SpaceLogic KNX

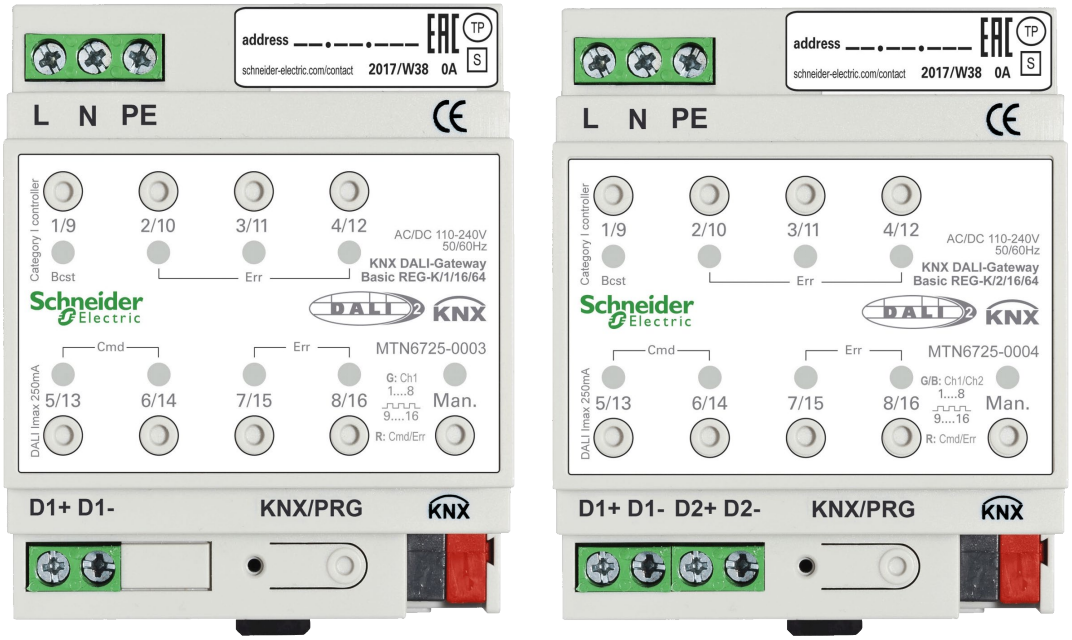
DALI Gateway Basic

Application description

This document describes the ETS software application used to program the device.
MTN6725-0003 | MTN6725-0004

Firmware Version: 1.4.x
ETS application MTN6725-0003: 7312/4.0
ETS application MTN6725-0004: 7313/4.0
DCA: SpaceLogic KNX DALI Gateway Basic Plus V4.0.1.0

2024/11



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Content

1 Using the application program

The application description is valid for firmware version 1.4.x and higher.

Firmware Version:	1.4.x
ETS application MTN6725-0003:	7312/4.0
ETS application MTN6725-0004:	7313/4.0
DCA:	SpaceLogic KNX DALI Gateway Basic Plus V4.0.1.0

Product family: 1.3 Interfaces/Gateway
Product type: 1.3.13 DALI-Gateway
Manufacturer: Schneider Electric Industries SAS

1 Channel Device:
Name: KNX DALI-Gateway Basic REG-K/1/16/64
Order no.: MTN6725-0003
Number of objects: 1222
Number of group addresses: 1222
Number of associations: 1222

2 Channel Device:
Name: KNX DALI-Gateway Basic REG-K/2/16/64
Order no.: MTN6725-0004
Number of objects: 2444
Number of group addresses: 2444
Number of associations: 2444

2 General Product information

2.1 DALI Bus system properties

The cross-functional DALI-Bus (DALI = Digital Addressable Lighting Interface) is a system used to control electronic ballasts (ECGs) in lighting technology. The specifications of the DALI communications interface are set in the international norm EN62386.

The DALI Bus enables the receipt of switch and dim commands. In addition, the DALI can be used for status information about light values or the notification of a fault such as a light or ECG failure.
Via the connected control device / gateway (Master), up to 64 individual DALI ECGs (Slaves) can be connected in a DALI segment. When the DALI is commissioned, the ECGs receive an automatically generated 3 Byte long address. Based on the long address a short address between 0 and 63 is assigned during the further commissioning process. As the address assignment is automatic, the device order is random. The individual ECGs/lights therefore need to be identified during the further commissioning process (see below).

The addressing of individual ECGs in the system is either based upon the short address (individual addressing) or upon a DALI group address (group addressing). For this purpose, any number of ECGs within a segment can be assigned to up to 16 groups. The group addressing in the DALI system guarantees that switch and dim processes of different lights within a system are performed simultaneously without time delays.

In addition to short and group addresses, the light values of individual DALI ECGs can also be merged into scenes and addressed via scene addresses.
For a detailed description of the DALI system, please see the DALI handbook at https://www.digitalilluminationinterface.org

2.2 DALI Gateway product overview

The DALI Gateway is delivered in 2 product variants:

Feature	Description	Order No.
1 Channel	DALI-Gateway Basic REG-K/1/16/64	MTN6725-0003
2 Channels	DALI-Gateway Basic REG-K/2/16/64	MTN6725-0004

The application of the second DALI channel is an identical copy of the first channel.
All functions, objects and parameters are available twice.

Both DALI segments are commissioned separately.
Therefore, both DALI segments are configured independently of each other.

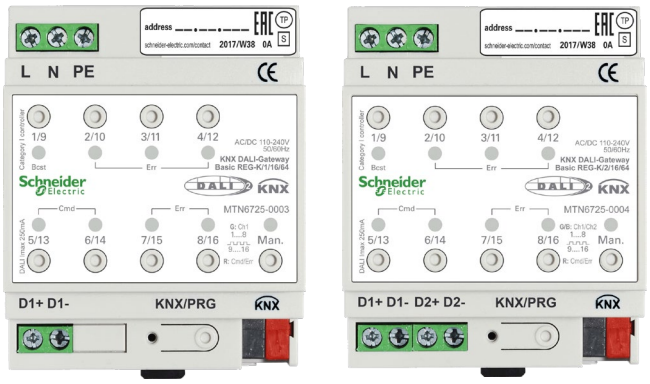
The following documentation describes the configuration and commissioning of one DALI channel as an example.

2.3 DALI Gateway product features

The DALI Gateway is a device used to control ECGs with a DALI interface via the KNX installation bus. The device transforms switch and dim commands from the connected KNX system into DALI telegrams and status information from the DALI bus into KNX telegrams.

The DALI Gateway is a Single Master Application Controller (in accordance with EN 62386-103). This means the device must only be used in DALI segments with connected ECGs and **not** with other DALI control devices within the segment (no multi-master function). Power supply for the up to 64, resp. 128 connected ECGs comes directly from the DALI Gateway. An additional DALI power supply is **not** required and **not** permitted. Supported are ECGs according to EN 62386-102 ed1 (DALI1) as well as devices according to EN 62386-102 ed2 (DALI2). The device is DALI-2 certified and listed in the corresponding database of DiiA.

The device comes in a 4 units wide DIN Rail casing so it can be directly integrated into the mains distribution box.



In addition to the pure gateway function, the DALI Gateway offers numerous additional features:

- Addressing of 16, resp. 32 DALI groups or 64, resp. 128 Single ECGs
- Flexible DALI commissioning concept in the ETS6
- Coloured light control with the help of device type 8 ECGs (DT-8)
- Coloured light control depending on ECG sub-type:
  - Colour temperature (DT-8 Sub-Type Tc)
  - XY colour (DT-8 Sub-Type XY)
  - RGB (DT-8 Sub-Type RGBWAF)
  - HSV (DT-8 Sub-Type RGBWAF)
  - RGBW (DT-8 Sub-Type RGBWAF)

  The DT-8 sub-type PrimaryN is not supported.

- Automatic, time-controlled setting of light value, light colour and colour temperature (also for Human Centric Lighting applications) for groups and/or individual ECGs
- Automatic changing of the colour temperature depending on the light value (Dimm-To-Cold)
- Broadcast objects for controlling all connected ECGs simultaneously (also possible for colour values)
- Different operating modes such as permanent mode, night-time mode or staircase mode
- Integrated operating hours counter for each group and ECG with an alarm for when the maximum life-span has been reached
- Individual fault recognition with objects for each light/ECG
- Indication of a fault status via LEDs on the device
- Complex fault analysis at group/device level with number of faults and fault rate calculation
- Fault threshold monitoring with individually configurable threshold values
- Scene module for extensive scene programming and possibility of dimming scenes
- “Quick exchange function“ for easy replacement of individual faulty ECGs
- Manual control of group and broadcast telegrams via control buttons on the device
- “Energy-saving function" allows the ECG power supply to be switched off when the light is switched off via additional switch actuators

Additional features from version 1.4.x

- Start scenes and effects from the time control module
- New and Post installation directly into a desired group or if externally programmed short address is existing
- Soft start function adjustable
- Support of Energy Reporting according to DALI Part 252.

The special surface for the configuration of DALI segments is designed as a DCA (Device Control App) for the ETS5/6.

Please remember to install the corresponding ETS App in addition to the product database KNXprod. The ETS App is available for download on the Schneider Electric website or from Konnex.

2.4 Improvements to the previous firmware 0.3.x

With firmware 0.4.0 and the associated ETS application "Plus V4", numerous extensions have been introduced to the device family (see above). It should be noted that the current ETS app (DCA) is also used in conjunction with this firmware and app.

3 Installation and Concept of Commissioning

The Commissioning is separated in following steps:

3.1 Overview

Wiring of DALI segment	
Connect device with KNX and DALI Bus	
Connect device to 230 V mains power	
Load ETS database and install etsapp	Online or offline
Configure ETS parameter and link objects	Online or offline
ETS-DCA DALI group assignment	Online or offline
ETS-DCA DALI commissioning	online
Download individual address and application	online

3.2

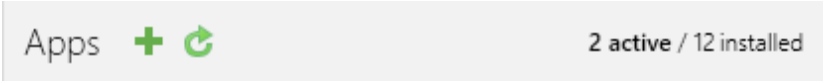
After the wiring of the DALI segment according to the operating and installation instructions BMA DCgc16, software start-up can beginn.

To do this, the product database is loaded and the corresponding ETS App installed in the ETS6, see Kapitel: 3.2 ETS-App (DCA).

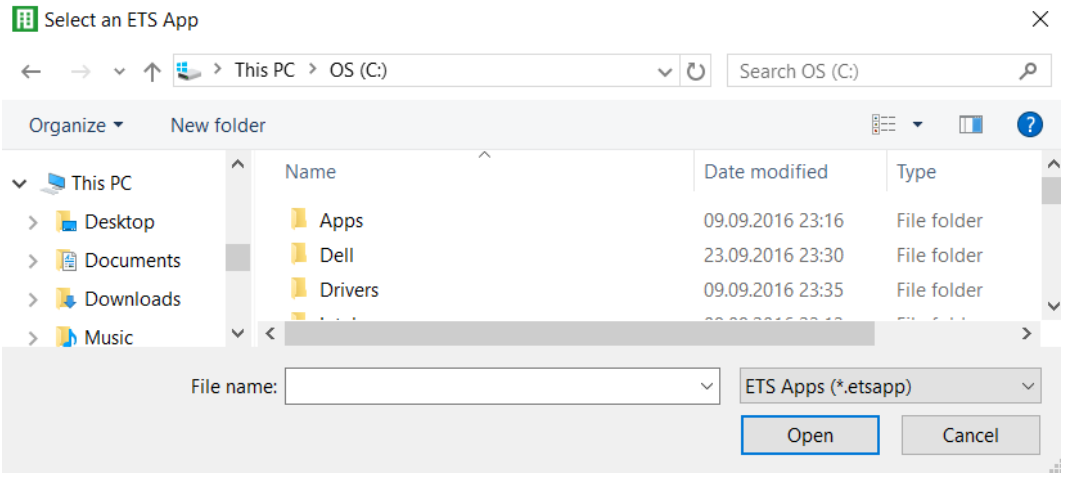
3.3 ETS-App (DCA)

The application for the DALI Gateway is based on the standard surface for the configuration of communication objects and parameters as well as a special surface for configuring the DALI bus system. This special surface is designed as a DCA (Device Control App) for the ETS5. All required program data are automatically created when the App is imported.

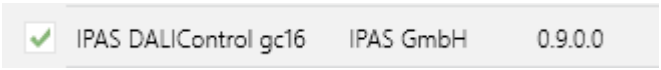
Therefore click on Button „App“ in the footer of ETS and then the „plus“ sign in order to add an ETS App:



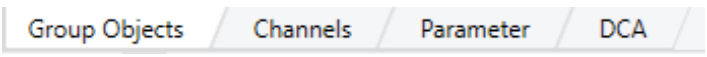
A file box will become visible to select the ETS App for the DALI Gateway:



The App is displayed in the list of all ETS Apps:



When the product is selected an additional DCA tab is shown:



Then the ETS must be started again.

3.4 Parameter Configuration

The parameters and the corresponding group addresses can then be configured as with any other KNX product. With the help of the parameters, various operating modes can also be configured, which are described in more detail in the chapter: 5 Manual mode.

The DALI specific configuration is performed in the DCA tab. First, the assigment of the ECGs to the desired groups should be carried out.
This work can be carried out offline without connection to the KNX, or without connection to the DALI Gateway. The actual DALI commissioning is only possible online, that means a connection to the device is necessary. In this step, all connected ECGs are searched and found and can then be assigned to the preconfigured configuration.

After this assignment has been carried out, this special DALI configuration must be loaded into the device. The "Download" key is available in the DCA tab, see Chapter: 11 DALI commissioning.

In the last step, the parameters and the links to the group addresses should be loaded into the device using normal ETS download. The device is now ready for operation.

4 Devices for colour control (DT-8)

The DALI Gateway also supports ECGs for colour control (device type 8 according to EN 62386-209). Such devices allow for multi-channel colour control (RGB) and thereby enable the mixing of a light colour or the setting of a colour temperature via DALI.

4.1 DALI device type 8 features

ECGs for colour control (DT-8) are offered by a range of manufacturers. Usually these devices allow for the direct control of LED modules with multi-colour LEDs. The most common ones are modules with LEDs in the three colours red, green, blue (RGB), as well as modules with two different white tones (Tunable White). Occasionally LED modules with a further integrated white channel (RGBW) are offered on the market. Whilst it is, of course, possible to control the different colour channels individually, each via a separate DALI control device for LEDs (Device Type-6), this solution has the disadvantage, that each of these devices is assigned a separate DALI short address. This means that two (tunable white), three (RGB) or even four short addresses are required to control a module. With a maximum number of 64 available short addresses per DALI segment, the number of lights that can be used is greatly reduced. With a DT-8 device, however, only one short address is required for all colour channels and the maximum possible range of 64 lights can be controlled. The DALI standard EN 62386-209 defines different colour control methods for DT-8 devices. Normally, a certain device supports only one of these possible methods. Therefore please pay attention to the specifications of the respective manufacturer.

4.2 Colour display via XY coordinates

The display of a colour via two nominated coordinates in a so-called colour space is a common method. By means of the XY coordinates any point in this space is accessible and as a result any colour can be defined. The diagram used in the DALI standard is the colour space chromaticity diagram according to the

1931 CIE standard. (Cambridge University Press) which is shown in the following graphic.

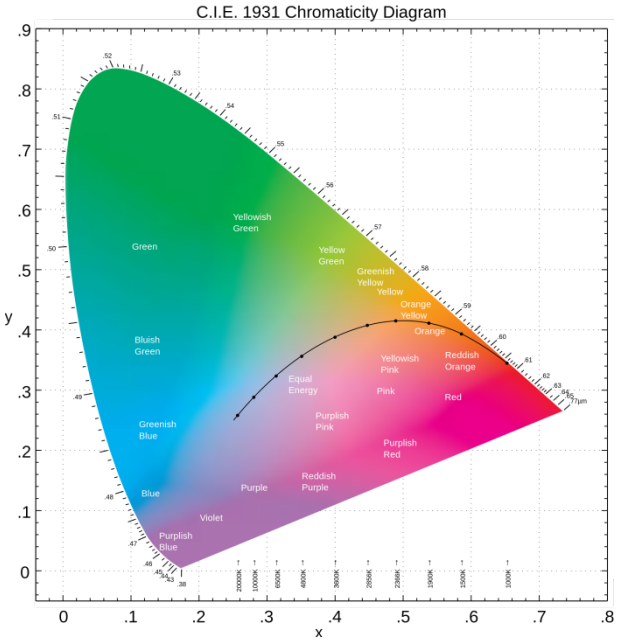


Figure 1: Colour space chromaticity diagram according to CIE 1931 (Source: Wikipedia)

In devices that support the XY coordinates method, the colour is set via two values between 0.0 and 1.0. However, because of the physical properties of an LED, even in an RGB LED module not every colour is practically possible. In practice, it is common to set the value which is closest. Please pay attention to the instructions of the ECG or light manufacturer. Usually the XY values, which are supported by the lamp, are specified here. Values outside of the specified range can generate non-reproducible colours.

4.3 Colour display via colour temperature

A subset of all possible colours in the colour space are the different white tones. The white tones are found on one line across the whole colour space.

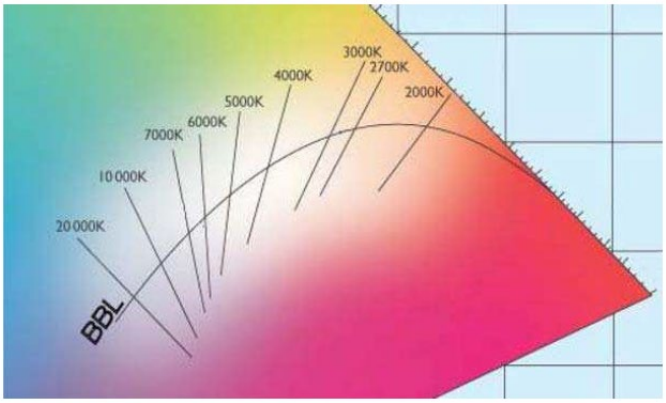


Figure 2: White tone on Black-Body-Line (Source: Wikipedia)

The points on this so-called black-body-line (BBL) are usually defined via a colour temperature in Kelvin. This makes it possible to exactly determine the white tone of a light between warm and cool with just one value. The colour temperature principle is therefore perfect for the control of white light fixtures (tunable white). DT-8 operating devices set the required colour temperature on an LED module by mixing cool and warm white LEDs. Of course, as before this is only possible within certain physical limits. With today's LED modules colour temperatures between 2000 and 8000 Kelvin are common.

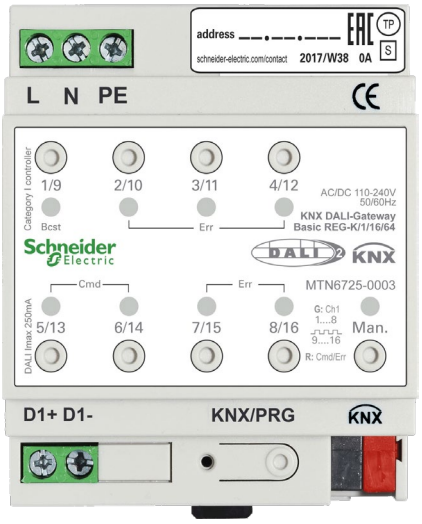
4.4 Colour display via 3 or 4 colour channels (RGBWAF)

Principally, a colour is created by mixing different individual colours (different white tones, RGB or RGBW). A colour can therefore also be displayed based on the mixing ratio of different single colours, e.g. 50% red, 0% green, 60% blue. The colour definition in this case is not exact but depends greatly on the specific, physical attributes of the LEDs used to create the colour (wave length, intensity). Nonetheless, the indication of the primary colour percentages within a system is useful for the relative description of a colour. In some DT-8 ballasts, the colour is set by stating 3 (RGB) or 4 values (RGBW) between 0 and 100%. According to DALI standard EN 62386-209, up to six colours (RGBWAF) can theoretically be drawn upon. The DALI Gateway, however, only supports a maximum of 4 colours, in line with the ECGs that are currently available on the market.

5 Manual mode

5.1 1 Channel Device (DALI-Gateway Basic REG-K/1/16/64)

The DALI Gateway has 9 operating buttons and LEDs on the front side, which offer numerous possibilities for manual control and broadcast and analysis functions.



The buttons and LEDs are accessible without having to remove the cover. During KNX bus operation and in the absence of any errors, all 9 LEDs are switched off. If the gateway detects an error (e.g. a faulty lamp or KNX failure), only the LED on the Man. button lights up in red and flashes quickly. During programming (e.g. during installation) all LEDs light up in red and flash slowly.

Activate the manual mode with a long keypress on the button in the bottom right-hand corner.

The manual mode ends automatically 60 seconds after the last time the button has been activated.

If manual mode is active, shortly press the same button again to toggle between the different manual mode levels. The RGB LED on the Man. button shows which level you are currently on. The individual levels have the following meaning:

Manual mode level 1

LED on Man. button lights up permanently in green

Use buttons 1/9 to 8/16 to switch DALI groups 1 to 8. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 2

LED on Man. button flashes green

Use buttons 1/9 to 8/16 to switch DALI groups 9 to 16. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 3

LED on Man. button lights up permanently in red

Briefly press button 1/9 to trigger a broadcast command. Whether the command that is sent first is an on or off command depends on the status of group 1. Each further keypress toggles all lights via broadcast. The LED on button 1/9 shows the switch status. All lights react to a broadcast command even if group assignment has not yet taken place.

A long keypress on button 5/13 triggers a quick exchange command. This function makes it possible to replace a faulty ECG even without the ETS (see chapter ECG quick exchange).

