theben

User Manual
DALI gateway KNX plus
Firmware Version V1.0

2019-03-22

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1 Using the application program

This application program description outlines the function of the DALI gateway KNX plus software for devices equipped with firmware version 3.0.0 or higher.

The application cannot be used for devices with an older firmware (1.X.X). In this case you need to upgrade the device to firmware version 3.0.0 or higher first or alternatively use the old application DALI-Gateway KNX plus V1.0.

Product family:	Gateways
Product type:	DALI
Manufacturer:	Theben AG
Name:	DALI gateway KNX plus V2.0
Order number:	9070929

Number of communication objects: 1343

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 the notification of an error status such as light or ECG errors or for other light status information. In line with the latest DALI standard, devices with emergency light function (EN 62386-202) are also supported. Status and operating mode of emergency lights can be monitored and different prescribed testing procedures can be performed.

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 3byte 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 imposition of 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 Product features

The DALI gateway KNX plus 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 KNX plus is a Category 1 device (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 connected ECGs comes directly from the DALI gateway KNX plus. An additional DALI power supply is **not** required and **not** permitted.
The device comes in a 4TE wide DIN Rail casing so it can be directly integrated into the mains distribution box.

In addition to the pure gateway functions, the DALI gateway KNX plus offers numerous additional features:

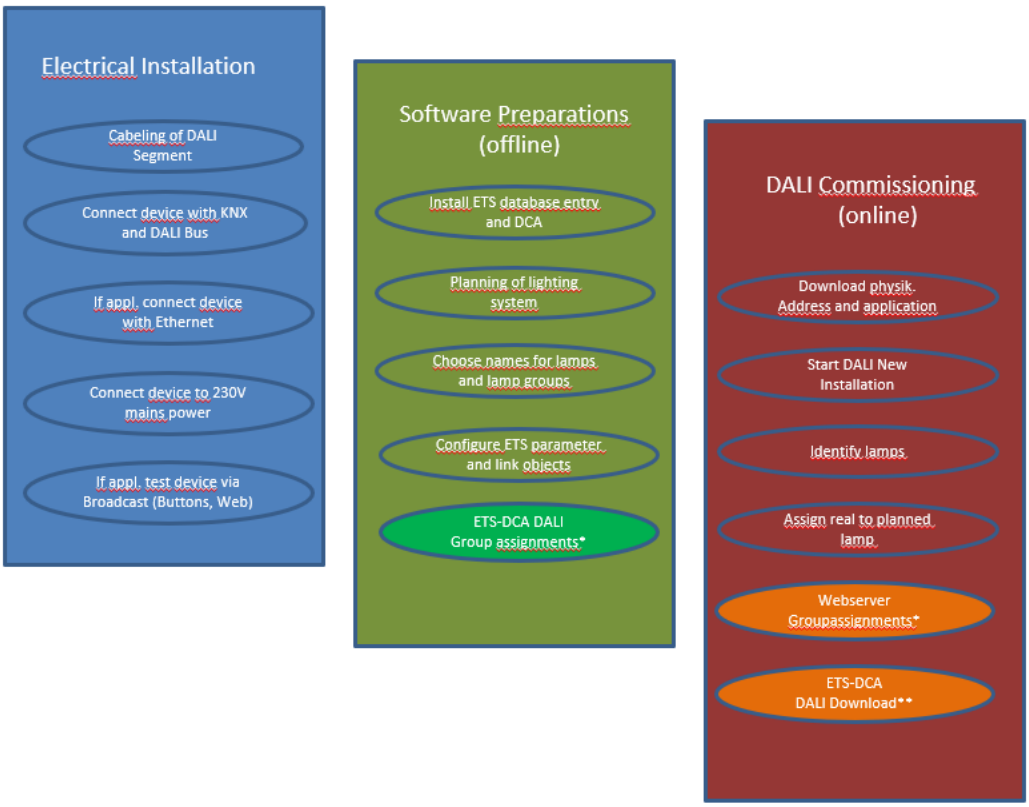
- Addressing of 16 DALI groups and/or individual ad-dressing of up to 64 ECGs
- Flexible DALI commissioning concept: directly on the device or via the integrated web server or in the ETS
- Colour light control with device type 8 ECGs (DT-8)
- Colour light control depending on ECG sub-type:
  - Colour 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
- Control of colour values for DALI groups via KNX communication objects **(no colour communication objects for individual ECGs)**
- Automatic, time-controlled setting of light value, light colour and colour temperature (also for Human Centric Lighting Applications) for groups and/or individual ECGs .
- Broadcast objects for the simultanuous control of all connected ECGs (also possible for colour values)
- Different operating modes such as permanent mode, night mode or staircase mode
- Integrated operating hours counter for each group and/or ECG with an alarm for when the maximum life-span has been reached.
- Individual error recognition with objects for each light/ECG
- Complex error analysis at group/device level with number of errors and error rate calculation
- Error threshold monitoring with individually configurable threshold values
- Scene module for extensive scene programming and possibility of dimming scenes
- Colour setting in DT-8 lights via scenes for groups and/or individual ECGs
- Effect module for process control and light effects including colour setting in DT-8 lights
- Test mode for centrally powered emergency light systems
- Support of self-contained emergency ballasts DT-1

- Support of test procedures for emegency lights with time and date stamp
- "Quick exchange function" for easy replacement of individual faulty ECGs
- "Energy saving function" allows for the ECG power supply to be turned off when lights are off (only at group level)
- Integrated web server with extensive commissioning and maintenance possibilities
- Integrated “visualisation” via web browser for direct control and display
- Manual control of group and broadcast telegrams via control buttons and display on the device
- Indication of an error status and status diagnosis via LEDs and display on the device

ⓘ The special surface for the configuration of DALI segments is designed as a DCA (Device Control App) for the ETS5. Please remember to install the corresponding ETS App in addition to the product database .knxprod. The ETS App is available for download on the Theben website or from KONNEX.

3 Installation and comissioning concept

The following graphic shows the steps required for the new installation and commissioning of a DALI gateway.



* When commissioning via DCA the group assignment can already be done in the planning phase (offline). When commissioning via web server the system has to be online.

** The DALI download is only required when commissioning via DCA.

3.1 DALI new installation

After wiring the DALI segment (see mounting and operating instructions) and software preparations such as installation, planning and configuration (see below) which can be performed without connection to the DALI gateway (offline), you are ready to start a new DALI installation. A new installation is only possible with a connection to the DALI gateway and when the ECGs that are to be installed are connected and supplied with power.

ⓘ A new installation is only possible with a connection to the DALI gateway and when the ECGs that are to be installed are connected and supplied with power.

As with every configuration process, the new installation is possible in a number of different ways:

- Configuration and execution via DCA (Device Control App) in the ETS5
- Configuration and execution via integrated web server (Ethernet network connection required)
- Configuration and execution via pushbuttons and display on the device

If you start a new installation, the ECGs connected to the DALI gateway are reset and automatically recognized and programmed by the DALI gateway. During the programming process each ECG is assigned a short address between 0 and 63 based on a random long address. As the long address is generated randomly, the short addresses and lights need to be assigned afterwards. The new installation makes the connected ECGs known to the gateway and enables the gateway to contact them via the short address.

ⓘ Please remember that every time a new installation is started, the ECGs are reset and thereby randomly allocated again. Any previous configuration is overwritten and deleted.

3.2 Identification and assignment of DALI ECGs

As the ECGs are assigned randomly following the new installation, individual ECGs need to be identified and assigned as required.

During the commissioning process, the ECGs are usually identified by setting an ECG / lamp to flashing mode. This means that in the installation, the lamp can be identified visually so that it can be assigned according to the user's preference. Instead of flashing, lights can also be turned on or off.

For self-contained emergency lights according to DT-1, the identification is slightly different. As not all lights support switching on/off or may only switch on in case of power loss, the EN 62386-202 enables the activation of an identification status. When the gateway sets these ECGs to flashing mode, the identification status starts instead. The exact execution of this status is up to the manufacturer. Normally the control LED connected to the converter flashes red or red-green for a few seconds. Please refer to the instructions for the emergency lights or converters used.

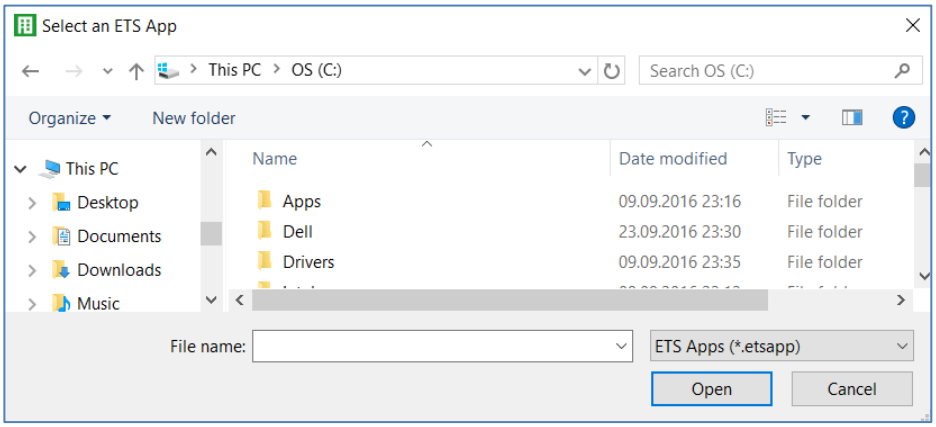
After an ECG has been identified, it can be assigned to the previously planned ECG. Again there are different options for the assignment (DCA, web server, pushbuttons and display on the device). The different options are described in the following chapters.

3.3 ETS-App (DCA)

The application for the DALI gateway KNX plus is based on the standard surface for the configuration of communication objects and parameters as well as a special surface for commissioning 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.

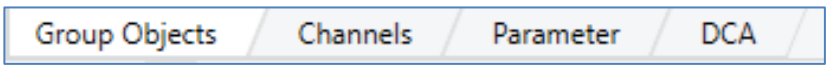
Click on the "App" button in the ETS5 footer and then select the "plus" button in order to add a new application to your ETS5 system:

A file box will appear to select the ETS App for the DALI gateway KNX plus:



The application will now be installed and displayed in the list of all ETS5 apps.

After the installation, the ETS has to be re-started. When the product is selected, an additional "DCA" tab is shown in the ETS5.



3.4 Configuration

The parameters and the corresponding group addresses can now be configured as with any other KNX product. Through the parameters, various operating modes can also be configured. These are described in more detail in the: --> Operating Modes chapter.

The DALI specific configuration is performed in the DCA tab. You should start by planning and naming the ECGs you want to use and by assigning them to the required groups.
This work can be carried out offline without connection to the KNX and without connection to the DALI gateway KNX plus. The actual DALI commissioning is only possible online which means that a connection to the device is required. During this process the connected ECGs are recognised so that they can be assigned to the previously set up configuration.

After the assignment, the special DALI configuration has to be loaded onto the device by using the "Program" button in the DCA tab, see chapter:--> DALI Commissioning

Finally, the parameters and links to group addresses should be loaded onto the device. The device is now ready to use.

4 Maintenance and expansion

4.1 Quick exchange of individual ECGs

When a DALI segment is commissioned, the short address, group assignment (if applicable) and other configuration data are programmed into 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 KNX plus offers a function that makes it possible to quickly and easily replace individual ECGs. The "ECG quick exchange" can be started from the DCA, the web server (when logged in as administrator) or on the device (pushbuttons, display) itself (see above).

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 for use again.
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 lights 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

4.2 DALI post-installation

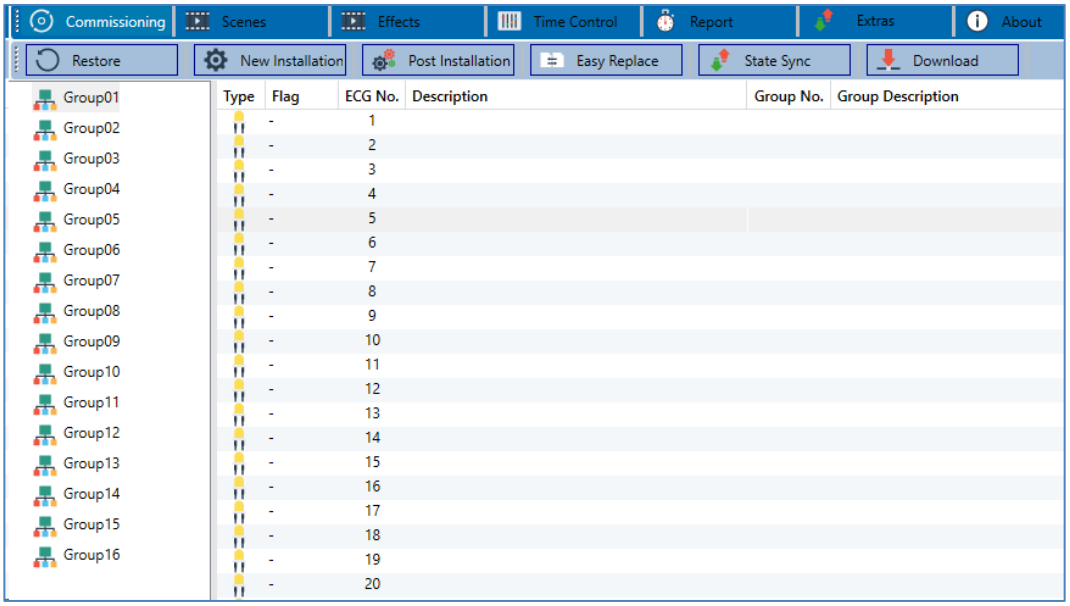
If you would like to expand an already commissioned DALI segment with new ECGs or would like to replace several faulty ones in the segment, please use the „post installation" function.

The "post-installation" is possible both on the device itself (pushbuttons, display) as well as in the web browser when logging in as administrator. If you are using the ETS in 'Extended Mode' (Mode B) the post-installation is also possible in the ETS via the menu 'Tools' □ 'post installation.

When you start the post installation, 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.

5 DCA Commissioning

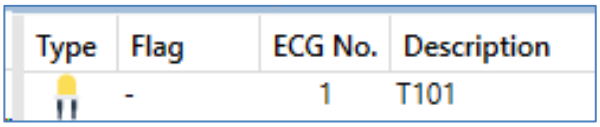
Following the physical installation and wiring of the DALI ECGs and lights and the electronic commissioning, the ECG configuration needs to be prepared and planned in the DCA. For this purpose, open the commissioning page in the DCA:



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.

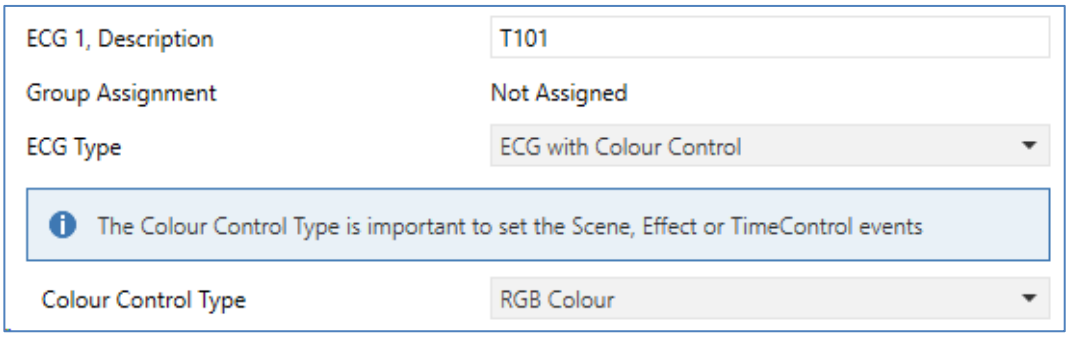
5.1 Preparation

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

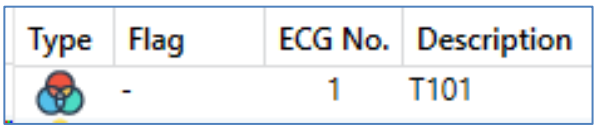


Double-click to display an editing window which will allow you to enter a maximum of 30 characters.

You should also set the correct ECG type in the parameters (in this example colour control via RGB):

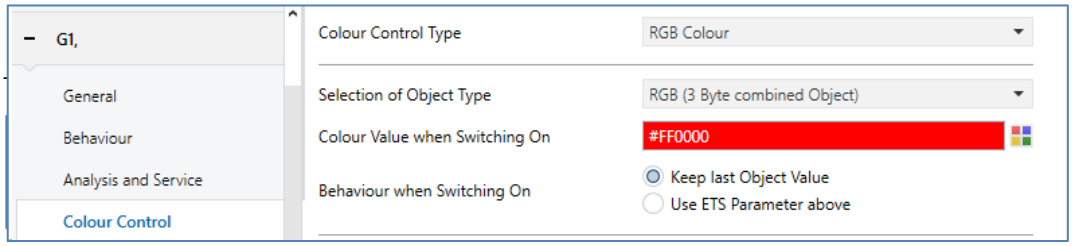


This also leads to the corresponding display in the Type field in the DCA:



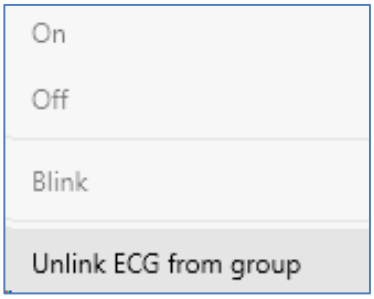
The icon in the first column always reflects the ETC setting.

As a next step, you should define the group control type in the parameters (in this example colour control via RGB):



You can now assign the individual ECGs to the corresponding groups. Pull the ECGs via Drag&Drop onto the corresponding group in the tree on the left-hand side.

If an ECG is assigned to a group via Drag&Drop, the corresponding group number is automatically shown in the field „group number" in the ECG configuration table. To delete a group allocation, go to the context menu in the ECG configuration table:



You can enter a user-friendly name in the neighbouring field „group description". ECG and group names are automatically displayed both in the group configuration tree (displayed in brackets) and in the descriptions of the ETS communication objects. Alternatively you can rename groups via the parameter page:

addresses with communication objects.

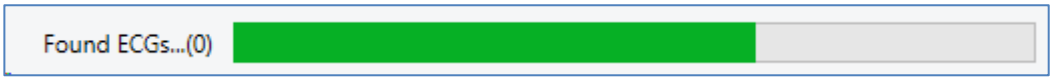
32	G1, Switching, Room 111	On/Off
33	G1, Dimming, Room 111	Brighter/Darker
34	G1, Set Value, Room 111	Value
37	G1, Status, Room 111	On/Off
38	G1, Status, Room 111	Value
39	G1, Failure Status, Room 111	Yes/No
42	G1, Colour RGB, Room 111	Value
51	G1, Colour RGB, Room 111	Status

5.2 New Installation

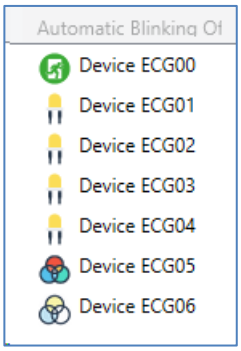
Once the planning, parameter setting and linking of group addresses have all been completed, the DALI segment can be commissioned. To do so, please connect the commissioning PC with the ETS to the KNX system via an interface (RS-232, USB or IP). Once the connection is active, you need to program the 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 recognized 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.

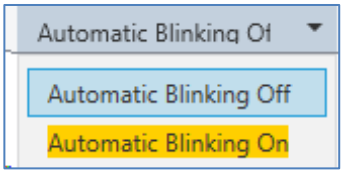


Once the process is complete, all ECGs that have been found are displayed in the list of to-be identified devices on the right-hand side.



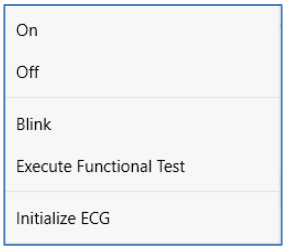
To identify the devices, switch the corresponding lamp on and off. If you select an ECG and press the right mouse button, a context menu appears from which you can select the required function.

Alternatively, you can also select 'on' in the box 'Flash automatically'.



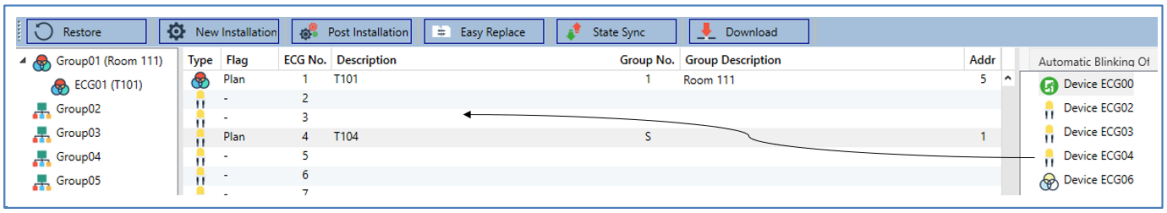
In this case, the flashing mode of an ECG starts by itself when a device is selected.

For self-contained battery emergency lights, selecting "flashing" activates the identification process of the light. Usually the status LED of the emergency light flashes during this process. Please pay attention to the description of the lights you are using. As the status LED does not work or is not visible for some lights, you can also start a function test. During the function test, the ECG usually switches the lights on for a few seconds.

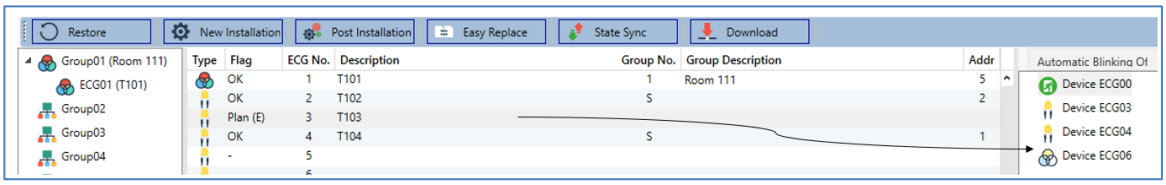


The context menu is also available at group level. During the identification process it might be useful to switch certain groups or all connected lamps on or off. You can also send broadcast commands via the context menu, in order to, for example, switch all lights on or off, see operation of DALI devices

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

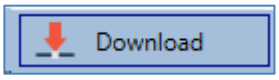


Once an ECG has been dragged into the ECG configuration table, it disappears from the list of non-identified ECGs. At the same time the 'PLAN' flag in the configuration table shows that the ECG has been assigned to the planned element. The last column in the table shows the real ECG short address. Please 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.

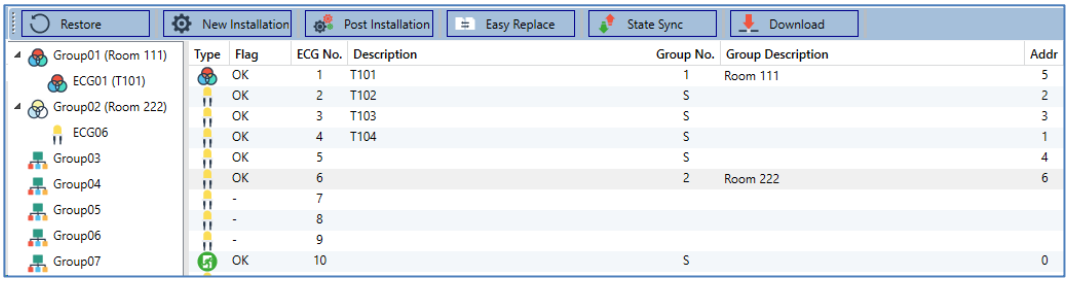


The element in the configuration table is now available again (Flag: 'PLAN (E)' → Empty) and the ECG re-appears in the list of non-identified devices from where it can now be moved to a different element if required.

