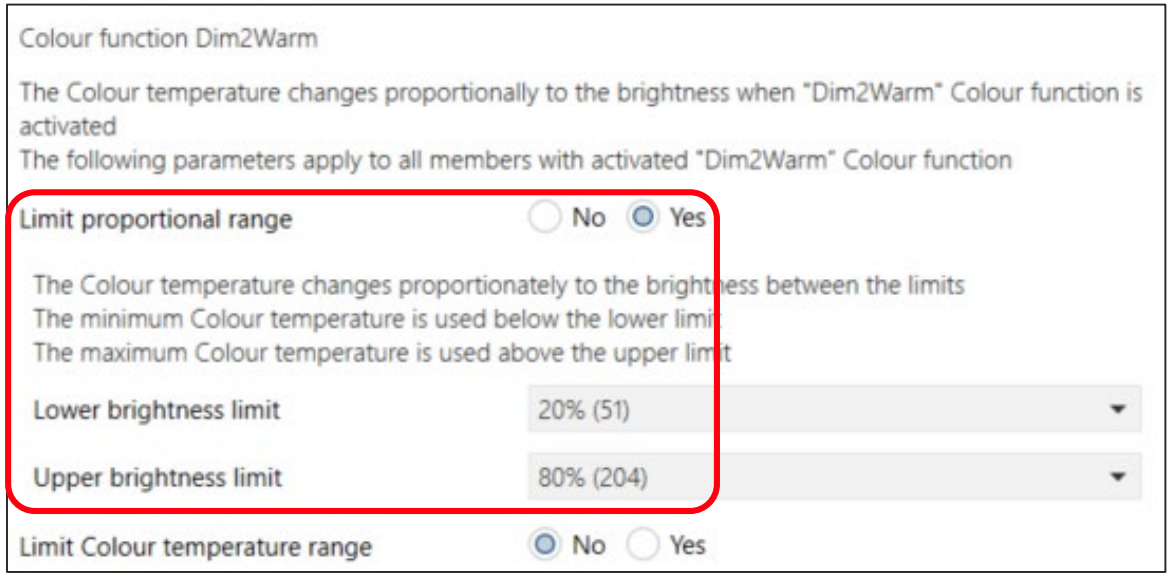

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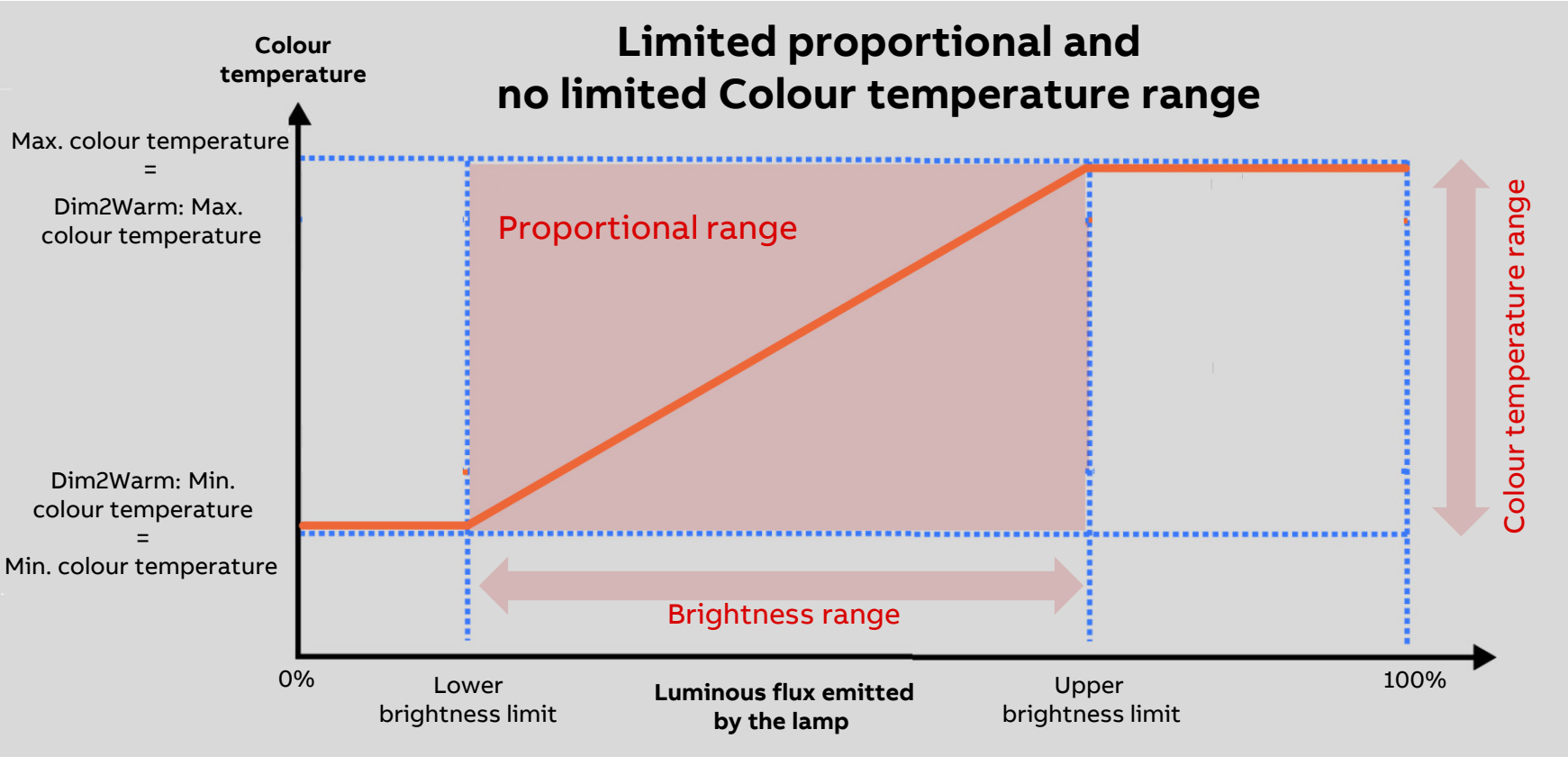
Colour function “Dim2Warm”