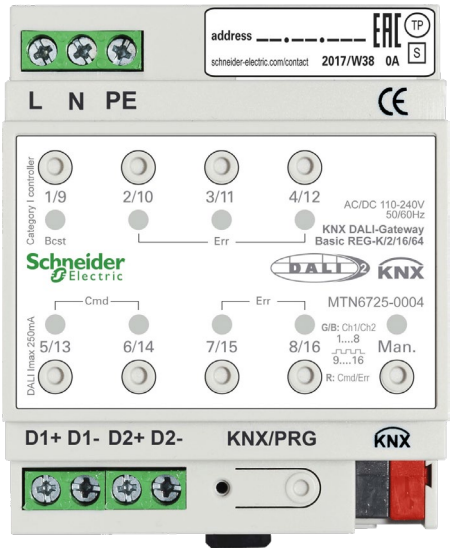
A long keypress on button 6/14 activates the converter inhibit mode. If the power supply for the connected emergency lights is turned off within 15 minutes after activating the converter inhibit mode, the lights are turned off instead of changing into emergency mode. This operating mode may be necessary during the commissioning and installation process to prevent constant emergency lighting and battery discharge.

If the gateway detects a fault, the LEDs on buttons 2/10 to 4/12 and 7/15 to 8/16 show the exact type of fault. The LED is constantly lit up in red. The faults are as follows:

LED Button 2/10 → Converter fault
LED Button 3/11 → ECG fault
LED Button 4/12 → Lamp fault
LED Button 7/15 → DALI short-circuit
LED Button 8/16 → KNX fault

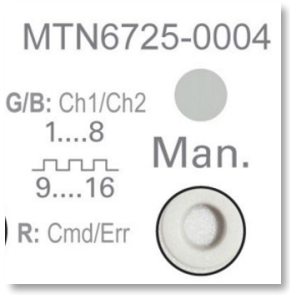
5.2 2 Channel Device (DALI-Gateway Basic REG-K/2/16/64)

The DALI Gateway has 9 operating buttons and LEDs on the front side, which offer numerous possibilities for manual control and broadcast and analysis functions.



The buttons and LEDs are accessible without having to remove the cover. During KNX bus operation and in the absence of any errors, all 9 LEDs are switched off. If the gateway detects an error (e.g. a faulty lamp or KNX failure), only the LED on the Man. button lights up in red and flashes quickly. During programming (e.g. during installation) all LEDs light up in red and flash slowly.

Activate the manual mode with a long keypress on the button in the bottom right-hand corner.



The manual mode ends automatically 60 seconds after the last time the button has been activated.

If manual mode is active, shortly press the same button again to toggle between the different manual mode levels. The RGB LED on the Man. button shows which level you are currently on. The individual levels have the following meaning:

Manual mode level 1 (channel 1)

LED on Man. button lights up permanently in green

Use buttons 1/9 to 8/16 to switch DALI groups 1 to 8. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 2 (channel 1)

LED on Man. button flashes green

Use buttons 1/9 to 8/16 to switch DALI groups 9 to 16. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 3 (channel 1)

LED on Man. button flashes red/green

Briefly press button 1/9 to trigger a broadcast command. Whether the command that is sent first is an on or off command depends on the status of group 1. Each further keypress toggles all lights via broadcast. The LED on button 1/9 shows the switch status. All lights react to a broadcast command even if group assignment has not yet taken place.

A long keypress on button 5/13 triggers a quick exchange command. This function makes it possible to replace a faulty ECG even without the ETS (see chapter ECG quick exchange).

A long keypress on button 6/14 activates the converter inhibit mode. If the power supply for the connected emergency lights is turned off within 15 minutes after activating the converter inhibit mode, the lights are turned off instead of changing into emergency mode. This operating mode may be necessary during the commissioning and installation process to prevent constant emergency lighting and battery discharge.

If the gateway detects a fault, the LEDs on buttons 2/10 to 4/12 and 7/15 to 8/16 show the exact type of fault. The LED is constantly lit up in red. The faults are as follows:

LED Button 2/10 → Converter fault
LED Button 3/11 → ECG fault
LED Button 4/12 → Lamp fault
LED Button 7/15 → DALI short-circuit
LED Button 8/16 → KNX fault

Manual mode level 4 (channel 2)

LED on Man. button lights up permanently in blue

Use buttons 1/9 to 8/16 to switch DALI groups 1 to 8. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 5 (channel 2)

LED on Man. button flashes blue

Use buttons 1/9 to 8/16 to switch DALI groups 9 to 16. The light value of the group changes from 100% (On) to 0% (Off) each time the button is pressed. The switch status of each group is shown via the LEDs on the buttons 1/9 to 8/16.

Manual mode level 6 (channel 2)

LED on Man. button flashes red/blue

Briefly press button 1/9 to trigger a broadcast command. Whether the command that is sent first is an on or off command depends on the status of group 1. Each further keypress toggles all lights via broadcast. The LED on button 1/9 shows the switch status. All lights react to a broadcast command even if group assignment has not yet taken place.

A long keypress on button 5/13 triggers a quick exchange command. This function makes it possible to replace a faulty ECG even without the ETS (see chapter ECG quick exchange).

A long keypress on button 6/14 activates the converter inhibit mode. If the power supply for the connected emergency lights is turned off within 15 minutes after activating the converter inhibit mode, the lights are turned off instead of changing into emergency mode. This operating mode may be necessary during the commissioning and installation process to prevent constant emergency lighting and battery discharge.

If the gateway detects a fault, the LEDs on buttons 2/10 to 4/12 and 7/15 to 8/16 show the exact type of fault. The LED is constantly lit up in red. The faults are as follows:

LED Button 2/10 → Converter fault
LED Button 3/11 → ECG fault
LED Button 4/12 → Lamp fault
LED Button 7/15 → DALI short-circuit
LED Button 8/16 → KNX fault

6 Operating modes

6.1 Normal mode

In normal mode, groups and individual ECGs can be dimmed and switched without restrictions. The control of each group and individual ECG is based on three communication objects (switching, dimming, value setting).

ECGs can only be assigned to one DALI group. The DALI Gateway does not support multi-group assignments on DALI level. If such assignment is required, please use KNX communication objects for this purpose. An additional enable/disable object is available to disable the control via the three communication objects.

Separate status objects inform about the switch and value status both at group and individual ECG level.

6.2 Permanent mode

If you would like to run an individual ECG or a whole group permanently with a certain light value, (e.g. a permanently lit corridor or workshop) you can choose the permanent mode option. The ECG or group are automatically set to the required value after you program or switch on the gateway. Switch and dim objects remain hidden. Light status, error and service functions, however, are also available in permanent mode. Should a device in this mode not be running at the pre-set light level because of a special operation (e.g. identification process on the device display) or fault (e.g. ECG was without power when the gateway was started) the light level is automatically corrected after 60 seconds.

6.3 Staircase mode

The staircase mode is only available for groups. In this mode, the value set via a switch, dim or value telegram is automatically changed to the switch off value after a programmable time. The lights can be switched off immediately or in 2 steps (within a minute) or through dim-down (within a minute).

In staircase mode, each additionally received telegram re-starts the internal timer. The lights switch off when the timer runs out after the most recently received telegram.

The staircase mode can be disabled or enabled via an additional object. If the staircase mode is disabled, the group behaves as in normal mode and does not automatically switch off. If the mode is disabled whilst the switch-off timer is already running, the timer stops and the group remains at the currently set value. If the mode is enabled again, the timer starts again from the beginning.

6.4 Night mode

Night-time mode is available both at group and ECG level. The night-time mode corresponds largely to the staircase mode. The only difference is that the automatic switch-off is dependent on the central night object of the gateway. If the night object is not set (day), the group behaves as in normal mode. If the object is set (night), the ECG or group either switches off after a programmable time or it changes into permanent mode.

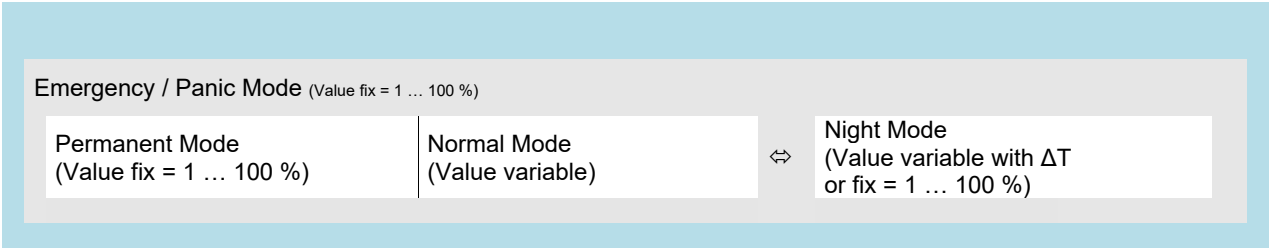
6.5 Panic mode (exceptional case)

The panic or emergency mode can be activated via a central object for the whole gateway. All ECGs/ groups that have been enabled for panic mode, permanently switch to a programmable panic light value on receipt of the object. They can no longer be controlled individually. When the panic mode is switched off, the devices return to the previous light value or the switch on / switch off value and can again be controlled individually.

Note: If panic mode is active, scenes and time scheduling are deactivated.

6.6 Operating mode hierarchy

Some of the individual operating modes described above have higher functions and roles for the operation of the system as a whole. A prioritisation or hierarchy of operating modes is therefore required. The panic mode has the highest priority. The permanent, normal and night modes and the staircase function have the same priority and are on the same hierarchy level.



Manual operation is activated by default. It can be deactivated rep. disabled by an ETS parameter.
See Capter: 9.1.3 Parameter page: Special functions.

7 Analysis and service functions

7.1 Recording operating hours

The DALI Gateway allows for the operating hours (burning time) of each group to be individually recorded. Internal recording is accurate to the second. The value is available externally in an hourly unit with the internal value in seconds always being rounded. (e.g. 7199 seconds → 1 h, 7201 seconds → 2h) The recording of operating hours is independent of the dim value. This means any light value > 0% contributes to an increase in the operating hours of a group. The counter can be re-set (when a lamp is changed). To reset the counter, the value 1 is written on the communication object “reset operating hours”.

A maximum value can be individually configured for each group (life span), which activates an alarm object on the KNX bus. This information can be used for maintenance purposes.

7.2 Individual fault recognition at ECG level

A major advantage of DALI technology is the individual recognition of faulty lights or ECGs. The DALI Gateway supports this function.
For the analysis, the DaliGateway scans all connected ECGs periodically for ECG and light errors. The scanning cycles can be configured. If the cycle is 1 second (standard setting), and 64 ECGs are connected, the complete process of scanning for ECG and light errors takes 128 seconds (1 second per ECG and type of error). It can therefore take up to about 2 minutes before a fault that has occurred is recognised. For each ECG a communication object is available to send the information to the KNX bus (1Bit or 1 Byte object). The error information is also available on the DCA in the ETS.

The fault status of all individual ECGs and lights can also be queried via a special error status object (see communication object description below).

7.3 Fault analysis at group level

If ECGs are merged into groups, numerous group-specific error data is available in addition to the still available individual ECG data. For this purpose three different communication objects are available for each group. In addition to general information such as whether there is an error within a group and of what type, the complete number of faulty devices within the group and the error rate can be listed via a communication object. An alarm object is sent when a certain error rate is exceeded. A complex object with a summary of the data further adds to the analysis options.

For details of group-specific communication objects, please see the communication objects description below.

7.4 Fault analysis at device level

Error analysis objects similar to those at group level are also available at device level (i.e. for all ECGs connected to the gateway). The error rate or number of faulty ECG in the whole DALI segment can be made available via communication objects. In contrast to the group level, at gateway level the percentage and number of errors can be broken down further according to error type. The alarm threshold for the error rate can be individually set for ECG, light and converter errors.

For further details regarding the communication objects, please see the communication objects description below.

7.5 Energy Reporting according to DALI Part 252

The DALI Gateway devices also support ECGs with device type 51 from firmware 0.4.0. Such devices measure the energy and power values directly in the ECG and make this information available on the DALI. The DALI Gateway can then read this data and send it to the KNX for further processing.

A change in power can only ever be expected if the light value has changed. Therefore, the power is always read out after a light value change. Since ECGs usually need some time until the new power / energy is provided, an adjustable delay time is provided. According to the DALI standard, however, the power should be available at the latest 30 seconds after the status change. Depending on the ECG manufacturer, this time can vary and can be adjusted via an ETS parameter. In addition, the power / energy values are read out cyclically once an hour.

The DALI Gateway also automatically calculates the consumption per group and per device / DALI channel of the device by adding up the individual ECG values.

8 ETS communication objects

The DALI Gateway communicates via the KNX bus based on a powerful communication stack.

Note for the 2-channel device:
All communication objects of the 1st channel are marked with the prefix D1- and those of the 2nd channel with the prefix D2-. In the following documentation, the prefix is not displayed because the subjects repeat for each channel accordingly. The object numbers of the 2nd channel can be calculated via an offset of 1222.

8.1 General objects

The date and time are defined across all channels for the whole device. The general communication objects exist for each channel and apply to the function of those channel.

Object list for 1 channel device:

Number	Name	Object Function
1	Time	Time
2	Date	Date
3	Broadcast, Switching	On/Off
4	Broadcast, Set Value	Value
5	Broadcast, Colour Temperature	Value
9	Activate Panic Mode	Activate/Stop
10	Activate Night Mode	Activate/Stop
11	Scene invoke / programm	Scene No.
12	General Failure	Yes/No
13	DALI Failure	Yes/No
14	General Failure Exceeds Threshold	Yes/No
15	General Failure in Total	Value
16	Lamp Failure Exceeds Threshold	Yes/No
17	Lamp Failure in Total	Value
18	ECG Failure Exceeds Threshold	Yes/No
19	ECG Failure in Total	Value
20	Status Switching Lamp	Status
21	Total Active Power	Value

Object list for 2 channel device:

Number	Name	Object Function
1	Time	Time
2	Date	Date
3	D1-Broadcast, Switching	On/Off
4	D1-Broadcast, Set Value	Value
5	D1-Broadcast, Colour Temperature	Value
9	D1-Activate Panic Mode	Activate/Stop
10	D1-Activate Night Mode	Activate/Stop
11	D1-Scene invoke / programm	Scene No.
12	D1-General Failure	Yes/No
13	D1-DALI Failure	Yes/No
14	D1-General Failure Exceeds Threshold	Yes/No
15	D1-General Failure in Total	Value
16	D1-Lamp Failure Exceeds Threshold	Yes/No
17	D1-Lamp Failure in Total	Value
18	D1-ECG Failure Exceeds Threshold	Yes/No
19	D1-ECG Failure in Total	Value
20	D1-Status Switching Lamp	Status
21	D1-Total Active Power	Value
1225	D2-Broadcast, Switching	On/Off
1226	D2-Broadcast, Set Value	Value
1227	D2-Broadcast, Colour Temperature	Value
1231	D2-Activate Panic Mode	Activate/Stop
1232	D2-Activate Night Mode	Activate/Stop
1233	D2-Scene invoke / programm	Scene No.
1234	D2-General Failure	Yes/No
1235	D2-DALI Failure	Yes/No
1236	D2-General Failure Exceeds Threshold	Yes/No
1237	D2-General Failure in Total	Value
1238	D2-Lamp Failure Exceeds Threshold	Yes/No
1239	D2-Lamp Failure in Total	Value
1240	D2-ECG Failure Exceeds Threshold	Yes/No
1241	D2-ECG Failure in Total	Value
1242	D2-Status Switching Lamp	Status
1243	D2-Total Active Power	Value

For time-controlled sequencing, the current date and time are required. These need to be made available via the bus. Two objects are available for this purpose.

Obj	Object name	Function	Type	Flags
1	Time	Time	3 Byte 10.001	CWTU
This object is used to set the time. The time must be provided by a central timer and updated at least twice a day.				
2	Date	Date	3 Byte 11.001	CWTU
This object is used to set the date. The date must be provided by a central timer and updated at least twice a day. Leap years and change-over to and from daylight saving time are not taken into consideration during internal calculations of time and date. Therefore please pay attention that the timer sends the correct date on these occasions.				

Obj	Object name	Function	Type	Flags
3	Broadcast, Switching	On/Off	1 Bit 1.001	CW
This object is used to switch all connected lights simultanously on or off. However, any connected ECGs that are in special mode (Panic Mode) are not switched and the DALI bus is addressed sequentially. A delay between the first and the last light being switched off may hence be visible. If none of the ECGs is in special mode, all lights are switched simultaneously via DALI Broadcast telegrams. The Broadcast function always switches to 0 or 100%. The ‘switch-off value’ and ‘switch-on value’ parameters for groups or ECGs are disregarded. Note: This object is only visible if you select GENERAL→Special function→Enable broadcast in the parameters				
4	Broadcast, Set Value	Value	1 Byte 5.001	CW
This object is used to simultanously set all connected lights to a certain value. However, any connected ECGs that are in special mode (Panic Mode) are excluded and the DALI bus is addressed sequentially. A delay between the value of the first and last light may hence be visible. If none of the ECGs is in special mode, the value is set simultanously via DALI Broadcast telegrams. Note: This object is only visible if you select GENERAL→Special function→Enable broadcast in the parameters.				
Broadcast can also be used for colour control. In this case 4 additional objects no. 3/5-6/8 will become visible, see Parameter page: Special functions. The usage of those objects will be described in detail in Objects for colour control.				
9	Activate Panic Mode	Activate/Stop	1 Bit 1.010	CW
Activates or deactivates the panic mode via the bus.				

10	Activate Night Mode	Activate/Stop	1 Bit	CW

			1.010	
Activates or deactivates the night mode via the bus.				
11	Scene invoke/ programm	Scene No.	8 Bit 18.001	CW
This object is used to invoke or program scenes. Up to 16 scenes are available on the DALI gateway. To program a selected scene you need to set the top Bit: Start Program Scene 1 0 128 Scene 2 1 129 ……. Scene 15 14 142 Scene 16 15 143				
12	General Failure	Yes/No	1 Bit 1.005	CRT
Reports the presence of a general fault in the connected DALI segment independent of its type.				
13	DALI Failure	Yes/No	1 Bit 1.005	CRT
Reports the presence of a DALI short-circuit in the connected DALI segment				
14	General Failure Exceeds Threshold	Yes/No	1 Bit 1.005	CRT
This object reports that the total of all lamp, ECG and converter faults recognised by the gateway exceeds the threshold set via parameters.				
15a	General Failure in Total	Value	1 Byte 5.010	CRT
The total number of all lamp, ECG and converter errors recognised by the gateway are reported via this object. Please remember that for each connected device a fault is counted just once. If an ECG or converter error has been detected, a simultaneous light error will no longer be detected or counted.				
15b	General Failure in %	Value	1 Byte 5.001	CRT
Alternatively, this object is used to report the error rate as a percentage of the total number of devices in the DALI segment. All lamp, ECG and converter errors are hereby taken into account. Please remember that for each connected device a fault is counted just once. If an ECG or converter error has been detected, a simultaneous light error will no longer be detected or counted.				
16	Lamp Failure Exceeds Threshold	Yes/No	1 Bit 1.005	CRT
This object is used to report that the total of all lamp failures recognised by the gateway exceeds the threshold set via parameters.				

17a	Lamp Failure in Total	Value	1 Byte 5.010	CRT
The total number of lamp failures recognised by the gateway are reported via this object.				
17b	Lamp Failure in %	Value	1 Byte 5.001	CRT
Reports the failure rate as a percentage of the total number of lamps in the DALI segment.				
18	ECG Failure Exceeds Threshold	Yes/No	1 Bit 1.005	CRT
This object is used to report that the total number of ECG failures recognised by the gateway exceeds the threshold set via parameters.				
19a	ECG Failure in Total	Value	1 Byte 5.010	CRT
The total number of ECG failures recognised by the gateway are reported via this object.				
19b	ECG Failure in %	Value	1 Byte 5.001	CRT
Alternatively, the failure rate can be reported as a percentage of the total number of ECGs in the DALI segment via this object.				
20	Status Switching Lamp	Status	4 Byte 27.001	CRT
Sends the switch status of individual groups in the DALI segment when the system is started or when a change has taken place. Bit 0 - 15 show the status. Bit 16-31 show whether the information is valid. Number “1“ means that the status information is valid; number “0“ means it is invalid. For example: groups 2,5 and 10 are switched on and valid; all other groups are switched off: Status: Grp.16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 Bit 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 1 0 Maske: Bit 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
21a	Active Power Total	Value	4 Byte 14.056	CRT
This object is used to transmit the total power of all ECGs connected to the unit / DALI channel that support device type DT-51. The object is only displayed if the corresponding parameter is set.				
21b	Active Energy Total	Value	4 Byte 13.010	CRT
This object is used to transmit the total energy of all ECGs connected to the unit / DALI channel that support device type DT-51. The object is only displayed if the corresponding parameter is set.				

22	Failure Status Lamp/ECG	Status	8 Bit 238.600	CWT

This object is used to send the error status of lamp or ECG errors in the DALI segment when the system is started or when a change has taken place. Bit 0 - 5 refer to the number of the ECG. Bit 6 represents a lamp error, Bit 7 an ECG error. For example:

```
                Bit  7 6 5 4 3 2 1 0
ECG 5 / ECG error    1 0 0 0 0 1 0 1
ECG 6 / Lamp error   0 1 0 0 0 1 1 0
```

If a value is received via the object where Bit 6 and Bit 7 are set, it is interpreted as a status query. For example:

```
           Bit       7 6 5 4 3 2 1 0
ECG 5 / status query 1 1 0 0 0 1 0 1
```

The gateway responds with the current error status of the queried ECG.

```
                Bit 7 6 5 4 3 2 1 0
ECG 5 / ECG error   1 0 0 0 0 1 0 1
```

8.2 Objects for the time control module

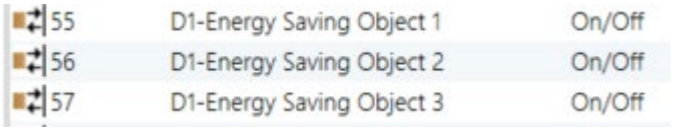
For each of the up to 16 time program templates in the colour control module communication objects are available for activation/deactivation. Please see chapter *Disabling*/Enabling. These need to be enabled under time control in the DCA.