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.



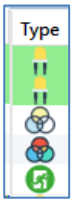
The download can take up to 1 minute. The progress bar informs about the current status.
Once the download is complete, all previously planned ECGs are programmed in the system with the DALI configuration. The respective devices are marked with an 'OK' flag in the ECG configuration table.



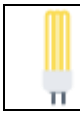
Attention: Please remember that the download on the 'commissioning page' only programmes the DALI configuration data onto the gateway and ECGs. The actual ETS application with parameter settings and group addresses still has to be downloaded onto the device either before or after the DALI identification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

5.3 ECG and group detail info

The following icons are displayed for the different ECG types in the DCA:

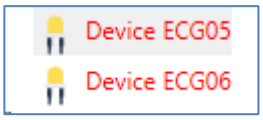


A green background shows that this ECG has been configured as emergency light with central battery. See below.

	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

5.4 Error and status display

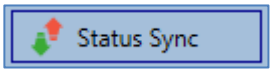
During the commissioning, lamps/ECGs are identified visually (ON, OFF, flashing). It is therefore crucial that all lamps and ECGS operate correctly. If the gateway identifies a lamp or ECG fault during the installation process, the ECG concerned is highlighted in red.
Errors are displayed for non-identified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



and for ECGs that have already been assigned (middle table).

Type	Flag	ECG No.	Description	Group No.	Group Description
	OK	1	T101	1	Room 1
	OK	2	T102	1	Room 1
	OK	3	T103	1	Room 1
	OK	4	T104	S	
	OK	5	T105	S	

Errors are marked with a red dot. Detailed 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 'Status Sync' button a short while after the installation.



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

Attention: If an ECG error 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 errors are only displayed in the manner described above if the ECG concerned has been previously programmed and is known to the gateway.

In addition to ECG errors, further ECG info is exported or displayed.

This information includes:

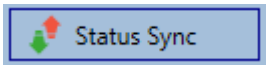
- Long address
- Short address
- Device Typ
- Device subtype (important for colour-ECGs DT-8)
    - TC: Temperature Colour
    - XY: XY Colour
    - RGBW: RGB or HSV colour

- 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

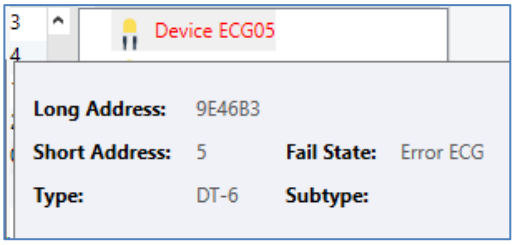
Press the "Status Sync" button to export and update the information.



The process can take a few seconds:

5.4.1 ECG info in the right-hand side tree

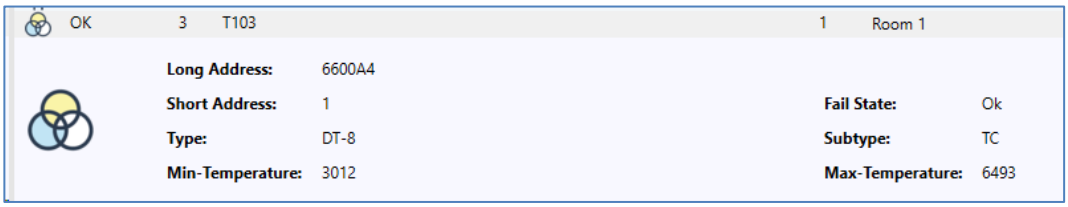
Additional information for the ECGs is displayed via tooltip:



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

5.4.2 ECG info in the ECG table

Double-click to open another window with further details:



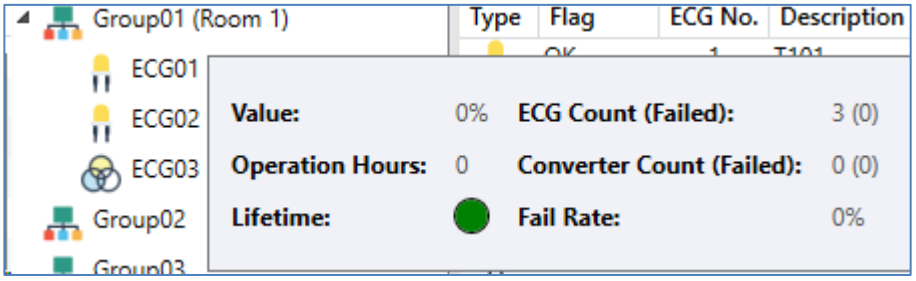
The icon in the detail window shows the real ECG type. Please make sure that the ETS definition is the same as the actual type.

Further information:

- Long address
- Real short address
- Type
- Sub-type
- Error status
- Min. temperature (only for sub-type TC)
- Max. temperature (only for sub-type TC)

5.4.3 Group info in the group tree

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



5.5 Operating DALI devices

DALI devices can be directly controlled in five 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 to control a particular group. For this process to work correctly, the ECGs need 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) inhibit**

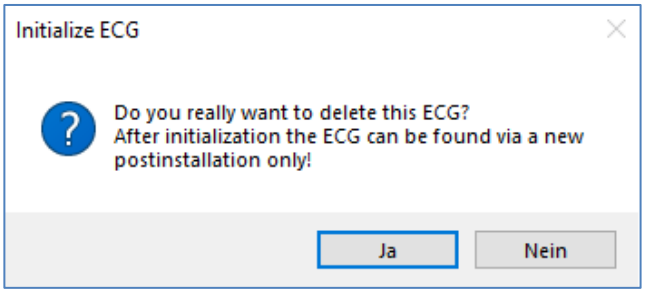
Use the context menu in the group tree on the left-hand side to disable converters. If the power supply for the connected emergency lights is turned off within 15 minutes after activating the converter inhibit mode, the lights are turned off instead of changing into emergency mode. This operating mode may be necessary during the commissioning and installation process to prevent constant emergency lighting and battery discharge.

- **Emergency (Converter) Start Functional Test**

Use the context menu in the right-hand side tree or the list to start a function test with converters.

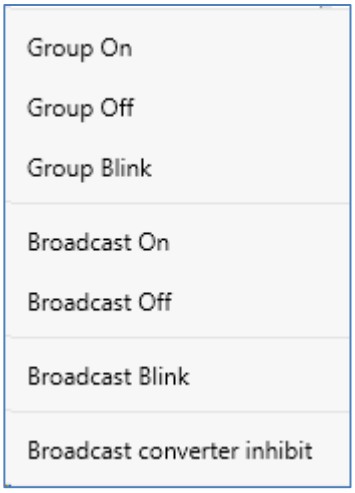
- **Initialize ECG**

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

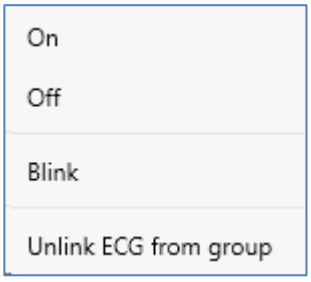


The DCA offers different options to activate these commands. The DALI must be commissioned and a connection to the gateway must be available for all of the options.

Group menu in the left-hand side tree:



Context menu in the ECG table:



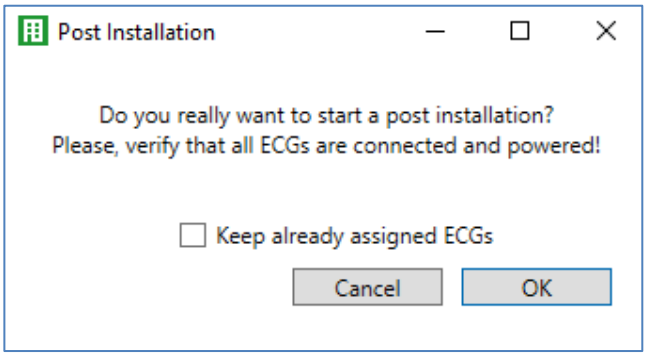
ECG menu in the right-hand side tree:

5.6 Post-installation

If you would like to expand 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 usually deleted from the gateway's internal memory.

Press ok to confirm the post installation.



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

The segment is now searched for new ECGs. Newly found devices are inserted into any existing gaps or added on at the end.

Please remember that the maximum number of ECGs within a segment is 64!

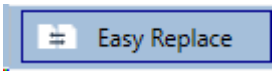
As the position (short address) of a newly found device is allocated randomly, you need to identify the lights and if required assign them to groups.

If you choose the setting "Switch ECG power supply via object", the corresponding objects are sent before the post installation.

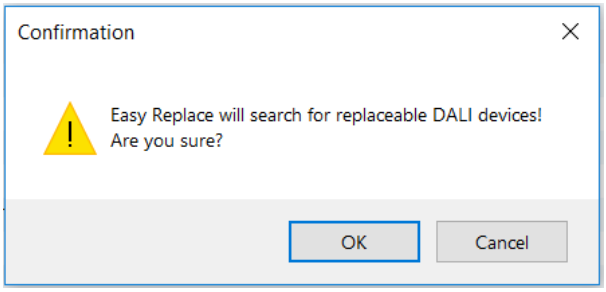
Afterwards the ECG can be assigned again to a group.

5.7 ECG Quick exchange

If you need to exchange an individual ECG because of a fault, you can also use the quick exchange function → see chapter above. Press the quick exchange button in the DCA.



Press ok to confirm.

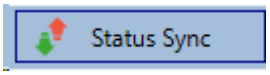


If a quick exchange is not possible because of external circumstances, the gateway terminates the process with an error code. The different error codes have the following meaning:

- 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

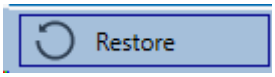
5.8 Status Sync

Use this function to read and display the status of all ECGs, see chapter: --> ECG and group detail Info. The DALI Gateway polls the ECG status cyclically.



5.9 Restoring the DALI configuration

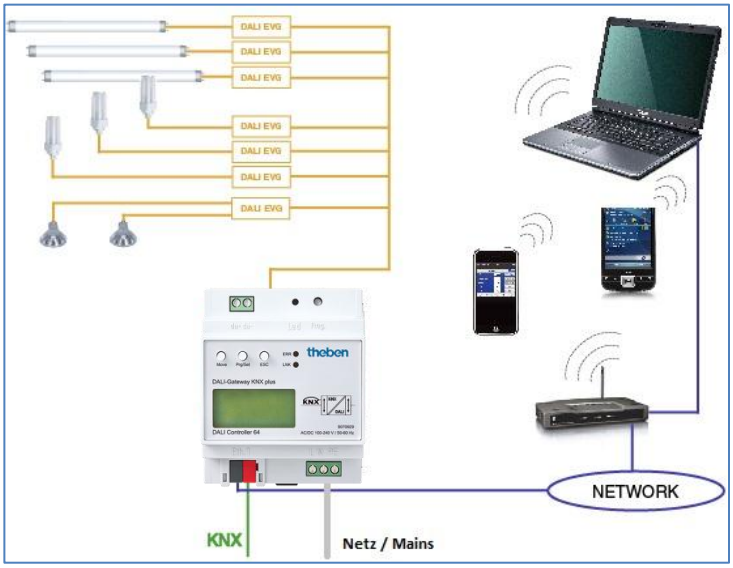
This command is used to completely restore a DALI gateway KNX plus, for example, by replacing it with a completely unprogrammed device



In this case all Dali relevant data from the ETS is written onto the device. Once this process is complete, the device restarts 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.

6 Webserver commissioning and operation

In addition to the DCA, you can also easily commission the DALI via the integrated web server. For this purpose connect the DALI gateway KNX plus directly to the IP network. An RJ-45 socket is located above the KNX bus connector at the bottom left-hand side of the device.



Use a standard patch cable to connect the device to a switch, hub or router of the IP network. You can also use a WLAN access point as network coupler. This means you can commission the DALI via a portable note book, tablet PC or mobile phone.

Once the network is physically connected, you need to assign an IP address to the DALI gateway KNX plus to enable access via the web browser. By default, all Theben devices with an IP interface are set to DHCP address assignment. If there is a DHCP server in the network the device automatically receives an IP address after initialisation. This address is shown on the device display (see above). If no DHCP service is available or if you would rather use a fixed IP address, you must set the address either via ETS. You may also need to configure the sub-net mask and standard gateway (for direct access via the Internet). Those two parameters can only be configured in the ETS.

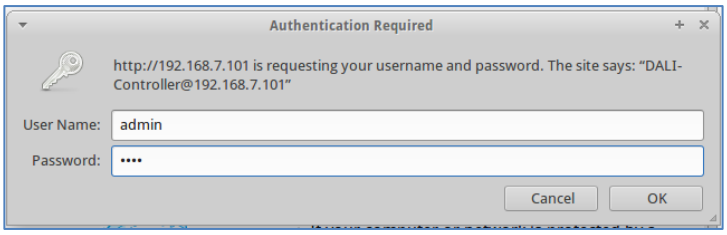
Once the IP address has been assigned correctly, load the device website via any web browser. Currently supported web browsers are:

- Microsoft Internet Explorer
- Microsoft Edge
- Mozilla Firefox
- Apple Safari
- Google Chrome

6.1 Loading the website and log-in

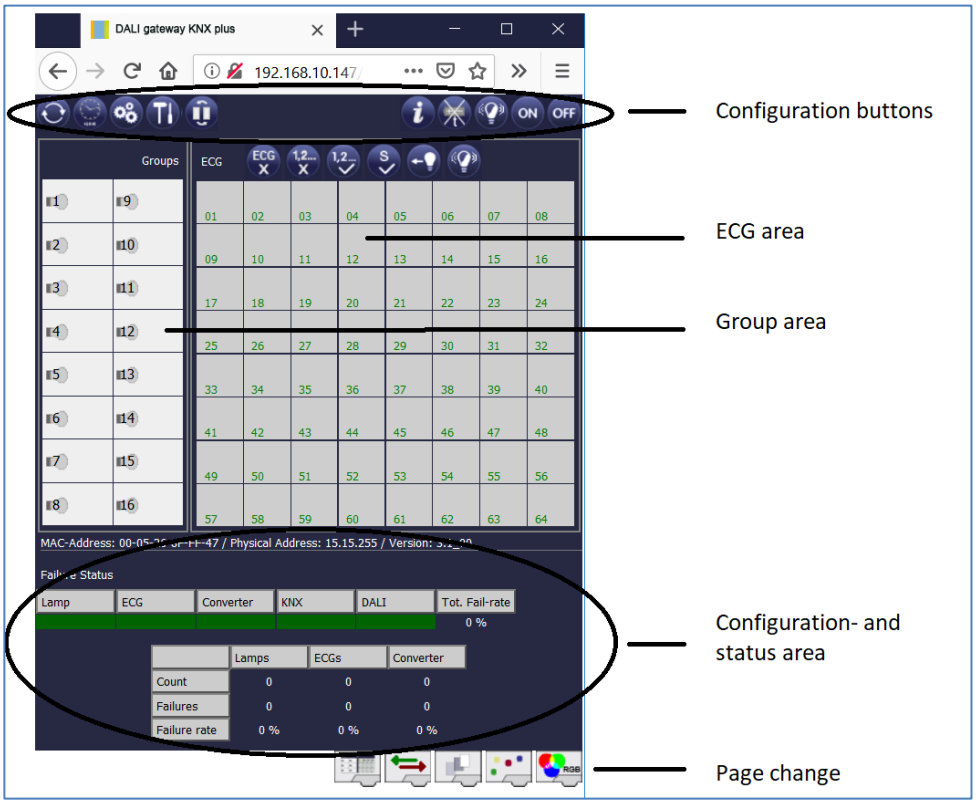
Once the IP connection to the device is active, enter the IP address in the URL field of the web browser to load the website. You can load the page either with user or administrator rights. User rights mean that the website functions are restricted and configuration commands are disabled. Use this login if you would like to use the website only for visualisation and operational purposes. To commission the DALI via the website, administrator rights are required. The images and descriptions below are all based on the administrator display.

To load the site as administrator, enter the IP address followed by the keyword /admin, i.e.: **<ip-address>/admin**.
To load the site as user, just enter the IP address: **<ip-address>**
If you are loading the administrator site, a pop-up window appears asking you to enter username and password:



The username for the administrator log-in is admin. The default setting for the administrator password is 'dali'. To log in as user there is no pre-set password. Passwords can be changed in the ETS parameters.

After logging in as administrator you have access to the following configuration website.



The configuration page is divided into different sections. The section at the top of the page contains the configuration buttons that are required for the commissioning. (Some of these buttons are only visible if you log in as administrator). The fields underneath the configuration buttons are for the 16 group and 64 ECG functions. The bottom section contains the information and status area. The three tabs in the footer are used to change between the different configuration pages

All operable buttons work with tool tips. This means a description of the function appears if the cursor hovers over the button.

6.2 Die ECG configuration page

6.2.1 Configuration buttons

Use the toolbar for different commissioning functions. The displayed icons have the following meaning:

Refresh

This function refreshes the website content. On principle, the website is static. This means that the details on the page are only updated when the site is first loaded. Any changes that are not made on the website itself, such as a light status adjustment via a KNX telegram are not automatically updated.

Time/ date query

The gateway requires the correct current time and date for time stamps during the testing of emergency lights and for time-dependent colour control (DT-8).
Press this button to request the time and date set on the gateway in order to check whether the internal time and date have been sent correctly via the KNX bus.

New installation

Press this button to start a new installation (reset and teach-in process) of the connected DALI segment.

ⓘ During a new installation any previously existing configurations of the DALI segment are deleted.

Post installation

Press this button to start a post-installation within the DALI segment. Any ECGs that no longer exist are deleted during the post-installation process. At the same time new devices are added.

ECG quick exchange

Press this button to start an ECG quick exchange within the DALI segment. The quick exchange is only possible when a single faulty ECG is replaced with a new one.

Converter inhibit mode

Use this button to activate the inhibit mode for all connected self-contained emergency lights. 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.

Device status

Press this button to display the device status of the gateway in the information and status area at the bot-tom of the page. Click on a group or ECG field to display the status information of the selected ECG or group.

Broadcast On

Broadcast Off

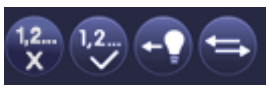
Broadcast Flash

Use these functions to simultaneously switch all ECGs /lamps in the DALI segment off or on or set them to flashing mode via a DALI Broadcast telegram.

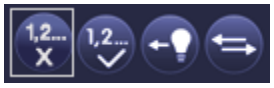
6.2.2 Control buttons

There are further control buttons above the ECG field. These are used to perform ECG or group-specific operations. To carry out one of the operations, you must select the operation first and then click on the group or ECG concerned.

If a function is selected, the corresponding button appears in a white frame. Press the button again to cancel the selection.



No selection



First button selected

The individual buttons have the following meaning:

Remove ECG

Use this button to remove the assignment of an ECG. Select the button first. Then click on the ECG whose assignment you want to delete. The ECG disappears from the ECG field and appears in the list of non-assigned ECGs on the right-hand side.

Remove group assignment

Use this button to remove the group assignment of an ECG. Select the button first. Then click on the ECG whose group you want to delete. If the ECG was assigned to a group, the group assignment is deleted and the ECG marked for individual control.

Assign a group

Use this button to assign an ECG to a group. First select the button. Then click on the group. To complete the process click on the ECG you want to assign to the group. If the ECG was previously assigned to a group, the previous assignment is automatically removed.

Mark ECGs for individual control

With this button the group assignment of an ECG is removed and an ECG is marked for individual control. If you want to enable an ECG for individual control, select the button and then click on the ECG concerned. The ECG is marked with the letter 'S' (Single) and is now in use

Toggle light value

Use this button to switch the value of a group on or off. First select the button. Then click on a group field to toggle between the light values of all lamps assigned to the group. The same process is used for ECG fields.

ECG / group flashing mode

Use this button to set an individual ECG or a group to flashing mode. To carry out this function, select the button first. If you now press an ECG or group field, the corresponding ECGs/lamps start flashing. The flashing mode is used for identification purposes during the DALI commissioning process. If you press the same ECG or group field again, the flashing stops. If you press another ECG or group field with the button still selected, this element starts flashing and the previously flashing lamp is turned off.

6.2.3 ECG fields

The ECG and group entries on the website mean that the user can see the complete function and error status of a connected DALI segment at a glance. The ECG fields are numbered in the bottom left-hand corner from 1 – 64. The number corresponds to the planned ECG number in the ETS and not to the ECG short address. Icons appear in the fields only once an ECG has been assigned → assignment page, see below. The type of ICON provides information about the ECG type used. The following ICONs are possible:


ECG


ECG for self-contained battery emergency lamp non-switchable


ECG for self-contained battery emergency lamp switchable

The value and error status of an ECG is symbolised by different background colours.

ICON light grey => Light turned off

ICON yellow => Light turned on

ICON red => Lamp error on the device

Background red => ECG error

The assignment of an ECG is also shown in the field. ECGs used for individual control are marked with the letter 'S' (Single).Otherwise they are given a group number.

ECG in use for individual control

ECG with group assignment (e.g. group 3)

6.2.4 Group fields

Like the ECG fields, the group fields show the status of a group. However, the display is limited to the switch status. No error status is graphically displayed.

ICON light grey => Group switched off

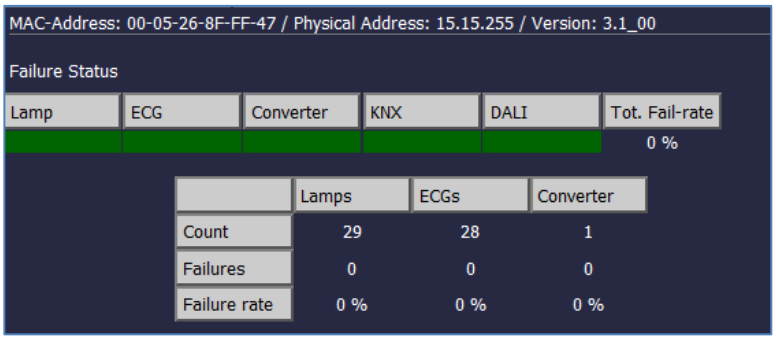
ICON yellow => Group switched on

If you switch a group or ECG via the website, its status is automatically updated and displayed on the site. However, if the switch command was initiated externally via a KNX telegram, the status is not automatically updated. To display the correct status, press the refresh button or re-load the web page.

6.2.5 Information and status fields

The bottom section of the configuration website alternatively shows status information for the device as a whole or for a selected group or a selected ECG.