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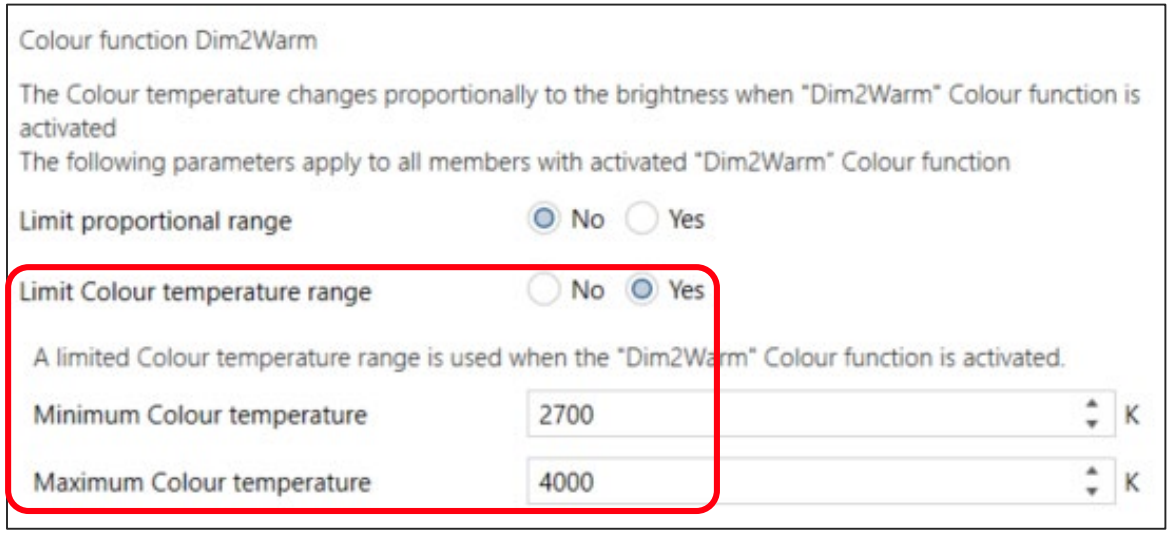
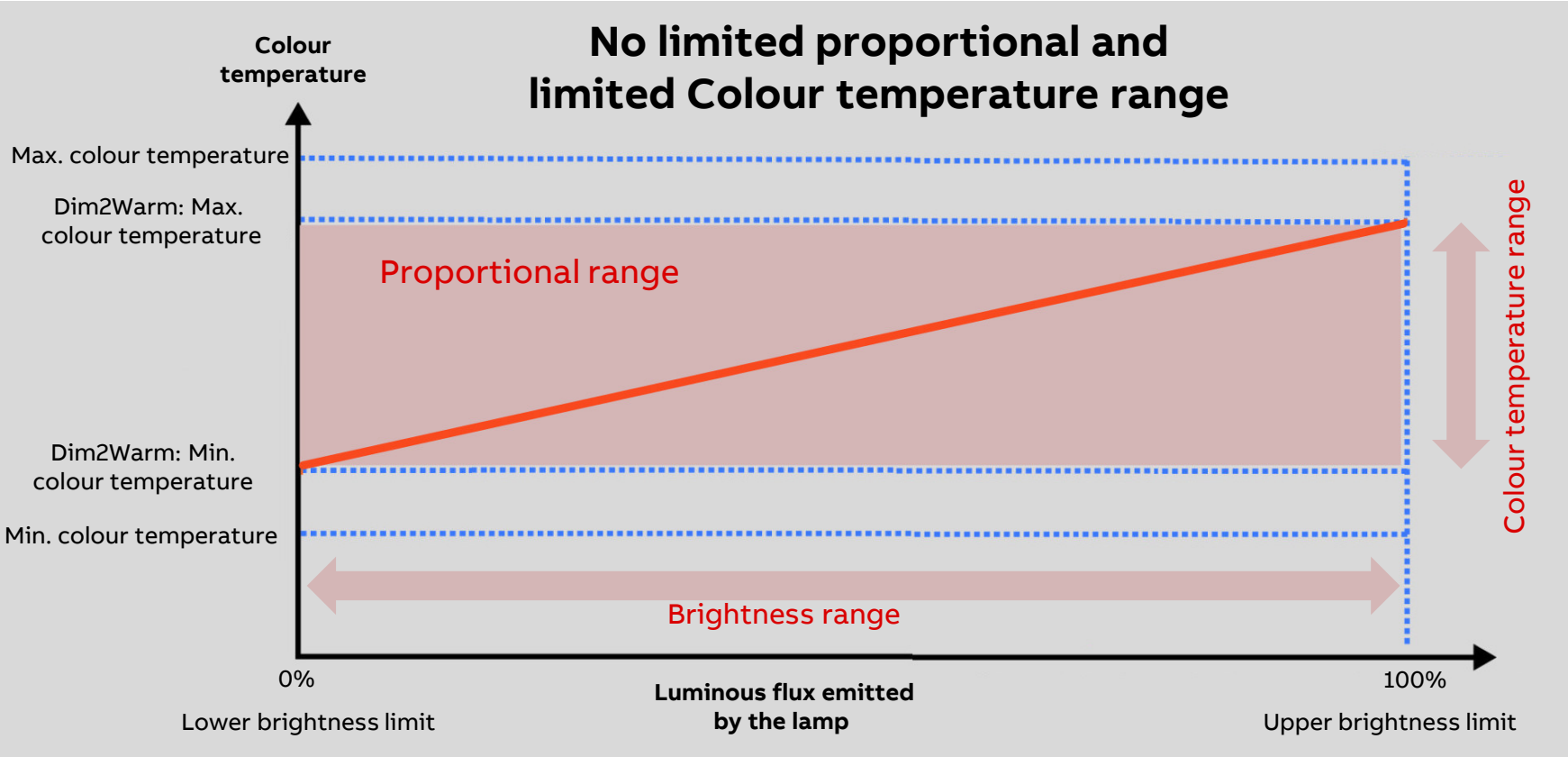


KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”