23	Template 1, Activation	Activate/Stop
24	Template 2, Activation	Activate/Stop
25	Template 3, Activation	Activate/Stop

Obj	Object name	Function	Type	Flags
23	Template 1, Activate	Activate/stop	1 Bit 1.010	CW
This object activates template 1 in the colour control module. If the value is 1, the template is active and will be executed according to schedule.				
24ff	Template x, Activate	Activate/stop	1 Bit 1.010	CW
This object activates template x in the colour control module. If the value is 1, the template is active and will be executed according to schedule.				

8.3 Objects for Energy Saving

There are 16 energy-saving objects available which can be assigned to groups resp. ECGs in the corresponding parameters. Therefore it is possible to activate and deactivate the ECG power with an additional switching actuator.

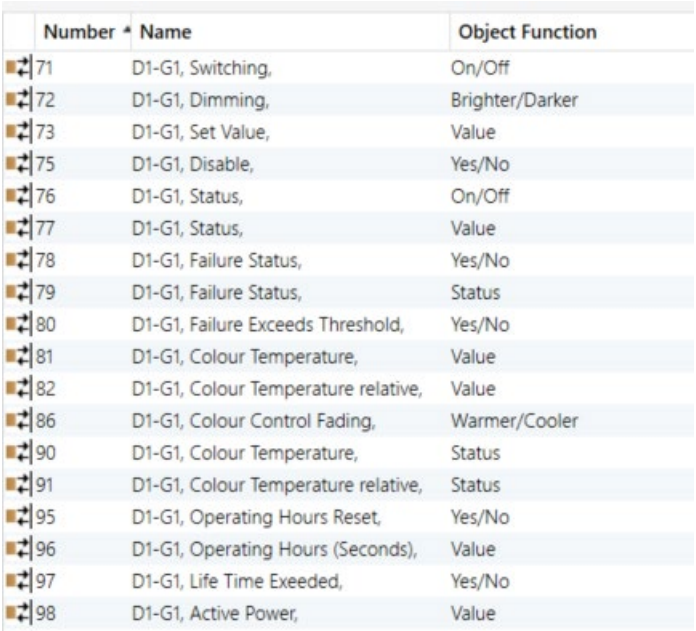


55	D1-Energy Saving Object 1	On/Off
56	D1-Energy Saving Object 2	On/Off
57	D1-Energy Saving Object 3	On/Off

55	Energy Saving Object 1	On / Off	1 Bit 1.001	CRT
With the appropriate assignment in the parameters, this object is switched off when associated groups or ECGs are switched off. This allows a separate power supply to be switched off. If the associated groups or ECGs are controlled again with a value > 0%, this object is switched on again before.				
56ff	Energy Saving Object x	On / Off	1 Bit 1.001	CRT
With the appropriate assignment in the parameters, this object is switched off when associated groups or ECGs are switched off. This allows a separate power supply to be switched off. If the associated groups or ECGs are controlled again with a value > 0%, this object is switched on again before.				

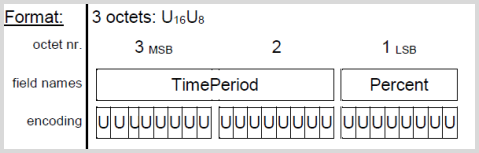
8.4 Group objects

For each one of the up to 16 possible groups, a set of 28 communication objects is available.



Number	Name	Object Function
71	D1-G1, Switching,	On/Off
72	D1-G1, Dimming,	Brighter/Darker
73	D1-G1, Set Value,	Value
75	D1-G1, Disable,	Yes/No
76	D1-G1, Status,	On/Off
77	D1-G1, Status,	Value
78	D1-G1, Failure Status,	Yes/No
79	D1-G1, Failure Status,	Status
80	D1-G1, Failure Exceeds Threshold,	Yes/No
81	D1-G1, Colour Temperature,	Value
82	D1-G1, Colour Temperature relative,	Value
86	D1-G1, Colour Control Fading,	Warmer/Cooler
90	D1-G1, Colour Temperature,	Status
91	D1-G1, Colour Temperature relative,	Status
95	D1-G1, Operating Hours Reset,	Yes/No
96	D1-G1, Operating Hours (Seconds),	Value
97	D1-G1, Life Time Exeeded,	Yes/No
98	D1-G1, Active Power,	Value

The following objects are available (Example group 1):

Obj	Object name	Function	Type	Flags
71	G1, Switching	On/Off	1 Bit 1.001	CW
This object is used to switch group 1 on or off.				
72	G1, Dimming	Brighter/Darker	4 Bit 3.007	CW
This object is used for the relative dimming of group 1. Bit 3 is set to dim up and deleted to dim down. Bits 0 to 2 refer to the increment size. Bit 0 to 2 deleted is interpreted as a stop telegram.				
73	G1, Set Value	Value	1 Byte 5.001	CW
Sets the value of group 1.				
Object 74 is shown for the following parameter: G1→behaviour→additional value setting object with dim time				
74	G1, Set Value	Value/Time	3 Byte 225.001	CW
Group 1 can bet set to a certain value and dim time via this object.  For this data point, time is defined as a multiple of 100 ms. Because of the DALI specific features, a value range from 1 s to 200 s is accepted. Values outside of this range are restricted accordingly. A dim time of 10 s is coded as follows: 10 s = 1000x100 ms				
Object 43 is shown for the following parameter: G1→General→Function of the additional object				
75a	G1, Enable	Yes/No	1 Bit 1.003	CW
This object is used to enable the operation of group 1: Object = 0 → Operation disabled Object = 1 → Operation enabled				
75b	G1, Disable	Yes/No	1 Bit 1.003	CW
This object is used to disable the operation of group 1: Object = 0 → Operation enabled Object = 1 → Operation disabled				

75c	G1, Disable Staircase	Yes/No	1 Bit 1.003	CW
This object is used to disable the staircase function of group 1: Object = 0 → Staircase function enabled Object = 1 → Staircase function disabled				
76	G1, Status	On/Off	1 Bit 1.001	CRT
Sends the switch status of the group. Each value >0 % is interpreted as ON.				
77	G1, Status	Value	8 Bit 5.001	CRT
Sends the value status of each group.				
Object 78 is shown for the following parameter: G1→Analysis and maintenance→Type of error status object				
78a	G1, Failure Status	Yes/No	1 Bit 1.005	CRT
Sends the error status for a light or ECG failure in the group.				
78b	G1, Failure Status	Status	1 Byte	CRT
Sends the error status for a light or ECG failure in the group as a 1 Byte object. Meaning: Bit 0 → Light error Bit 1 → ECG error				
79	G1, Failure Status	Status	4 Byte	CRT

Reports the total number of devices within a group as well as the error status according to type of error. The different Bits within the object have the following meaning:
 	
`Bit 31 | Bit 30 | Bit 29..24`
`Norm.ECG | Emerg.ECG | Number of ECGs+Conv. faulty`
 	
`Bit 23 | Bit 22 | Bit 21..16`
`Norm.Lamps| Notl. Lamps| Number of Lamps faulty`
 	
`Bit 15 | Bit 14 | Bit 13..8`
`Def.Conv. | n.b. | Number of Converters`
 	
`Bit 7 | Bit 6 | Bit 5..0`
`n.b. | n.b. | Number of ECGs`				

Object 80 is shown for the following parameter: G1→Analysis and maintenance→Additional error objects				
80a	G1, Failure Exceeds Threshold	Yes/No	1 Bit 1.005	CRT
This object is used to report that the total of all lamp, ECG and converter failures found within the group exceeds the threshold set via parameters.				
80b	G1, Failure Rate in Total	Value	1 Byte 5.010	CRT
The total number of light and ECG errors within the group is reported via this object.				
80c	G1, Failure Rate in %	Value	1 Byte 5.001	CRT
This object is used to report the error rate as a percentage of the total number of devices within the group.				
Object 95-97 will be displayed on: G1→Analysis and Service → Operating Hour Calculation				
95	G1, Operating Hours Reset	Yes/No	1 Bit 1.015	CW
The operating hours within the group can be reset with „1“ via this object.				
96a	G1, Operating Hours (Seconds)	Value	4 Byte 13.100	CW
Counts the operating hours in the group. This value is transmitted in seconds according DTP 13.100.				
96b	G1, Operating Hours (Hours)	Value	4 Byte 12.101	CW
Counts the operating hours in the group. This value is transmitted in hours according DTP 12.101.				
97	G1, Life Time Exceeded	Yes/No	1 Bit 1.005	CW
This object shows whether the maximum life span set in the parameters has been exceeded. Note: If the treshold has been exceeded, an alarm is issued via this object (by sending “1“). This status is resent for each further hour that is above the threshold.				
98a	Active Power	Value	4 Byte 14.056	CRT
This object is used to transmit the total power of all ECGs connected in this group that support device type DT-51. The object is only displayed if the corresponding parameter is set.				
98b	Active Energy	Value	4 Byte 13.010	CRT
This object is used to transmit the total energy of all ECGs connected in this group that support device type DT-51. The object is only displayed if the corresponding parameter is set.				

8.4.1 Objects for colour control

Different colour control options are supported:

- Colour temperature
- RGB
- HSV
- RGBW
- XY

Only one type of colour control can be selected for a group. All ECGs in the group that support this type can thereby be controlled. Other ECG types will not react to the command. Please remember to only assemble ECGs with the same colour control in a group.

8.4.1.1 Colour temperature

Dependig on the type of colour control, different objects are shown:

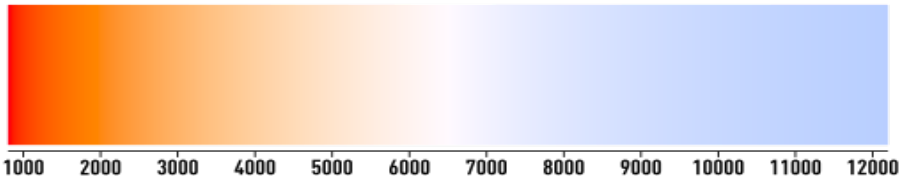


*Figure 3: Colour temperature (Source: Wikipedia)

Hereby the colour temperature can be set in the unit Kelvin. Temperatures below 3000 K are called "warm white"; according to over 5000 K "cool white" and values in between are called "neutral white".

Obj	Object name	Function	Type	Flags
81	G1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature in the group.				
82	G1, Colour Temperature relativ	Value	1 Byte 5.001	CW
Sets the relative colour temperature in the group between 0 and 100%. The value range 0 to 100% is automatically converted into the possible colour temperature range.				
86	G1, Colour Temperature	Warmer/Cooler	4 Bit 3.007	CW
Changes the colour temperature in the group. Bit 3 is set to dim up and deleted to dim down. Bits 0 to 2 refer to the increment size. Bit 0 to 2 deleted is interpreted as a stop telegram.				
90	G1, Colour Temperature	Status	2 Byte 7.600	CRT
Sends the set colour temperature as status of the group.				
91	G1, Colour Temperature relativ	Status	1 Byte 5.001	CRT
Sends the relative colour temperature between 0..100% as status of the group.				

8.4.1.2 RGB (DPT 232.600)

The RGB colour spectrum is called additive colour spectrum as the colour perception is created by mixining the three basic colours.

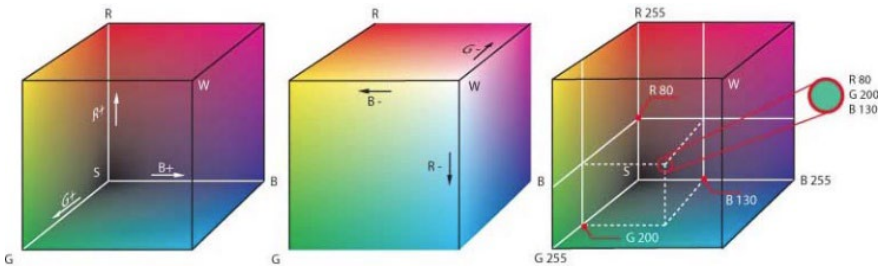


Figure 3: RGB cube (Source: Wikipedia)

In this version all three colours are displayed together in one object.

Obj	Object name	Function	Type	Flags
81	G1, Colour RGB	Value	3 Byte 232.600	CW
Sets the colour of the group. The values for red (R), green (G) and blue (B) are transferred together in a 3 Byte object.				
90	G1, Colour RGB	Status	3 Byte 232.600	CRT
Sends the selected colour of the group as a status.				

8.4.1.3 RGB (separate objects)

Obj	Object name	Function	Type	Flags
82	G1, Colour (RGB) Red	Value	1 Byte 5.001	CW
Sets the colour of the group. The values for red (R) are transferred here.				
83	G1, Colour (RGB) Green	Value	1 Byte 5.001	CW
Sets the colour of the group. Here the values for green (G) are transferred.				
84	G1, Colour (RGB) Blue	Value	1 Byte 5.001	CW
Sets the colour of the group. Here the values for blue (B) are transferred.				
86	G1, Colour (RGB) Red	Brighter/Cooler	4 Bit 3.007	CW
Changes the colour red in the group. Bit 3is set to increase the perecentage of red and deleted to reduce the percentage of red. Bits 0 to 2 refer to the increment size. Bit 0 to 2 deleted is interpreted as a stop tel-egram.				

87	G1, Colour (RGB) Green	Brighter/Cooler	4 Bit 3.007	CW
See colour change for red.				
88	G1, Colour (RGB) Blue	Brighter/Cooler	4 Bit 3.007	CW
See colour change for red.				
91	G1, Colour (RGB) Red	Status	1 Byte 5.001	CRT
Use this object to send the set colour red as status of the group.				
92	G1, Colour (RGB) Green	Status	1 Byte 5.001	CRT
Use this object to send the set colour green as status of the group.				
93	G1, Colour (RGB) Blue	Status	1 Byte 5.001	CRT
Use this object to send the set colour blue as status of the group.				

8.4.1.4 HSV

The colour is set as an HSV value which consists of hue, saturation and value.
The value (V) is set via the value object 73. Further objects are displayed for the hue (H) and saturation (S).

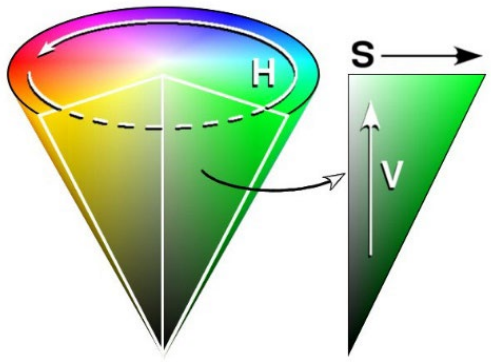


Figure 4: HSV-colour spectrum (Source: Wikipedia)

The hue is set as a value between 0° and 360° and hence rotates around the colour circle. This means that this value is required to reach all colours in the colour circle.

Figure 5: HSV-colour value (Source: Wikipedia)

The values for saturation and intensity range from 0 to 100%. Complete saturation and full intensity are reached by selecting 100%.

Obj	Object name	Function	Type	Flags
82	G1, Colour (HSV) Hue	Value	1 Byte 5.003	CW
Sets the colour as an HSV value. The hue values are transferred as values between 0° and 360°. Please note that only a resolution of approx. 1.4 ° is possible with the 5.003 data type used.  				
83	G1, Colour (Saturation)	Value	1 Byte 5.001	CW
Sets the saturation level. The saturation values are transferred as values between 0 and 100%.				
86	G1, Colour (HSV) Fading Hue	Brighter/Cooler	4 Bit 3.007	CW
Changes the hue within the group. Bit 3 is set to increase the angle and deleted to reduce the angle. Bit 0 to 3 deleted is interpreted as a stop telegram. This means that the entire circumference of the circle can be circulated and every color can be set.				
87	G1, Colour (Saturation)	Brighter/Cooler	4 Bit 3.007	CW
See change of hue above. The value from 0 to 100% is increased in increments.				
91	G1, Colour (HSV) Hue	Status	1 Byte 5.003	CRT
Sends the selected hue as status of the group.				
92	G1, Colour (HSV) Saturation	Status	1 Byte 5.001	CRT
Sends the selected saturation as status of the group.				

8.4.1.5 RGBW (DPT 251.600)

Obj	Object name	Function	Type	Flags
81	G1, Colour RGBW	Value	6 Byte 251.600	CW

Use this object to set the colour as RGBW within the group.
The colour values for red, green, blue and white are entered in the upper Bytes ranging from 0 to 100%. 4 Bits in the lower Byte show whether the respective colour values are valid.

Field names	Description	Encoding	Unit	Range	Resolution:
R	Colour Level Red	value binary encoded	%	0 % to 100 %	≅ 0,4 %
G	Colour Level Green	value binary encoded	%	0 % to 100 %	≅ 0,4 %
B	Colour Level Blue	value binary encoded	%	0 % to 100 %	≅ 0,4 %
W	Colour Level White	value binary encoded	%	0 % to 100 %	≅ 0,4 %
mR	Shall specify whether the colour information red in the field R is valid or not.	0 = not valid 1 = valid	None.	{0,1}	None.
mG	Shall specify whether the colour information green in the field G is valid or not.	0 = not valid 1 = valid	None.	{0,1}	None.
mB	Shall specify whether the colour information blue in the field B is valid or not.	0 = not valid 1 = valid	None.	{0,1}	None.
mW	Shall specify whether the colour information white in the field W is valid or not.	0 = not valid 1 = valid	None.	{0,1}	None.

Obj	Object name	Function	Type	Flags
90	G1, Colour RGBW	Status	6 Byte 251.600	CRT

Sends the selected colour in this format as status of the group.

8.4.1.6 RGBW (separate objects)

Obj	Object name	Function	Type	Flags
82	G1, Colour (RGB) Red	Value	1 Byte 5.001	CW

Sets the colour of the group. The values for red (R) are transferred here.

Obj	Object name	Function	Type	Flags
83	G1, Colour (RGB) Green	Value	1 Byte 5.001	CW

Sets the colour of the group. The values for green (G) are transferred here.

Obj	Object name	Function	Type	Flags
84	G1, Colour (RGb) Blue	Value	1 Byte 5.001	CW

Sets the colour of the group. The values for blue (B) are transferred here.

Obj	Object name	Function	Type	Flags
85	G1, Colour White	Value	1 Byte 5.001	CW

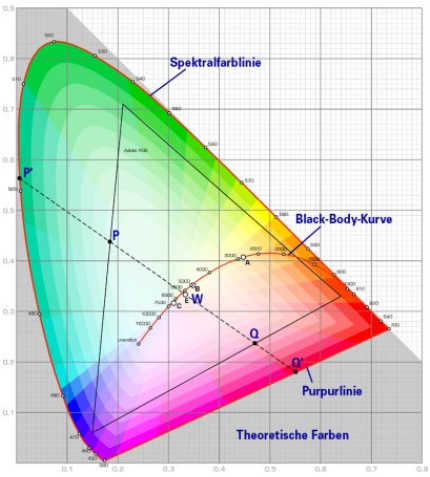
Sets the colour of the group. The values for white (W) are transferred here.

86	G1, Colour (RGB) Fading Red	Brighter/Cooler	4 Bit 3.007	CW
Changes the colour red in the group. Bit 3 is set to increase the perecentage of red and deleted to reduce the percentage of red. Bit 0 to 3 deleted is interpreted as a stop telegram.				
87	G1, Colour (RGB) Fading Green	Brighter/Cooler	4 Bit 3.007	CW
See colour change red.				
88	G1, Colour (RGB) Fading Blue	Brighter/Cooler	4 Bit 3.007	CW
See colour change red.				
89	G1, Colour Fading White	Brighter/Cooler	4 Bit 3.007	CW
See colour change red.				
91	G1, Colour (RGB) Red	Status	1 Byte 5.001	CRT
Sends the selected colour red as status of the group.				
92	G1, Colour (RGB) Green	Status	1 Byte 5.001	CRT
Sends the selected colour green as status of the group.				
93	G1, Colour (RGB) Blue	Status	1 Byte 5.001	CRT
Sends the selected colour blue as status of the group.				
94	G1, Colour White	Status	1 Byte 5.001	CRT
Sends the selected colour white as status of the group.				

8.4.1.7 HSVW (separate objects)

See chapter: 8.4.1.4 HSV.

8.4.1.8 XY (DPT 242.600)



The colour is identified through an XY value between 0 and 1.This value range is converted into a range from 0 to 65535 (2 Byte floating point) in the KNX. The value 65535 corresponds to value 1 in the diagram.

Figure 7: XY-colour spectrum (Source: Wikipedia)

Obj	Object name	Function	Type	Flags
81	G1, Colour XY	Value	6 Byte 242.600	CW

This object is used to set the colour in the group via XY coordinates. In the upper 4 byte the X and Y-coordinates ranging from 0 to 65535 are defined. This is followed by the brightness level ranging from 0 to 100%. 2 Bits in the lower Byte show whether the XY values and brightness levels are valid.

6.9 DPT_Colour_xyY (C_xyY)

Format:	6 octet: $U_{16}U_{16}U_8r_6B_2$
octet nr.	6_{MSB} | 5 | 4 | 3 | 2
field names	x-axis | y-axis | brightness
encoding	UUUUUUUU | UUUUUUUU | UUUUUUUU | UUUUUUUU | UUUUUUUU
octet nr.	1_{LSB}
field names	r r r r r r C B
encoding	0 0 0 0 0 0 B B
Encoding:	See below
PDT:	PDT_GENERIC_06

Datapoint Types

ID:	Name:	Use:
242.600	DPT_Colour_xyY	FB

Data fields	Description	Range	Unit	Resol.
x-axis	x-coordinate of the colour information	0 to 65 535	None.	None.
y-axis	y-coordinate of the colour information	0 to 65 535	None.	None.
Additional encoding information				
The x – and y – ordinate of the xyY colour scheme have a value between 0 and 1. This value shall be linearly mapped onto the range from 0 to 65 535, by multiplying the unencoded coordinate value by 65 535 and and rounding to the earest integer value. For decoding, the inverse operation shall be done.				
Brightness	Brightness of the colour	0 % to 100 %	%	None.
Additional encoding information				
The brightness shall be encoded as in DPT_Scaling (5.001).				
C	This field shall indicate whether the colour information in the fields x-axis and y-axis is valid or not.	0: invalid 1: valid	None.	None.
B	This field shall indicate whether the Brightness information in the field Brightness is valid or not.	0: invalid 1: valid	None.	None.