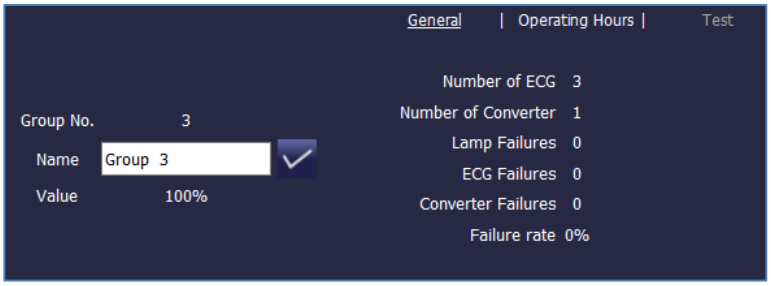
When the website is first loaded, the status information always applies to the whole device giving you the opportunity to see the number of connected lamps, ECGs and converters, as well as errors and error rate at a glance.



The green colour means that no error has occurred. Otherwise the colour changes to red.

This information can be displayed at any time by pressing the device status button in the website's configuration bar .

To display the status information of a group, click on one of the 16 group fields.



In addition to the number of devices and converters and the individual error types, the total error rate within a group is shown. Please remember that the rate is calculated as a percentage of the total number of ECGs and converters in the group. Use the Name field to enter a user-friendly name for the group. The maximum number of characters is 10. Press the √-button to confirm your entry. The name is now saved on the gateway and loaded into the ETS during the next synchronisation.
To display the status information of an ECG, click on one of the 64 ECG fields. Choose from one of the following options: General, Operating Hours and Test

On the General page the first line shows the ECG number as well as the possible sub-types for DT-8 devices. For all other ECG device types (DT-0..DT-7) the entry remains empty.
For DT-8, the entries mark the following sub-types:

XY → DT-8 Sub-Type XY

TC → DT-8 Sub-Type colour temperature Tc

PC → DT-8 Sub-Type PrimaryN **(is displayed but not supported by the device!)**

RGBW → DT-8 Sub-Type RGBWAF

Use the name field to enter a user-friendly name for the ECG. The maximum number of characters is again 10. Press the √-button to confirm your entry. The name is now saved on the gateway and loaded into the ETS during the next synchronisation.

An ICON appears behind the word Alarm if an error or alarm has occurred. The meaning of the icons is as follows


Lamp error


ECG error


Converter error

Central battery test mode

An ICON appears in the Mode bar if the ECG is not in normal mode. The meaning of the icons is as follows:

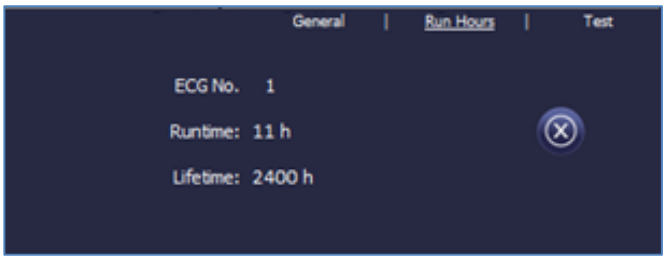

Permanent mode


Panic mode


Central battery test mode

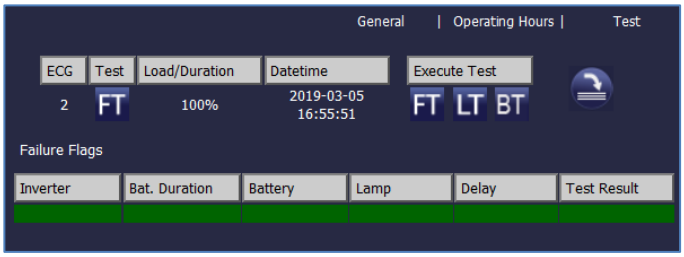
The address entry shows the short address of the device as well as the long address found during the new installation. This information can be useful for service purposes.
DT-8 devices of sub-Type Tc usually have a configurable minimum and maximum colour temperature. The threshold values for such ECGs are also shown in the window.

Click on the Runtime tab in the header to change to operating hours.



This display shows the accumulated operating hours of a lamp since its last reset as well as the maximum life span that was configured in the ETS. Use the button on the side to reset the internal counter to 0.

If the selected ECG is a device for self-contained battery emergency lights, you can also click on the Test tab.



This display shows the type of test, test result and date and time of the last test. The status bar shows the error flags. A green bar means there were no error flags and the test was positive. A red bar signals a negative test result.

You can use the buttons on this page to manually execute a test. The icons underneath have the following meaning:

BT Battery Test

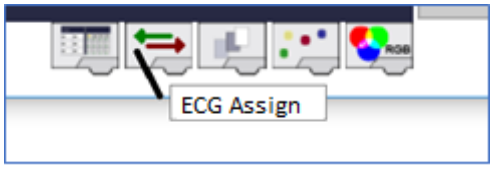
FT Functional Test

LT Long Duration Test

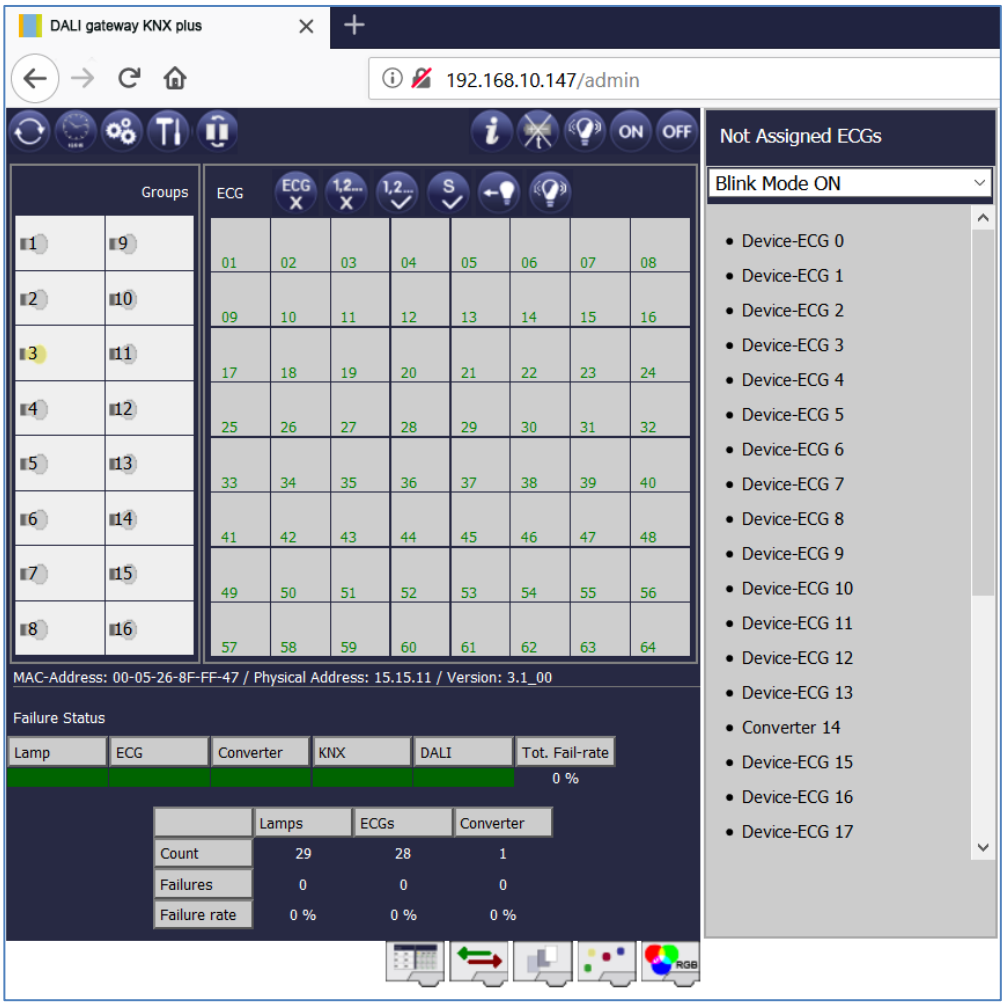
Please remember that the website is static and is not automatically updated after the test has finished. If you would like to display the result of a manually activated and terminated test, please press the 'Update test result' button first.

6.3 ECG assignment page

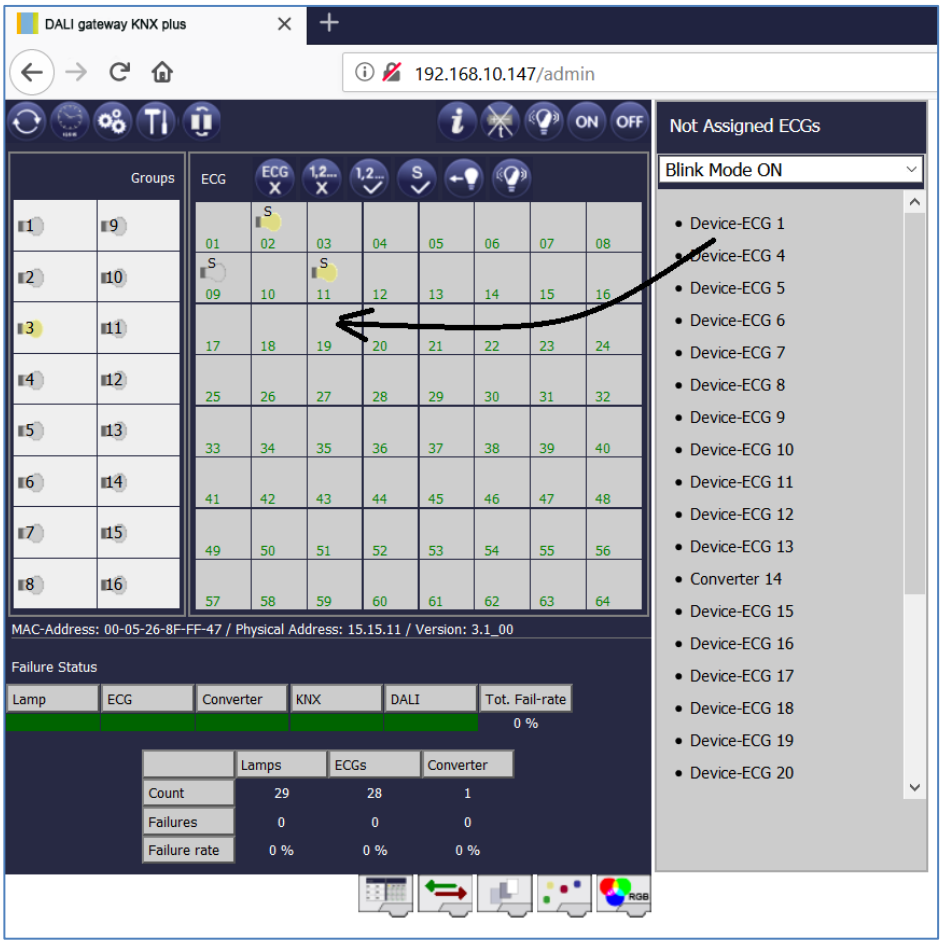
Use the assignment page to link the ECGs found during a new installation (or post installation) to the previously planned ECGs. Use the assignment tab to get to the page:



Unlike the configuration page, the assignment page has a further field on the right-hand side. This field lists the ECGs that were found during the new installation but have not yet been assigned.



If you select an ECG on the right-hand side, it automatically changes to flashing mode in the standard setting (FLASH Mode ON). Once the device has been identified, use drag-and-drop to pull it to the previously planned ECG field in the middle.



ECGs first appear as single ECGs and are therefore marked with an S (single). If you accidentally allocated them wrongly, simply remove them from their assigned ECG by clicking on

Should you wish to control ECGs via DALI groups, click on

for group assignment. Now click on the group fied in the required group. A final click on the ECG field that you would like to assign to the group completes the process. The ECG now shows the group number.

7 Commissioning and operation via display and pushbuttons

You can commission the connected DALI segment and set and change some functions and tests via the three pushbuttons (MOVE, Set/Prg, ESC) and the 2x12 character display on the front of the device. The user concept is menu-based. Depending on the menu position, you can select two sub-levels. The current menu position is shown on the display.

To navigate within the menu, press the pushbuttons briefly. Use the Move button to select the next menu item on the same level. Use the Prg/Set button to go to the next lower level. Press the ESC button to leave a level and return to the next higher level.

7.1 Main menu level 1

The main menu (level 1) has the following structure:

DALI-Gateway KNX plus - V3.0	The product name and firmware version are displayed. The sub-menu can be used to set the display language.
NETWORK IP ADDRESS	This sub-menu displays the IP address set in the ETS or assigned by the DHCP server.
NEW INSTALLATION	When a DALI segment is newly installed, use the sub-menu to reset the connected DALI devices and automatically search for ECGs. Unlike with a new installation that was started through DCA or web server, the ECGs in this case are directly assigned 1:1 to the real ECGs.
POST INSTALLATION	Use this sub-menu to start the automatic search process and possibly adjust the configuration following a post-installation of DALI ECGs.
ECG QUICK EXCHANGE	Use this sub-menu to active the ECG quick exchange function and possibly program and integrate individually replaced ECGs into the system.
GROUP ASSIGNMENT	Identifies ECGs and assigns them to DALI groups
GROUP TEST	Switches programmed groups for test purposes.
SCENE TEST	Tests individually programmed scenes.
SYSTEM TEST	Use this sub-menu to individually load any existing system errors.
MAINTENANCE ECG/LAMP EVG/LAMPE	Resets operating hours.

CONVERTER INHIBIT MODE	Activates the converter inhibit mode in the installation phase.

To perform a function or change a configuration within a sub-menu, go to the respective position and change into programming mode. To change into programming mode, hold the Prg/Set button for more than 2 seconds. Once the function is in programming mode, a ➔-symbol appears in the display. If the programming mode is active, use the Move button to change a parameter or setting. Briefly press the Prg/Set button again to complete the process and save the set parameter or activate the function.

7.2 Sub-menu-level 2

7.2.1 Sub-menu language

The sub-menu language has the following structure:

DALI-Gate- way KNX plus - V3.0	The product description and firmware version are displayed. The display language can be set in the sub-menu.
LANGUAGE GERMAN	The currently set display language is shown. Hold the Prg/Set button to change into programming mode. Use the MOVE button to choose from one of the following languages: GERMAN, ENGLISH, FRENCH, SPANISH, ITALIAN, DUTCH, SWEDISH, DANISH. Briefly press the Prg/Set button again to save the configuration. The display now works in the selected language. The language setting also works for the web server.

7.2.2 Sub-menu IP network / address

The sub-menu IP/address has the following structure:

NETWORK IP ADDRESSE	Briefly press the Prg/Set button to change from the main menu IP ADDRESS to the sub-menu.
DHCP: 192. 168.004.xxx	This sub-menu displays the IP address currently set in the ETS or assigned by the DHCP-Server.

7.2.3 Sub-menu new installation

The sub-menu new installation has the following structure:

NEW INSTALLATIO N	Briefly press the Prg/Set button to change from the main menu NEW INSTALLATION to the sub-menu SEARCH ECGs via PROG-MODE.
SEARCH ECGs via PROG-MODE	This sub-menu displays the IP address currently set in the ETS or assigned by the DHCP-Server.
FOUND ECGs: xx	Use this sub-menu to reset the connected DALI devices and automatically search for ECGs during a new installation.

7.2.4 Sub-menu post-installation

The sub-menu post-installation has the following structure:

POST-INSTALLATIO N	Briefly press the Prg/Set button to change from the main menu POST-INSTALLATION to the sub-menu SEARCH ECGs via PROG-MODE.
SEARCH ECGs via PROG-MODE	Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set-button again to start the verification and search process. The device searches for the connected ECGs via their long address and automatically compares them to the previous configuration
DELETED ECGs: x	If ECGs have been removed from the DALI segment, the entries are deleted from the device. The number of deleted devices is displayed during the verification process
NEW ECGs: x	After that, the DALI segment is searched for newly installed devices. Newly added ECGs are automatically reset and any previously programmed parameters and group assignments are deleted. Depending on the number of connected ECGs the search process may take a few minutes. During the search process, the number of newly found devices is shown in the display.
DELTED/NEW ECGs: x/x	Once the whole process (verification and search) is complete, the display shows both the deleted and the newly found ECGs (deleted devices / new devices from left to right, see picture on the left). Press the ESC button (or wait for about 30 seconds) to return to the level above.).

7.2.5 Sub-menu ECG quick exchange

The sub-menu ECG quick exchange has the following structure:

ECG QUICK EXCHANGE	Briefly press the Prg/Set button to change from the main menu ECG QUICK EXCHANGE to the sub-menu SEARCH ECGs via PROG-MODE.
SEARCH ECGs via PROG- MODE	Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set-button again to start the quick exchange. The device first checks if one or several ECGs in the system were faulty. It then automatically looks for newly connected ECGs in the segment. The quick exchange is only possible if just one ECG in the segment was faulty and one new ECG is found. If the process is successful, the number of the replaced ECG is shown in the display. If the search process cannot be completed because the required conditions are not met, an error code appears in the display.
ECG xx REPLACED	
ERROR TYPE xx	The error codes have the following meaning: - Error Type 7: No faulty ECG - Error Type 8: More than one ECG faulty - Error Type 9: No new ECG found - Error Type 10: ECG has wrong device type - Error Type 11: More than one new ECG Press the ESC button (or wait for about 30 seconds) to return to the level above.

7.2.6 Sub-menu group assignment

The sub-menu group assignment has the following structure:

GROUP ASSIGNMENT	Briefly press the Prg/Set button to change from the main menu GROUP ASSIGNMENT to the sub-menu. Within this menu the individual ECGS that were found during the search process can be assigned to 16 DALI groups and previous assignments can be modified
ECG NR.: xx GROUP: --	Briefly press the MOVE button to run through the different ECGs. The number of the selected ECG is shown in the first display line. As long as the ECG is selected, the connect-ed lamp is flashing. The programmer can thereby determine which lamp is assigned to the number.
KONV. NR.: xx GROUP:	If the selected device is a converter for emergency lights, the selection sets the device into identification mode and the display shows the word CONV. For identification purposes, the function LED on the converter flashes during the test (see user manual for the converter)

KONV. NR.: xx GROUP: xx

Hold the Prg/Set button to change into programming mode. Briefly press the MOVE button again to select the group that you want to assign the ECG to. If the group is selected, briefly press the Prg/Set button to confirm and save the setting. Press the ESC button (or wait for about 30 seconds) to return to the level above.

7.2.7 Sub-menu group test

The sub-menu group test has the following structure:

GROUP TEST

Briefly press the Prg/Set button to change from the main menu GROUP TEST to the sub-menu. Within the menu, groups can be switched either individually or all together (ALL GROUPS TEST = BROADCAST) to test the installation.

GROUP: X TEST

Briefly press the MOVE button to run through the individual groups. The number of the se-lected group is shown in the first display line.

GROUP: X ---> OFF

Hold the Prg/Set button to change into programming mode. Briefly press the Move button to select whether you would like to switch the group on or off. Briefly press the Prg/Set button to execute the selected command. Press the ESC button (or wait for about 30 seconds) to return to the level above.

7.2.8 Sub-menu scene test

The sub-menu scene test has the following structure:

SCENE TEST

Briefly press the Prg/Set button to change from the main menu SCENE TEST to the sub-menu. Within the menu you can invoke all scenes for test purposes or program newly set light scenarios into the scene.

SCENE: X TEST

Briefly press the MOVE button to run through the individual scenes. The number of the selected scene is shown in the first display line.

SCENE: X ----> INVOKE

Hold the Prg/Set button to change into programming mode. Briefly press the Move button to choose whether you would like to invoke or save a scene. Briefly press the Prg/Set-Taste button to execute the selected command and either invoke or save the scene. Press the ESC button (or wait for about 30 seconds) to return to the level above.

7.2.9 Sub-menu system test

The sub-menu system test has the following structure:

SYSTEM TEST	Briefly press the Prg/Set button to change from the main menu SYSTEM TEST to the sub-menu. Within the menu you can check for any potential errors.
DALI NO ERROR	If there is no error, this is shown in the display. The following errors can be recognised by the system. They are shown in the display and also simultaneously set off the red error LED:
DALI ERROR	- DALI short-circuit - Lamp fault with the lamp or ECG number being displayed - ECG error with display of the ECG number - No KNX Bus In case of a DALI short-circuit, no further errors can be recognised. For all other error types, several errors can be recognised at the same time. Within the menu you can toggle between different errors by briefly pressing the Move button.
LAMP xx NO ERROR	The number of the ECG is displayed for lamp errors. This means that an error can be easily localised.
ECG xx NO ERROR	The number of the ECG is displayed for ECG errors. This means that an error can be easily localised.
KNX NO ERROR	If there are no errors, this is shown on the display.

7.2.10 Sub-menu maintenance ECG/lamp

The sub-menu maintenance ECG/lamp has the following structure:

MAINTENANCE ECG/LAMP	Briefly press the Prg/Set button to change from the main menu MAINTENANCE ECG/LAMP to the sub-menu. Within the menu you can start the burn-in of a lamp and reset the reader for its operating hours.
ECG NR.: xx xxx h	Briefly press the MOVE button to run through the individual ECGs. The number of the selected ECG is shown in the first display line. Line 2 shows the number of operating hours since the last reset.
ECG. NR.: xx RESET	Hold the Prg/Set button to change into programming mode. Briefly press the Prg/Set button to execute the selected command. Press the ESC button (or wait for about 30 seconds) to return to the level above.

7.2.11 Sub-menu converter inhibit mode

The sub-menu converter inhibit mode has the following structure:

CONVERTER INHIBIT MODE	Briefly press the Prg/Set button to change from the main menu CONVERTER INHIBIT MODE to the sub-menu. Within the menu you can turn on the Inhibit Mode for all connected self-contained battery emergency lights. If the mains power supply is turned off within 15 minutes from activating the Inhibit Mode, the lights do not change into emergency mode but remain switched off. Particularly during the initialisation phase of a building this operating mode may be required to prevent the emergency lights from being turned on constantly
INHIBIT MODE via PROG- MODE	Hold the Prg/Set button to change into programming mode.
INHIBIT CONVERTER?	Briefly press the Prg/Set button again to activate the Inhibit Mode. Press the ESC button (or wait for about 30 seconds) to return to the level above.

8 Operating modes

Each group and individual ECG offer different operating modes that can be set individually on the parameter page.

8.1 Normal mode

In normal mode, ECGs can be dimmed and switched without restrictions both via individual and group control. The control of each ECG and each group is based on three communication objects (switching, dimming, value setting).For DT-8 ECGs numerous additional objects for light colour control are available. It is not possible to control light colour via objects for individual ECGs.
An ECG can only be assigned to a single DALI group. The DALI gateway KNX plus does not support multi-group assignments on DALI level. If such assignment is required, please use KNX communication objects for this purpose. Separate status objects inform about the switch and value status both at group and individual ECG level.

8.2 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 preset light level because of a special operation (e.g. identification process on the device display) or error (e.g. ECG was without power when the gateway was started) the light level is automatically corrected after 60 seconds.

8.3 Staircase mode

In staircase 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 like 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.

8.4 Night mode

The night 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 like in normal mode. If the object is set (night), the group either switches off after a programmable time or it goes into permanent mode.

8.5 Panic mode (special case)

The panic mode can be activated via a central object for the whole gateway. All 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.