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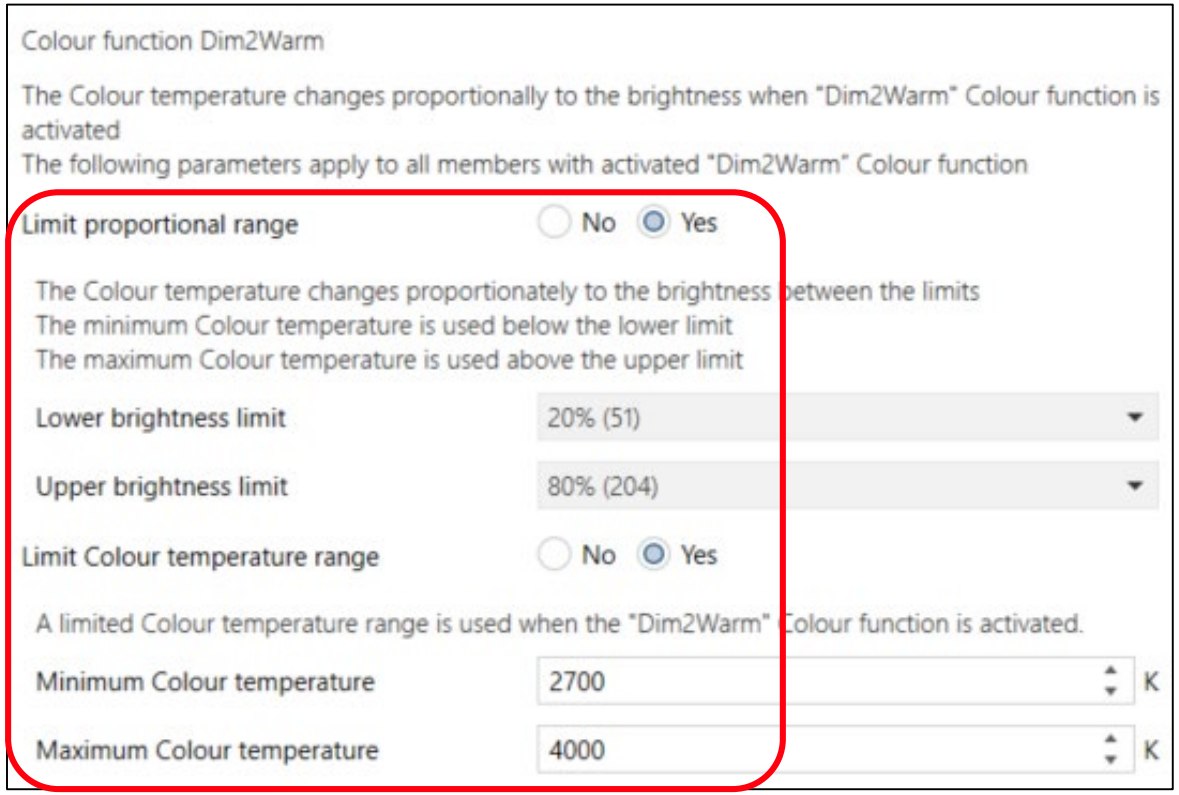
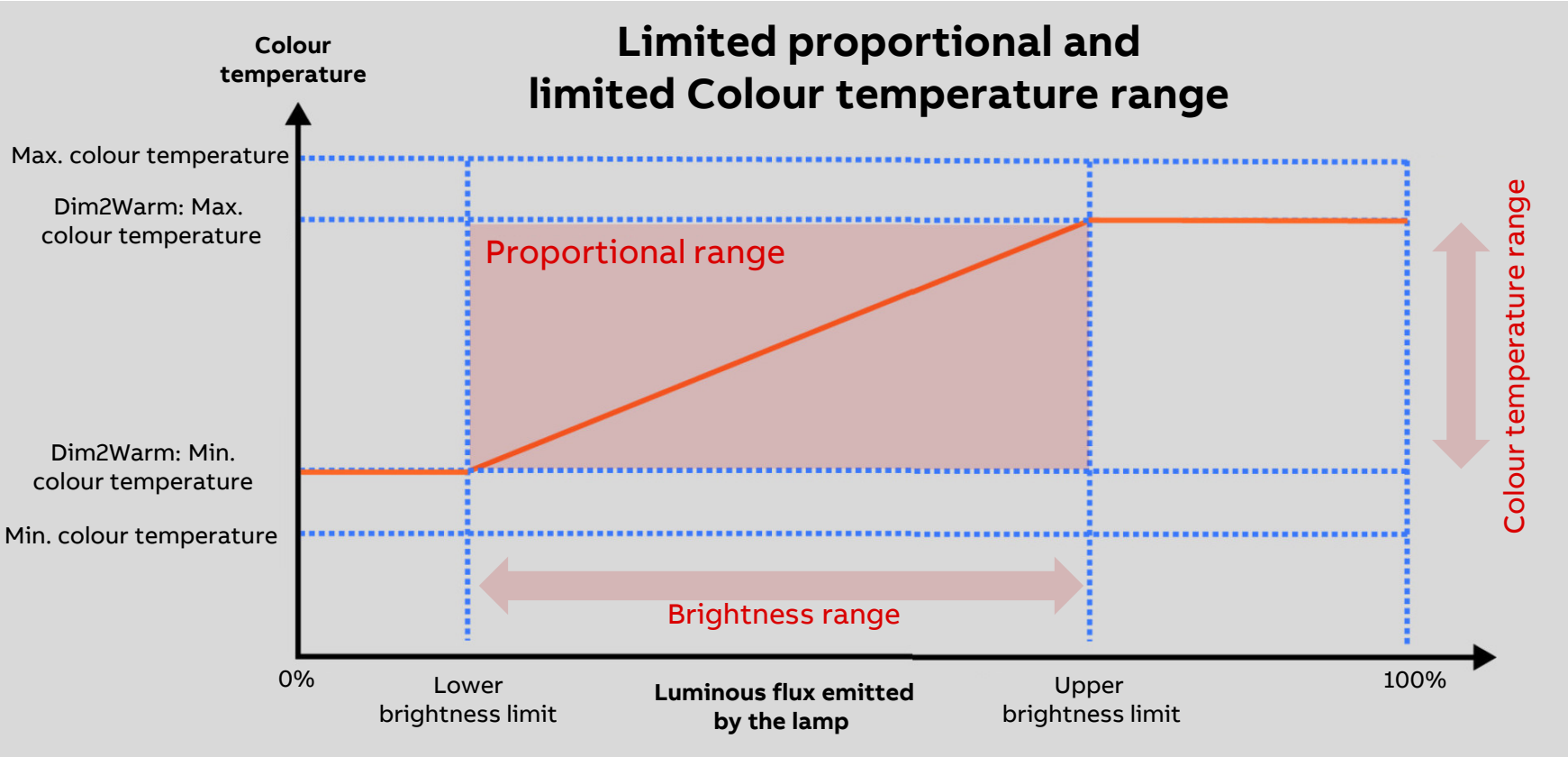