90	G1, Colour Temperature XY	Status	6 Byte 242.600	CRT

Sends the selected colour via the XY values as status of the group.

8.4.1.9 XY (separate objects)

Obj	Object name	Function	Type	Flags
81	G1, Colour X	Value	2 Byte 7.001	CW
Sets the X value in a range from 0 to 65535.				
82	G1, Colour Y	Value	2 Byte 7.001	CW
Sets the Y value in a range from 0 to 65535.				
90	G1, Colour X	Status	2 Byte 7.001	CRT
Sends the set X value as status of the group.				
91	G1, Colour Y	Status	2 Byte 7.001	CRT
Sends the set Y value as status of the group.				

8.5 ECG objects

8.5.1 ECG objects behaviour

A communication object is available for each of the up to 64 connected ECGs and corresponding lamps to display the failure status. (Example ECG 1):

Object	Object name	Function	Type	Flags
519	ECG1, Switching	On/Off	1 Bit 1.001	CW
Use this object to switch an ECG on or off if it is not in special mode (test mode, emergency lights, panic/ emergency mode).				
520	ECG1, Dimming	Brighter/Darker	4 Bit 3.007	CW
This object is used for the relative dimming of an ECG that is not in special mode (test mode, emergency lights, panic/ emergency mode). Bit 3 is set to dim up and deleted to dim down. Bits 0 to 2 refer to the increment size. Bit 0 to 2 deleted is interpreted as a stop telegram.				
521	ECG 1, Set Value	Value	1 Byte 5.001	CW
Sets the value of ECG1 unless it is in special mode (test mode, emergency lights, panic/ emergency mode).				
522	ECG1, Enable	Yes/No	1 Bit 1.003	CW
Note: Object 522 is shown for the following parameter: ECG 1 -->General -->Function of the additional object. Use this object to enable the operation of ECG 1: Object = 0 → Operation disabled Object = 1 → Enable operation				
522a	ECG1, Disable	Yes/No	1 Bit 1.003	CW
Use this object to disable the operation of ECG 1: Object = 0 → Enable operation Object = 1 → Operation disabled				

523	ECG1, Status	On/Off	1 Bit 1.001	CRT
Sends the ECG switch status. Each value >0% is interpreted as ON.				
524	ECG 1, Status	Value	1 Byte 5.001	CRT
Sends the ECG value status.				

8.5.2 ECG objects analysis and service

525	ECG 1, Failure Status	Status	1 Bit 1.005	CRT
Sends the failure status of lamp, ECG and converter failures.				
525a	ECG 1, Failure Status	Status	1 Byte	CRT
Sends the failure status of lamp, ECG and converter failures. Bit 0 → Lampenfehler Bit 1 → EVG Fehler Bit 2 → Konverterfehler				
526	ECG 1, Operating Hours Reset	Yes/No	1 Bit 1.015	CW
Resets the operating hours counter.				
526	ECG 1, Operating Hours Reset	Yes/No	1 Bit 1.015	CW
Resets the operating hours counter.				
527a	ECG 1, Operating Hours (Seconds)	Value	4 Byte 13.100	CRT
The operating hours of the luminaires are sent via this object. The internal operating hours counter can also be set to 0 (reset) or another value via the object. Please note: The "Write" flag is switched off in the default setting.				
527b	ECG 1, Operating Hours (Hours)	Value	4 Byte 12.102	CRT
The operating hours of the luminaires are sent via this object. The internal operating hours counter can also be set to 0 (reset) or another value via the object. Please note: The "Write" flag is switched off in the default setting.				
528	ECG 1, Life Time Exceeded	Yes/No	1 Bit 1.002	CRT
This object is used to send a status message when the configured life time of a lamp is exceeded.				
529a	ECG 1, Active Power	Value	4 Byte 14.056	CRT
The current power of the ECG is transmitted via this object. The power information is available if the ECG supports the device type DT-51. The object is only displayed if the corresponding parameter is set.				
529b	ECG 1, Active Energy	Value	4 Byte 13.010	CRT
The current energy of the ECG is transmitted via this object. The energy information is available if the ECG supports the device type DT-51. The object is only displayed if the corresponding parameter is set.				

8.6 Objects for scene control

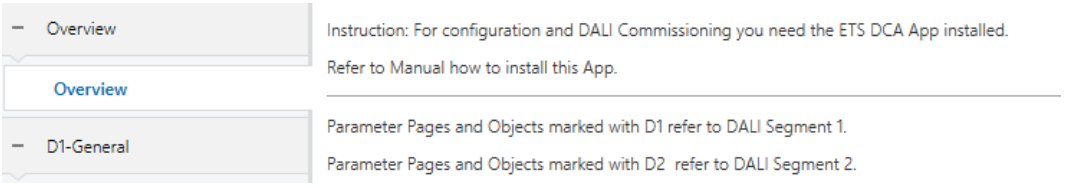
The Sceneobjects are collected in the Scene Channel.

Obj	Object name	Function	Type	Flags
11	Scene invoke/ program	Scene No.	8 Bit 18.001	CW
This object is used to invoke or program scenes. Up to 16 scenes are available on the DALI gateway. To program a selected scene you need to set the top Bit: Start Program Scene 1 0 128 Scene 2 1 129 …… Scene 15 14 142 Scene 16 15 143				
39	Scene1, Dimming	Brighter/Darker	4 Bit 3.007	CW
This object is used for the relative dimming of scene 1. Bit 3 is set to dim up and deleted to dim down. Bits 0 to 2 refer to the increment size. Bit 0 to 2 deleted is interpreted as a stop telegram. Attention: The Min- /Max-Setting already defined in the group configuration are taken into account.				

9 ETS parameters

The ETS parameters of the device are distributed across different parameter pages. To simplify the overview, only the parameter pages of the device selected in the function tree are displayed.

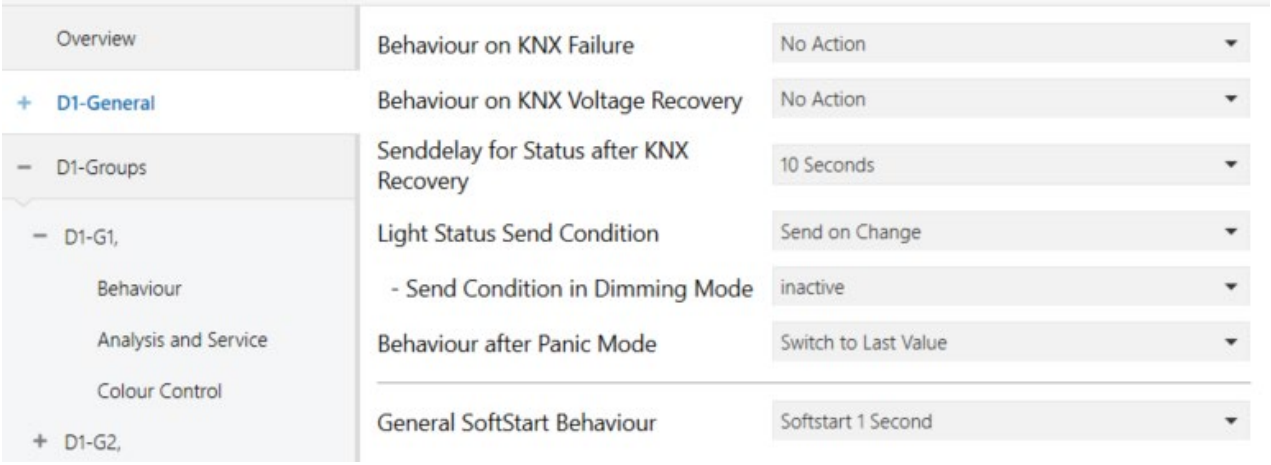
Note for the 2-channel device: All parameter pages of the 1st channel are marked with the prefix D1- and those of the 2nd channel with the prefix D2-. In the following description this prefix will be omitted.



9.1 General

Three parameter pages are available under the heading “General“. The parameters are described below.

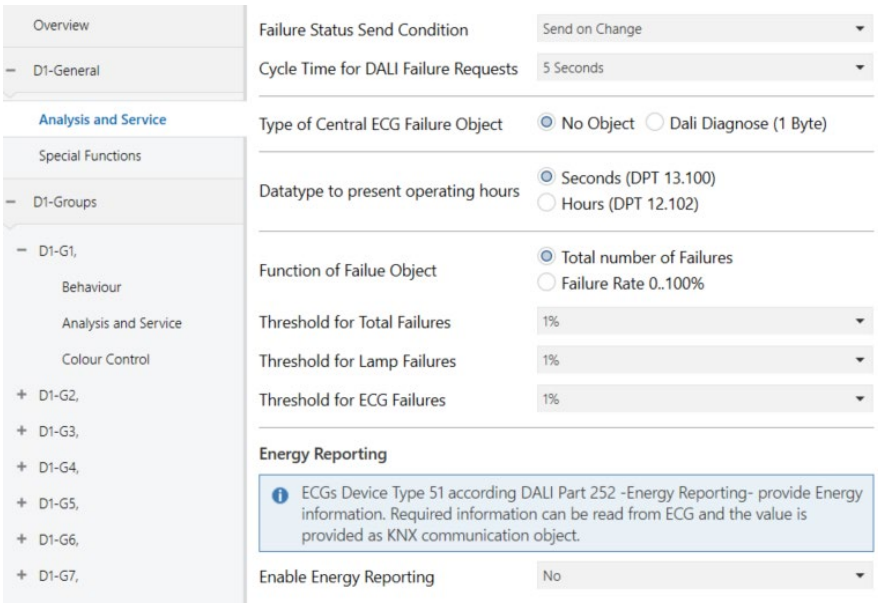
9.1.1 Parameter page: Behaviour



Parameter	Settings
Behaviour on KNX Failure	**No Action** Switch to On-Value Switch to Off-Value Switch to Emergency-Value
Use this parameter to set the behaviour of the connected ECGs/lamps on KNX failure.	
Behaviour on KNX Voltage Recovery	**No Action** Switch to Last Value Switch to On-Value Switch to Off-Value

Use this parameter to set the behaviour of the connected ECGs/lamps on KNX voltage recovery or bus reset.	
Senddelay for Status after KNX Recovery	Immediaty 5 Seconds **10 Seconds** 15 Seconds 20 Seconds 30 Seconds 40 Seconds 50 Seconds 60 Seconds
Sets a delay for sending status objects after KNX voltage recovery or a bus reset. In installations with more than one gateway, different settings for this parameter can prevent all devices from sending at the same time.	
Light Status Send Condition	Send on Request **Send on Change** Send on Change and After Busreset
Determines the light status send conditions (switch status and value status) of the connected ECGs and groups.	
Send Status Value During Dimming	If Change > 2% If Change > 5% If Change > 10% If Change > 20% **inactive**
Use this parameter to set whether and when you would like a value status to be sent via a 4 bit dim telegram during dimming (relative dimming). If you use the setting inactive the value is only sent after the dimming process is complete.	
Behaviour after Panic Mode	Switch to Off Value Switch to On Value **Switch to Last Value**
Use this parameter to determine which light value ECGs / lamps are to adopt after the panic mode has finished. If you use ‘Switch to Last Value’, the value prior to the panic mode is saved and the lamp returns to this value afterwards.	
General SoftStart Behaviour	No Softstart **Softstart 1 Second** Softstart 1,5 Seconds Softstart 2 Seconds
This parameter is used to set the soft start behaviour of the luminaires. The setting is generally valid for all switch-on processes that are set to "Accept value immediately". If "Dimming to value in,," is selected for the respective function, the value from this setting applies for the switching behaviour.	

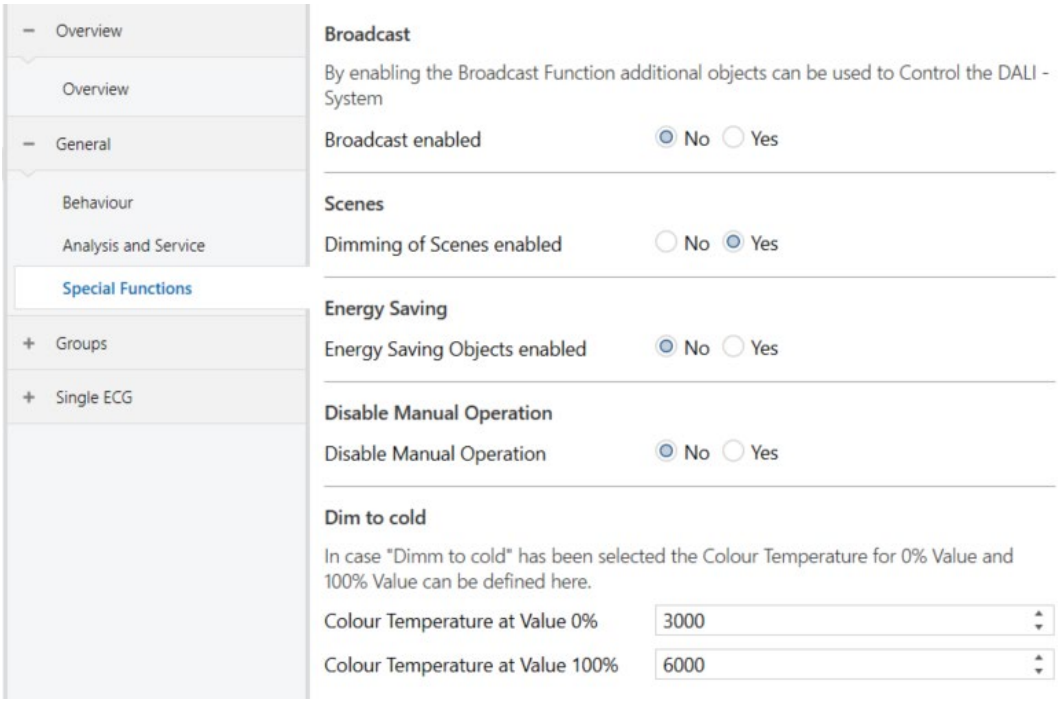
9.1.2 Parameter page: Analysis and service



Parameter	Settings
Failure Status Send Condition	Send on Request **Send on Change** Send on Change and after Busreset
Sets the conditions under which the error status objects of the connected ECGs and groups are to be sent.	
Cycle time for DALI Failure Requests	No request 0,5 Seconds 1 Second 2 Seconds 3 Seconds 4 Seconds **5 Seconds** 6 Seconds 7 Seconds 8 Seconds 9 Seconds 10 Seconds
To analyse ECG and lamp faults, a periodic request has to be sent to the ECGs via DALI telegrams. Use this parameter to set the cycles for these periodic requests. **Attention:** If you set 'No request' ECG and lamp faults can no longer be recognised. You should therefore use this setting only during service or in special cases.	
Type of Central Failure Object	**None** Dali Diagnostic (1 Byte)
Use this parameter to select whether you want to use the central failure object for ECG and lamp faults (object number 22).	

Datatype to present operating hours	**Seconds (DPT 13.100)** Hours (DPT 12.102)
Use this parameter to adjust which datapoint type is used for operating hours.	
Function of Failure Object	**Total number of Failures** Failure Rate 0..100%
Use this parameter to select whether you want to use the failure analysis objects (objects number 15, 17 and 19) to report the total amount of errors or the error rate in %.	
Threshold for Total Failures	**1%** 2% 3% ….. 100%
Configures a threshold value for the general failure alarm object (object 14). The threshold value takes all errors (ECG, lamp and converter errors) into consideration independent of the error type and relates them to the total number of connected ECGs and converters.	
Threshold for Lamp Failure	**1%** 2% 3% ….. 100%
Configures a threshold value for the lamp failure alarm object (object 16). The threshold value considers all lamp errors in relation to the total number of connected lamps in the DALI segment.	
Threshold for ECG Failures	**1%** 2% 3% ….. 100%
Configures a threshold value for the ECG failure alarm object (object 18). The threshold value considers all lamp errors in relation to the total number of connected ECGs in the DALI segment.	
Activate Energy Reporting	**No** Yes
This parameter can be used to set whether the power or energy data of connected DT-51 ECGs are read out. The data is read out after each change in the light level of a luminaire, or additionally once per hour.	
Delay Time to read Energy Data	Only cyclically every hour 4 Seconds … **32 Seconds** … 60 Seconds
This parameter can be used to set the delay time with which the energy / power values are read out from the ECG after a status change. When the values are available in the ECG depends on the ECG type used. With the setting "Cyclically every hour", there is no query after a status change, but only the automatic hourly query.	

9.1.3 Parameter page: Special functions

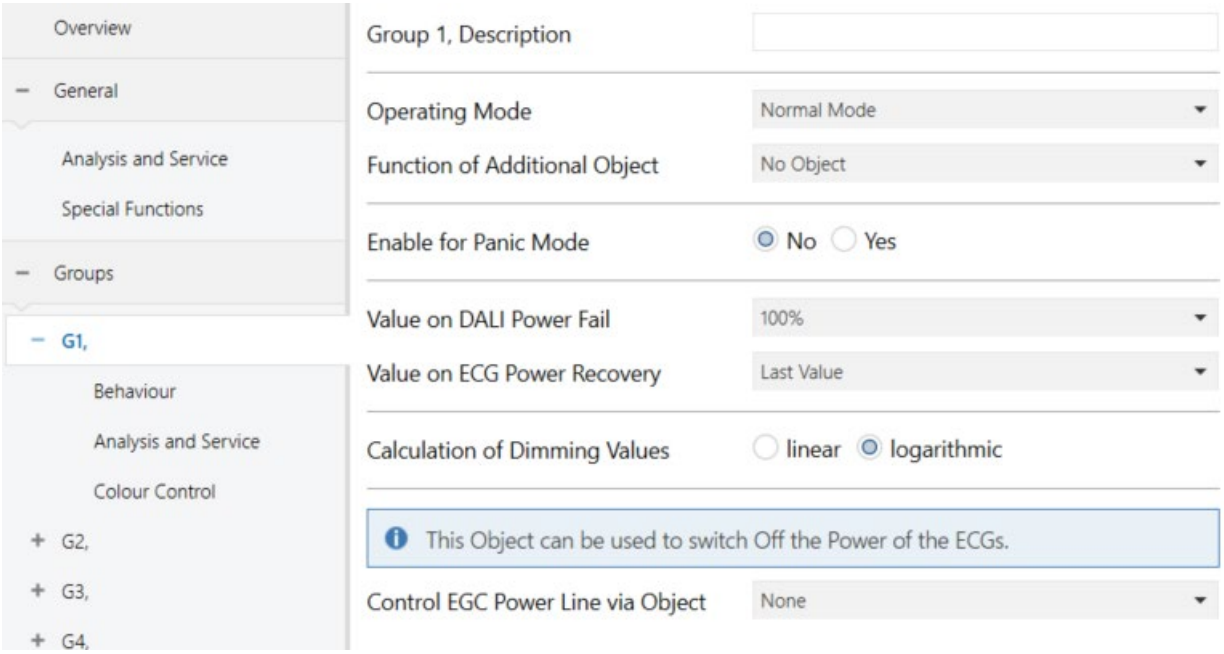


Parameter	Settings
Broadcast enabled	**No** Yes
Use this parameter to enable the broadcast function in addition to group control. Please note: When activating the broadcast function, additional objects to control the Dali system can be used.	
Broadcast for Colour ECGs (DT-8)	**None** Colour Temperature RGB Colour RGBW Colour XY Colour
Determines which type of colour control is to be used for the broadcast commands. Please note: The status information is only updated if the selected type of colour control matches the type defined in the group.	
If RGB colour is selected:	
Selection of Object Type	**RGB (3 Byte combined Object)** RGB (separated Object) HSV (separated Object)
Determines which type of colour control is to be used.	

If RGBW colour is selected:	
Selection of Object Type	**RGBW (6 Byte combined Object 251.600)** RGBW (separated Object) HSVW (separated Object)
Determines which type of colour control is to be used.	
Dimming of Scenes enabled	**No** Yes
This parameter can be used to set whether the dimming of the scenes should take place via 4-bit objects. When activated, the 16 objects are displayed.	
Energy Saving Objects enabled	**No** Yes
If this function is activated, an energy-saving object can be selected for both the groups and the ECGs in order to switch off the power supply when the lighting is switched off.	
Delay for Switching OFF the ECG Power	**10 Seconds** 30 Seconds 1 Minute 2 Minutes 5 Minutes 10 Minutes
Delay until the ECG supply is switched off.	
Delay for Switching On the ECGs	0.1 Seconds **0.2 Seconds** 0.3 Seconds … 1 Second 2 Seconds
Delay until the ECGs are switched on. During this time, the actuator controlling the power supply must have switched safely.	
Disable manual Operation	**No** Yes
Use this parameter to disable the manual mode directly on the device, reference to 5 Manual mode.	
Dim To Cold Colour Temperature at Value 0%	1000…10000 **[3000]**
The colour temperature set via this parameter is automatically adjusted for a light value at the lower limit [0%]. For light values between the lower limit [0%] and the upper limit [100%], the automatically set colour temperature is adjusted interpolated.	
Dim To Cold Colour Temperature at Value 100%	1000…10000 **[6000]**
The colour temperature set via this parameter is automatically adjusted for a light value at the upper limit [100%]. For light values between the lower limit [0%] and the upper limit [100%], the automatically set colour temperature is adjusted interpolated.	