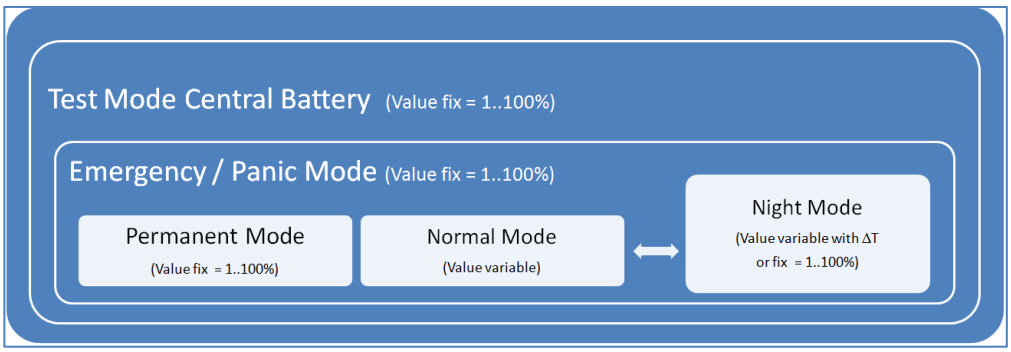
ⓘ When the panic mode is active, both the scene and time scheduling module are de-activated.

8.6 Test mode for central battery emergency lights

Through its internal function the DALI gateway KNX plus supports installations with central battery emergency luminaires. Any ECG (except for those of the self-contained battery type) can be configured as an emergency light (even when assigned to a group). You can choose a test time between 15 minutes and 4 hours. If the gateway receives the central battery test object, the respective lights change to a programmable value for this time period. They can no longer be switched or dimmed via the corresponding objects. The discharge time and capacity of the central battery can thereby be tested under pre-defined conditions.
So that individual ECGs within a group can no longer be switched via group telegrams or scenes, the group assignment is dissolved for the duration of the test mode. When the test has finished, groups and scenes are automatically re-programmed onto the ECGs. Should the gateway lose power during the test mode, the unprogrammed devices are marked and automatically programmed on return of the power supply. The test mode, however, does not continue. It has to be re-started.
When the test mode terminates normally, the devices return to the previous light value or the switch on / switch off value and can again be controlled individually.

8.7 Operating mode hierachy

Some of the individual operating modes described above have higher functions and roles for the operation of the system as a whole. A priorisation or hierarchy of operating modes is therefore required. The central battery test mode has the highest priority followed by the panic mode. The permanent, normal and night modes have the same priority level in the hierarchy.



By default manual mode is enabled and can always be used for service and maintenance functions. However, it can be disabled by means of ETS parameters, see chapter: --> Parameter page: Special functions.

9 Analysis and service functions

9.1 Recording operating hours

The DALI gateway KNX plus allows for the operating hours (burning time) of each lamp to be individually recorded for each group and individual ECG. The internal recording is precise to the second. The value is available externally via communication objects. (DPT 13,100). The operating hours recording is independent from the dim value. This means any light value > 0% contributes to an increase in the operating hours of a group. The counter can be reset (when a lamp is changed). To reset the counter, the value 0 is written on the communication "reset operating hours".

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

ⓘ In accordance with KNX standards, the operating hours are sent in seconds. However, these can be changed into other units.

9.2 Error recognition at ECG level

A major advantage of DALI technology is the individual recognition of light errors or faulty ECGs. The DALI gateway KNX plus supports this function.

The polling cycle can be configured. If the time is 1 second (standard setting) and there are 64 connected ECGs, the complete process of scanning all ECGs for light and ECG errors takes 128 seconds (1 second per ECG and error type). 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).
In addition, the error status can also be checked on the DCA in the ETS.

You can also request the error status of all individual ECGs and lamps via a special error status object (object no. 20), see --> Analysis- and service functions --> Communication object description.

ⓘ If the parameter setting is "Polling cycle for errors" = "No query", all error queries are disabled. No ECG or converter errors or lamp errors are recognised in this case. This setting is only useful for service purposes when an extreme reduction of the DALI busload is required.

The error status of all ECGs is also displayed on the gateway website.

9.3 Error analysis at group level

If ECGs and / or converters are merged into groups, numerous group-specific error data is available in addition to the individual ECG data. For this purpose 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.

The error information for a group is also clearly displayed on the web site of the integrated web server.

9.4 Error 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.

As before, the error information for the entire gateway is also displayed on the website.

10 Colour control (DT-8)

The DALI gateway KNX plus 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.

10.1 Features of DALI device type

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).

ⓘ DT-8 ECGs for the sub-type PrimaryN are not supported by the DALI gateway.

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 would be greatly reduced.

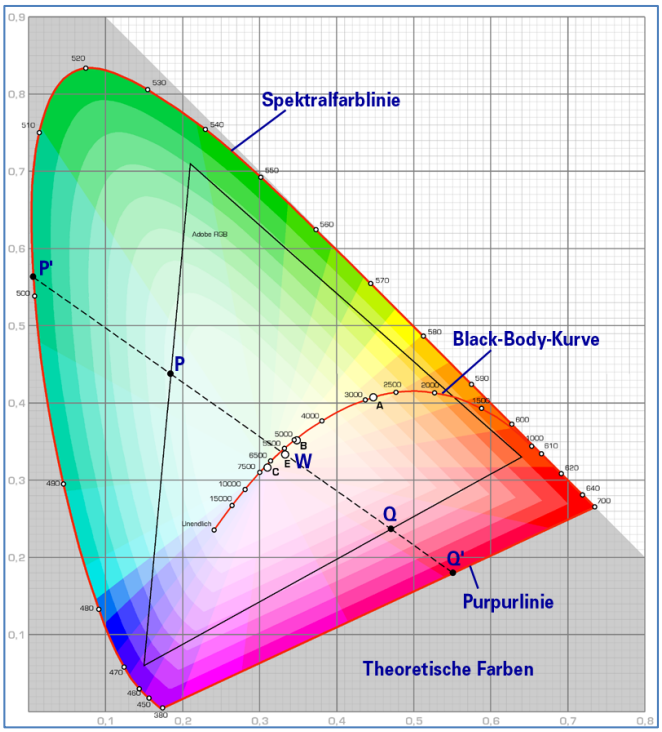
With a DT-8 device, however, only one short address is required for all colour channels and the maximum possible range of 64 lights can be controlled.

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 device or lamp manufacturer.**

10.2 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 x-y 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.

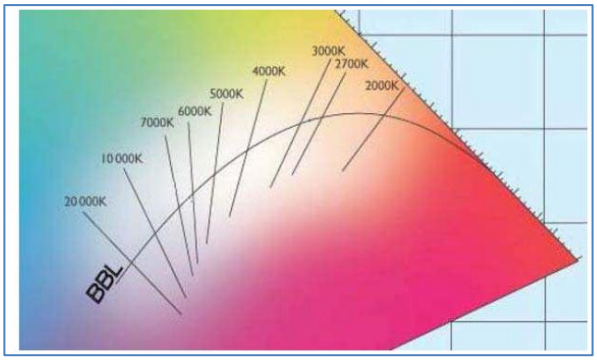


In devices that support the x-y coordinates method, the colour is set via two values between 0.0 and 1.0. However, because of the physical properties of an LED, even in an RGB LED module not every colour is practically possible. In practice, it is common to set the value which is closest.

Please pay attention to the instructions of the ECG or lamp manufacturer. Usually the xy values, which are supported by the lamp, are specified here. XY values outside of the specified range can lead to incorrect values and non-reproducible colours.

10.3 Colour display via colour temperature

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



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.

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

Principally, a colour is always 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.

Unlike the methods described above, 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 defining 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 KNX plus, however, only supports a maximum of 4 colours, in line with the ECGs that are currently available on the market.

11 Self-contained battery emergency lights

The DALI gateway KNX plus also supports ECGs for the control of self-contained battery emergency lights. (Device type 1 according to EN 62386-202). Such devices contain a battery within the lamp that will operate the light for a certain time period in case of loss of power supply.

11.1 Self-contained battery emergency lights

Principally a distinction is made between switchable and non-switchable devices for self-contained battery lamps. A switchable device can be directly connected to a lamp just like a 'normal' ECG. In normal mode the light (usually an LED) can be switched and dimmed via DALI. Emergency lights with switchable ECGs therefore require only 1 DALI device. The standard switch parameters and objects are available for these devices.

In contrast to the 'switchable' device, a 'non-switchable' device (converter) can only control the connected lamp in an emergency.

The light is normally either always on or always off. As these devices do not allow direct switching, there are no objects available for this purpose. During both new and post-installation the DALI gateway KNX plus recognises automatically, whether the connected device is a 'switchable' or 'non-switchable' ECG.

Sometimes special, non-switchable converters are used together with "normal" DALI ECGs in a light. These lights are therefore called emergency lights with 2 DALI devices. The two ECGs make a device pair that shares a common light. The 'non-switchable' device uses the DALI communication to query the device status and to initiate mandatory test phases. The switchable device controls the light in normal mode.

However, because of the DALI structure with its random assignment of short addresses, the pairing of a 'normal' device with a 'non-switchable' device does not occur automatically. It has to be performed manually on the parameter page in ETS.
The assignment is crucial for error analysis purposes as 'non-switchable' devices usually share the connected lamp with a 'normal' device. Without the assignment, a lamp error may be double-counted. In addition, the 'normal' ECG in a pair is usually automatically disconnected from the power supply when the emergency light is tested. This loss of function generates an ECG error. However, by making a pair, the gateway recognises automatically, whether a real ECG error has occurred or whether the corresponding converter has simply been tested. Only real ECG errors are taken into account for the analysis.

11.2 Identification of self-contained battery emergency lights

To identify the converters after installation, an identification process starts when selecting flashing mode". During this process the status LED of the emergency light flashes.
Please remember to check the description of your lights. As the status LED is not visible or does not work for some lights, you can also run a function test. During the function test, the ECG usually switches the light on for a few seconds.

11.3 Converter inhibit mode

Self-contained battery emergency lights always change into emergency mode if there is a power supply failure. The lamp is now operated by the internal battery. However, it may become necessary at times to cut off the power supply, for example during maintenance work or the commissioning phase of a building. To prevent the lights from switching into emergency mode, the converters connected to the DALI gateway KNX plus can be disabled via the pushbuttons and display on the device (see above). This converter inhibit mode is only available for all connected devices at the same time. If the power supply is turned off within 15 minutes after activating the mode, the connected lights do not change into emergency mode and the lights remain switched off. When the power resumes, the lights return to normal. If the 15 minutes run out without a power loss, all converters are automatically reset to normal mode.

11.4 Test mode for self-contained battery emergency lights

The DALI gateway KNX plus supports the execution and recording of mandatory tests for self-contained battery emergency lamps.

ⓘ The legal regulations and norms vary in different countries. Please make sure that you comply with all country-specific requirements.

The DALI gateway KNX plus supports functional tests, long duration tests and battery status tests. Functional and duration tests can be started externally via KNX telegrams (1 Byte telegrams, see below) or via the device website. Alternatively you may choose to set automatic test intervals. This means tests are performed automatically via the connected converters.

ⓘ Please check the converter description for the exact function.

After a test has been completed, the test results are available on the KNX bus via communication objects and they may be recorded in the visualisation. The corresponding objects are updated with the test result and automatically sent after every new test.
Please see object description → communication objects below for the exact function.

Alternatively, test results can be displayed on the website if you select the respective converter.

12 The scene module

The DALI gateway KNX plus enables the programming and invoking of up to 16 internal light scenes. A scene is invoked via a 1Byte scene object. This object can also be used to save scenes (Bit 7 set). The currently set value is saved as scene value. In case of DALI DT-8 devices, the currently set light colour or colour temperature also becomes part of the scene and is automatically adjusted when a scene is invoked. In principle, a scene can consist of groups and individual ECGs (as long as these have not been assigned to a group).

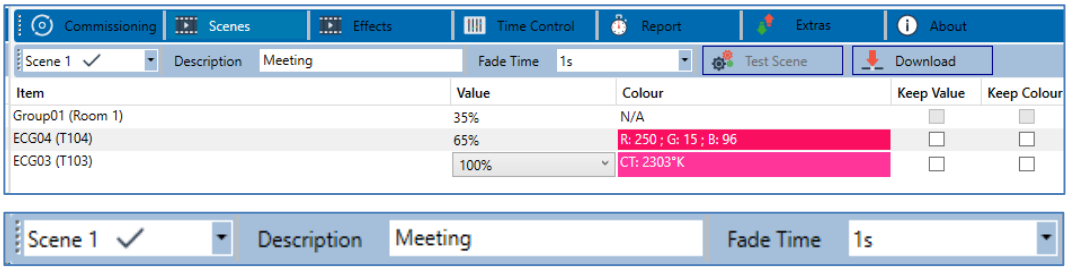
To assign a group to a scene or to delete a group from a scene, use the DCA or the website. Both configuration methods can be used to set values and colours for invoking a scene.

By default, the programmed scene is started immediately without dim time. If you want to dim into a scene, you can set a dim time for each scene.
Switching an individual group (or ECG) from the scene whilst a scene is already in the dimming process only affects that particular group. The other groups continue the dimming process.

For each scene a 4 Bit dim object is available. This makes it possible to dim all the lights in a scene together.

12.1 Scene configuration via DCA

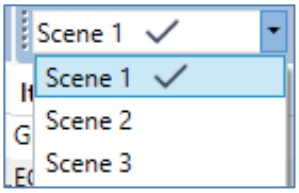
Scenes can be programmed and assigned in the DCA. For this purpose change from the commissioning to the scene page.



12.1.1 Configuration

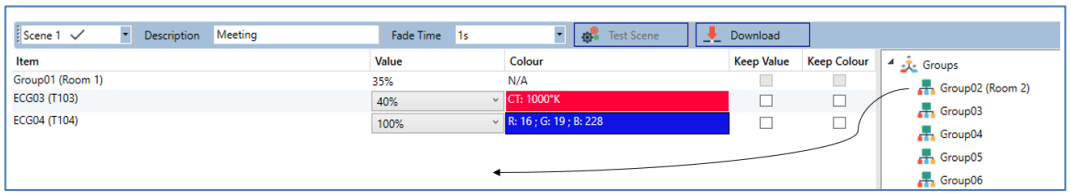
You can enter a user-friendly name for each scene in the description field. The name can be up to 20 characters long. If you do not want a scene to start immediately but would prefer dimming it up to its final value, you can set the dimming time individually for each scene.

Please remember that the dim time always refers to the full value range. Accordingly a dim 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.
Select the required scene from the dropdown on the left-hand side.



A „tick" means that the scene has already been defined.

Move the groups which you would like to use for this scene from the directory on the right-hand side into the field in the middle using drag-and-drop.



Use the entry fields to enter the required values for this scene.

- **Value**

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

- **Colour**

Defines 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 from a colour picker.

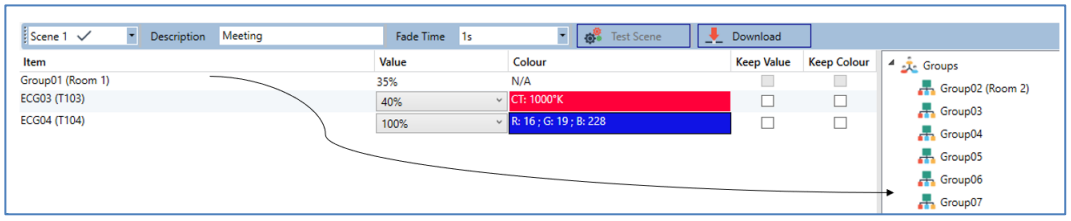
- **Keep value**

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.

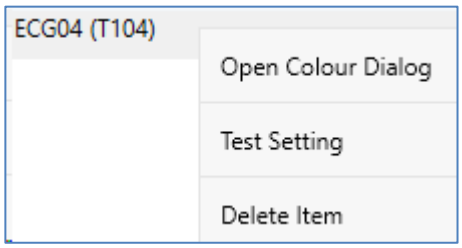
- **Keep colour**

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.

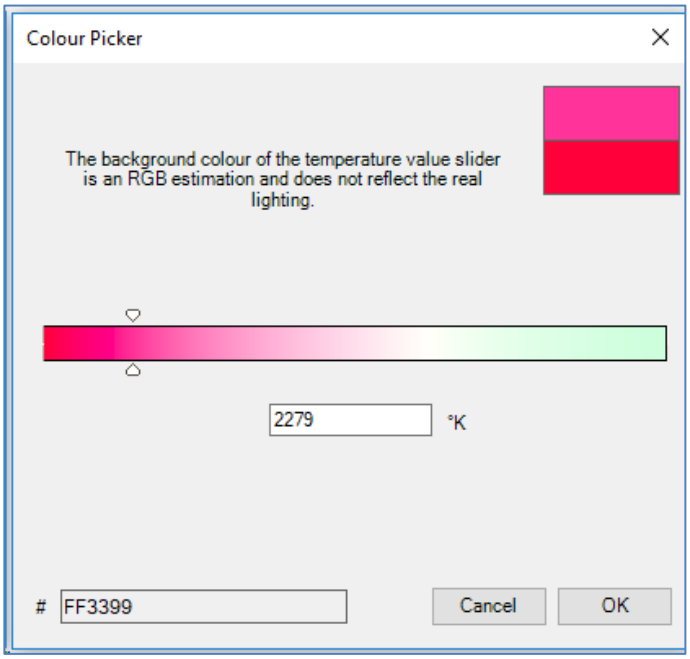


You can also delete an entry via the context menu (right click on a line):

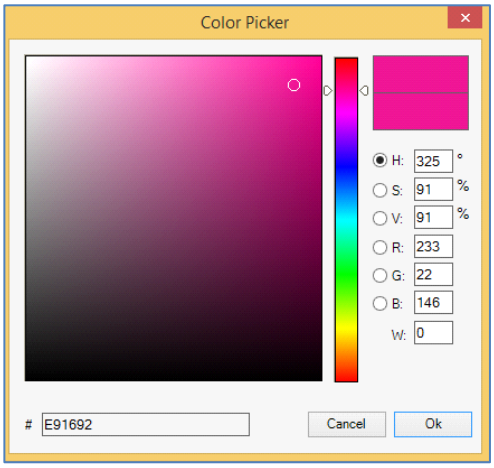


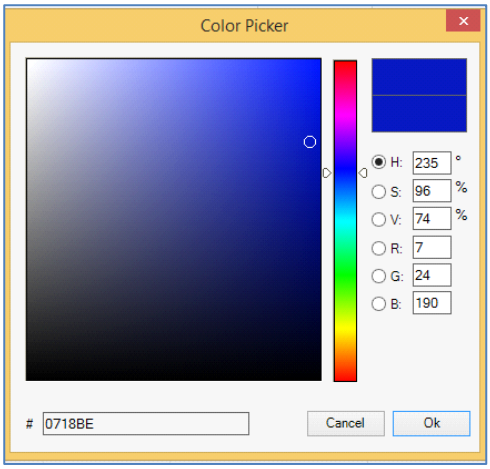
12.1.2 Colour setting

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

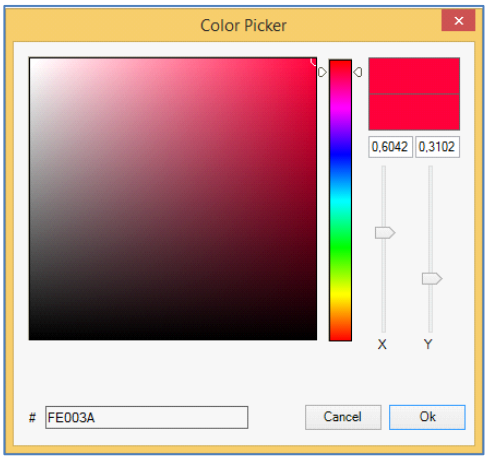


For RGB (RGBW) or HSV the window is as follows:





For the XY option, the following window appears:



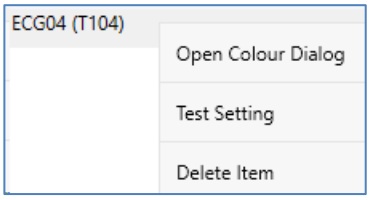
12.1.3 Programming scenes

Once all scene values have been set and assigned, 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 KNX plus 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.

12.1.4 Testing a scene event

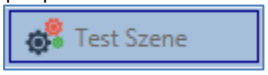
One way to test the settings for an event is via the context menu (right click with the mouse).



A connection to the DALI gateway KNX plus 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.

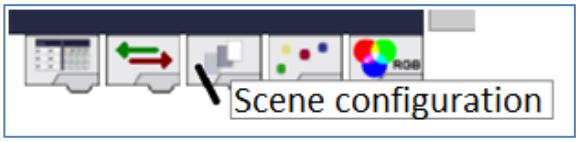
12.1.5 Testing the scene as a whole

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 KNX plus is required for this purpose.

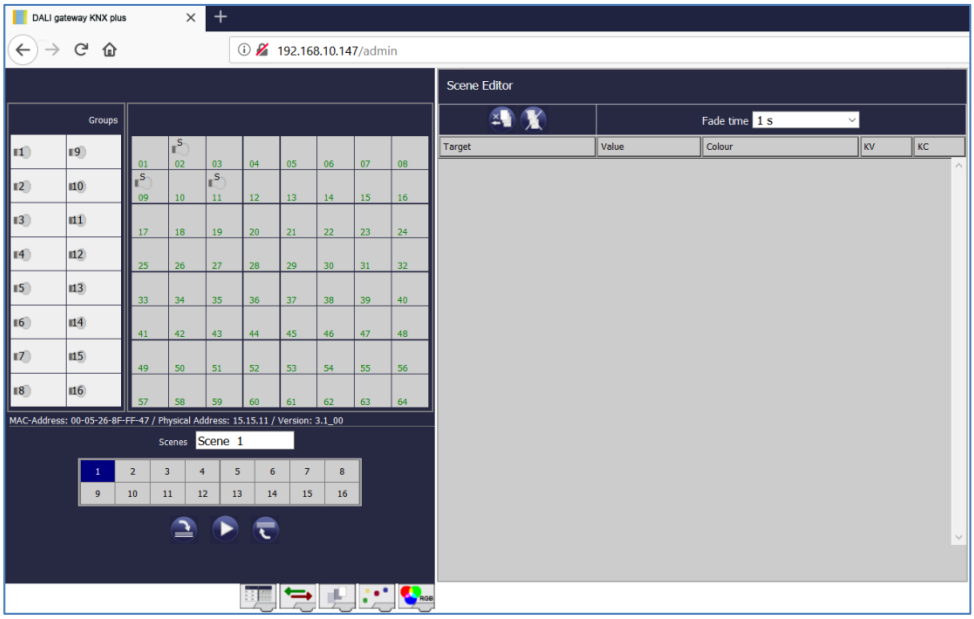


12.2 Scene configuration via web server

Scenes can be assigned and programmed via the website on the web server. After starting the website, change from the commissioning page to the scene page by clicking on the scene configuration tab.