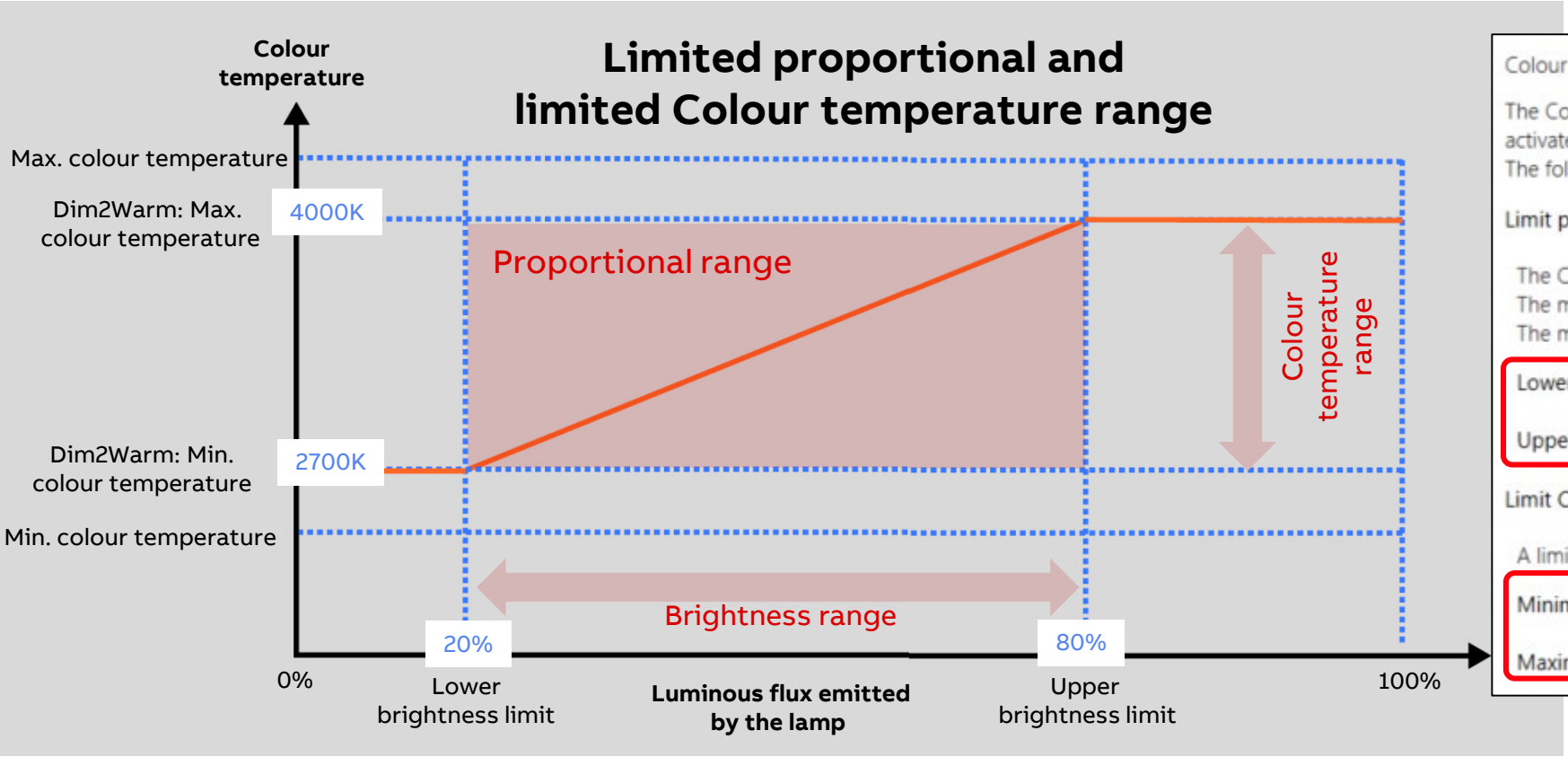
KNX DALI Gateway Premium DG/S x.64.5.1

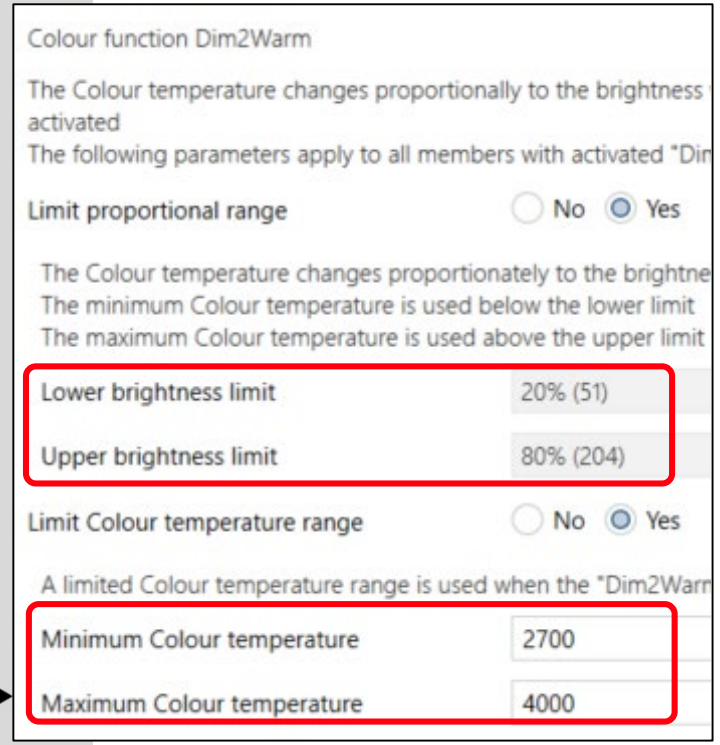
Colour function “Dim2Warm”



KNX DALI Gateway Premium DG/S x.64.5.1

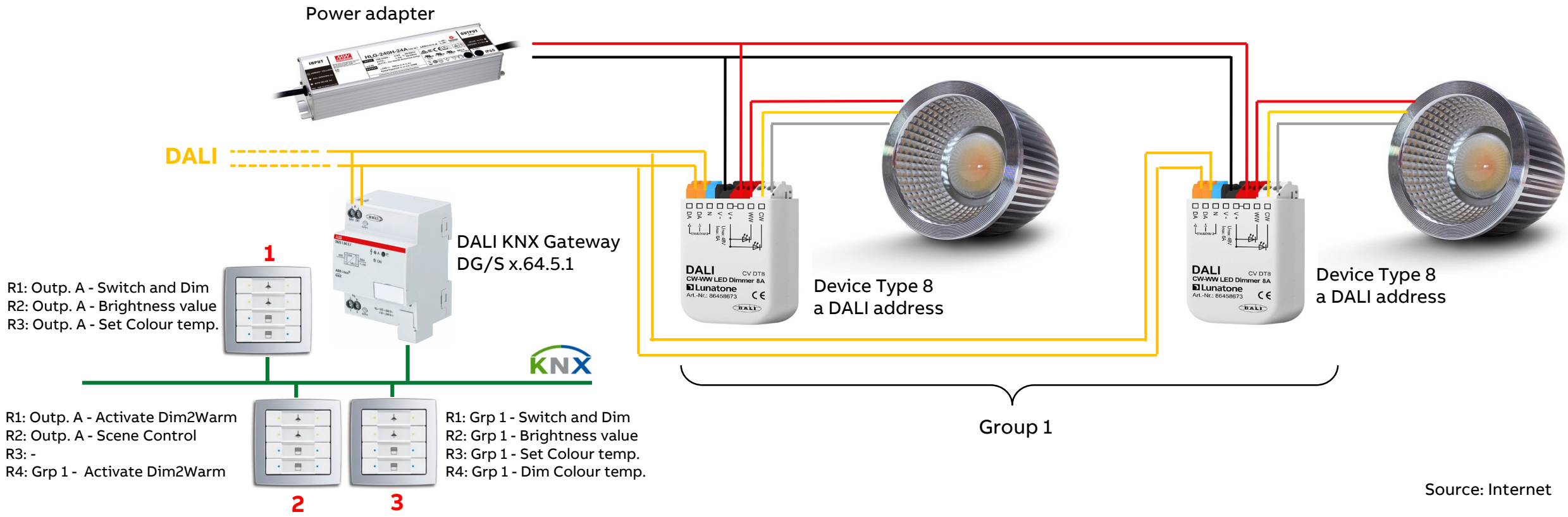
Colour function “Dim2Warm”





KNX DALI Gateway Premium DG/S x.64.5.1

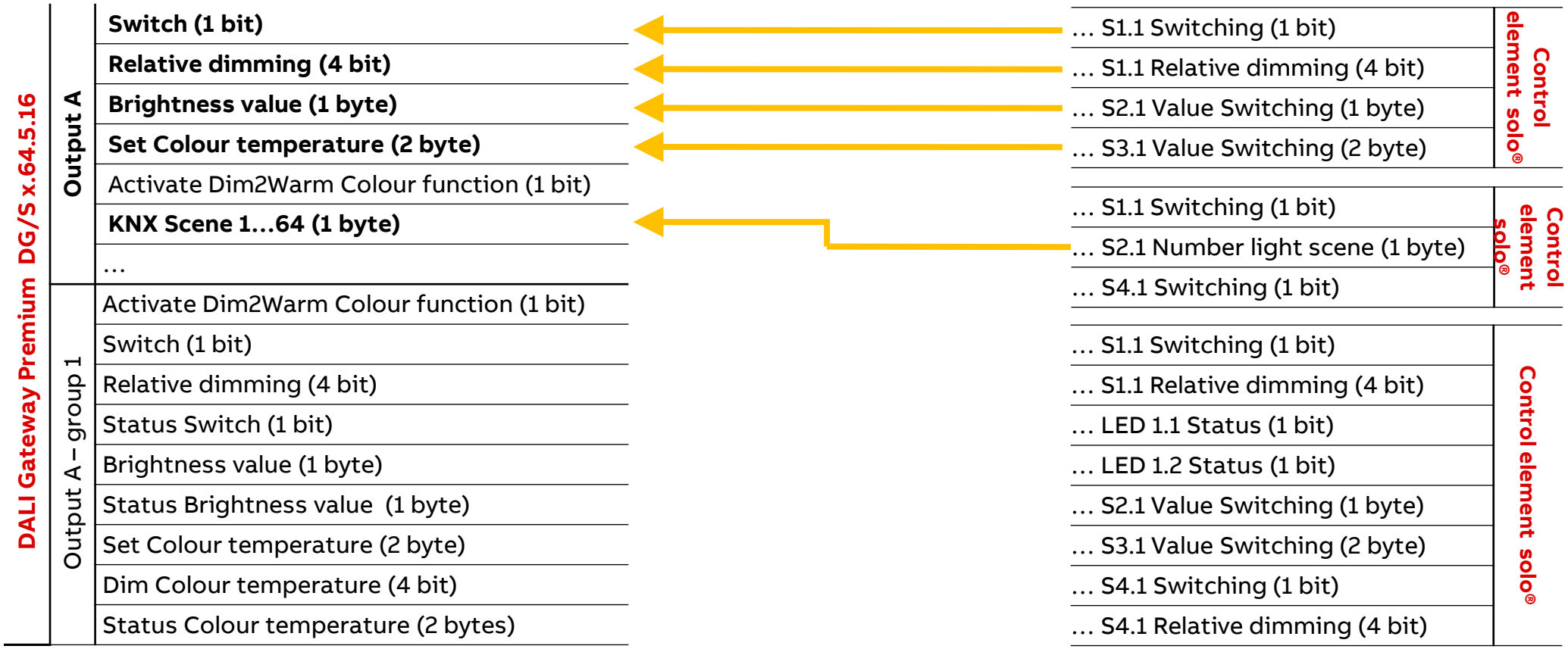
Colour function “Dim2Warm” – Example: Hardware for Tunable White with DALI and KNX