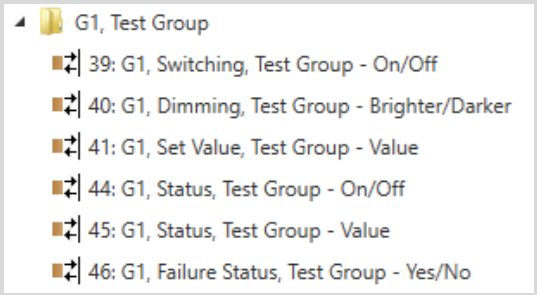
9.2 Group

Three parameter pages are available for group settings.



The parameters are described below.

9.2.1 General

Parameter	Settings
Group description	
Use this parameter to define a group description. To simplify the overview, this description will be displayed for all communication objects. For example: Test group  	
Operation Mode	**Normal Mode** Permanent Mode Normal /Night Mode Staircase

Sets the operating mode of the group.	
If “Permanent“ Mode is selected.	
Value in Permanent Mode	0..100% **[50]**
Use this parameter to select the value of all lamps in a group in ‘permanent mode‘. Lamps in this mode cannot be switched or changed. They remain at the set value.	
If “Normal/ Night“ Mode is selected.	
Behaviour in Night Mode	**Delayed Switch-Off** Delayed Switch in 2 steps automatically Delayed Dimm-Off Activate Permanent Mode and ignore Telegramms
Use this parameter to set the behaviour of the group if night mode has been activated via the night object (No. 10). This parameter is only visible if you select ‘normal / night mode’. The parameter is only shown if the group is set to 'normal / night mode'. Delayed switch-off in 2 steps: After the set time is set to 50% of the previous value. After a further minute, the switch-off value is set. Delayed dimming: After the set time, the switch-off value is dimmed within one minute.	
Automatic Switch OFF After (min)	1 Minute 2 Minutes 3 Minutes 4 Minutes **5 Minutes** 10 Minutes 15 Minutes .. 90 Minutes
Use this parameter to set the time after which a group in night mode automatically switches off. This parameter is only visible if you select ‘normal / night mode’.	
If “staircase function“ is selected.	
Behaviour in Staircase Mode	**Delayed Switch-Off automatically** Delayed Switch in 2 steps automatically Delayed Dimm-Off automatically
Sets the behaviour of the group in staircase mode. This parameter is only visible if you select ‘staircase function’. Delayed switch-off in 2 steps: After the set time is set to 50% of the previous value. After a further minute, the switch-off value is set. Delayed dimming: After the set time, the switch-off value is dimmed within one minute.	

Automatic Switch OFF After (min)	1 Minute 2 Minutes 3 Minutes 4 Minutes **5 Minutes** 10 Minutes 15 Minutes .. 90 Minutes
Use this parameter to set the time after which a group in staircase mode automatically switches off. This parameter is only visible if you select ‘staircase function’.	
Function of additional Object	**No Object** Disable Object Release Object Staircase function Disable Object
Sets the function of an additional object. If you select “Disable object“, an object appears which disables control of the group when the value is 1. If you select “Release object“, an object appears which enables control of the group when the value is 1. If you select “ Staircase function Disable Object“, an object appears which only disables **the staircase function** when the value is 1. This can be used to deactivate the staircase function for a certain time period, for example during cleaning.	
Behaviour on release	**No change** Change to switch-on value Change to switch-off value Switch to state during disable (look)
This parameter only appears if an additional object has been selected. Use this parameter to define the behaviour of the object when enabled.	
Behaviour on disable	**No change** Change to switch-on value Change to switch-off value
This parameter only appears if an additional object has been selected. Use this parameter to define the behaviour of the object when disabled.	
Enable for Panic Mode	**No** Yes
Determines whether the group is to be enabled for panic mode. The panic mode is controlled via central object No. 9.	
Value in Panic Mode	1% .. **50%** .. 100%
Use this parameter to select the value for this operating mode.	

Value on DALI Power Fail	0..100% **[100]**
Sets the value of a lamp after a loss of DALI power. The value is saved on the ECG and the device automatically changes to the value when a power loss occurs.	
Value on ECG Power Recovery	0..100% **Last Value**
Sets the value of a lamp after the DALI power is restored. The value is saved on the ECG and the device automatically changes to the value when power is restored.	
Calculation of Dimming Values	**logarithmic** linear
Sets the dimming curve for the group.	

9.2.2 Behaviour

Parameter	Settings
Switch-On Value	1% 5% 10% … 95% **100%** Last Value
Use this parameter to set the switch-on value. If you select ‘last value‘, the value is set to the dim value prior to the lamps being switched off.	
Switch-On Behaviour	**Set Value immediately** Dimm to Value in 3 Seconds Dimm to Value in 6 Seconds Dimm to Value in 10 Seconds Dimm to Value in 20 Seconds Dimm to Value in 30 Seconds Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Sets the switch-on behaviour.	

Switch-Off Value	**0%** 5% 10% … 45% 50% … 95% 99%
Sets the switch-off value.	
Switch-Off Behaviour	**Set Value immediately** Dimm to Value in 3 Seconds Dimm to Value in 6 Seconds Dimm to Value in 10 Seconds Dimm to Value in 20 Seconds Dimm to Value in 30 Seconds Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Sets the switch-off behaviour.	
Value-Set Behaviour	**Set Value immediately** Dimm to Value in 3 Seconds Dimm to Value in 6 Seconds Dimm to Value in 10 Seconds Dimm to Value in 20 Seconds Dimm to Value in 30 Seconds Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Sets the behaviour on receipt of a new dim value via value setting. Please remember that the time always refers to the complete value range. A time of 30 s therefore means a value change of 100% within 30 s. If the value within a scene only changes by 50%, the change will only take 15 s.	

Time for Dimming	3 Seconds 4 Seconds 5 Seconds 6 Seconds **10 Seconds** 20 Seconds 30 Seconds 60 Seconds
Sets the dim time for relative dimming in relation to a value range from 0 to 100%.	
Max. Value for Dimming	50% 55% …. **100%**
Use this parameter to configure the maximum dim value that can be set through relative dimming.	
Min. Value for Dimming	**0%** 0.5% 1% … 5% …. 50%
Use this parameter to configure the minimum dim value that can be set through relative dimming.	
Min/Max Value is valid for	**Dimming Object** Value Object Dimming and Value Object
Determines for which control the min/max values are valid. It is possible to set a maximum of 60% via dimming and 100% via value setting.	
Switch-On via Dimming	No Switch-ON with Dimming Objects **Switch-ON with Value Object** Switch-ON with Dimming and Value Object
Use this parameter to select whether a switched off group can be switched on when receiving a relative 4 Bit dim object, a value setting object or both.	
Additional Set Value Object incl. Dimming Time	**No** Yes
Use this parameter to select whether the value object should be used with the combined dimming time (DPT 225.001), see object No. 74. Please note: If you select the 3 Byte object (combination of value and dimming time) the dimming time is ignored in the ETS.	

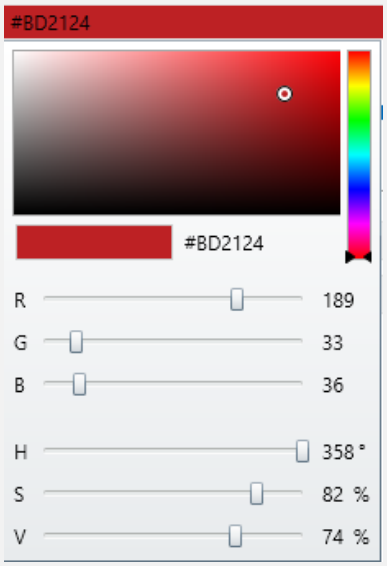
9.2.3 Analysis and service

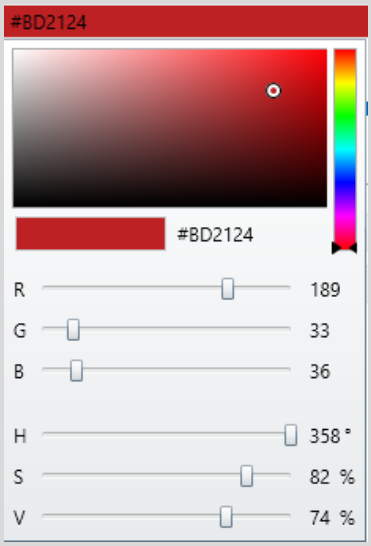
Parameter	Settings
Type of Failure Status Object	**1 Bit** 1 Byte
Determines whether the error object of the group is to be sent as a 1 Bit object without differentiating the type of error status or as an 8 Bit object with error type differentiation.	
Additional Failure Objects	**No** Yes
Use this parameter to select whether you would like to use additional failure objects	
Additional Failure Objects for	**Failure Threshold Exceeded** Failure Number/Rate
Use this parameter to select whether you would like to use the additional failure status object as a 1 Byte object for fault number /rate or as a 1 Bit object for when the fault threshold is exceeded.	
Function of Additional Failure Object	**Total number of Failures** Failure Rate 0..100%
Determines whether to send the total number of errors within the group or the error rate in %. This parameter is only visible if you select “Failure number / rate“ as additional failure object.	
Threshold for Total Failures	1%...100% **[1%]**
Use this parameter to enter the threshold value in % . The error alarm object is sent when the value is exceeded. This parameter is only visible if you select “Error Threshold Exceeded“ as additional failure object.	
Operation Hour Calculation	Yes **No**
Determines whether an individual operating hour calculation is required for the group.	
Operation Hour limit (hours)	1 h..200.000 h **[4000 h]**
Sets the life span (operating hours limit) of a lamp after which an individual alarm is sent.	

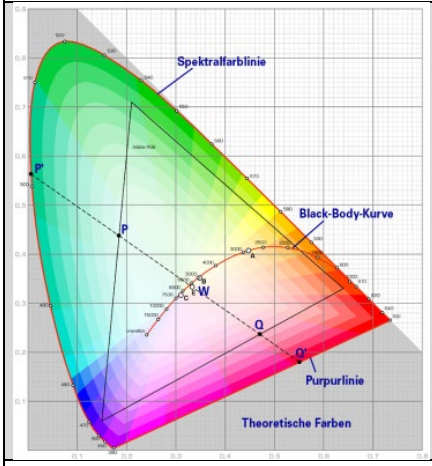
9.2.4 Colour control

Parameter	Settings
Colour Control Type	**none** Colour Temperature RGB Colour RGBW Colour XY Colour
Use this parameter to select the type of colour control you would like to use for the group. Please make sure that the ECGs in the group support this type of control.	

If “colour temperature“ is selected.	
Colour Temperature when Switching On	1000 K..10000 K **[3000 K]**
Sets the colour temperature that is to be used when switching on.	
Dimm to Cold Colour	**No** Yes
Use this parameter to adjust if automatical adaption of colour temperature depending on light value is needed.	
Behaviour when Switching On	**Keep last Object Value** Use ETS Parameter above
Determines whether the last valid colour value or the colour temperature set in the ETS are to be used. Note in case “Keep last object value“: Please remember that the colour set in the ETS will be used if the object value is invalid.	
Colour changing Fading Time	**immediately** 1 Second 5 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds 90 Seconds
Use this parameter to select how quickly you want to change the colour temperature.	
Colour changing Fading Time via Dimming	**fast (10 Seconds)** standard (20 Seconds) slow (40 Seconds)
Use this parameter to select how quickly you want to change the colour temperature during dimming.	
If “RGB colour“ is selected.	
Selection of Object Type	**RGB (3 Byte combined Object)** RGB (separeted Objects) HSV (separeted Objects)
Selects the objects that will be used for the colour control.	

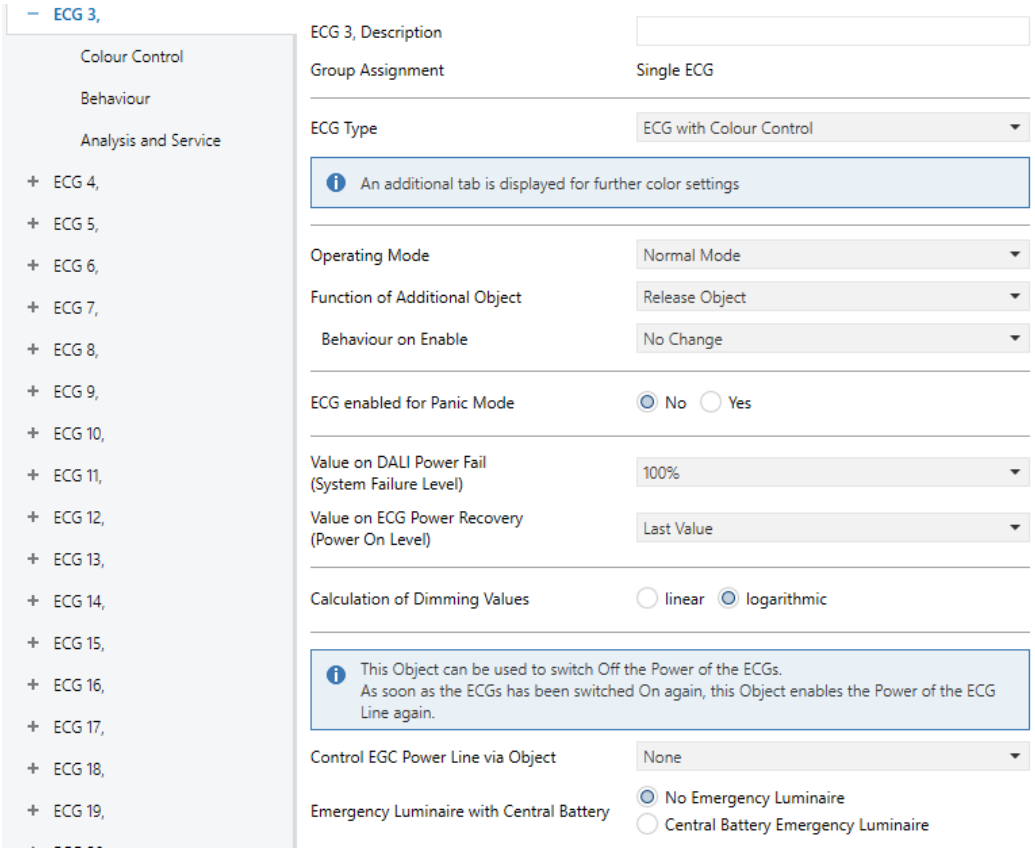
Colour Value when Switching On	Colour selection
Use this parameter to define the colour for switching on. An ETS window appears from which the colour can be selected. 	
Behaviour when Switching On	**Keep last Object Value** Use ETS Parameter above
Determines whether the last valid colour value or the colour temperature set in the ETS are to be used. Note if you select “Keep last object value“: Please remember that the colour set in the ETS will be used if the object value is invalid.	
Colour changing Fading Time	**immediately** 1 Second 5 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds 90 Seconds
Use this parameter to select how quickly you want the colour temperature to change.	
Colour changing Fading Time via Dimming	**fast (10 Seconds)** standard (20 Seconds) slow (40 Seconds)
Use this parameter to select how quickly you want the colour temperature to fade during dimming.	
If “RGBW colour“ is selected.	
Colour Control Type	**RGBW (6 Byte combined Object 251.600)** RGBW (separated Objects) HSVW (separated Objects)
Selects the objects which will be used for the colour control. For more details about the combined object, please see chapter: 8.4.1.5 RGBW (DPT 251.600).	

Colour Value when Switching On	Colour selection
Use this parameter to define the colour for switching on. An ETS window appears from which the colour can be selected. 	
Additional White	0..100% **[255]**
Sets the additional white value ranging from 0 to 100%.	
Behaviour when Switching On	**Keep last Object Value** Use ETS Parameter above
Determines whether the last valid colour value or the colour temperature set in the ETS are to be used. If you select “Keep last object value“, please remember that the colour set in the ETS will be used if the object value is invalid.	
Colour changing Fading Time	**immediately** 1 Second 5 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds 90 Seconds
Use this parameter to select how quickly you want the colour temperature to change.	
Colour changing Fading Time via Dimming	**fast (10 Seconds)** standard (20 Seconds) slow (40 Seconds)
Use this parameter to select how quickly you want the colour temperature to fade during dimming.	

If “XY colour“ is selected.	
Selection of object type	**XY (separated objects)** XY (combined object 242.600), see chapter: 8.4.1.8 XY (DPT 242.600).
Selects the objects that will be used for the colour control.	
X-value when switching on (0..1)	0…1 **[0.33]**
 Figure 8: XY-colour spectrum (Source: Wikipedia)	Use this parameter to define the x-colour for switching on. The value range is between 0 and 1. X= 0.33 and Y=0.33 corresponds to the white point.
Y-value when switching on (0..1)	0…1 **[0.33]**
Defines the Y-colour for switching on.	
Behaviour when Switching On	**Keep last Object Value** Use ETS Parameter above
Determines whether the last valid colour value or the colour temperature set in the ETS are to be used. If you select “Keep last object value“, please remember that the colour set in the ETS will be used if the object value is invalid.	
Colour changing Fading Time	**immediately** 1 Second 5 Seconds 10 Seconds 20 Seconds 30 Seconds 60 Seconds 90 Seconds
Use this parameter to select how quickly you want the colour temperature to change.	

9.3 ECG

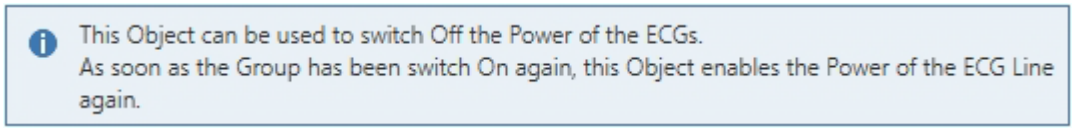
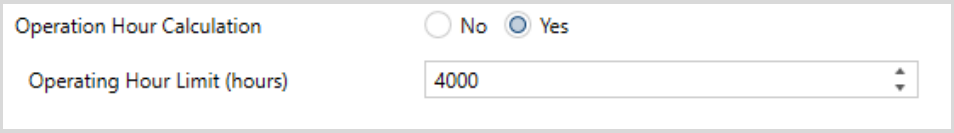
9.3.1 ECG 1 (2.. 64)



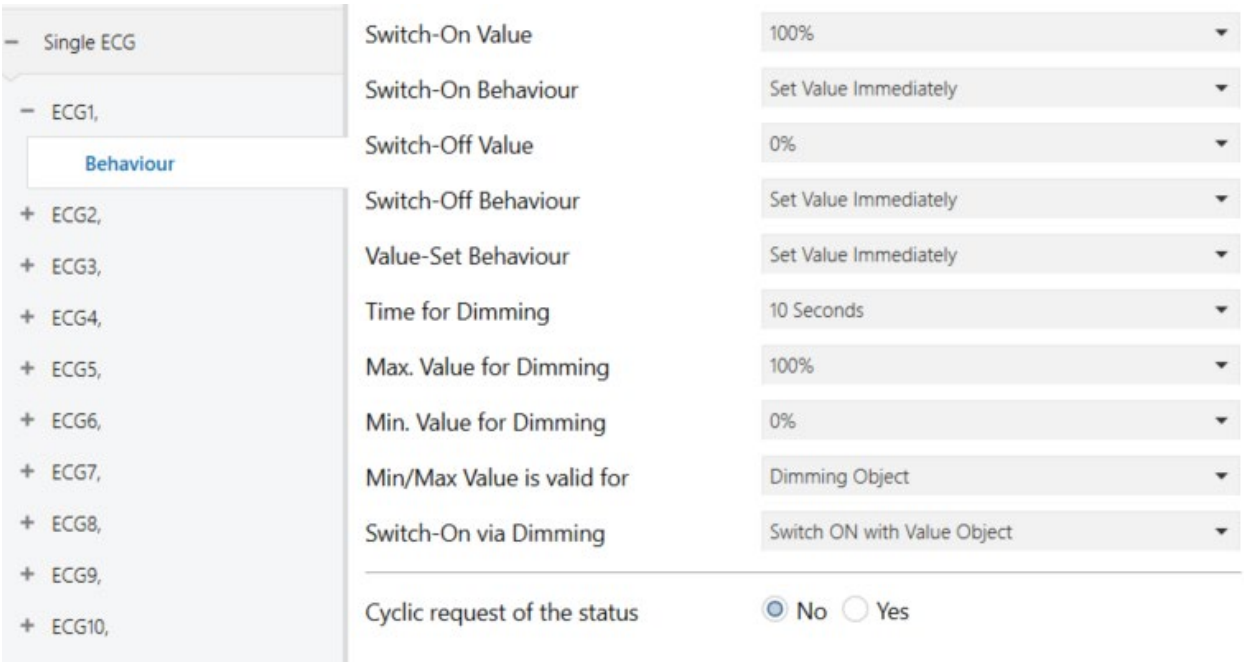
Parameter	Settings
ECG x, Description	e.g.: Floor, 1 level
With this parameter an ECG description can be defined. This description is displayed as an overview for all communication objects. Example for the description: Floor, 1 level. ECG 1, Switching, Floor, 1 level — On/Off ECG 1, Dimming, Floor, 1 level — Brighter/Darker ECG 1, Set Value, Floor, 1 level — Value ECG 1, Status, Floor, 1 level — On/Off ECG 1, Status, Floor, 1 level — Value ECG 1, Failure Status, Floor, 1 level — Status	
Group Assignment	**Not assigned** Group 1 … Group 16
The group assignment is configured via the DCA or via the website and is only displayed here.	