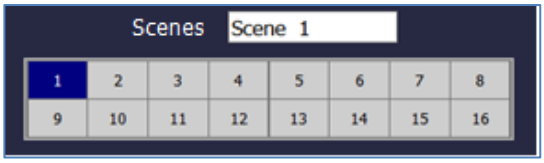


The scene page has the following layout

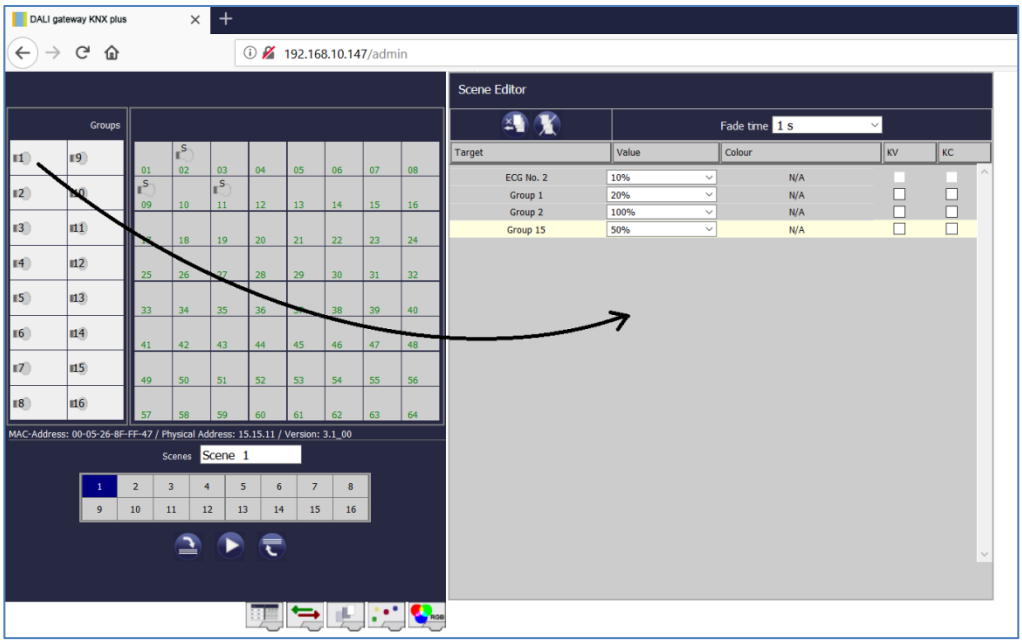


12.2.1 Configuration

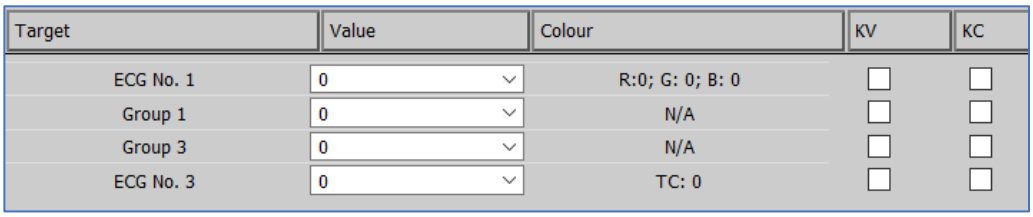
Please select one of the 16 available scenes first by pressing the corresponding button in the scene field.



Use Drag-And-Drop to move the groups and single ECGs that you would like to control in the scene into the list on the right-hand side.



Please remember that only those ECGs can be used in a scene that have been defined as individual ECGs. If an ECG has been assigned, it can no longer be moved to the list. Once all elements have been dragged into the scene, the required values can be set.



Select an element and press

to delete it from the list.

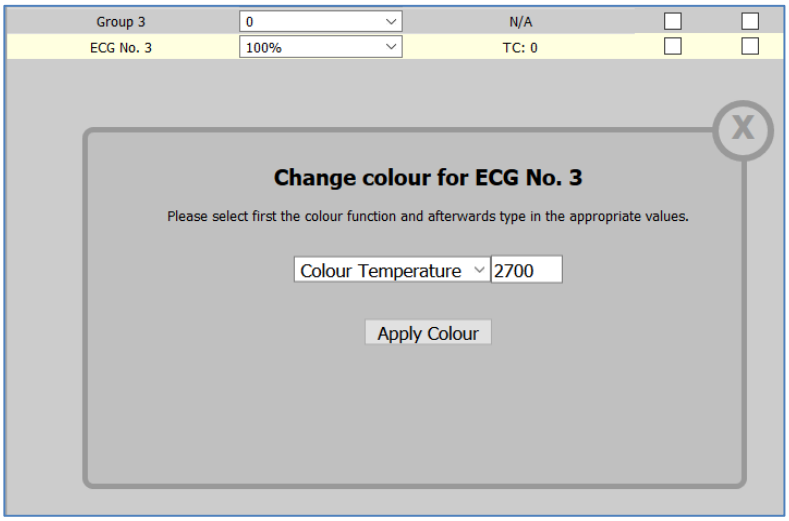
To delete all entries from a selected scene, press:

12.2.2 Colour entry

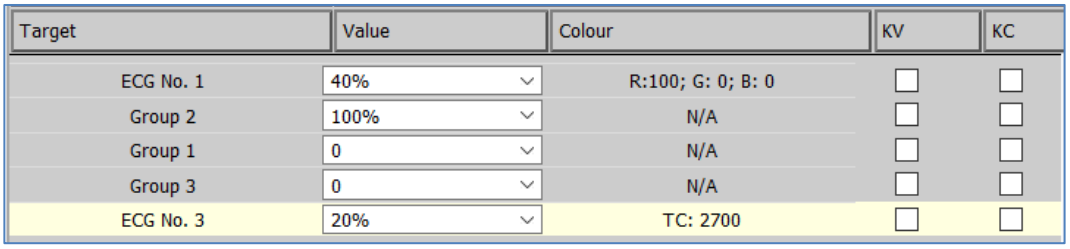
Once individual ECGs or groups have been configured for colour control (DT-8), a colour can be set in addition to the light value. Please click on the colour field of the required ECG.

> A colour can only be set if the group or ECG has been enabled for colour control. Otherwise N/A (not applicable) appears in the colour field.

A further window for entering the colour data will open.



Click on "accept colour value" to load the selected colour for the group / individual ECG into the scene.

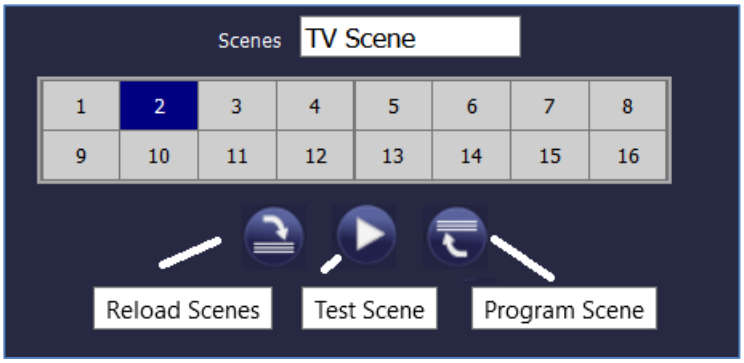


There are two further flags available to select only value setting or only colour setting:

- KV (Keep Value) → Value remains as configured, only the colour is taken into consideration
- KC (Keep Colour) → Colour remains as configured, only the value is taken into consideration

12.2.3 Programming scenes and scene test

Once all entries for the required scenes are complete, you need to download them from the browser onto the device. To do so, press the “scene programming” button. The scene data are transferred simultaneously to the connected ECGs.



During programming you can assign a name (max. 10 characters) to the scene. Before saving the scene, enter the name in the text field above the scene block.

To test the selected scene, use the “test scene” button.

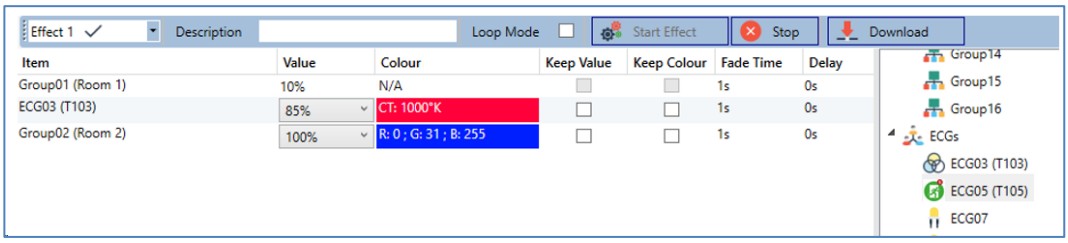
To load the scene data from the gateway to the web browser, use the button on the left-hand side.

13 The effect module

In addition to light scenes the DALI gateway KNX plus also enables the use of effects. An effect is essentially the process control of light values of different groups and individual ECGs. The individual light values can either be directly controlled or dimmed via a dim value. Please remember that the value relates to a dim time between 0 and 100% (see scene module). The DALI gateway KNX plus enables 16 independent effects. An effect is started or stopped via a 1 Byte object. Set Bit 7 in the object to start the effect. Receiving the object with a deleted Bit 7, will stop the effect.
Altogether, 500 effect steps can be programmed, which can be spread across 16 effects. An effect step can also be programmed as a delay.

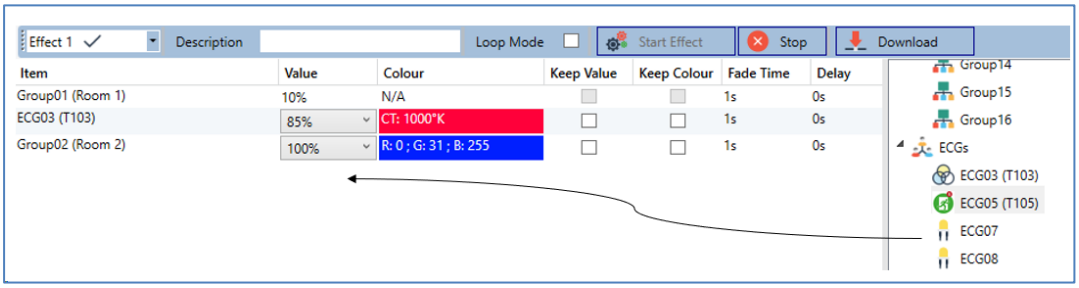
13.1 Effect configuration with the DCA

Effect programming and assigning can be done via the DCA. For this purpose, please change from the commissioning to the effect page.



13.1.1 Configuration

On the effect page, select the required effect from the drop down field. Drag the groups and individual ECGs that are required for this effect from the tree on the right hand side into the middle field listing the effect steps. The order of the list entries corresponds to the individual effect steps. To change the order within the list, use the mouse to move the entries around.



Enter the values required for the scene in the different fields.

- **Value**

Defines the light value between 0 and 100%. The value can be selected via a drop-down field.

- **Colour**

Defines the colour according to the type of colour control for this group. Double-click on the mouse or use the context menu to open a window and simply select the colour from a colour picker.

- **Keep value**

With this setting, the current value remains unchanged when the scene is recalled. The entry field for the value is disabled with this setting as it is not needed. Any entry in the value field will be ignored.

- **Keep colour**

With this setting, the current colour remains unchanged when the scene is recalled. The entry field for the value is disabled with this setting as it is not needed. Any entry in the colour field will be ignored.

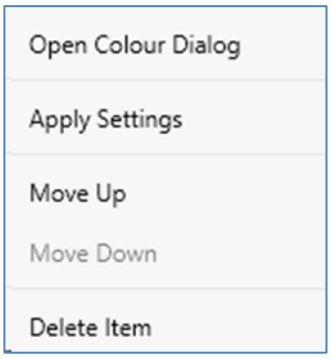
- **Fade time**

Defines the time needed to achieve the required setting. This entry can be used to define fading effects.

- **Delay**

Defines the time until the next event.

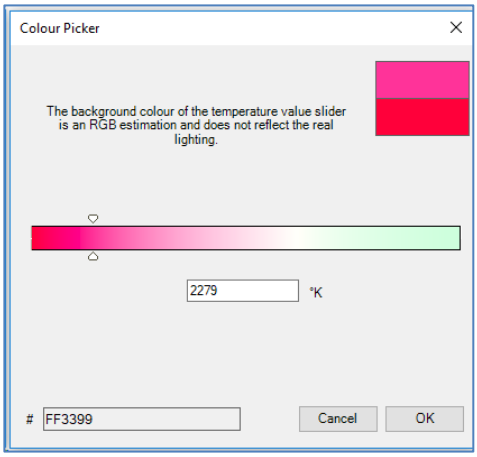
To delete an entry, select a group and drag it back into the tree on the right hand side.
Another option to delete an entry is via the context menu (delete element):



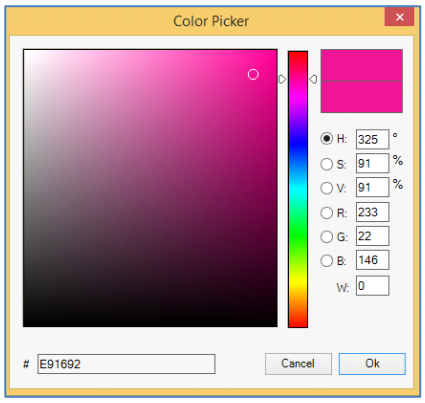
13.1.2 Colour entries

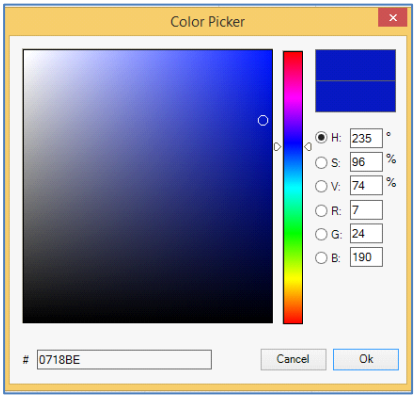
Each group or ECG can only support one type of colour control.

For the type "colour temperature" the following colour entry window is displayed:

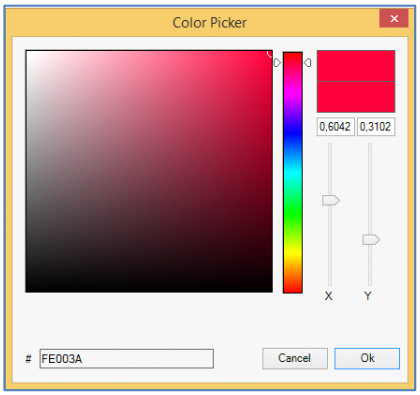


For the RGB (RGBW) type or HSV the following window is displayed:





For the XY type the following window appears:



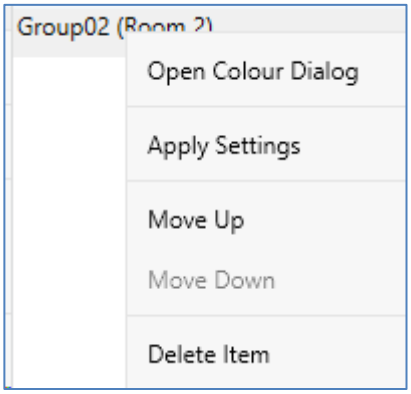
13.1.3 Programming effects

Once all effect values have been set and assigned, save the effect on the device. Press the "download" button in the top right hand corner.

A connection to the DALI gateway KNX plus is required for the download. Individual effects can also be planned "offline" in the ETS, independently of the DALI system. The DCA only needs to be connected to the gateway for the download.

13.1.4 Testing an effect event

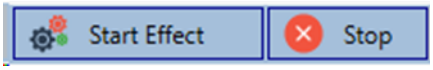
To test the settings of an event, use the context menu (Right click on a field):



Connection to the DALI gateway KNX plus is required. The command is performed with the value and colour settings that have been defined for this group or ECG. This makes it possible to check properties before the whole effect is programmed. If "Keep value" or "Keep colour" have been set, the respective values will not be activated and the current value will be retained.

13.1.5 Testing the whole effect

After an effect has been programmed, the button is activated. Press the button to start the selected effect. Connection to the DALI gateway KNX plus is required.

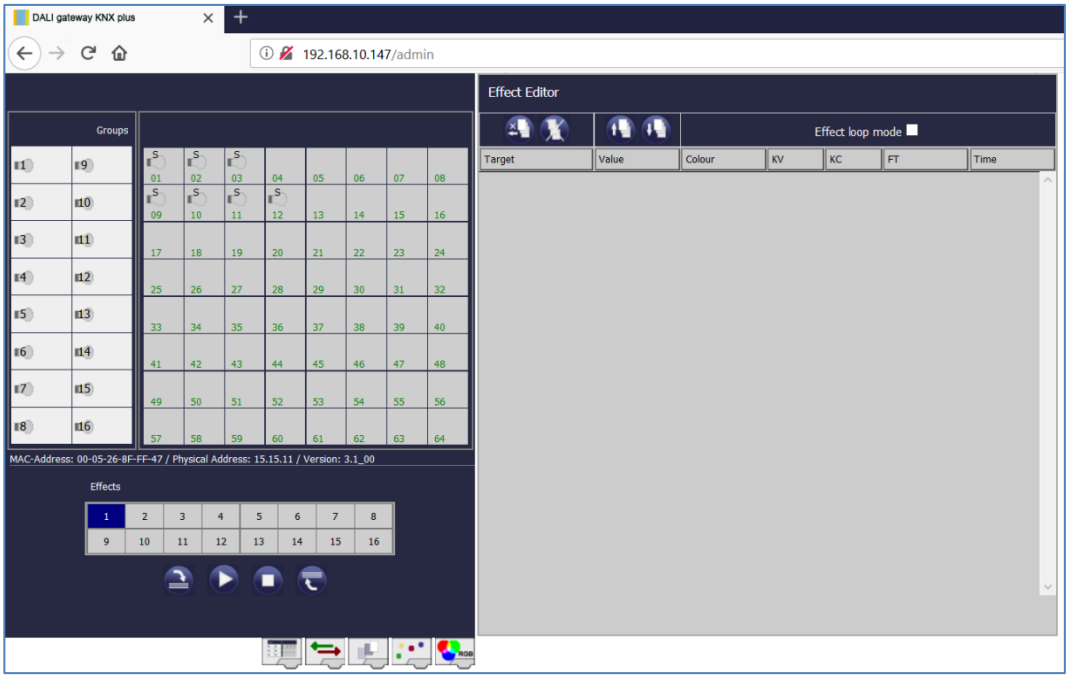


To stop an indefinite effect, press the stop button.

13.2 Effect configuration via web server

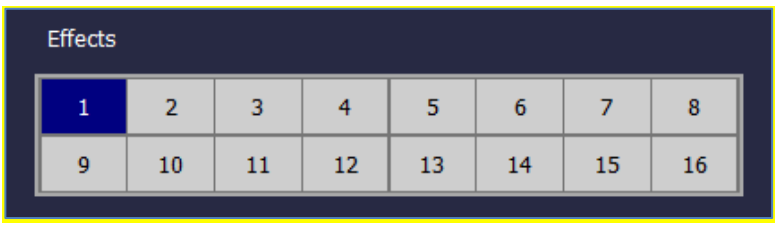
You can set and program effects via the server website. After starting the website, change from the commissioning to the effect page which can be accessed via the effect tab at the bottom of the page:

The effect page has the following layout:

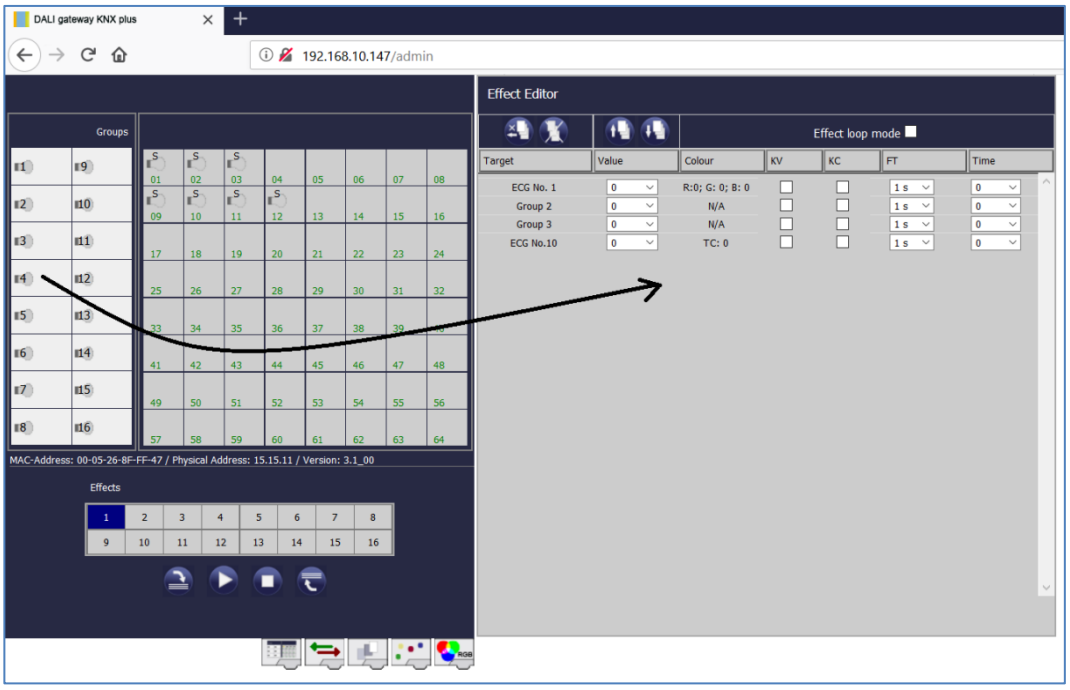


13.2.1 Configuration

To configure an effect, first select one of the 16 effects from the effect selection block.



Use Drag-And-Drop to move the groups and individual ECGs that you would like to control within the effect into the list on the right-hand side.
The effect steps are performed in the order in which they are listed.



Please remember that only those ECGs that have been defined as individual ECGs can be used in an effect. An ECG that has been assigned to a group, can no longer be pulled into the list.
Use the

button to move already entered effect steps up and down and thereby change the order in which the effect steps are performed.
Click on

to delete an individual effect step or the whole list. The list can be executed just once or repeated periodically. Select the click box “repeat effect” at the top of the page if you would like it to be repeated.

Once all effect steps are set up in the required order, enter the corresponding values.

Ziel	Wert	Farbe	KV	KC	FT	Zeit
ECG No. 2	10%	TC: 4000	☐	☐	1 s	5 s
Group 1	20%	N/A	☐	☐	1 s	10 s
Group 3	40%	X: 0.35; Y: 0.27	☐	☐	5 s	10 s
Group 4	100%	N/A	☐	☐	1 s	0

The following entries are possible for each element:

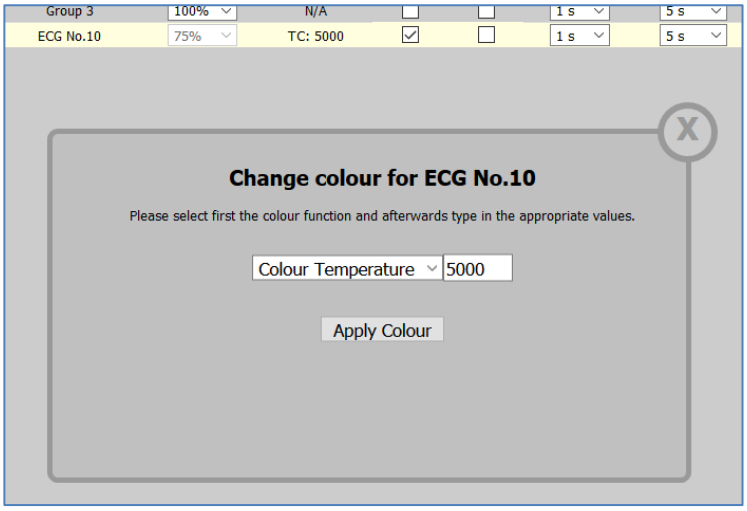
- Value → Dim value
- Colour → Colour value (only for DT-8 lights)
- KV → (Keep Value) The current value remains as configured, only the colour changes
- KC → (Keep Colour) The current colour remains as configured, only the value changes
- FT → Fade Time to set dim value and colour
- Time → Time until the next effect step is performed

13.2.2 Colour entry

Once individual ECGs or groups have been configured for colour control (DT-8), a colour can be set in addition to the light value. Please click on the colour field of the required ECG.