Source: Internet

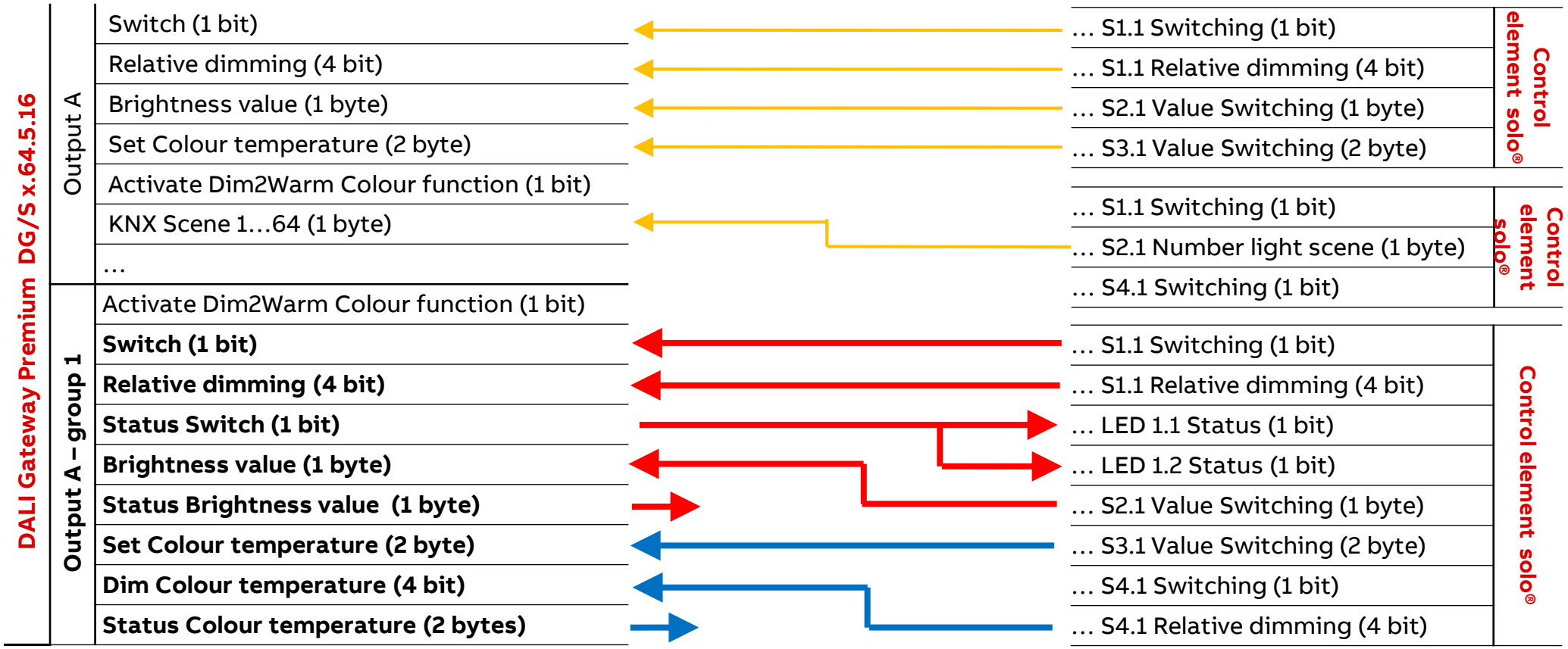
KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm” – Example: Assignment of Group Addresses



KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm” – Example: Assignment of Group Addresses



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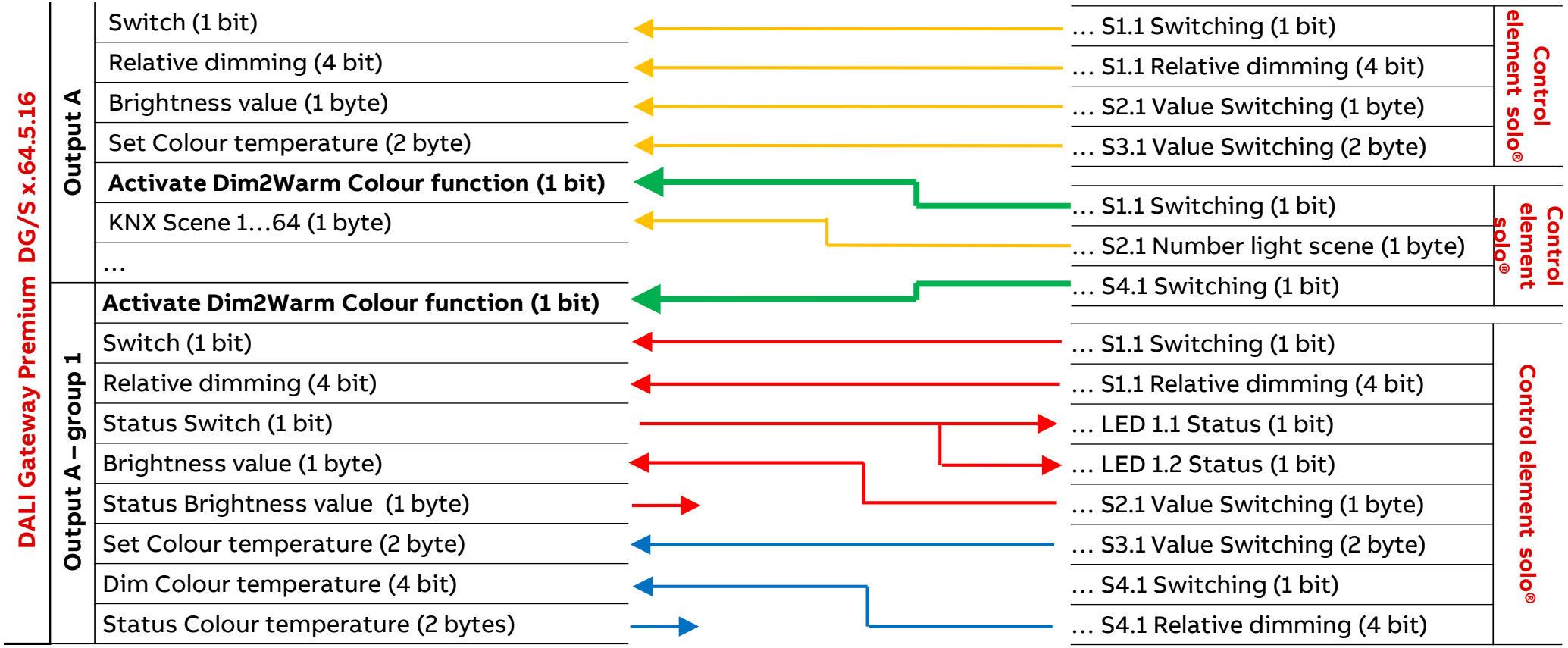
Colour function “Dim2Warm” – Example: Assignment of Group Addresses