ECG Type	Fluorescent Lamp Self Contained Battery Lamp (non switchable) Self Contained Battery Lamp (switchable) Discharge Lamp Low Voltage Lamp Incandescent Lamp 0..10V Converter **LED Module** Relay Module ECG with Colour Control
Use this parameter to set the type of ECG used.	
Operating Mode	**Normal Mode** Permanent Mode Normal / Night Mode
This parameter allows to set the operating mode in which the ECG shall be operated. Night operation is controlled via a central object no. 12.	
Function of Additional Obejct	**No Obejct** Disable Object Release Object
This parameter can be used to define the function of an additional object. If the "Disable object" is selected, an object is displayed which blocks operation of the ECG if the value is "1". If the "Enable object" is selected, an object is displayed which enables operation of the ECG if the value is "1". **Note:** Disable function only refers to ON/OFF and value setting commands via KNX objects	
Behaviour on Enable	**No Chance** Switch to ON-Value Switch to OFF-Value Switch to State received during disable (look)
This parameter is displayed when an additional object is selected. The behaviour during activation can be defined here..	
Behaviour on Disable	**No Chance** Switch to ON-Value Switch to OFF-Value
This parameter is displayed when an additional object is selected. The behaviour during deactivation can be defined here..	
Value in Permanent Mode	1..100% **[50%]**
This parameter allows you to set the value to which the corresponding lamp is permanently set in "Permanent" Mode. In the operating mode 'continuous operation' the lamp cannot be switched or changed, but always lights up in the set value. The parameter is only displayed if the ECG is set to 'continuous operation'.	

Behaviour in Normal / Night Mode (if is selected)	**Delayed Switch-Off automatically** Delayed Switch-Off in 2 steps automatically Delayed Dimm-Off automatically Activate Permanent Mode and Ignore Telegrams
This parameter can be used to set how the corresponding group behaves if night mode has been activated via the night object. The parameter is only shown if the group is set to "Normal Night Mode". Special settings: • **Delayed Switch-Off in 2 steps automatically:** - After the set time is set to 50% of the previous value. - After a further minute, the switch-off value is set. • **Delayed Dimm-Off automatically:** **-** After the set time, the switch-off value is dimmed within one minute. • **Activate Permanent Mode and Ignore Telegrams:**	
Automatic Switch-Off after (minutes)	1 minute 2 minutes 3 minutes 4 minutes **5 minutes** 10 minutes 15 minutes … 90 minutes
This parameter is used to decide after how many minutes the ECG shall be switched off.	
Function of Additional Object	**No Object** Disable Object Release Object Staircase function Disable Object
Use this parameter to set the function of an additional object. If you select "Disable Object", value 1 disables the operation of the group. If you select "Release Object", value 1 enables the operation of the group. If you select " Staircase function Disable Object", value 1 disables only the staircase function. This can be used to temporarily disable the staircase function for example during cleaning.	
Behaviour on Enable	**No Change** Switch to On-Value Switch to OFF-Value
This parameter appears when an additional object has been selected to define the behaviour when enabled.	
Enabled for Panic Mode	**No** Yes
Determines whether a group should be considered during panic mode. The panic mode is controlled via central object number 9.	
Value in Panic Mode	1..100% [**50**]
Use this parameter to select the value for this operating mode.	
Value on DALI Power Fail (System Failure Level)	0..100% **[100]** Last value
Use this parameter to set the value of a lamp after a loss of DALI power. The value is saved on the ECG and the device automatically changes to the value when a power loss occurs.	
Value on ECG Power Recovery (Power On Level)	0..100% [**100**] **Last value**
Use this parameter to set the value of a lamp after a return of ECG power supply. The value is saved on the ECG and the device automatically changes to the value when power is restored.	

Calculation of Dimming Values	**logarythmic** linear
Sets the dimming curve for the ECG is adjusted.	
	
Control ECG Power Line via Object	**None** Energy Saving Object 1.. 16
Here you define the object with which the power supply is to be switched off. This parameter is only visible if this function was previously set on the General → Special Functions parameter page, see **Fehler! Verweisquelle konnte nicht gefunden werden.**	
Operating hours Calculation	Yes **No**
This parameter can be used to set whether an individual operating hours count for the ECG is desired.	
Operating hours Limit value (hours) (Calculation for operating hours).	1 h..200.000 h **[4000 h]**
This parameter is used to set the lamp life at which an individual warning is sent. 	
Type of the error object	**1 bit** 1 byte
Here you can define whether the error is to be reported in the form of a bit (Alarm DPT 1.005) or via a byte object with the information about lamp or ballast errors . **Note: The 1 Byte object is a NON DPT type and will not be implemented in future versions**	

9.3.1.1 Behaviour



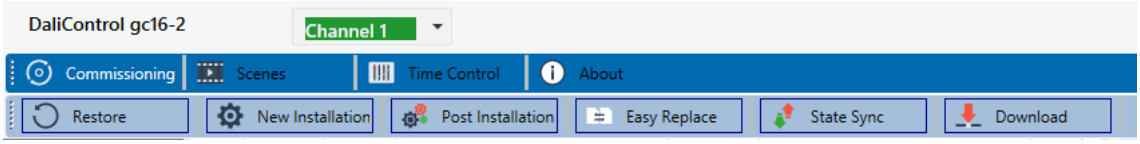
Parameter	Settings
Switch-ON Value	1.. 100% [**100**] Last value
Use this parameter to set the switch-on value. If you select "Last value", the value is set to the dimming value prior to the lamp being switched off.	
Switch-ON Behaviour	**Set Value Immediately** Dimm to Value in 3s Dimm to Value in 6s Dimm to Value in 10s Dimm to Value in 20s Dimm to Value in 30s Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Use this parameter to set the switch-on behaviour.	
Switch-OFF Value	**0%** 5% 10% … 45% 50% … 95% **99%**
Use this parameter to set the switch-off value.	

Switch-OFF Behaviour	**Set Value Immediately** Dimm to Value in 3s Dimm to Value in 6s Dimm to Value in 10s Dimm to Value in 20s Dimm to Value in 30s Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Use this parameter to set the switch-off behaviour.	
Value-Set Behaviour	**Set Value Immediately** Dimm to Value in 3s Dimm to Value in 6s Dimm to Value in 10s Dimm to Value in 20s Dimm to Value in 30s Dimm to Value in 1 Minute Dimm to Value in 2 Minutes Dimm to Value in 5 Minutes Dimm to Value in 10 Minutes
Use this parameter to configure the behaviour on receipt of a new dimming value via value setting. Please remember that the dim time always refers to the full value range. Accordingly a dimming time of 30 s means a value change of 100% within 30 s. If the value within a scene is only changed by 50%, the change is performed within 15 s.	
Time for Dimming	3 Seconds 4 Seconds 5 Seconds 6 Seconds **10 Seconds** 20 Seconds 30 Seconds 60 Seconds
Use this parameter to set the dim time for relative dimming in relation to a value range from 0 to 100%.	
Max. Value for Dimming	50% 55% …. **100%**
Use this parameter to configure the maximum dimming value that can be set through relative dimming.	
Min. Value for Dimming	**0%** 0.5% 1% … 5% …. 50%
Use this parameter to configure the minimum dim value that can be set through relative dimming.	
Min/Max Value is valid for	**Dimming Object** Value Object Dimming & Value Object

Use this parameter to select the object that minimum and maximum values are valid for. It is possible to set, for example, 60% via dimming and 100% via value setting.	
Switch ON via Dimming	No Switch ON with Dimming Object **Switch ON with Value Object** Switch ON with Dimming & Value Object
Use this parameter to select whether a switched off group should be switched on when receiving a relative 4 Bit dimming object, a value setting object or both.	
Cyclic request of the Status	**No** Yes
This parameter can be used to set whether the light value of this ECG is to be queried cyclically and updated if necessary. Cyclical polling may be necessary if ECGs are also set by a different method than through the DALI gateway.	

10 DALI Channel Selection

DALI commissioning is carried out individually for each channel. When calling the DCA, channel 1 is preselected. The selection buttons can be used to select between channel 1 and channel 2 (only in case of using a 2-channel device).

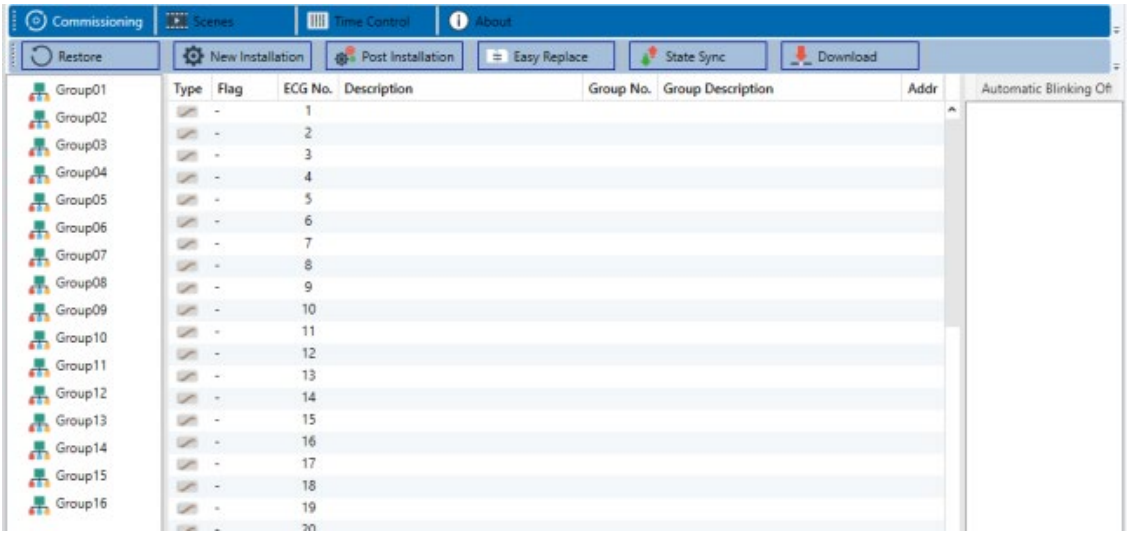


The following description refers to the commissioning of one channel.

11 DALI commissioning

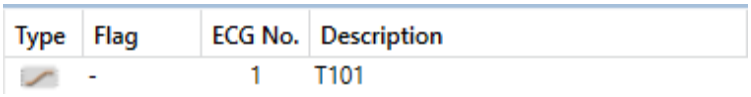
Following the physical installation and wiring of the DALI ECGs and lights and the electronic commissioning, the connected ECGs need to be learnt-in.

To do so, please open the commissioning site in the DCA:



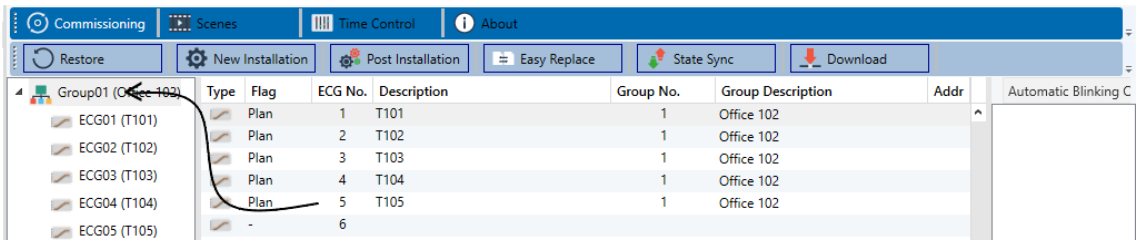
The group configuration is displayed in a tree structure on the left-hand side. The middle part shows a table for the ECG configuration and names. A list on the right-hand side shows the actual devices found in the system that have not yet been identified. During the planning phase the list is empty as the ETS is not yet connected to the system.

To start with you should plan and name the ECGs. Use the description field to enter a name (light number, room number, etc).



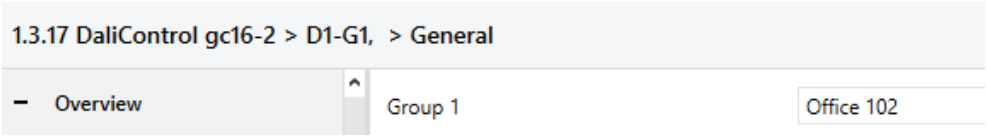
Double-click to display an editing window which will allow you to enter a maximum of 30 characters opened.

Now assign the individual ECGs to their corresponding groups. Use drag and drop to pull the ECGs onto the required group in the tree structure on the left-hand side.

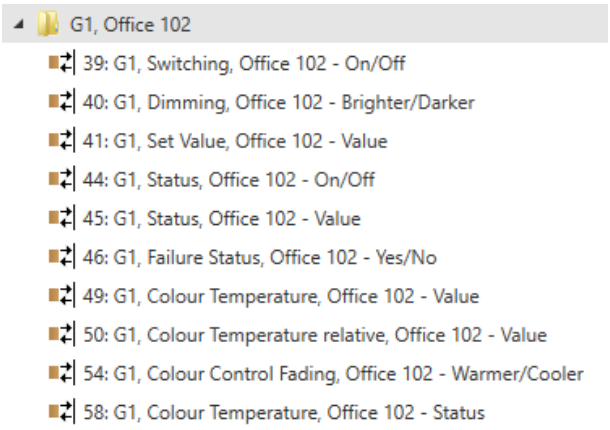


Once an ECG has been assigned to a group via drag and drop, the group number is automatically displayed in the ‘group number‘ field of the ECG configuration table. If a group assignment has to be solved again, the command is in the context menu of the ECG configuration table.

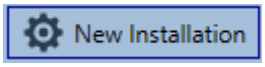
You can enter a user-friendly name for the group in the adjacent ‘group description‘ field. ECG and group names are automatically shown in the group configuration tree (displayed in brackets) as well as in the description of the ETS communications objects. Alternatively you can also name groups via the parameter pages:



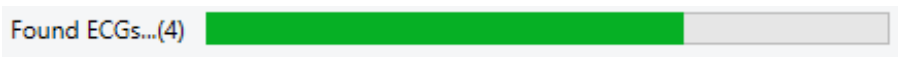
Having user-friendly names makes it much easier for the system integrator to link group addresses with communication objects.



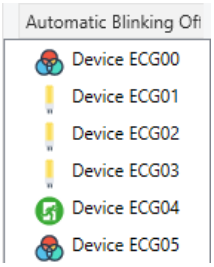
Once the planning, parameter setting and linking of group addresses have all been completed the DALI segment can be commissioned. To do so, please connect the commissioning PC with the ETS to the KNX system via an interface (RS-232, USB or IP). Once the connection is active, you need to program the physical address of the gateway. The communication between the plug-in and the gateway is based on the physical address. Use the ‘commissioning‘ page and the ‘new installation‘ button to start the teach-in process of the connected DALI segment.



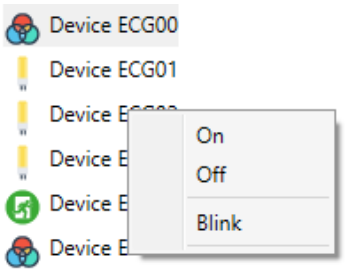
During the teach-in process all ECGs are automatically recognised and each ECG is assigned a short address from 0 - 63. Depending on the size of the connected DALI segment the process can take up to 3 minutes. A bar in the bottom right hand corner indicates how far this process has progressed. At the same time a display also informs about the current process and the number of ECGs that have so far been found. The teach-in process of the connected DALI segment can then be started via the 'Commissioning' page and the "New installation" button.



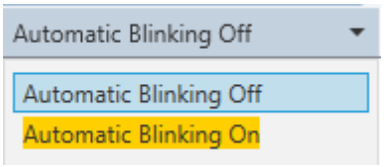
Once the teach-in process is complete, all ECGs that have been found are displayed in the list of non-identified devices on the right-hand side.



To identify the devices switch the corresponding lamp on and off. If you select an ECG and press the right mouse button, a context menu appears from which you can select the required function.



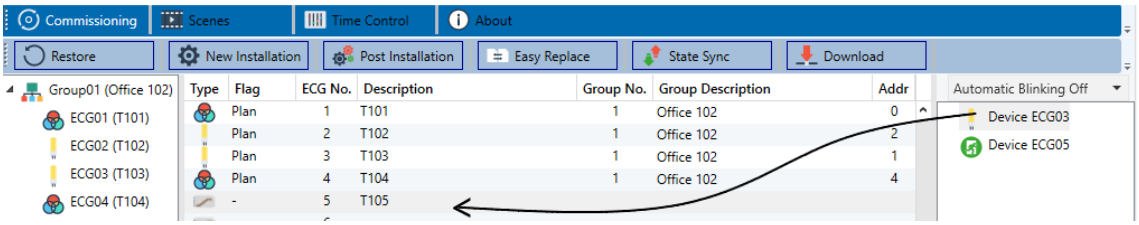
Alternatively, you can also tick ‘on’ in the box ‘Flash automatically‘.



In this case, the flash mode of an ECG starts by itself when a device is selected.

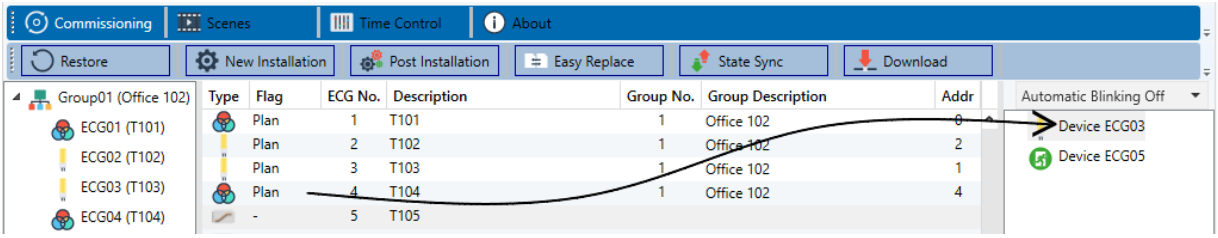
The context menu is also available at group level. During the identification process it might be useful to switch certain groups or all connected lamps on or off. You can also send broadcast commands via the context menu, in order to, for example, switch all lights on or off.

Once an ECG has been identified, you can drag and drop it onto the previously planned element in the ECG configuration table.



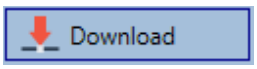
Once an ECG has been dragged into the ECG configuration table, it disappears from the list of non-identified ECGs. At the same time the ‘PLAN‘ flag in the configuration table shows that the ECG has been assigned to the planned element. The last colum in the table shows the real ECG short address. Please make sure that the short address is between 0 and 63.

If an ECG has been wrongly assigned, it can be moved back to the list of non-identified devices using the same drag& drop mechanism.



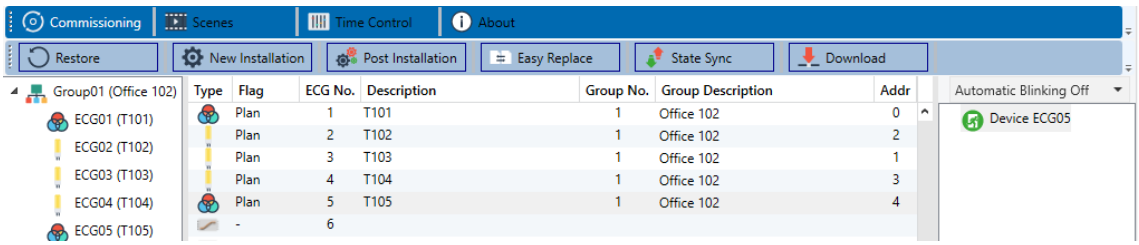
The element in the configuration table is now available again (Flag: ‘PLAN (E)‘ → Empty) and the ECG re-appears in the list of non-identified devices from where it can now be moved to a different element if re-quired.

Please remember that at this point all operations that have been performed are only displayed in the work space. They are not immediately loaded onto the DALI gateway.
To start the process of downloading the settings onto the gateway and the ECGs, you must press the ‘Download‘ button.



The download can take up to 1 minute. The progress bar informs about the current status.

Once the download is complete, all previously planned ECGs are programmed in the system with the DALI configuration. The respective devices are marked with an ‘OK‘ flag in the ECG configuration table.
Hint: If no group has been assigned yet, the flag remains at "-" because this ECG can not be switched via the group control and therefore has no "OK" status.

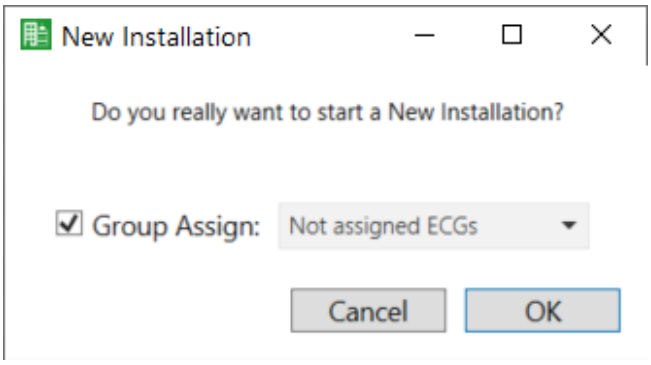


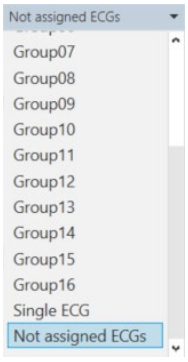
Attention: Please remember that the download on the ‘commissioning page‘ only programmes the DALI configuration data onto the gateway and ECGs. The actual ETS application with parameter settings and group addresses still has to be downloaded onto the device. This is done, as usual, via the normal down-load process in the ETS.

11.1 Direct New Installation in Groups

The commissioning procedure described above with identification of the respective luminaire allows simple individual assignment to an ETS ECG number and, if necessary, group. In some installations this is not necessary and all connected ECGs that are found during the new installation should be automatically assigned or directly automatically assigned to a DALI group.

For gateways with firmware version 1.4.x or higher, an additional selection option is available when starting the new installation:

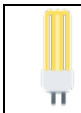




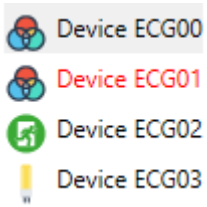
If "Not Assigned ECGs" is selected, newly detected ECGs are directly assigned as individual ECGs. The assignment of the short address to the KNX ECG number is 1:1. If a group is selected, the ECGs are also assigned to the group.