A colour can only be set if the group or ECG has been enabled for colour control. Otherwise N/A (not applicable) appears in the colour field.

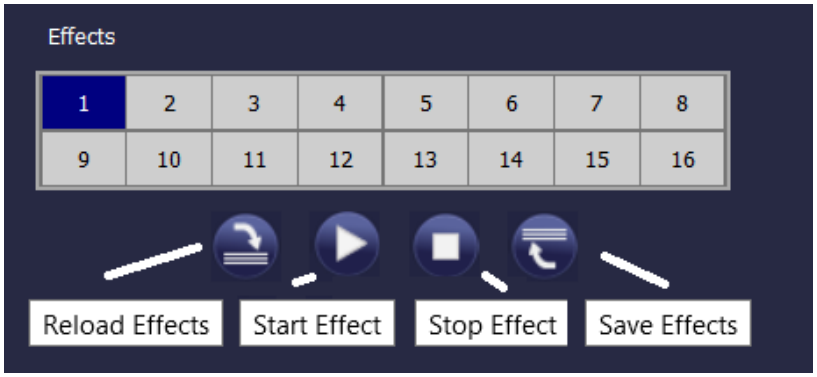
A further window for entering the colour data will open.



Click on "accept colour value" to transfer the selected colour for the group / individual ECG to the effect step.

13.2.3 Programming and starting an effect

Once all entries for the required effects are complete, you need to download the settings from the browser onto the device. To do so, press the "save effect" button.



To start or stop a selected effect, use the buttons in the browser.

Use the button on the left to load the effect data from the gateway into the web browser.

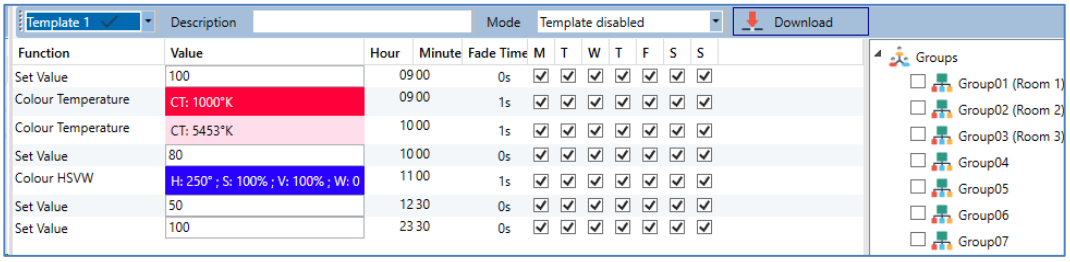
14 Time control module for values and colours

In order to use the colour setting options of DT-8 devices, DALI gateway KNX plus offers an integrated time control module. With this module, users can automatically set a defined light colour and potentially a light value depending on the current time and date. Up to 16 templates are available. A template combines different actions which will trigger an event at a configurable time.

Time control of DT-8 colour ECGS 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 time 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. Dim values can also be automatically set in relation to the time.

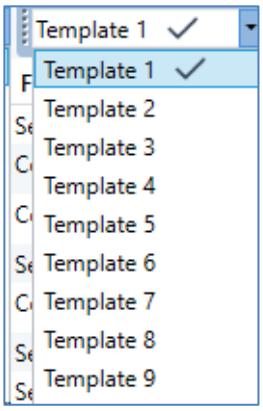
14.1 Configuration of DCA time programs

Time control can be programmed and assigned in the DCA. For this purpose change from the commissioning to the time control page.



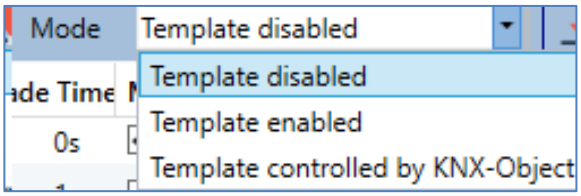
14.1.1 Configuration

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

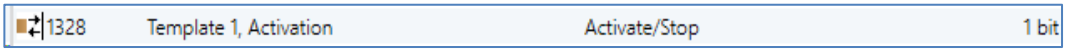


A “tick” means that the template has already been defined.

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:

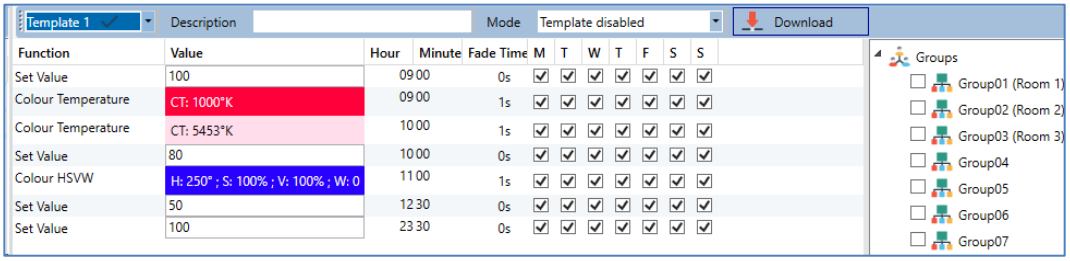


The template can be disabled. By default all templates are enabled.
It is also possible to enable or disable the template via a communication object. If you choose the option "control template via object" the corresponding objects are displayed. See chapter --> ETS communication elements --> Objects for time control module.



For further information, please see chapter: --> DCA Time control --> Disable/enable.

Use the tree on the right hand side to select 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 menu, move the mouse to an action and click on the right mouse button.
The following functions are available to create and edit action lists:

- **Import template**

see Export/Import

- **Export template**

see Export/Import

- **Empty template**

Completely removes the configuration of this template.

- **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 KNX plus is required.

- **Test group action**

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

14.1.2 Types of action

Once you have created an action, set the corresponding function 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**

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

- **MinValue**

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**

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 lamp 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 RGB**

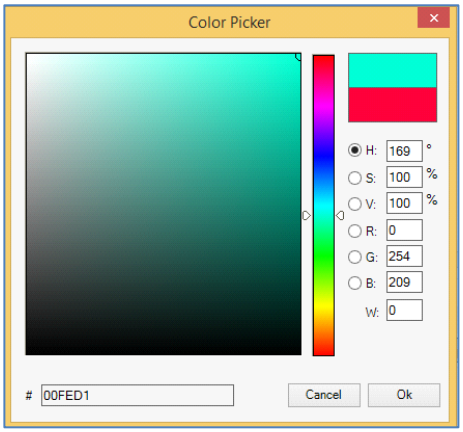
Sets the colour values of DT-8 devices that support the colours RGB.
On the ECG the colour is also changed if the lamp is turned off at the time of the action. The values for each colour can be entered separately. The permitted value range for R,G and B is between 0 and 100%. The final colour is a mixture of the different primary colours according to their percentage.

- **Colour HSV**

Sets the colour values of DT-8 devices that support the colours RGB.
However, the value is entered by means of saturation, hue and brightness levels in this case.
On the ECG the colour is also changed if the lamp 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%.

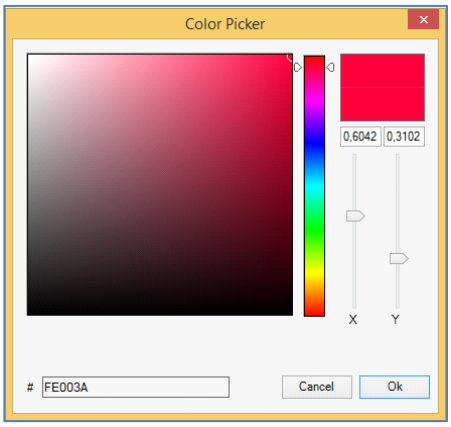
- **Colour RGBW**

Sets the colour values of DT-8 devices that support the colours RGB or RGBW.
On the ECG the colour is also changed if the lamp is turned off at the time of the action.
The values for each 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 XY**

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 lamp 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.



In principle, every group can be added to a template independently of the ECG device types used in the group. 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 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 are 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:

Function	Value	Hour	Minute	Fade Time	M	T	W	T	F	S	S
Colour HSV	H: 246° ; S: 92% ; V: 92%	11	00	1s	☑	☑	☑	☑	☑	☑	☑
Colour Temperature	CT: 2200°K	11	00	1s	☑	☑	☑	☑	☑	☑	☑
Set Value	66	11	00	0s	☑	☑	☑	☑	☑	☑	☑

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.

14.1.3 Disable/enable

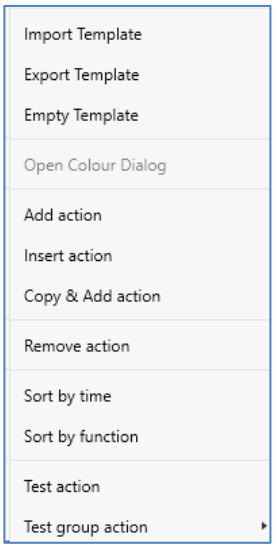
A template can be enabled or disabled in the header of the editor.

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 via external objects. If you select this setting for a template, you can control it via the external objects 1328ff.

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

14.1.4 Export/Import

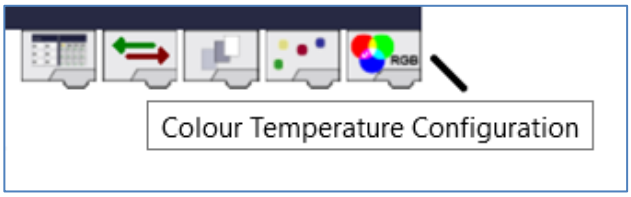
To reuse a previously created template it is possible to export the template. The resulting xml file can be saved separately so that it can be reused in another project or template.
The export and import commands can be found in the context menu.



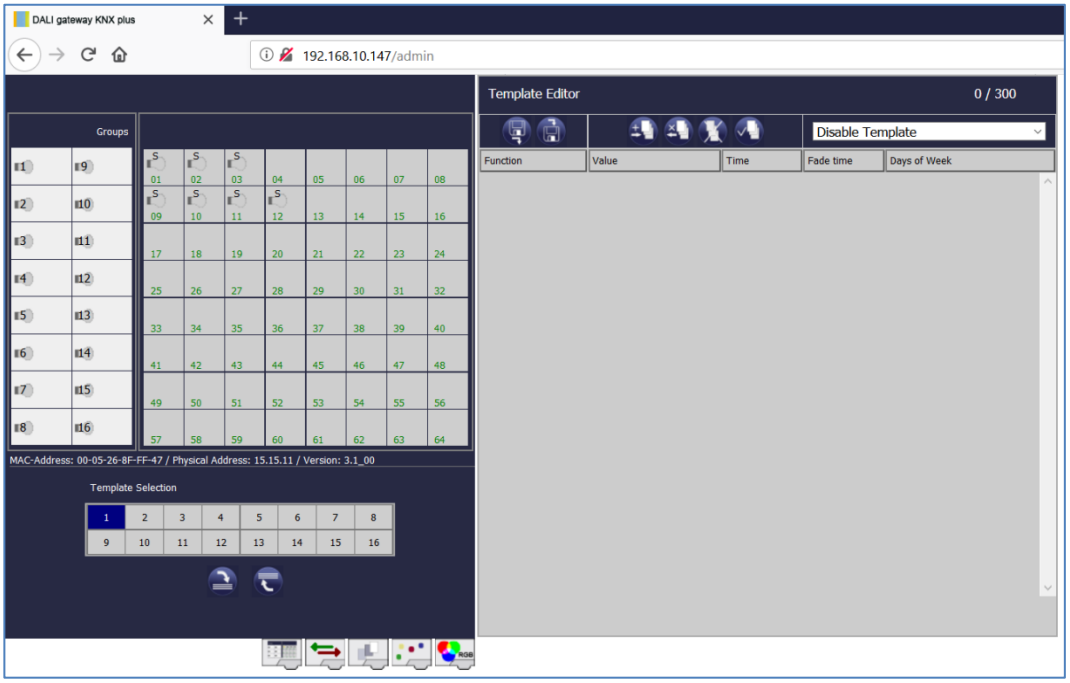
The template is saved as an XLM file in the chosen destination directory.

14.2 Configuring time schedules via web server

Time schedules and templates can also be set and programmed via the web browser. After loading the website, change from the commissioning page to the configuration page for time programmes via the `Colour value configuration` tab.

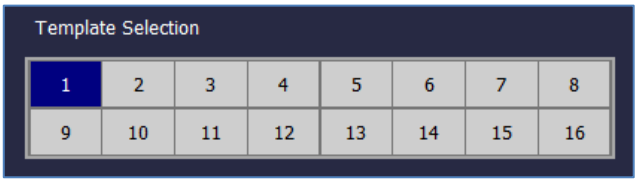


The layout of the configuration page is as follows:

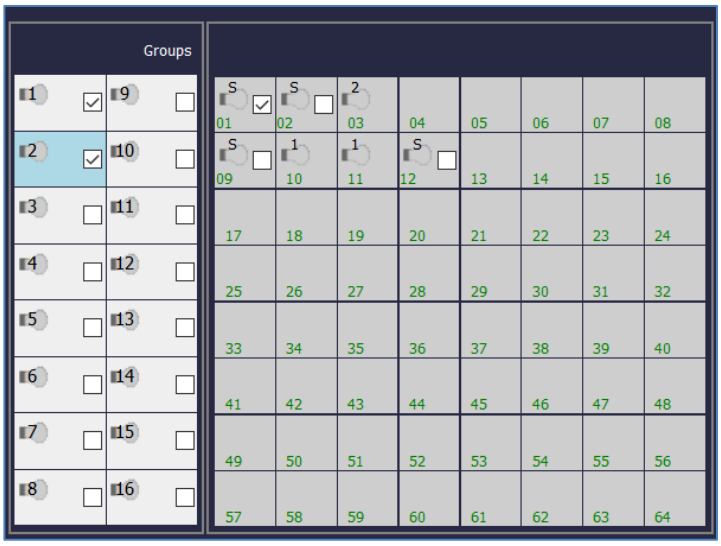


14.2.1 Configuration

Please select one of the 16 possible templates first by clicking on the corresponding field.



Once the template has been selected and the first actions added, tick boxes appear in the ECG and group fields. Click on a box to select the elements that you want to include in the template.



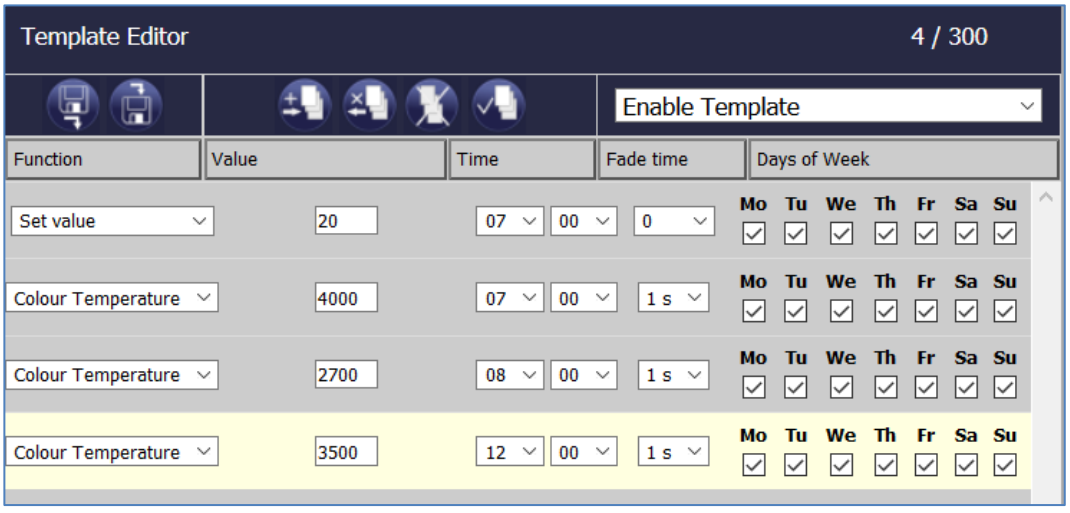
Use the buttons in the header to add or edit actions:

Add action

Delete action

Delete all actions

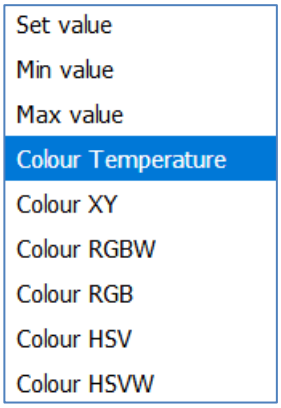
Test action



14.2.2 Types of action

Once you have created an action, set the corresponding function 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**

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

- **MinValue**

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**

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 lamp 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 RGB**

Sets the colour values of DT-8 devices that support the colours RGB.
On the ECG the colour is also changed if the lamp is turned off at the time of the action. The values for each 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**

Sets the colour values of DT-8 devices that support the colours RGB.
However, the value is entered by means of saturation, hue and brightness levels in this case.
On the ECG the colour is also changed if the lamp 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%.

- **Colour RGBW**

Sets the colour values of DT-8 devices that support the colours RGB or RGBW.
On the ECG the colour is also changed if the lamp is turned off at the time of the action.
The values for each 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 XY**

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 lamp 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.

In principle, every group can be added to a template independently of the ECG device types used in the group. 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 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 are 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:

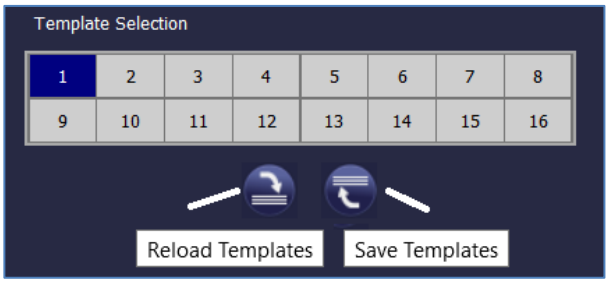
14.2.3 Disable/enable

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 via external objects. If you select this setting for a template, you can control it via the external objects 1328ff.

14.2.4 Programming a schedule

Once all entries for a time schedule are complete, you need to load the settings from the browser to the device.

Click on the button „save template".



To load a schedule from the gateway onto the browser, use the button on the left.

14.2.5 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.
Use the following buttons for the export and import.

Export a time schedule

Import a time schedule

The template is saved as an XLM file in the chosen destination directory.

14.3 Timer

To ensure the safe operation of the colour control module 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.

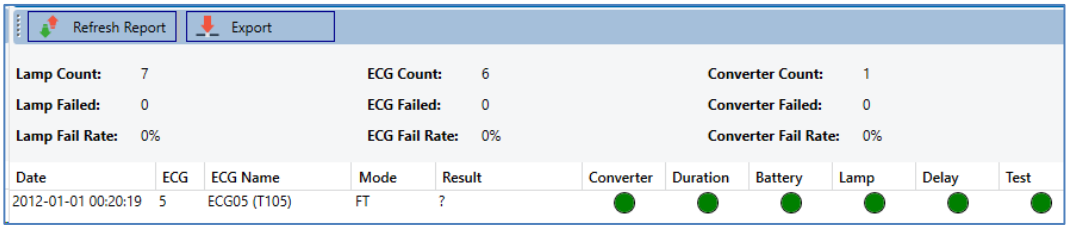
As the date is not calculated internally, the DALI gateway automatically sends a read request to the date object at 00:01 and at 00:04. At the same time, the time object is also automatically queried. A further read request is sent at 3:01. This avoids any potential errors when clocks change to daylight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

15 DCA special functions

15.1 DCA report

The tab "report" displays statistical error data for the connected ECGs as well as test reports for the connected emergency lights. At the top the following information is displayed:

- Number of lights
- Number of ECGs
- Number of converters
- Number of faulty lights
- Number of ECG errors
- Number of converter errors
- Light error rate
- ECG error rate
- Converter error rate

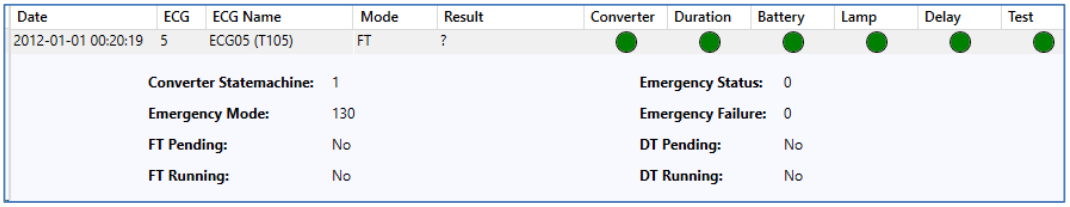


Press the "Refresh" button to display the test reports (Result of the last emergency lighting test of all emergency lights).
This information is directly obtained from the emergency lights via a DALI command.

ECG:	Number of ECGs (ETS Definition)
ECG Name:	Name of the ECG assigned by the ETS
Mode: FT=	Function test; DT: Duration test; BT: Battery test
Result:	During a battery test the battery status is displayed; during a duration test the time of the test is displayed.
Converter:	green: no error; red: Converter was faulty during the test (DALI QUERY 252: bit 0)
Duration:	green: no error; red: Duration of the battery is insufficient (DALI QUERY 252: bit 1)
Battery:	green: no error; red: Battery faulty (DALI QUERY 252: bit 2)
Lamp:	green: no error; red: Emergency light is faulty (DALI QUERY 252: bit 3)
Delay:	green: no error; red: Maximum delay time has been exceeded during function or duration test (DALI QUERY 252: bit 4 oder bit 5)

15.1.1 Detailed information about emergency lights

Double-click on an emergency light (converter) to display detailed information.



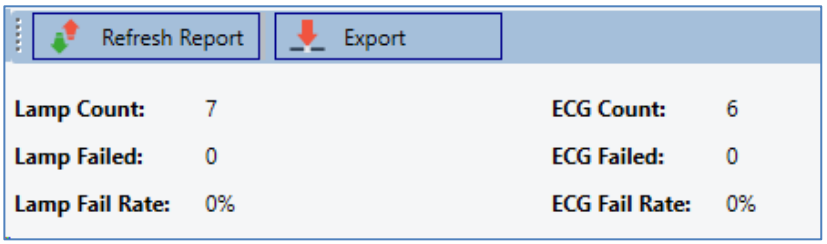
Converter status: Status according to DTP 244.600:

0: Unknown
1: Normal mode active, all OK
2: Inhibit mode active
3: Hardwired inhibit mode active
4: Rest mode active
5: Emergency mode active
6: Extended emergency mode active
7: FT in progress
8: DT in progress

Emergency light status: Status according to DALI Query_Emergency_Status 253
Emergency light mode: Status according to DALI Query_Emergency_Mode 250
Emergency light failure: Status according to DALI Query_Failure_Status 252

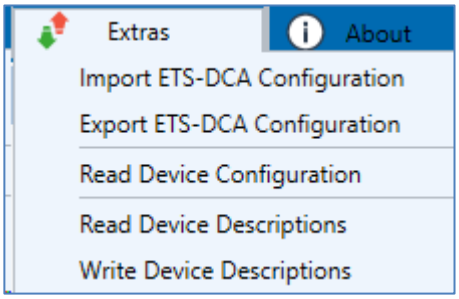
15.1.2 Exporting test results

Press the Export button to save the test results in an xml file. The file can be saved in any location.