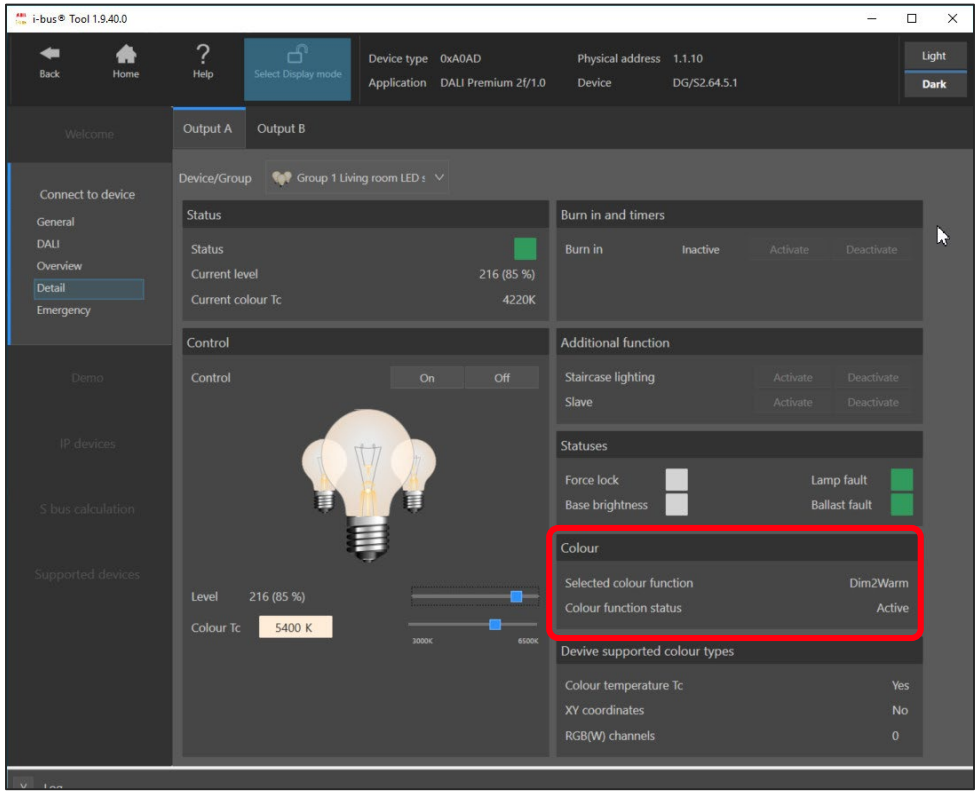
KNX DALI Gateway Premium DG/S x.64.5.1

Colour function “Dim2Warm”

ABB i-bus® Tool

The selected and the state of the Colour function “Dim2Warm” is displayed

The prerequisite is that the additional function is parameterized in the ETS



KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

KNX DALI Gateway Premium DG/S x.64.5.1

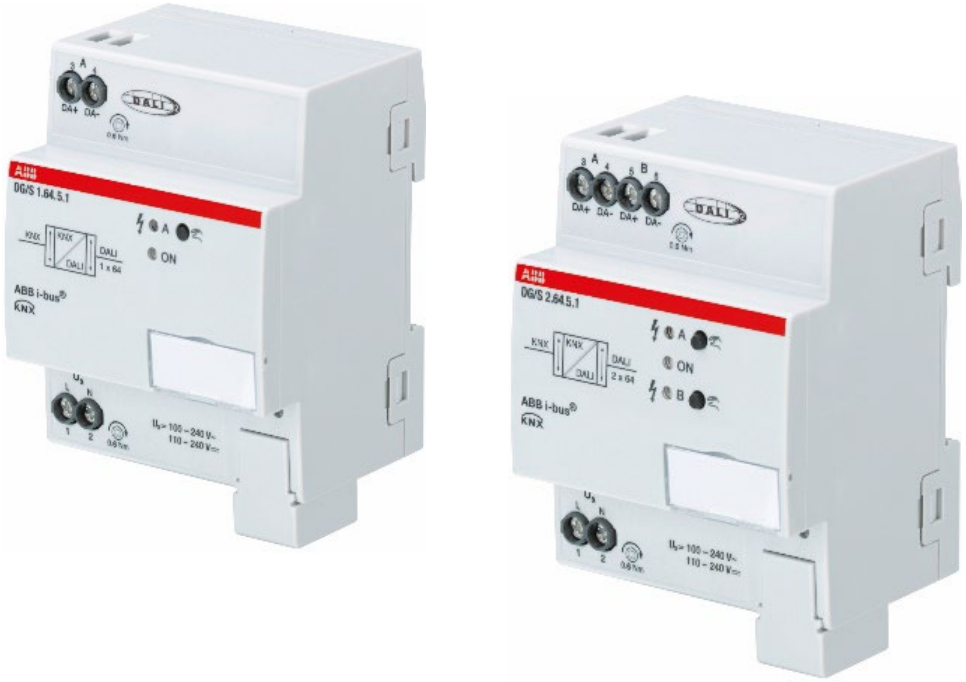
Colour function “Dim2Warm”

Summary

- When dimming LEDs the colour temperature does not change
- The “Dim2Warm” Colour function copies the colour temperature behavior of a light bulb or halogen lamp in case of dimming LEDs
- Especially in residential lighting solutions this feature is preferred, as it is known and accepted from traditional light bulbs lamps
- The colour temperature changes proportionally to brightness
  - Dimming up: Increasing of colour temperature → cold white
  - Dimming down: Decreasing of colour temperature → warm white
- Dim2Warm can be activated on a group/ballast or central
- The Colour function Dim2Warm or HCL can be used for a group/ ballast
- Ballasts of device Type 8 and tunable white LEDs are required

KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Questions



KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

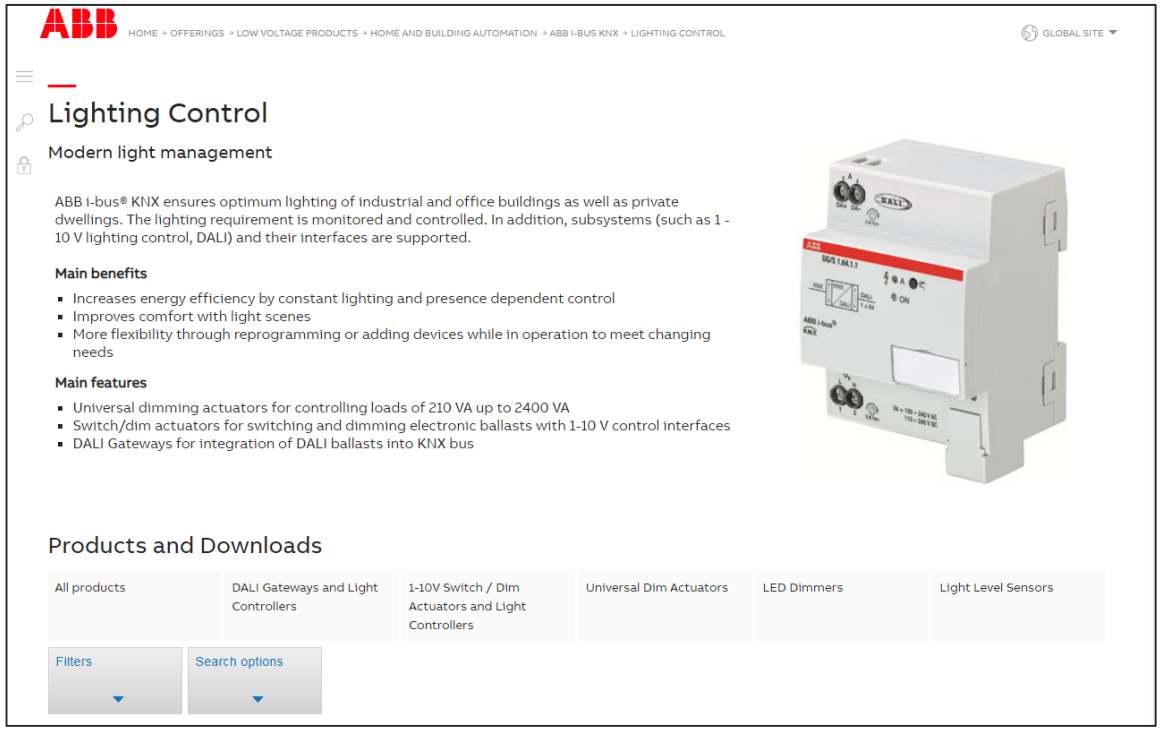
Online Learning Session

Homepage

www.abb.com/KNX

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

- Product Manual
- CAD Drawing
- Installation and Operating Instructions
- Specification Text
- ETS Application
- Selection Table
- CE & RoHS Declaration of Conformity
- • •



KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

Product Range Overview

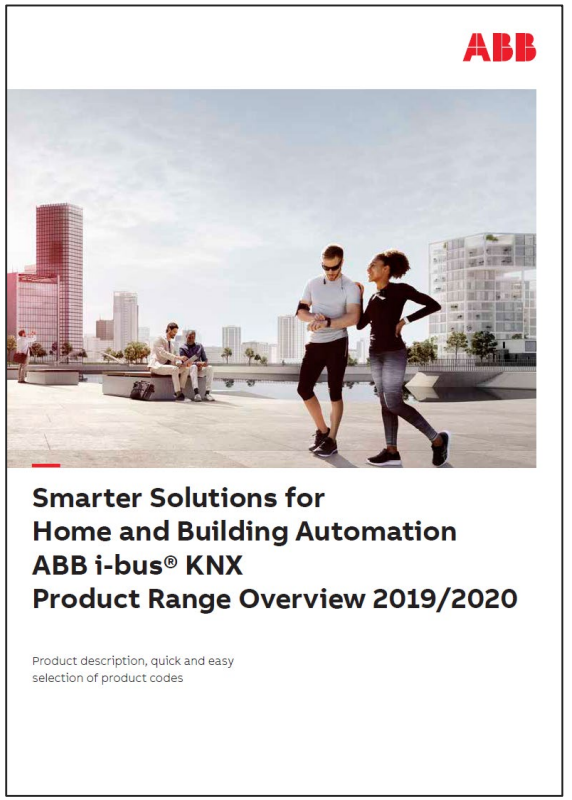
Smarter Solutions for Home and Building Automation