11.2 ECG info and errors

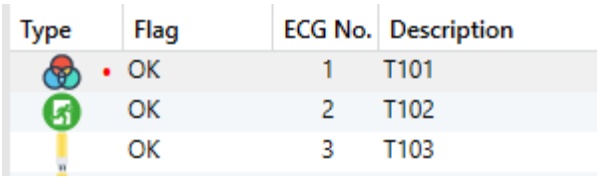
Following Icons are used to indicate the different types of ECG:

	ECG Type 0: Fluorescent lamp
	ECG Type 1: Emergency light switchable
	ECG Type 1: Emergency light non switchable
	ECG Type 2: Discharge lamp
	ECG Type 3: Low voltage lamp
	ECG Type 4: Incandescent lamp
	ECG Type 5: 0..10V Converter
	ECG Type 6: LED
	ECG Type 7: Relais module
	ECG Type 8: Colour module RGB
	ECG Type 8: Colour module tunable white

During the commissioning lamps/ECGs are identified visually (ON, OFF, flashing). It is therefore crucial that all lamps and ECGS operate correctly. If the gateway identifies a lamp or ECG fault during the installation process, the ECG concerned is highlighted in red.

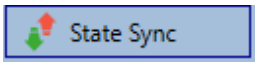


Faults are displayed both for non-identified devices (right tree) and for ECGs that have already been assigned (middle table).



Errors are marked with a red dot. Detailled information is available via double-click (see next chapter).

As the view is not automatically updated and as it may take a few minutes for the DALI gateway to recognise a fault, we recommend that you press the ‘State Sync‘ button a short while after the installation.



This ensures that the displayed status is updated with the actual status and any faults that may have been detected in the meantime are displayed correctly.

Attention: If an ECG fault already exists during the search process of the initial installation, the device is usually not detected. This means that the number of ECGs found does not correspond to the number that was expected. ECG faults are only displayed in the manner described above if the ECG concerned has been previously programmed and is known to the gateway.

11.3 ECG and group detail info

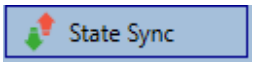
In addition to the ECG faults, further ECG info is exported or displayed.
This information includes:

- Long address
- Short address
- Device type
- Device subtype (important for colour ECGs DT-8)
- TC: Temperature Colour
- XY: XY Colour
- RGBW: RGB or HSV Colour
- Device subtype (important for emergency ECGs DT-1)
- SW: switchable emergency lights
- NSW: non switchable emergency lights
- Error status

For DT-8 ECGs with colour temperature control the following are also displayed:

- Min. temperature
- Max. temperature

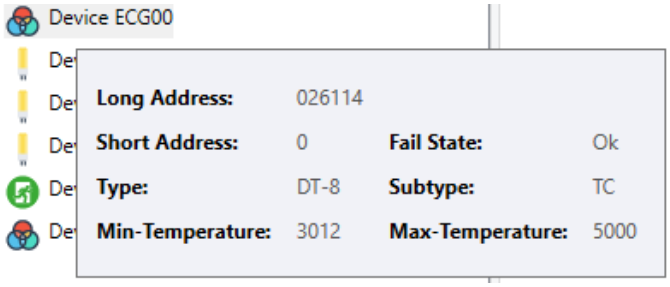
Press the “State Sync“ button to export and update the information.



The process can take a few seconds:

11.3.1 ECG info in the right-hand side tree

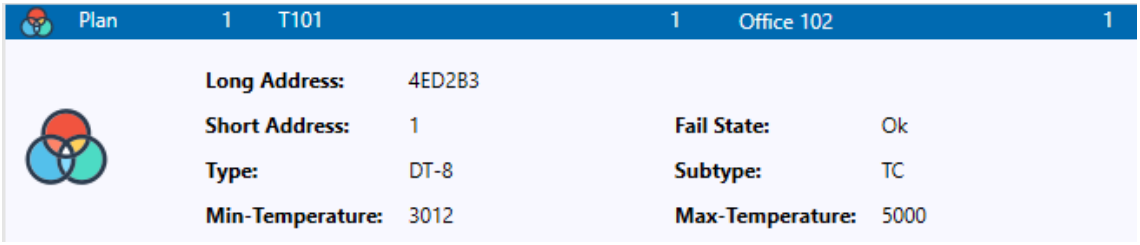
Additional information for the ECGs is displayed via tooltip in the tree on the right-hand side:



To activate the tooltip, hover over the position with the mouse.

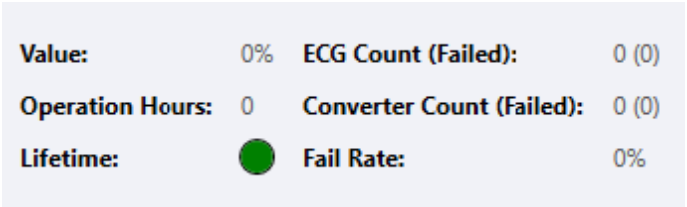
11.3.2 ECG info in the ECG table

Double-click to open another window with further details.



11.3.3 Group info in the group tree

Additional information for the group is displayed via tooltip in the group tree.



11.4 Operating DALI devices

The DALI devices can be controlled in four different ways.

Broadcast

In this case telegrams that all participating devices react to are sent to the DALI bus.

The commands are executed by all ECGs even if they have not yet been commissioned. Therefore these commands work independently of the status of the DALI system.

Group control

In this case group telegrams are sent so that a particular group can be controlled. For this process to work correctly, the ECGs have to have been assigned to groups and the configuration has to be downloaded onto the gateway.

ECG control

In this case, ECGs can be individually controlled.

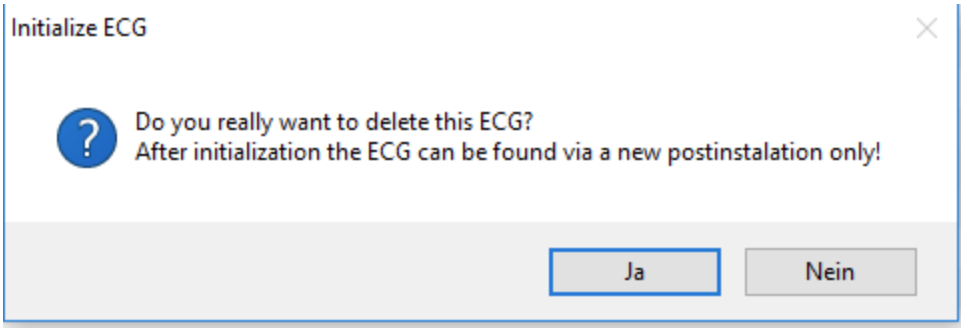
Emergency (Converter)

The emergency converter can be set into inhibit mode.

If the power supply for the connected emergency lights is turned off within 15 minutes after activating the converter inhibit mode, the lights are turned off instead of changing into emergency mode. This operating mode may be necessary during the commissioning and installation process to prevent constant emergency lighting and battery discharge.

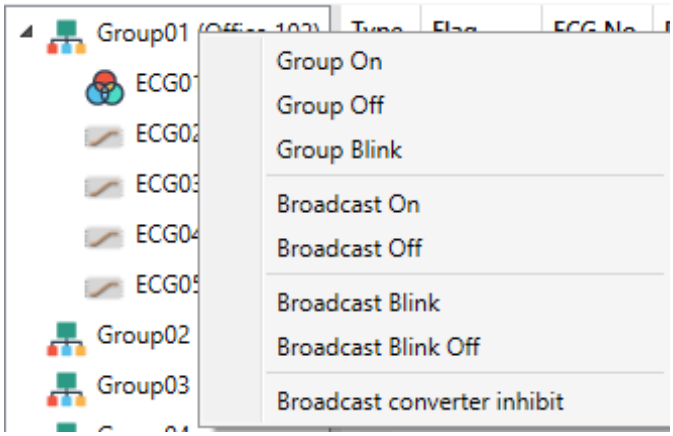
Initialize ECG

This function is only available in the right tree. This can be used to completely delete an ECG. After this action, it is no longer present and can only be found by a post installation. Therefore, this action must be confirmed by the operator:

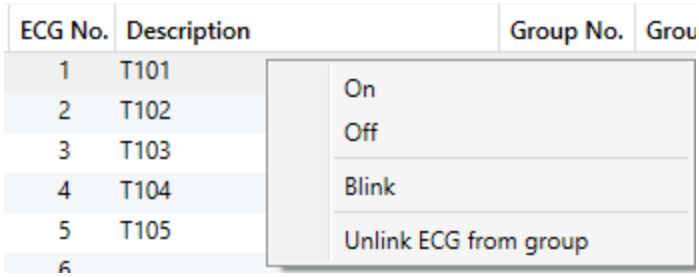


The DCA offers different options to activate these commands. The gateway must be commissioned and a connection to the gateway must be available for all of the options.

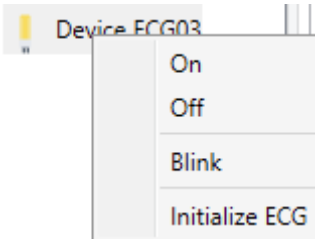
Group menu in the left-hand side tree:



Context menu in the ECG table:



ECG menu in the right-hand side tree:

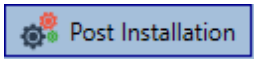


The following commands are available:

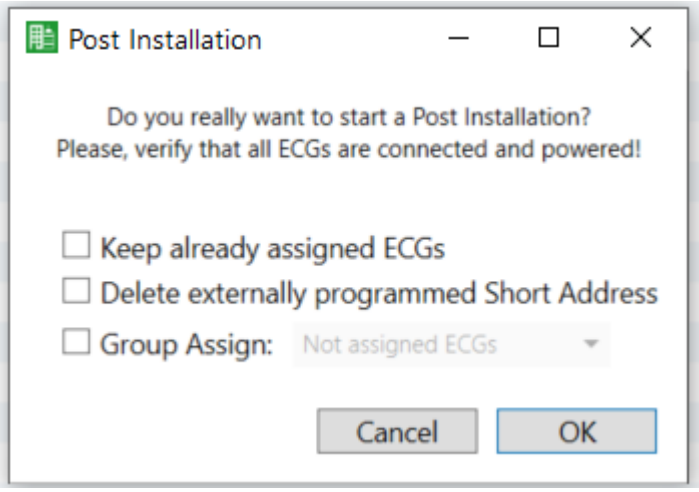
- On
- Off
- Blink
- Initialize ECG

11.5 Post Installation

If you would like to extend an already commissioned DALI segment with new ECGs or would like to replace several faulty ones in the segment, please use the „post installation“ function.



When you start the post installation in the ETS, the gateway first checks if all previously configured ECGs are still available in the segment. ECGs that no longer exist or cannot be found are deleted from the gateway’s internal memory.



If you are starting the post installation via DCA, you can prevent any deletion by ticking the corresponding box in the pop-up window (Keep already assigned ECGs).

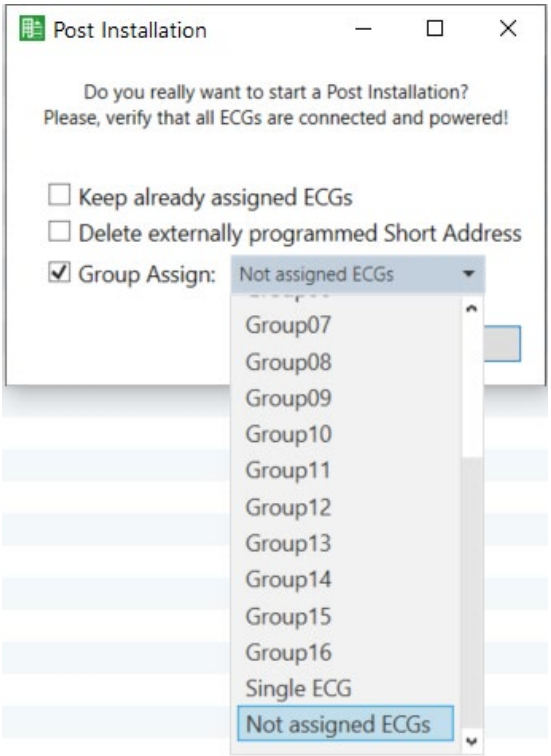
Sometimes it might be possible to get ECGs with an external programmed short address, even if their long address is not defined and still 0xFFFFFF. In order to delete those short address, the checkbox can be ticked (Delete externally programmed Short Address).

Important instruction: Please ensure that all ECGs are powered at the time of post installation to avoid that those ECGs are deleted from the gateway memory.
In case of the special parameter setting ‘Control ECG Power Line via Object’ the object to power on the ECGs is sent automatically.

Then the segment is searched for new ECGs. Newly found devices are inserted into any existing gaps or added on at the end.
(Attention: Please remember that the maximum number of ECGs within a segment is 64!)
As the position (short address) of a newly found device is allocated randomly, you need to identify the lights and if required assign them to groups.

Afterwards the ECGs can be assigned to a group.

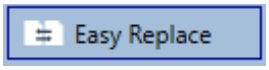
Alternatively, all detected ECGs can also be automatically assigned to a group or assigned as individual ECGs. To do this, set the corresponding checkmark in the control window of the post-installation and select the desired group:



Direct assignment to a group can also be used to simply commission different rooms. In this case, the ECGs are first left connected to the mains in only one room (one group). This room is commisioned with direct assignment of group 1. Then the second room is connected to the mains and a subsequent installation with direct assignment to group 2 is carried out, followed by room 3 and the following rooms. In this way, a simplified commissioning can be carried out very quickly.

11.6 ECG Easy Replacement

When a DALI segment is commissioned, the short address, group assignment (if applicable) and other configuration data are programmed onto the ECG's internal memory. If you need to replace an ECG because of a fault, you need to program this data onto the new device.
The DALI Gateway offers a function that makes it possible to quickly and easily replace individual ECGs. The "ECG quick exchange" can be started in the ETS.



The gateway first checks if any of the configured ECGs that are known to it have been reported as faulty. Then the segment is searched for new, unknown devices. If a new device is found, all configuration details of the old ECG are automatically programmed onto the new one and the installation is immediately ready again for operation.

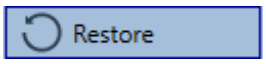
However, the ECG quick exchange only works if just one ECG within a segment is faulty and replaced by a new one. If several devices are faulty, the ECGs have to be identified and you must use the post installation function. Please also remember that the quick exchange is only possible for devices of the same type. You cannot, for example, replace an ECG for self-contained battery emergency lamps with a device for LEDs.

If a quick exchange is not possible because of any of the conditions above, the gateway terminates the process with an error code. The different error codes have the following meaning:

Error type 7: No ECG fault
Error type 8: More than one ECG faulty
Error type 9: No new ECG can be found
Error type 10: ECG has wrong device type
Error type 11: More than one new ECG

11.7 Data Restore of DALI configuration

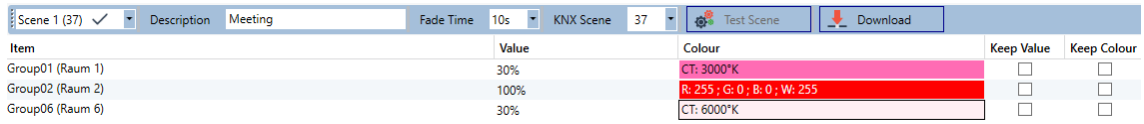
This command is used to completely restore a DALI Gateway, for example, by replacing it with a completely unprogrammed device.



In this case all Dali relevant data from the ETS are written onto the device. Once this process is complete, the device is restarted automatically. This function only applies to the DALI configuration. It is therefore essential to carry out a normal ETS download for the ETS parameters and communication objects.
We recommend you do an ETS back-up after you have completed the configuration.

12 Scenes

Scenes can be programmed in the DCA.

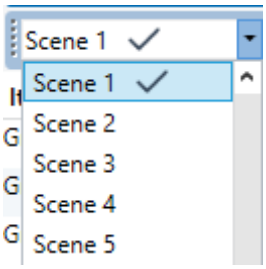


12.1 Configuration

You can enter a user-friendly name for each scene in the description field. The name can be up to 20 characters long. If you do not want a scene to start immediately but would prefer dimming it up to its final value, you can set the dimming time individually for each scene.

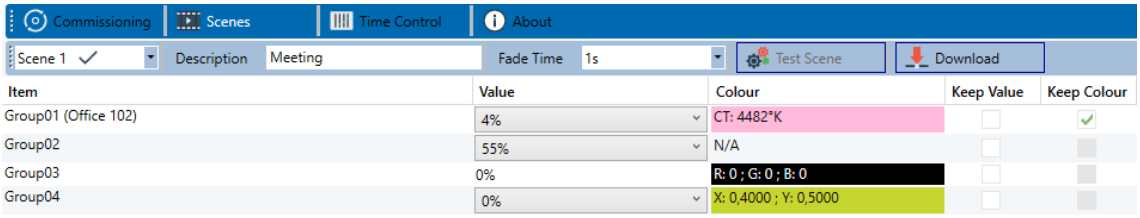
Please remember that the dimming time always refers to the complete value range. A time of 30s therefore means a value change of 100% within 30s. If the value within a scene only changes by 50%, the change will only take 15s. To assign a flexible KNX scene to a DALI scene, the parameter KNX Scene is used. Hereby a flexible assignment can be defined to activate this scene with another KNX scene (via KNX communication object). The KNX scene numbers 1 to 64 are available.

Select the required scene from the drop down on the left-hand side.



A “tick“ means that the scene has already been defined.

Use drag and drop to pull the groups that are part of the scene into the scene window in the middle.



Enter the values required for the scene into each field.

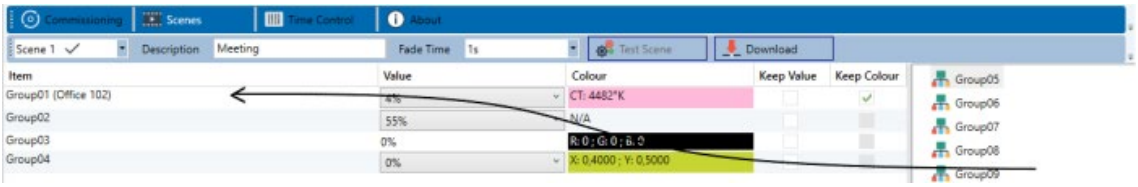
Value
A brightness level between 0 and 100% can be selected via a drop down field.

Colour
Shows the colour according to type of colour control for this group. Use the context menu or simply double-click to open a window to select the colour.

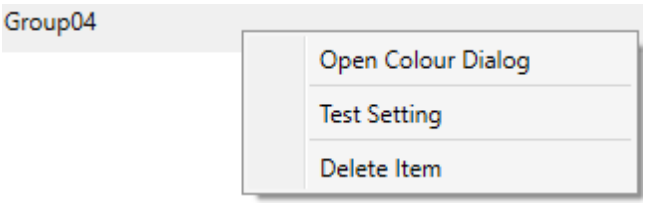
Keep value
In this case the current value remains unchanged when the scene is invoked. The entry field for the value is disabled. Any entry in the value field is ignored.

Keep colour
In this case the current colour remains unchanged when the scene is invoked. The entry field for the colour is disabled. Any entry in the colour field is ignored.

To delete an entry, select a group and use drag and drop to move it back to the tree on the right-hand side.

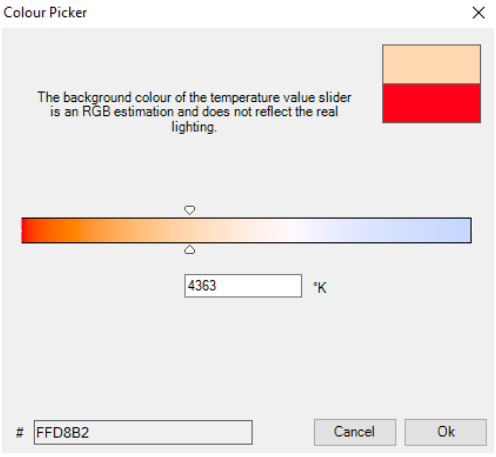


Alternatively, use the context menu (right click with the mouse) to delete an entry:

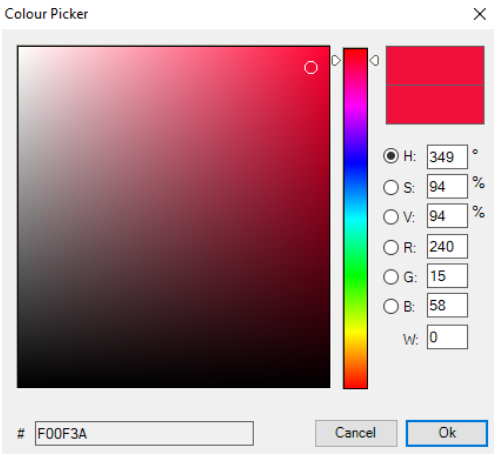


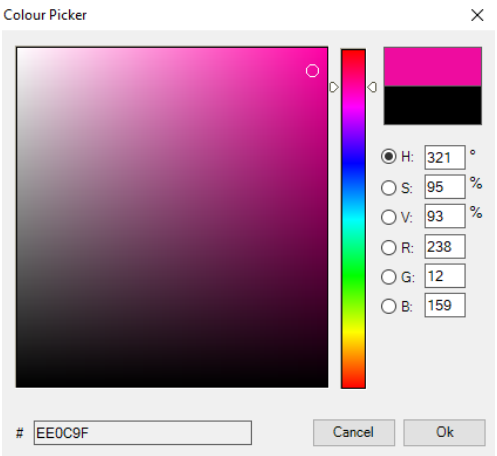
12.2 Colour entries

Each group can only support one type of colour control. The following window is shown for “colour temperature“.