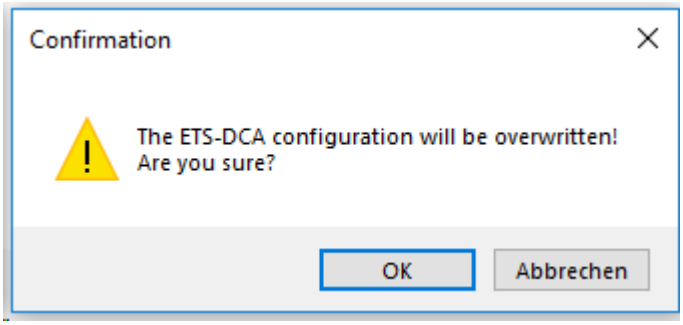
15.2 DCA Extras

The menu item Extras offers further special functions.



- **Import device configuration**

A previously saved device configuration can be loaded into the ETS with this function.



Please remember that all DCA data in the ETS will be overwritten with this data. Press the "Restore" button under commissioning in order to load the configuration onto the Dali gateway.
See chapter:
: --> Restore DALI configuration.

- **Export device configuration**

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

- **Read device configuration**

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

- **Read description texts**

The description texts of the ECGs, groups and scenes can also be saved on the DALI gateway. The descriptions on the device are available on the device website. Please remember that the device allows only 10 characters per name.

ⓘ In case the website was previously used for commissioning, the texts are transferred to the ETS.

- **Write description texts**

The description texts of the ECGs, groups and scenes can be saved on the DALI gateway. The descriptions on the device are available on the device website.

Please remember that the device allows only 10 characters per name and that texts from the ETS will be cut off after 10 characters.

16. ETS communication objects

The DALI gateway KNX plus communicates via the KNX bus based on a powerful communication stack of the System B type. Altogether 1343 communication objects are available, which are described below separated by function bloc.

16.1 General objects

Number	Name	Object Function
1	Broadcast, Switching	On/Off
2	Broadcast, Set Value	Value
3	Broadcast, (RGB) Red	Value
4	Broadcast, (RGB) Green	Value
5	Broadcast, (RGB) Blue	Value
6	Broadcast, White	Value
7	Broadcast, ColourTemperature	Value
8	Activate Panic Mode	Activate/Stop
9	ActivateTest Mode	Activate/Stop
10	Activate Night Mode	Activate/Stop
11	Scene invoke / programm	Scene No.
12	Effects start / stop	Effect No.
13	General Failure	Yes/No
14	DALI Failure	Yes/No
15	General Failure Exceeds Threshold	Yes/No
16	General Failure in Total	Value
17	Lamp Failure Exceeds Threshold	Yes/No
18	Lamp Failure in Total	Value
19	ECG Failure Exceeds Threshold	Yes/No
20	ECG Failure in Total	Value
21	Converter Failure Exceeds Threshold	Yes/No
22	Converter Failure in Total	Value
23	Status On/Off (Group1-Group16)	Status
24	Status On/Off (ECG1-ECG16)	Status
25	Status On/Off (ECG17-ECG32)	Status
26	Status On/Off (ECG33-ECG48)	Status
27	Status On/Off (ECG49-ECG64)	Status
30	Time	Time
31	Date	Date

Object	Object name	Function	Type	Flags
1	Broadcast Switch	On/off	1 Bit 1.001	CW
This object is used to switch all connected lights on or off. However, any connected ECGs that are in special mode (Test mode, Panic mode) are not switched and the DALI bus is addressed sequentially. A delay between the switching off the first and last light may hence be visible. If none of the ECGs is in special mode, the switching is performed simultaneously via DALI Broadcast telegrams. The Broadcast function always switches to 0 or 100%. The 'switch-off value' and 'switch-on value' parameters are not considered. ***Attention:*** This object is only visible if Enable Broadcast has been selected in the parameters *General --> Special function*				
2	Broadcast, Set value	Value	1 Byte 5.001	CW
This object is used to set all connected lights to a certain value. However, any connected ECGs that are in special mode (Test mode, Panic mode) are excluded and the DALI bus is addressed sequentially. A delay between the value setting of the first and last light may hence be visible. If none of the ECGs is in special mode, the value setting is performed simultaneously via DALI Broadcast telegrams. ***Attention:*** This object is only visible if Enable Broadcast has been selected in the parameters General --> Special function Broadcast can also be enabled for remote control. In this case up to 4 further objects (no. 3 to 7) are shown. See parameter page: --> *Special functions*. The description of the different colour control objects is explained in chapter: --> *Objects for colour control*.				
3	Broadcast, Colour control (RGB Red)	Value	1 Byte 5.001	CW
Use this object for configuring broadcast colour control. The values for red (R) will be transmitted.				
4	Broadcast, Colour control (RGB Green)	Value	1 Byte 5.001	CW
Use this object for configuring broadcast colour control. The values for green (G) will be transmitted.				
5	Broadcast, Colour control (RGB Blue)	Value	1 Byte 5.001	CW
Use this object for configuring broadcast colour control. The values for blue (B) will be transmitted.				
6	Broadcast, Colour control (RGB White)	Value	1 Byte 5.001	CW
Use this object for configuring broadcast colour control. The values for white will be transmitted.				
7	Broadcast, Colour temperature	Value	2 Bytes 7.600	CW
Use this object to set the the colour temperature in broadcast colour control relatively between 0 und 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				

Object	Object name	Function	Type	Flags
8	Activate panic mode	Activate / stop	1 Bit 1.010	CW
Use this object to activate or stop the panic mode via the bus.				
9	Activate test mode	Activate / stop	1 Bit 1.010	CW

Activates the test mode.

10	Activate night mode	Activate / stop	1 Bit 1.010	CW

This object is used to activate or stop the night mode via the bus.

11	Start / program	Scene no.	1 Byte 18.001	CW

Use this object to invoke or program scenes. Up to 16 scenes are available on the DALI gateway. To program a scene, you must set the top bit:

	Start	Program
Scene 1	0	128
Scene 2	1	129
...	...	...
Scene 16	15	143

12	Start/Stop	Effect no	1 Byte	CW

This object is used to start or stop effects. Up to 16 effects are available on the DALI gateway. To start an effect, set the top Bit. The effect stops when Bit 7 is deleted. This means:

	Effect Off	Effect On
Effect 1	0	128
Effect 2	1	129
...	...	...
Effect 16	15	143

13	General errors	Yes / no	1 Byte 5.010	CRT

This object is used to report the presence of a general error in the connected DALI segment independent of its type.

14	DALI error	Yes / no	1 Byte 5.010	CRT

This object is used to report the presence of a DALI short-circuit in the connected DALI segment.

15	General errors Exceed Theshold	Yes / no	1 Bit 1.005	CRT

This object is used to report that the total of all lamp, ECG and converter errors recognised by the gateway, exceeds the set threshold.

16	General errors Total	Value	1 Byte 5.010	CRT

This object is used to report the total number of all lamp, ECG and converter errors recognised by the gateway. Please remember that for each connected device an error is counted just once. A simultaneous lamp error in case of an ECG or converter error cannot be recognised or counted.

Object	Object name	Function	Type	Flags
16a	General errors 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 consideration Please remember that for each connected device an error is counted just once. A simultaneous lamp error in case of an ECG or converter error cannot be recognised or counted.

17	Lamp errors Exceed Theshold	Yes / no	1 Bit 1.005	CRT

This object is used to report that the total of all lamp errors recognised by the gateway exceeds the set threshold.				
18	Lamp errors Total	Value	1 Byte 5.010	CRT
Reports the total amount of lamp errors recognised by the gateway.				
18a	Lamp errors 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 lamps in the DALI segment.				
19	ECG errors Exceed Theshold	Yes / no	1 Bit 1.005	CRT
This object is used to report that the total of all ECG errors recognised by the gateway exceeds the set threshold.				
20	ECG errors Total	Value	1 Byte 5.010	CRT
Reports the total amount of ECG errors recognised by the gateway.				
20a	ECG errors in %	Value	1 Byte 5.010	CRT
Alternatively, this object is used to report the error rate as a percentage of the total number of ECGs in the DALI segment.				
21	Converter errors Exceed Theshold	Yes / no	1 Bit 1.005	CRT
This object is used to report that the total of all converter errors recognised by the gateway exceeds the set threshold.				
22	Converter errors Total	Value	1 Byte 5.010	CRT
Reports the total amount of converter errors recognised by the gateway.				
22a	Converter errors in %	Value	1 Byte 5.010	CRT
Alternatively, this object is used to report the error rate as a percentage of the total number of converters in the DALI segment..				
23	Status On/off Group 1 – Group 16	Status	4 Bytes 27.001	CRT
Activates the status display for groups 1 - 16.				
24	Status On/off ECG 1 - ECG 16	Status	4 Bytes 27.001	CRT
Sends the switch status for ECGs 1 - 16. Each value >0% is interpreted as ON.				

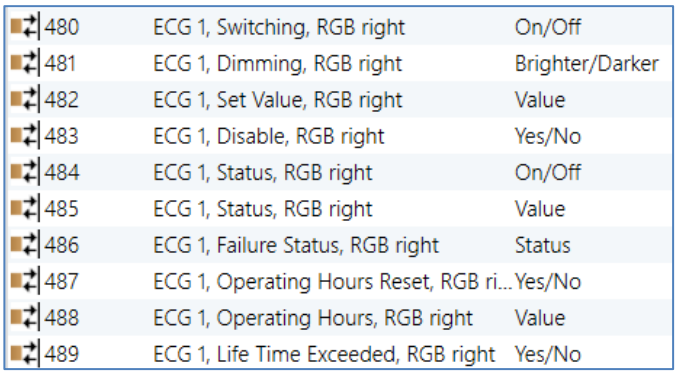
Object	Object name	Function	Type	Flags
25	Status On/off ECG 17 - ECG 32	Status	4 Bytes 27.001	CRT
Sends the switch status for ECGs 17-32. Each value >0% is interpreted as ON.				
26	Status On/off ECG 33 - ECG 48	Status	4 Bytes 27.001	CRT
Sends the switch status for ECGs 33-48. Each value >0% is interpreted as ON.				
27	Status On/off EVG 49 - EVG 64	Status	4 Bytes 27.001	CRT
Sends the switch status for ECGs 49-64. Each value >0% is interpreted as ON.				
29	Status error Lamp/ECG	Status	1 Byte 238.600	CRT
Sends the switch status of individual lamps 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 7 represents an ECG error, Bit 6 a lamp error. For example: Bit 7 6 5 4 3 2 1 0 ECG 5 / ECG error 1 0 0 0 0 1 0 0 ECG 6 / Lamp error 0 1 0 0 0 1 0 1 If a value is received where Bit 7 and Bit 6 are set, it is interpreted as a status query. For example: Bit 7 6 5 4 3 2 1 0 ECG 5 / Query 1 1 0 0 0 1 0 0 The gateway responds with the current 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 0				

The current time and date are required for time-controlled processes. These need to be made available via the bus. Two objects are used for this purpose.

Object	Object name	Function	Type	Flags
30	Time	Time	3 Byte 10.001	CWT
This object is used to set the time. The time must be provided by a central timer and updated at least twice a day.				
31	Date	Date	3 Byte 11.001	CWT
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.				

16.2 ECG Objects

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



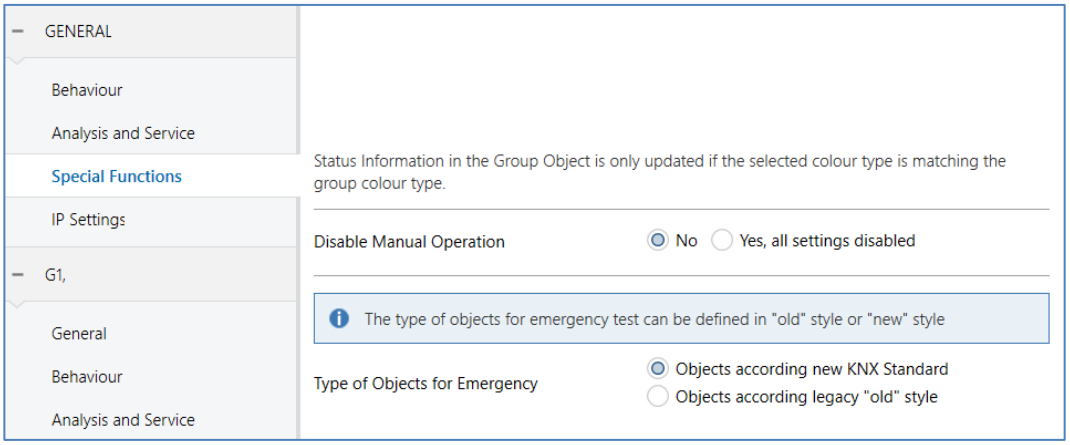
480	ECG 1, Switching, RGB right	On/Off
481	ECG 1, Dimming, RGB right	Brighter/Darker
482	ECG 1, Set Value, RGB right	Value
483	ECG 1, Disable, RGB right	Yes/No
484	ECG 1, Status, RGB right	On/Off
485	ECG 1, Status, RGB right	Value
486	ECG 1, Failure Status, RGB right	Status
487	ECG 1, Operating Hours Reset, RGB ri...	Yes/No
488	ECG 1, Operating Hours, RGB right	Value
489	ECG 1, Life Time Exceeded, RGB right	Yes/No

Object	Object name	Function	Type	Flags
480	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).				
481	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 4 is set to dim up and deleted to dim down. Bits 0 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram.				
482	ECG 1, value setting	Value	1 Byte 5.001	CW
Sets the value of ECG1 unless it is in special mode (test mode, emergency lights, panic/ emergency mode).				
483a	1.1.1.1 EVG1, enable	Yes / no	1 Bit 1.003	CW
Object 482 is shown for the following parameter: G1 -->General -->Function of the additional object. Use this object to enable the operation of ECG 1: Object = 0 → Operation disabled Object = 1 → Enable operation				
483b	1.1.1.2 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				
484	ECG1, Status	On/off	1 Bit 1.001	CRT
Sends the ECG switch status. Each value >0% is interpreted as ON.				

Object	Object name	Function	Type	Flags
485	ECG 1, Status	Value	1 Byte 5.001	CRT
Sends the ECG value status.				
486	ECG 1, Error status	Status	1 Bit 1.005	CRT
Sens the error status of lamp, ECG and converter errors.				
486a	EVG 1, Error status	Status	1 Byte 5.010	CRT
Alternatively this object is used to send the error status for lamp, ECG and converter errors as a 1Byte object.				
487	ECG 1, Reset operating hours	Yes/No	1 Bit 1.015	KS
Resets the operating hours counter.				
488	ECG 1, Operating hours	Value	4 Bytes 13.100	CRT
The operating hours of a lamp are sent via this object. The internal counter can be set to 0 (Reset) or another value via this object. Please remember: The "Write" flag is switched off in the presetting.				
489	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.				

16.3 Objects for emergency lights

Two types of communication objects are offered on the device.
The selection is defined via parameters:



16.3.1 Objects according to the new KNX standard:

490	Converter 1, Test Start, RGB right	Start
491	Converter 1, Test Result, RGB right	Test
492	Converter 1, Status, RGB right	Status

Object	Object name	Function	Type	Flags
490	Converter 1, Test Start	Start	1 Byte	CW

Use this oject to start a long duration test, function test and battery status query of the converter. The individual Bits have the following meaning:

20.611	DPT_Converter_Test_-Control	*field1* = TestCtrl 0 : Reserved, no effect 1 : Start Function Test (FT) Acc. DALI Cmd. 227 2 : Start Duration Test (DT) Acc. DALI Cmd. 228 3 : Start Partial Duration Test (PDT) 4 : Stop Test Acc. DALI Cmd 229 5 : Reset Function Test Done Flag Acc. DALI Cmd. 230 6 : Reset Duration Test Done Acc. DALI Cmd. 231 7 to 255 : Reserved, no effect NOTE 22 : Concurrent tests to the same DALI converter will be supported. This DPT controls a test of a DALI con-verter. Furthermore it allows to stop a running test and to reset test flags.

Object	Object name	Function	Type	Flags
491	Converter 1, Test result	Test	6 Byte 245.600	KLÜ

This object reports the converter status according to Konnex data point type 245.600.

6.9 DPT_Converter_Test_Result

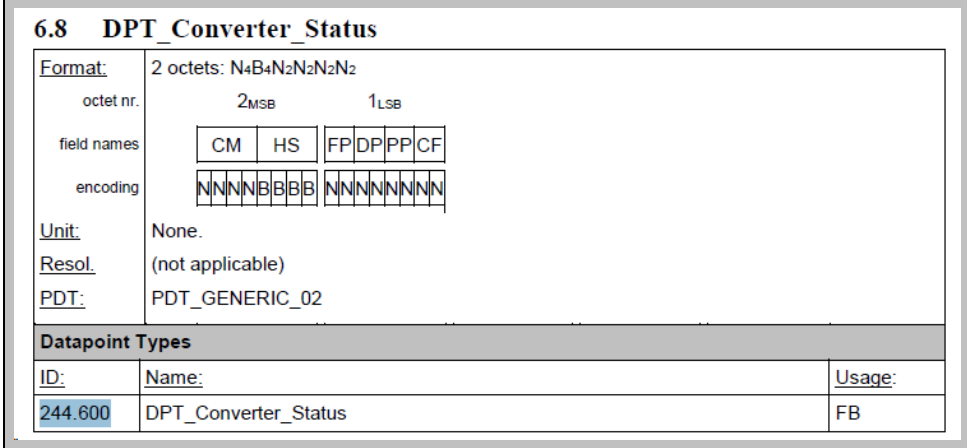
Format:	6 octets: $N_4N_4N_4N_2N_2N_2N_2U_{16}U_8$
octet nr.	6_{MSB} 5 4 3 2
field names	LTRF LTRD LTRP 0 0 0 0 SF SD SP 0 0 LDTR
encoding	N N N N N N N N N N N N r r r N N N N N N r r U U U U U U U U U U U U U U U U
octet nr.	1_{LSB}
field names	LPDTR
encoding	U U U U U U U U
Unit:	None.
Resol.	(not applicable)
PDT:	PDT_GENERIC_06

Field names	Description	Encoding	Range
LTRF	Last Test Result FT: Test result of last function test	0: Unknown 1: Passed in time 2: Passed max delay exceeded 3: Failed, test executed in time 4: Failed, max delay exceeded 5: Test manually stopped 6 to 15:Reserved, do not use	{0...15}
LTRD	Last Test Result DT: Test result of last duration test	0: Unknown 1: Passed in time 2: Passed max delay exceeded 3: Failed, test executed in time 4: Failed, max delay exceeded 5: Test manually stopped 6 to 15: Reserved, do not use	{0...15}
LTRP	Last Test Result PDT: Test result of last partial duration test	Last Test Result PDT Test result of last partial duration test 0: Unknown 1: Passed in time 2: Passed max delay exceeded 3: Failed, test executed in time 4: Failed, max delay exceeded 5: Test manually stopped 6 to 15: Reserved, do not use	{0...15}
SF	Start Method of Last FT	0: Unknown 1: Started automatically 2: Started by Gateway 3: Reserved Updated after a test has been finished.	{0...3}

Field names	Description	Encoding	Range
SD	Start Method of Last DT	Start Method of Last DT 0: Unknown 1: Started automatically 2: Started by Gateway 3: Reserved Updated after a test has been finished.	{0...3}
SP	Start Method of Last PDT	Start Method of Last PDT 0: Unknown 1: Started automatically 2: Started by Gateway 3: Reserved Updated after a test has been finished.	{0...3}

LDTR		Contains the battery discharge time as the result of the last successful duration test (DT). According DALI Cmd. 243	DPT 7.006 DPT_TimePeriodMin The max. value of 510 min shall be interpreted as 510 min or longer.	{0...510}
LPDTR		Last PDT Result Provides the remaining Battery Charge Level after the last PDT	0: deep discharge point ... 254: fully charged 255: unknown According DALI Cmd. 241	{0...255}
492	Converter 1, Status	Status	2 Byte 244.600	CRT

This object reports the converter status according to Konnex data point type 244.600.