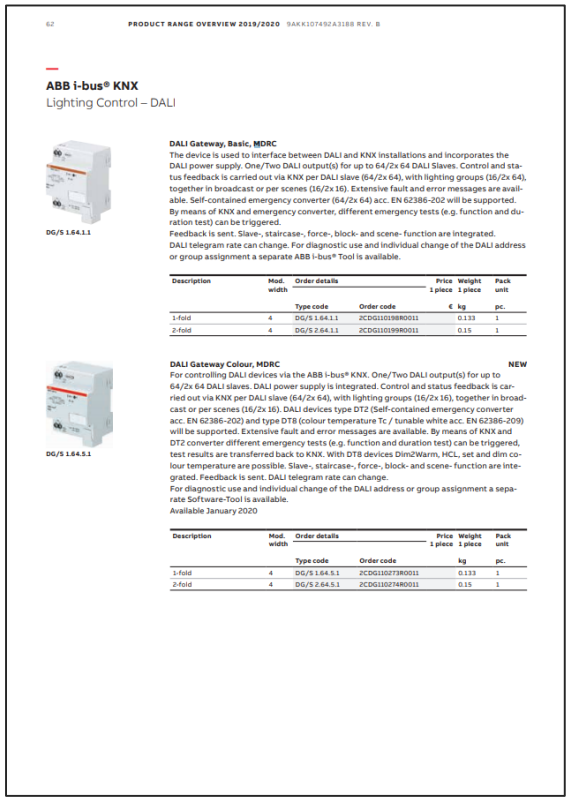
ABB i-bus KNX

Product Range Overview 2019/2020

– Including KNX DALI Gateway Premium DG/S x.64.5.1

LINK





KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

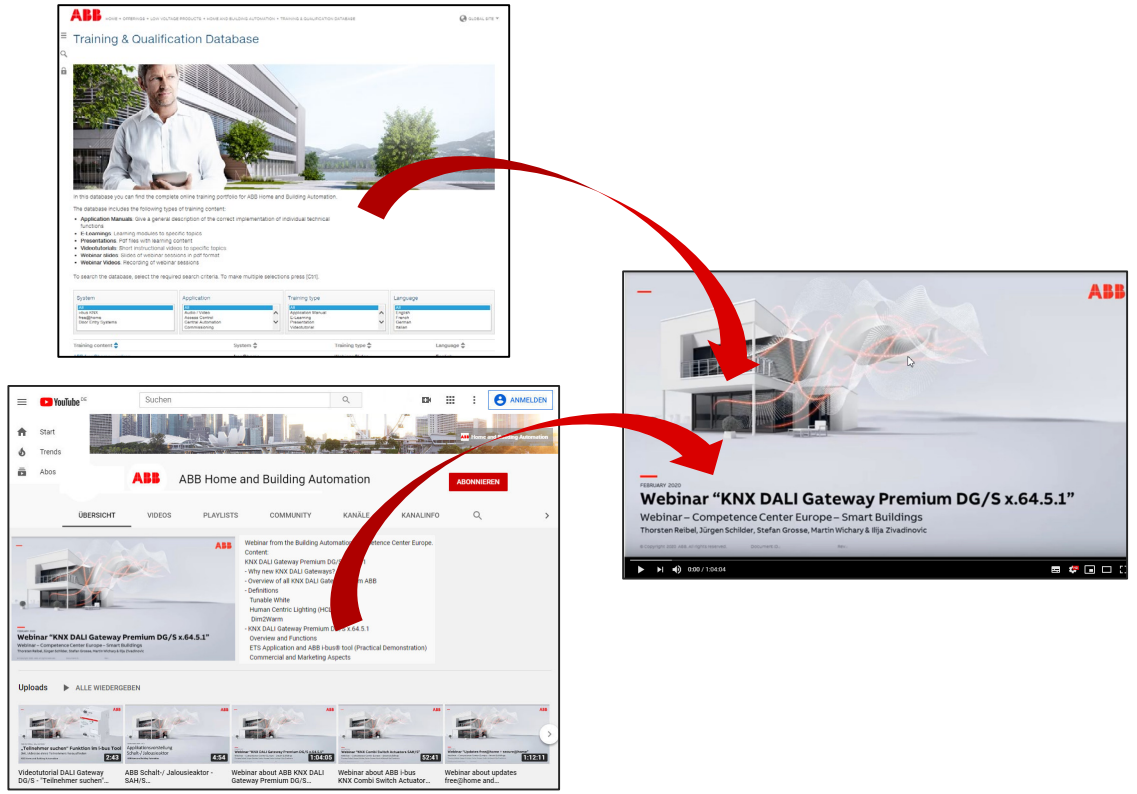
Further information

Training & Qualification Database

– The database includes the following types of training content:
  - Application Manuals
  - E-Learnings
  - Presentations
  - Video tutorials
  - Webinar slides and videos
  - ww.abb.com/knx or https://go.abb/ba-training

Youtube

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



KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

Training & Qualification Calendar

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities

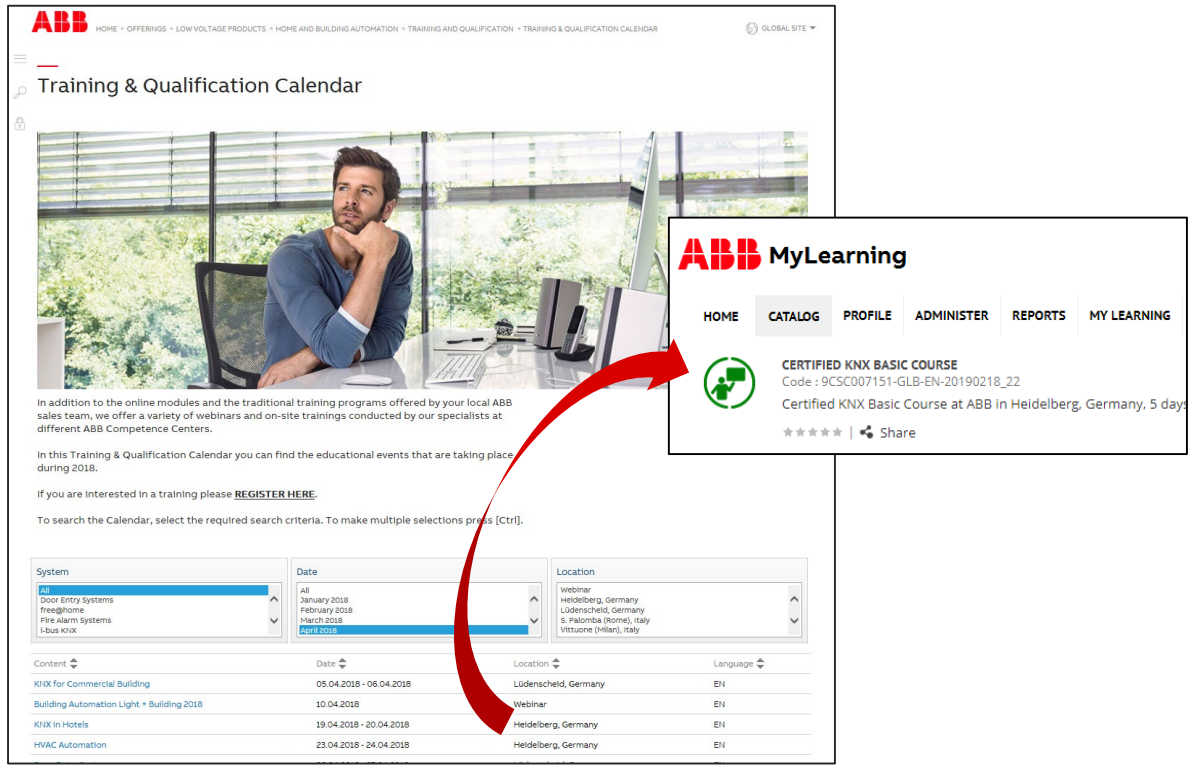
In this Training & Qualification Calendar you can find the educational events that are taking place during 2020

If you are interested in a training please click the training und you will be forwarded to register in “ABB MyLearning”

www.abb.com/knx or https://go.abb/ba-training

→ Training and Qualification

→ Training Calendar



KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

KNX Certified Trainings 2020

Certified KNX Courses in Heidelberg

- Advanced Course: 13th to 17th Jul.
- Tutor Course: 19th to 23rd Oct.
- Basic Course : 16th to 20th Nov.
- Followed by two day application training

Safe the date!!!

And many more training courses in the calendar
“International Training Dates 2020”

www.abb.com/knx or https://go.abb/ba-training

KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

Next Webinar

KNX DALI Gateway Premium DG/S x.64.5.1 – Special functions

- Human Centric Lighting (HCL) – Colour temperature curve following daylight
- Dim2Warm – Colour temperature changes proportionally to brightness with the effect like a light bulb
- Standby switch-off – Ballast voltage switch off via additional switching actuator to save energy
- Scenes – 1 bit recall and 1 byte coded scenes
- ABB i-bus® tool – Search menu for a ballast with unknown address, operating hours, …

Wednesday 6th May 2020

- Morning 09:00 am Europe Time (Berlin, UTC + 2h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 2h)

KNX DALI Gateway Premium DG/S x.64.5.1 – Dim2Warm

Online Learning Session

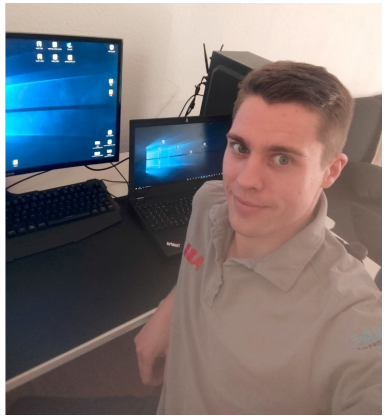
Next online learning sessions → “MyLearning”

- Thursday 16th April: DALI Gateway DG/S x.64.5.1 – Standby switch-off
- Tuesday 21st April: DALI Gateway DG/S x.64.5.1 – HCL
- Thursday 23rd April: KNX ETS5 and group addresses – free-style address structure, export/import, generate group addresses in EXCEL, …
- Tuesday 28th April: ControlTouch – Basic Commissioning (Wizard)
- Thursday 30th April: ControlTouch – Sonos Linking
- Tuesday 5th May: ETS: Presence Detector – Zones, Calibration and Constant Light Control
- Thursday 7th May: Presence Detector – Master/Slave Concept

… and more will follow

NEW !!!

From home office to home office



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