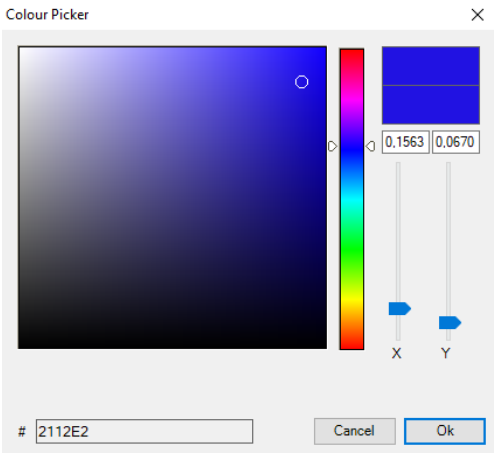


For RGB (RGBW) or HSV the window is as follows:



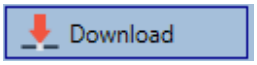


For the XY option, the following window appears:



12.3 Programming scenes

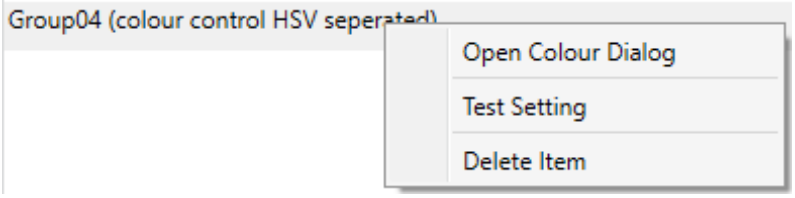
Once all scene values have been set, you need to download the scene onto the DALI ECGs. For this purpose, please press the download button in the top right-hand corner.



A connection to the DALI Gateway is required.
In principle, you can also plan individual scenes in the ETS ‘offline‘, independently of the DALI system. The DCA only has to be connected to the gateway for the duration of the programming.

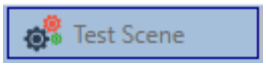
12.4 Testing a scene event

One way to test the settings for an event is via the conext menu (right click with the mouse).



A connection to the DALI Gateway is required.
The command setting the value and colour of the group is executed. This means you can check the correct properties before programming the whole scene. If „Keep Value“ or „Keep colour“ have been selected, the current values are kept and the new values are not activated.

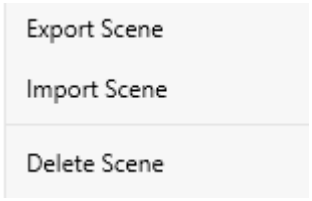
12.5 Testing the whole scene



After a scene has been programmed, the button becomes active. Press the button to activate and execute the selected scene. A connection to the DALI Gateway is required for this purpose.

12.6 Export/Import/Delete

In order to be able to reuse a scene that has already been created, it is possible to export it. The created XML file can be saved separately to be used again in another project or in another template. The commands for export or import can be found in the context menu.



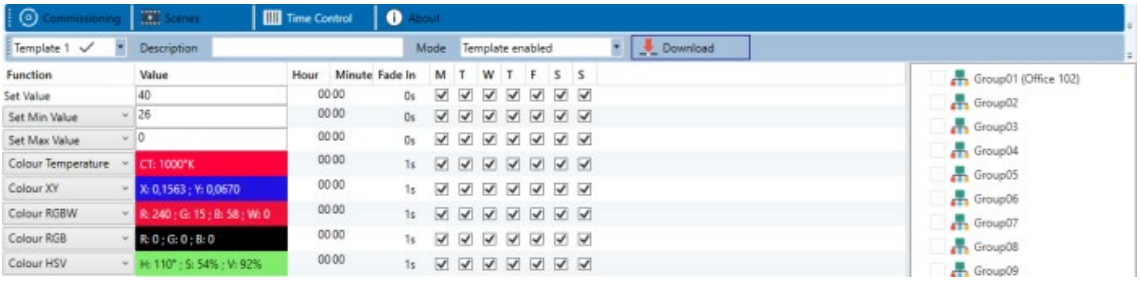
The template is saved as an XLM file in the desired target directory

13 Time Control

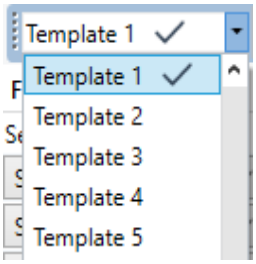
In order to use the colour setting options of DT-8 devices, DALI Gateway offers an integrated colour control module. With this module, users can automatically set a defined light colour for a certain time or date. This function is particularly interesting for white light control. Changes in colour temperature over the course of a day have a positive effect on well-being and efficiency in the work place. Educational institutions, hospitals and many other settings use daytime dependent white light control. However, the colour control module can also be used for general time-based colour changes. For example, a building could be lit up in red for the first half of the night and in blue for the second half.

13.1 Configuration

To create a sequence of different colour settings, up to 16 different templates can be created. A template combines different actions which perform a value or colour control event at a configurable time. Select the required template via the drop down template list.



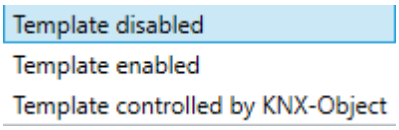
Use the drop down on the left hand side to select a template.



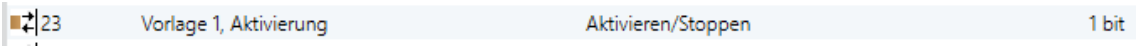
A “tick“ means that the template has already been defined.

Use the description field to enter a user friendly name for the template. The name can be up to 20 characters long and is displayed in brackets in the dropdown list for information purposes.

You can also define the behaviour of the template:

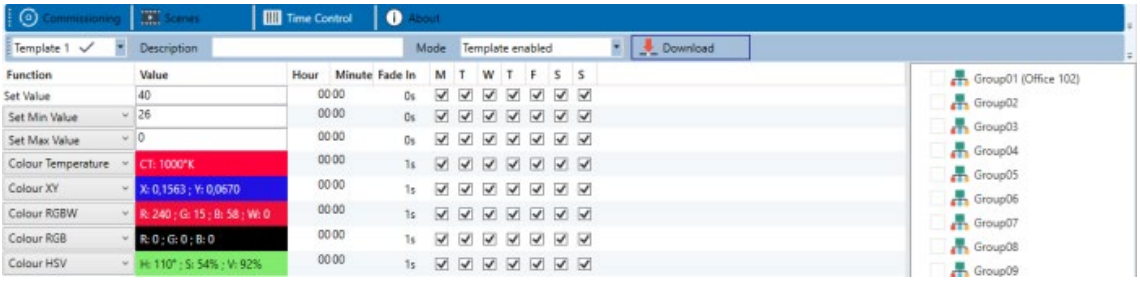


The template can be defined but disabled. By default all templates are enabled.
It is also possible to enable or disable the template via a communication object. If you choose the option “control template via object“ the corresponding objects are displayed. See chapter: 8.2 Objects for the time control module.

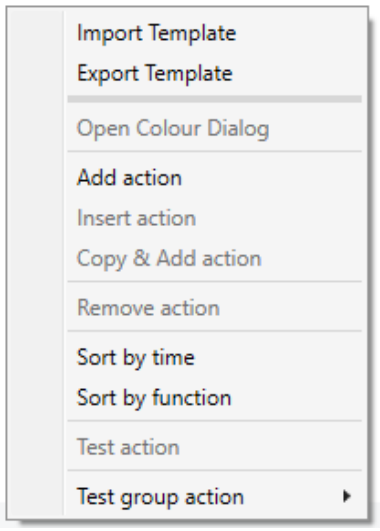


For more information, see chapter: 13.3 Disabling/Enabling.

Use the tree on the right hand side to tick the DALI groups that you want to include in the template.



The middle part of the page is used to create an action list. All groups that have been selected, automatically perform an action at the configured time. Altogether a maximum of 300 actions can be stored on a DALI gateway if all templates are used. A context menu is available to control and create action lists.



To open the context menu, move the mouse pointer onto an action and press the right mouse button.
The following functions are available to create and edit an action list:

Add action
Creates a new action and adds it to the end of the list.

Insert action
Creates a new action and inserts it between two existing list entries.

Copy and add action
Copies a selected action and adds it to the end of the list.

Delete action
Deletes a selected action.

Sort by time
Sorts the action list into ascending chronological order.

Sort by function
Sorts the action list according to function entries.

Test action
Immediately executes the chosen action (without regard for any potentially configured transition time) for all selected groups within a template. A connection to the DALI Gateway is required.

Test action of the group
Immediately executes the chosen action (without regard for any potentially configured transition time) for a certain group within a template. You can also select the group via the context menu. A connection to the DALI Gateway is required.

13.2 Action types

Once you have created an action, the corresponding function can be set via the selection box. For each function, you can select a value, the time of the action and (if you would like the value to slowly cross-fade) a transition time. If you do not want the action to be performed every day, please enter the days of the week when you want to schedule the action. Please remember that only certain value ranges make sense for each function. In principle any value can be entered in the value field. However, if this value exceeds the possible value range, it is automatically limited to the maximum value. (For example, if you enter 200 for the function “Set value”, the maximum value 100% is automatically entered.) The following functions are possible for an action:

Set value

This function sets the brightness level of a group. The permitted value range is between 0 and 100%.

Min Value

This function sets the minimum dim value of the selected group for relative (4 Bit) and absolute (8 Bit) dimming. When using this action, any minimum dim value set in the ETS parameters is automatically overwritten. The permitted value range is between 0 and 100%.

MaxValue

This function sets the maximum dim value of the selected group for relative (4 Bit) and absolute (8 Bit) dimming. When using this action, any maximum dim value set in the ETS parameters is automatically overwritten. The permitted value range is between 0 and 100%.

Colour temperature

This function sets the colour temperature of DT-8 devices that support the colour temperature setting (TC).

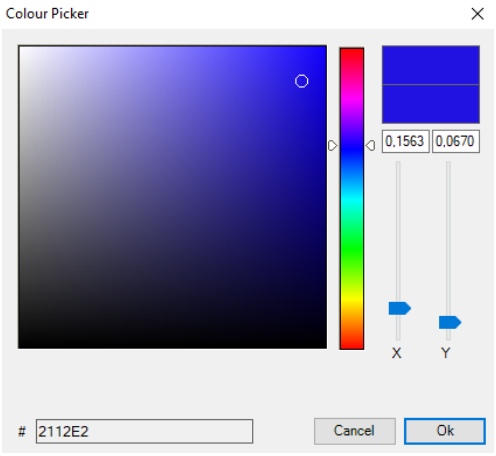
On the ECG the colour is also changed if the light is turned off at the time of the action.

You can enter the colour temperature range. The value range permitted is between 1000 and 10000 K but please remember the physical limits of the connected ECGs and lights.

Colour XY

This function sets the colour temperature of DT-8 devices that support the XY colour space display (XY).

On the ECG the colour is also changed if the light is turned off at the time of the action. The X and Y coordinates of the colour can be entered separately. The permitted value range for X and Y is from 0.0 to 1.0. Please remember the physical limits of the connected ECGs/lights. Not every colour from the colour spectrum can be set.

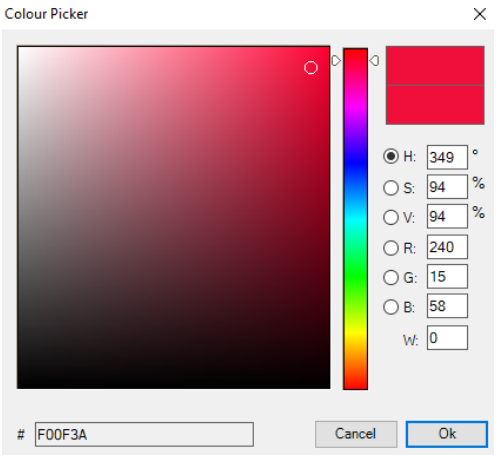


Colour RGBW

This function sets the colour values of DT-8 devices that support the primary colours RGB or RGBW.

On the ECG the colour is also changed if the light is turned off at the time of the action.

The values for each primary colour can be entered separately. The permitted value range for R,G,B and W is between 0 and 100%. The final colour is a mixture of the different primary colours according to their percentage.



Colour RGB

This function sets the colour values of DT-8 devices that support the primary colours RGB.

On the ECG the colour is also changed if the light is turned off at the time of the action. The values for each primary colour can be entered separately. The permitted value range for R,G and B is between 0 and 100%. The final colour is a mixture of the different primary colours according to their percentage.

Colour HSV

This function sets the colour values of DT-8 devices that support the primary colours RGB.

In this case, however, the value is entered by means of saturation, hue and brightness levels.

On the ECG the colour is also changed if the light is turned off at the time of the action.

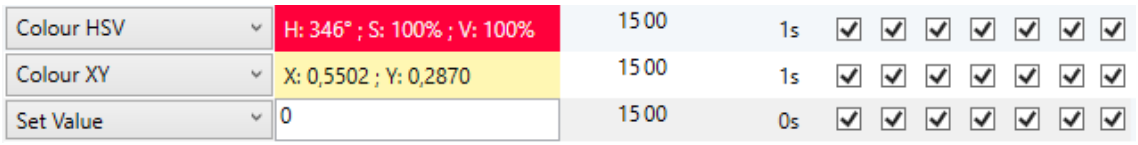
The permitted value range for the hue is between 0 and 360°, the value range for saturation and brightness is between 0 and 100%.

Max OnValue

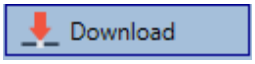
This function sets the maximum switch-on value of the selected groups or ECGs. When this action is used, any maximum switch-on value set in the ETS parameters is overwritten. The permissible value range is 0 - 100 %. This value is reset to the ETS setting after an ETS download.

In principle, every group or individual ECG can be added to a template independently of the device types used in the group/ECG. Whilst the functions “Set Value“, “MinValue“ and “MaxValue“ work for all device types, (including, for example, fluorescent lights DT-0 and LED modules DT-6), the colour control functions „“Colour Temperature“, “Colour XY“, “Colour RGBW“, “Colour RGB“ and “Colour HSV“ can, of course, only be executed by the connected DT-8 devices. Other device types will ignore these actions. This also applies to the selected method. A DT-8 device with XY control, for example, will ignore an RGBW action and vice versa.

If the DT-8 devices within a group or template use different methods but you want them all to perform a colour change at the same time, you need to set up two actions with different functions for the same point in time:



Once an action table within a template is complete, you need to save the template onto the DALI gateway. Please press the download button to do so.



Please remember that time-dependent actions can only be performed if they have previously been saved on the gateway. You can, however, test individual actions via the test button without saving them on the gateway. This does not change the data on the device.

13.3 Disabling/Enabling

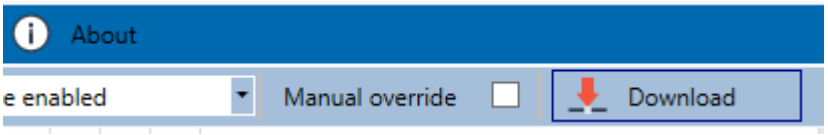
A template can be enabled or disabled in the header of the editor.

This makes it possible to fully prepare a template whilst disabling its execution. This way you can, for example, create two templates: one for a building in normal mode and one for the holiday period. You can now simply enable the required template without having to modify any of the actions. It is even easier to control time-dependencies externally via external objects. If you select this setting for a template, you can control it via the external objects 23ff.

The value on receipt of the object determines whether a template is disabled or enabled.

13.4 Manual Override

By default, actions are triggered immediately when the action time is reached regardless of any previously executed commands (automatic mode).
However, if the "Manual override" flag is set in a time program, the automatic mode can be stopped by a manual intervention for individual groups / ECGs of the template. Automatic mode is thus manually overridden.



This function is particularly interesting for HCL control applications. If the brightness or color of an element (group / individual ECG) is changed, automatic operation for this element stops. No automatic color adjustment will then be performed at the next action time. The change made by the user will remain until the automatic mode is activated again.

The activation of the automatic mode according to the template takes place at the reception of the next 1 bit Off or On telegram belonging to the element, or at the switching off of the element by another command (e.g. scene value = 0 or broadcast = 0). When an on telegram is received, the last color value regularly desired by an action is set. When an off telegram is received, the group /individual ECG is switched off and the automatic system continues to run in the background. Furthermore, a manual override is always resolved at midnight and automatic mode is automatically reactivated.

13.5 Timer

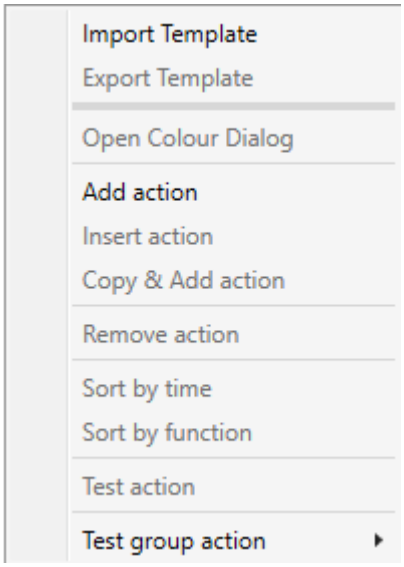
To ensure the safe operation of the colour control mode the exact time and date are required on the device. This has to be provided by the KNX in form of 3 Byte communication objects. The precision of the DALI gateway's internal time calculation is limited. It is therefore essential to update the time at least once a day. When the application is started the device automatically sends a read request for time and date to the KNX bus. The colour control module remains completely disabled until an updated time has been received. Actions are only performed after receipt of a valid time. Please remember that the 3 Byte time object also transmits information about the current weekday (Monday – Sunday). (For some KNX timers this is configurable). If a 3 Byte object is received without this information, the weekday is not checked. This means that an action which has, in fact, only been enabled for Saturday and Sunday would also be performed on a Monday.

As the date is not calculated internally, the DALI gateway automatically sends a read request to the date object at 00:01 and at 00:04. At the same time, the time object is also automatically queried. A further read request is sent at 3:01. This avoids any potential errors when clocks change from summer to winter time and vice versa.

13.6 Export/Import

To reuse a previously created template it is possible to export the template. The resulting xml file can be saved separately so that it can be reused in another project or template.

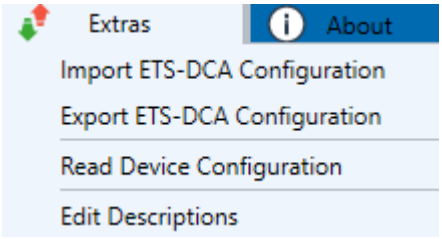
The export and import commands can be found in the context menu.



The template is saved as an xml file in the desired target directory.

14 Extras

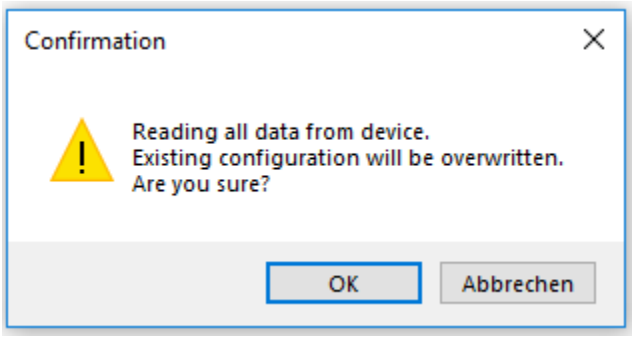
The menu item Extras offers further special functions.



Import ETS-DCA Configuration
A previously saved device configuration can be loaded into the ETS with this function.

Export ETS-DCA Configuration
The ETS DCA configuration can be saved as an xml file.

Gerätekonfiguration auslesen
All data from the DALI gateway is exported and transferred to the ETS-DCA configuration.



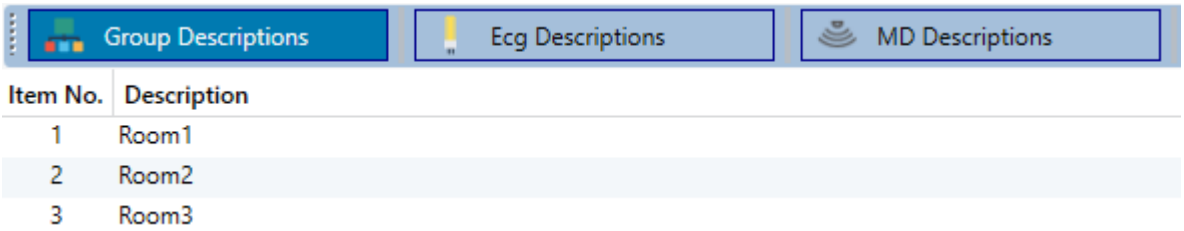
It should be noted that all DCA data in the ETS is overwritten with this data.

In order to subsequently load this configuration into the Dali Gateway, the “Restore” function MUST be executed under Commissioning - "Restore", see chapter: 11.6 Data Restore.

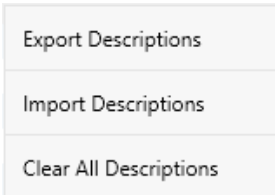
Edit Descriptions
The description texts of the ECGs, the groups and input devices can be defined separately under this menu item

14.1 Menu: Edit Descriptions

For each category the description texts can be entered separately.



In addition, it is possible to import, export or delete texts by right-clicking on a line in the context menu:



There are 2 format provided for Export, resp. Import:

- xml
- txt

By default, the "xml" format is selected. The following is an example of the group export:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<GRP_TEXT>
  <text index="1" description="Room 1" />
  <text index="2" description="Room 2" />
  <text index="3" description="Room 3" />
  <text index="4" description="Room 4" />
  <text index="5" description="" />
  <text index="6" description="" />
  <text index="7" description="" />
  <text index="8" description="" />
  <text index="9" description="" />
  <text index="10" description="" />
  <text index="11" description="" />
  <text index="12" description="" />
  <text index="13" description="" />
  <text index="14" description="" />
  <text index="15" description="" />
  <text index="16" description="" />
</GRP_TEXT>
```

Hint (xml)*: If you do not want to overwrite all texts, you can simply omit the corresponding indices.*

Hint **(txt)***: When using the txt format, it should be noted that this file is read in line by line. An entry that is not to be changed must therefore be defined as an "empty" line. An entry that is to be deleted is marked with single quotation marks.*

15 DCA OSS

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Package Name: ColorMine - Version: 1.1.3
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MTN6725-0003_MTN6725-0004_SW_EN 11/24