6.8 DPT_Converter_Status

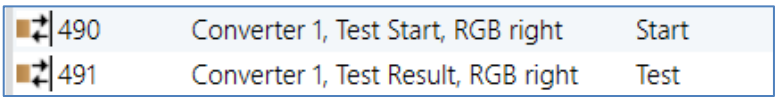
Format:	2 octets: $N_4B_4N_2N_2N_2N_2$
octet nr.	2_{MSB} 1_{LSB}
field names	CM HS FP DP PP CF
encoding	NNNNBBBB NNNNNNNN
Unit:	None.
Resol.	(not applicable)
PDT:	PDT_GENERIC_02

Datapoint Types

ID:	Name:	Usage:
244.600	DPT_Converter_Status	FB

Data field	Description	Encoding	Range
CM	Converter Mode according to the DALI converter state machine	0: Unknown 1: Normal mode active, all OK 2: Inhibit mode active 3: Hardwired inhibit mode active 4: Rest mode active 5: Emergency mode active 6: Extended emergency mode active 7: FT in progress 8: DT in progress 9: PDT in progress 10 to 15: Reserved. Shall be 0.	{0...15}
HS	Hardware Status	Bit 0: Hardwired Inhibit is active Bit 1: Hardwired switch is on Bit 2 and 3: Reserved. Shall be 0.	{0,1}
FP	Function Test Pending	0: Unknown 1: No test pending 2: Test pending 3: Reserved NOTE 26 The information about a running test is given in the Converter Mode field. NOTE 27 The status "Unknown" may for instance occur at power-up.	{0...3}
DP	Duration Test Pending	Duration Test Pending 0: Unknown 1: No test pending 2: Test pending 3: Reserved NOTE 28 The information about a running test is given in the Converter Mode field. NOTE 29 The status "Unknown" may for instance occur at power-up.	{0...3}
PP	Partial Duration Test Pending	0: Unknown 1: No test pending 2: Test pending 3: Reserved NOTE 30 The information	{0...3}

16.3.2 Objects according to earlier versions



Object	Object name	Function	Type	Flags
490	Converter 1, Test Start	Start	1 Byte	CW

This object is used to start a long duration test, function test and battery status query of the converter. The individual Bits have the following meaning:

Bit 0 → Start function test

Bit 1 → Function test pending

Bit 2 → Start duration test

Bit 3 → Duration test pending

Bit 4 → Query battery status

Bit 5 → Battery status query pending

Bit 6 → Function test running

Bit 7 → Duration test running

Object	Object name	Function	Type	Flags
491	Converter 1, Test result	Test	3 Byte	CRT

This object is used to analyse the results of function and duration tests and the battery status. The individual bits have the following meaning:

Bit 23..16 → If test is function or battery test: Battery status 0..100%

→ If test is duration test: Test time of duration test in steps of 2 Minutes

Bit 15 → Error during duration test

Bit 14 → Error during function test

Bit 13 → Maximum time for duration test exceeded

Bit 12 → Maximum time for function test exceeded

Bit 11 → Emergency lamp faulty

Bit 10 → Battery faulty

Bit 9 → Battery operating hours too short

Bit 8 → Converter faulty

Bit 7 → Duration test pending

Bit 6 → Function test pending

Bit 5 → Duration test running

Bit 4 → Function test running

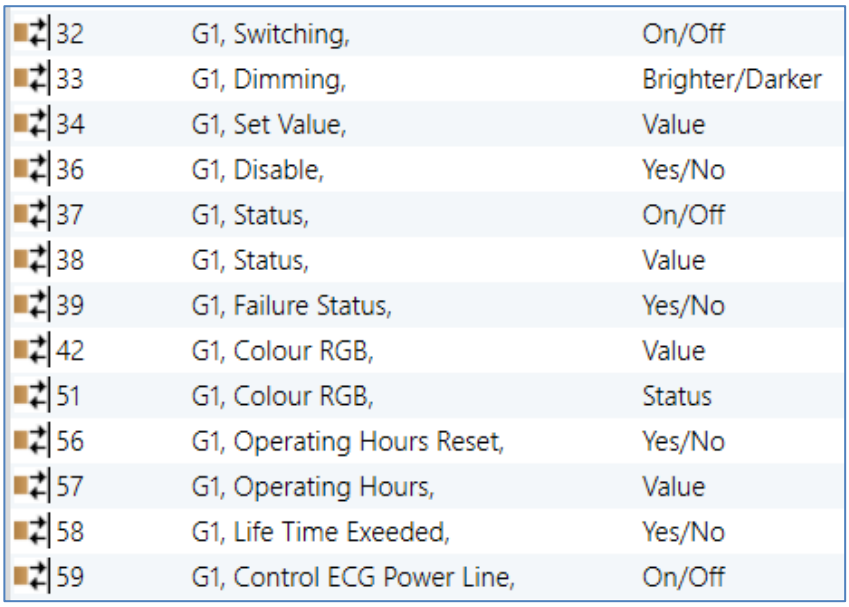
Bit 3 → Test error during the last test

Bit 2 → Last test was battery query

Bit 1 → Last test was duration test

Bit 0 → Last test was function test

16.4 Group objects



32	G1, Switching,	On/Off
33	G1, Dimming,	Brighter/Darker
34	G1, Set Value,	Value
36	G1, Disable,	Yes/No
37	G1, Status,	On/Off
38	G1, Status,	Value
39	G1, Failure Status,	Yes/No
42	G1, Colour RGB,	Value
51	G1, Colour RGB,	Status
56	G1, Operating Hours Reset,	Yes/No
57	G1, Operating Hours,	Value
58	G1, Life Time Exeeded,	Yes/No
59	G1, Control ECG Power Line,	On/Off

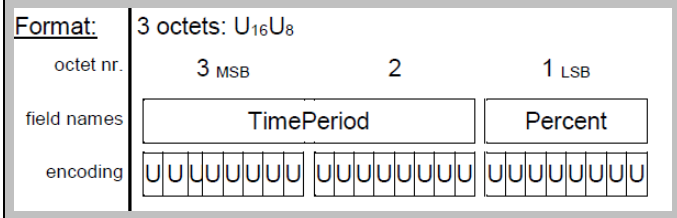
A set of communication objects is available for each one of the up to 16 possible groups.
The following objects are available (Example group 1):

Object	Object name	Function	Type	Flags
32	G1, Switching	On/ Off	1 Bit 1.001	CW
Use this object to switch group 1 on or off.				
33	G1, Dimming	Brighter/Darker	4 Bit 3.007	CW
Used for the relative dimming of group 1. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram.				
34	G1, Value setting	Value	1 Byte 5.001	CW
Use this object to set group 1 to the required value.				

Object	Object name	Function	Type	Flags
35	G1, Value setting	Value/Time	3 Bytes 225.001	CW

***Attention**: Object 35 is shown for the following parametert:* **G1 --> Behaviour --> Additional value setting object with dim time.**

Use this object to set group 1 to the required value and dim time.



The time is defined in multiples of 100 ms. Because of Dali properties, a value range of 1s to 200s is accepted. Vaues outside this value range are restricted accordingly.
A dim time of 10s is coded as follows: 10 s = 10x10x100 ms

36	G1, Enable	Yes/No	1 Bit 1.003	CW

Object 36 is shown for the following parameter: G1 --> General --> Function of the additional object

This object enables the operation of group 1:
Object = 0 → Disabled
Object = 1 → Enabled

36a	G1, Sperren	Ja/Nein	1 Bit 1.003	CW

This object disables the operation of group 1:
Object = 0 → Enabled
Object = 1 → Disabled

36c	G1, Disable staircase function	Yes/No	1 Bit 1.003	CW

This object disables the staircase function of group 1:
Object = 0 ---> Staircase function enabled
Object = 1 ---> Staircase function disabled

37	G1, Status	On/off	1 Bit 1.001	CRT

Sends the switch status of the group. Any value >0% is interpreted as ON.

38	G1, Status	Value	8 Bit 5.001	CRT

Sends the value status of the group.

Object	Object name	Function	Type	Flags
39	G1, Error status	On/Off	1 Bit 1.001	CRT
Attention: Object 39 is shown for the following parameter: G1 --> Analysis and maintenance-> Type of error status object This object is used to send the error status for lamp, ECG and converter errors within the group.				
39a	G1, error status	Status	1 Byte 5.x	CRT
Sends the error status for lamp, ECG and converter errors within the group as a 1Byte object. Bit 0 --> Lamp errors Bit 1 --> ECG errors				
40	G1, error status	Status	4 Byte	CRT
This object is used to report the total number of devices within the group and the error status according to error type. The different Bits within the object have the following meaning: Bit 31 | Bit 30 | Bit 29..24 Norm.EVG | Notl. EVG | Numer ECG+converter errors Bit 23 | Bit 22 | Bit 21..16 Norm.Lamp | Emerg.lamp | Number of lamps errors Bit 15 | Bit 14 | Bit 13..8 Def.Conv. | Idle | Number of converters Bit 7 | Bit 6 | Bit 5..0 Idle | Idle | Number ECGs				
41	G1, Error status	Yes/No	1 Bit 1.005	CRT
Attention: Object 41 is shown for the following parameter: G1 --> Analysis and maintenance-> Additional error objects This object reports when the total of all lamp, ECG and converter failures found within the group exceeds the threshold set by parameters.				
41a	G1, Error status	Value	1 Byte 5.010	CRT
Sends the total of all lamp and ECG errors within the group.				
41b	G1, Error rate	Value	1 Byte 5.010	CRT
Reports the error rate as a percentage of the total number of devices within the group.				
41c	G1, Error rate in %	Value	1 Byte 5.000	CRT
Reports the error rate as a percentage of the total number of devices within the group.				
56	G1, Reset operating hours	Yes/No	1 Bit 1.015	CW
Resets the operating hours in a group via value "1".				

Object	Object name	Function	Type	Flags
57	G1, Operating hours	Value	4 Byte 13.100	CW
Counts the operating hours in the group. The value is transmitted in seconds according to DPT 13.100.				
58	G1, Life span exceeded	Yes/No	1 Bit 1.005	CW
Shows whether the maximum life span set in the parameters has been exceeded. ***Note**: If the threshold value is exceeded, an alarm is sent via this object (by sending the value "1"). An alarm is re-sent for every operating hour that is above the threshold valuet.*				
59	G1, ECG Switching power supply via object	On/Off	1 Bit 1.001	CW
Use this object to switch off the power supply of the ECG. As soon as a group has been switched off, this object is set to 0. When a group is switched on, this object is initially set to 1 and after 300ms the switch on commands are sent to the Dali Bus. According to Dali norm, all ECGs should be in normal mode after 200 ms. The purpose of this object is to save energy costs to ensure all switched off ECGs are truly without power. This function can be activated via a parameter.				

16.5 Objects for colour control

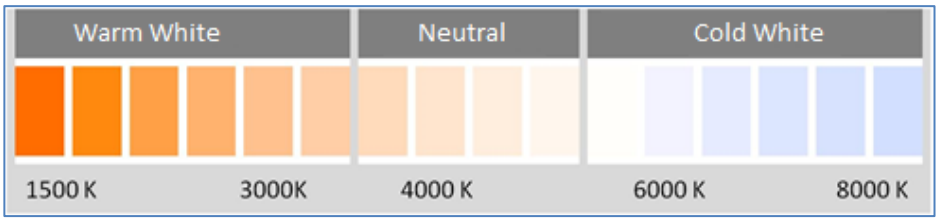
Different colour control options are supported:

- Colour temperature
- RGB
- HSV
- RGBW
- XY

Only one type of colour control can be selected per group. All ECGs in the group that support this type, can be controlled. Other ECG types will not react to the command. Please make sure to only include ECGs with the same colour control in a group.

16.5.1 Colour temperature

The colour temperature can be set in Kelvin. Colour temperatures below 3000 K are called "warm white", above 5000 K "cool white" and between 3000 and 5000 "neutral white".

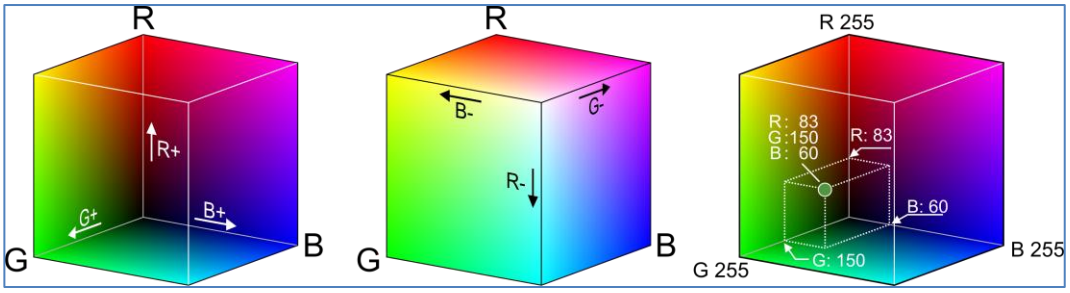


70	G2, Colour Temperature,	Value
71	G2, Colour Temperature relative,	Value
75	G2, Colour Control Fading,	Warmer/Cooler
79	G2, Colour Temperature,	Status

Object	Object name	Function	Type	Flags
42	G1, Colour temperature	Value	2 Byte 7.600	CW
Sets the colour temperature in the group.				
43	G1, Colour temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature in the group relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
47	G1, Colour change	Warmer/ colder	4 Bit 3.007	CW
Changes the colour temperature in the group. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram.				
51	G1, Colour temperature	Status	2 Byte 7.600	CRT
Sends the set colour temperature as group status.				

16.5.2 RGB (DPT 232.600)

The RGB colour space is called additive colour space as the colour perception is created by mixing the three primary colours.



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

Object	Object name	Function	Type	Flags
42	G1, Colour control RGB	Value	3 Byte 232.600	CW

Sets the colour in the group as RGBW. Enter the colour values for white, blue, green and red between 0 and 100% in the bottom Bytes. 4 Bits in the 5th Byte determine whether the corresponding colour values are valid.

Datapoint Type				
DPT_Name:	DPT_Colour_RGBW			
DPT Format:	$r_{12}B_4U_8U_8U_8U_8$		DPT_ID:	251.600
Field	Description	Supp.	Range	Unit
m_R	Shall specify whether the colour information red in the field R is valid or not.	M	{0,1}	None.
m_G	Shall specify whether the colour information green in the field G is valid or not.	M	{0,1}	None.
m_B	Shall specify whether the colour information blue in the field B is valid or not.	M	{0,1}	None.
m_W	Shall specify whether the colour information white in the field W is valid or not.	M	{0,1}	None.
R	Colour Level Red	M	0 % to 100 %	-
G	Colour Level Green	M	0 % to 100 %	-
B	Colour Level Blue	M	0 % to 100 %	-
W	Colour Level White	M	0 % to 100 %	-

Object	Object name	Function	Type	Flags
51	G1, Colour control RGB	Status	3 Byte 232.600	CRT

Use this object to send the set colour of the group as status.

16.5.3 RGB (separate objects)

43	G1, Colour (RGB) Red,	Value
44	G1, Colour (RGB) Green,	Value
45	G1, Colour (RGB) Blue,	Value
47	G1, Colour (RGB) Fading Red,	Brighter/Darker
48	G1, Colour (RGB) Fading Green,	Brighter/Darker
49	G1, Colour (RGB) Fading Blue,	Brighter/Darker
52	G1, Colour (RGB) Red,	Status
53	G1, Colour (RGB) Green,	Status
54	G1, Colour (RGB) Blue,	Status

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

Sets the colour in the group. The values for red (R) are transmitted.

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

Sets the colour in the group. The values for green (G) are transmitted.

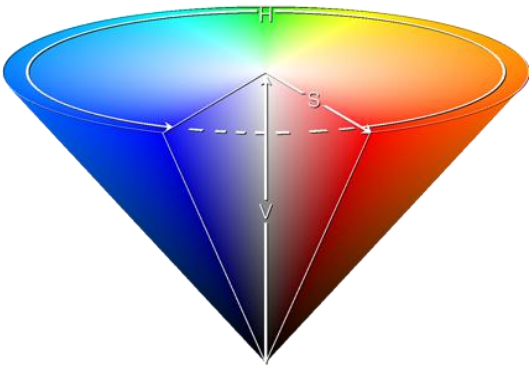
Object	Object name	Function	Type	Flags
45	G1, Colour control (RGB Blue)	Value	1 Byte 5.001	CW

Sets the colour in the group. The values for blue (B) are transmitted.

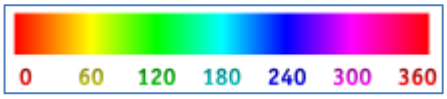
47	G1, colour change (RGB Red)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour red in the group. Bit 4 is set to increase the red component and deleted to decrease the red component. Bits 1 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram.				
48	G1, colour change (RGB green)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour green in the group. Description as for colour change (red).				
49	G1, colour change (RGB blue)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour blue in the group. Description as for colour change (red).				
52	G1, colour control (RGB Red)	Status	1 Byte 5.001	CRT
Sends the selected colour red as group status.				
53	G1, colour control (RGB Green)	Status	1 Byte 5.001	CRT
Sends the selected colour green as group status.				
54	G1, colour control (RGB Blue)	Status	1 Byte 5.001	CRT
Sends the selected colour blue as group status.				

16.5.4 HSV

The colour is set as an HSV value. This consists of hue, saturation and value.

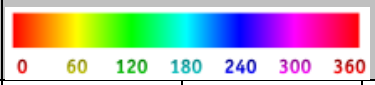


The value (V) is set via the value object number 41. Further objects are displayed for hue (H) and saturation (S). The hue is entered as a value between 0° and 360° and rotates around the colour circle making it easy to reach all colours of the circle.



Values for saturation and intensity (darkness value) are set between 0 and 100%.100% mean complete saturation and full intensity.

43	G1, Colour (HSV) Hue,	Value
44	G1, Colour (HSV) Saturation,	Value
47	G1, Colour (HSV) Fading Hue,	Brighter/Darker
48	G1, Colour (HSV) Fading Saturation,	Brighter/Darker
52	G1, Colour (HSV) Hue,	Status
53	G1, Colour (HSV) Saturation,	Status

Object	Object name	Function	Type		Flags
43	G1, Colour control (hue)	Value	1 Byte 5.003		CW
	Sets the colour via an HSV value. A value between 0° and 360° can be transmitted. Please remember that the used data type 5.003 only allows for a resolution of about 1.4° 				
44	G1, Colour control (Saturation)	Value	1 Byte 5.001		CW
	Use this object to set the saturation. A value between 0° and 100% can be transmitted.				
47	G1, Colour control (Hue)	Brighter/Darker	4 Bit 3.007		CW
	Use this object to change the hue of a group. Bit 3 is set to increase the angle and deleted to decrease the angle. Bit 0 to 3 deleted is interpreted as a stop telegram. As the whole colour circle is accessible, any colour can be set.				
48	G1, Colour control (Saturation)	Brighter/Darker	4 Bit 3.007		CW
	See change of hue above. The value between 0 and 100% is increased incrementally				
52	G1, Colour control (Hue)	Status	1 Byte 5.003		CRT
	Sends the configured hue as group status.				
53	G1, Colour control (Saturation)	Status	1 Byte 5.003		CRT
	Sends the configured saturation as group status.				

16.5.5 RGBW (DPT 251.600)

Objekt	Objektname	Funktion	Typ	Flags
42	G1, Farbsteuerung RGBW	Wert	6 Byte 251.600	KS

Über dieses Objekt kann die Farbe als RGBW in der Gruppe eingestellt werden. In den unteren Bytes werden die Farbwerte für Weiß, Blau, Grün und Rot im Wertebereich von 0..100% angegeben. Im 5. Byte geben 4 Bits an, ob die entsprechenden Farbwerte gültig sind.

Datapoint Type				
DPT_Name:	DPT_Colour_RGBW			
DPT Format:	$r_{12}B_4U_8U_8U_8U_8$		DPT_ID:	251.600
Field	Description	Supp.	Range	Unit
m_R	Shall specify whether the colour information red in the field R is valid or not.	M	{0,1}	None.
m_G	Shall specify whether the colour information green in the field G is valid or not.	M	{0,1}	None.
m_B	Shall specify whether the colour information blue in the field B is valid or not.	M	{0,1}	None.
m_W	Shall specify whether the colour information white in the field W is valid or not.	M	{0,1}	None.
R	Colour Level Red	M	0 % to 100 %	-
G	Colour Level Green	M	0 % to 100 %	-
B	Colour Level Blue	M	0 % to 100 %	-
W	Colour Level White	M	0 % to 100 %	-

51	G1, Farbsteuerung RGBW	Status	6 Byte 251.600	KLÜ
Über dieses Objekt wird die eingestellte Farbe der Gruppe als Status gesendet.				

16.5.6 RGBW (separate objects)

43	G1, Colour (RGB) Red,	Value
44	G1, Colour (RGB) Green,	Value
45	G1, Colour (RGB) Blue,	Value
46	G1, Colour White,	Value
47	G1, Colour (RGB) Fading Red,	Brighter/Darker
48	G1, Colour (RGB) Fading Green,	Brighter/Darker
49	G1, Colour (RGB) Fading Blue,	Brighter/Darker
50	G1, Colour Fading White,	Brighter/Darker
52	G1, Colour (RGB) Red,	Status
53	G1, Colour (RGB) Green,	Status
54	G1, Colour (RGB) Blue,	Status
55	G1, Colour White,	Status

Object	Object name	Function	Type	Flags
43	G1, Colour control (RGB Red)	Value	1 Byte 5.001	CW
Sets the colour in the group. The values for red (R) are transmitted.				
44	G1, Colour control (RGB Green)	Value	1 Byte 5.001	CW
Sets the colour in the group. The values for green (G) are transmitted.				
45	G1, Colour control (RGB Blue)	Value	1 Byte 5.001	CW
Sets the colour in the group. The values for blue (B) are transmitted.				
46	G1, Colour control (RGB White)	Value	1 Byte 5.001	CW
Sets the colour in the group. The values for white (W) are transmitted.				

Object	Object name	Function	Type	Flags
47	G1, Colour change (RGB Rot)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour red in the group. Bit 4 is set to increase the red component and deleted to decrease the red component. Bits 1 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram.				
48	G1, Colour change (RGB Green)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour green in the group. Description as for colour change (red).				
49	G1, Colour change (RGB Blue)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour blue in the group. Description as for colour change (red).				
50	G1, Colour change (White)	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour white in the group. Description as for colour change (red).				
52	G1, olour control (RGB Red)	Status	1 Byte 5.001	CRT

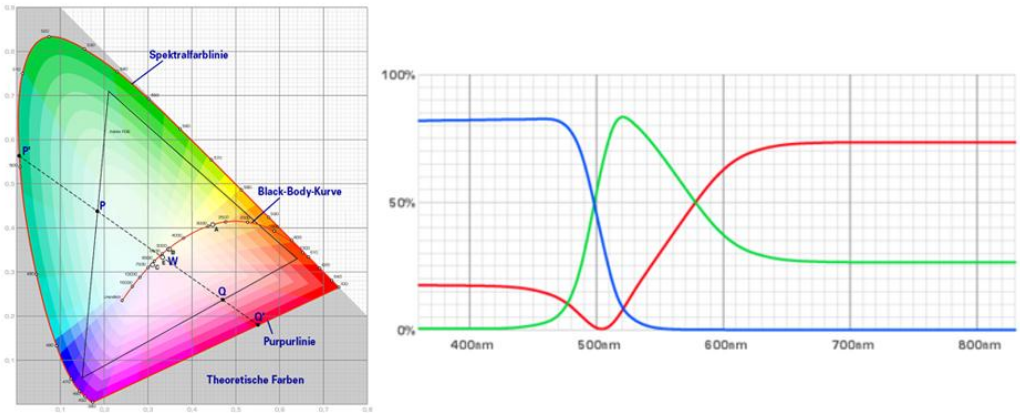
Sends the set colour red as group status.				
53	G1, olour control (RGB Green)	Status	1 Byte 5.001	CRT
Sends the set colour green as group status.				
54	G1, olour control (RGB Blue)	Status	1 Byte 5.001	CRT
Sends the set colour blue as group status.				
	G1, olour control (White)	Status	1 Byte 5.001	CRT
Sends the set colour white as group status.				

16.5.7 HSVW (separate objects)

See chapter: --> ETS communication objects --> Objects for colour control --> HSV.

16.5.8 XY (DPT 242.600)

The colour is determined through an XY value between 0 and 1:



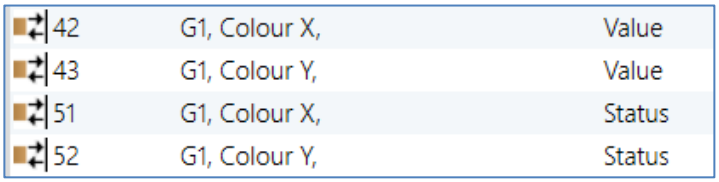
In the KNX the value range is converted to a range from 0 to 65535 (2 Byte integer).
65535 hence corresponds to the value 1 in the graphic.

Object	Object name	Function	Type	Flags
42	G1, Colour control XY	Value	6 Byte 242.600	CW
Use this object to set the colour via XY coordinates in the group. The brightness level is entered in the bottom Byte via a value between 0 and 100% followed by the Y and X coordinates between 0 and 65535. 2 Bit in the top byte determine whether brightness and XY values are valid.				

Datapoint Type				
DPT_Name:	DPT_Colour_xyY			
DPT Format:	$B_8U_{16}U_{16}U_8$	DPT_ID:	242.600	
Field	Description	Supp.	Range	Unit
C	This field shall indicate whether the colour information in the fields *x-axis* and *y-axis* is valid or not.	M	{0,1}	None.
B	This field shall indicate whether the brightness information in the field *Brightness* is valid or not.	M	{0,1}	None.
x-axis	x-coordinate of the colour information	M	0-65535	None.
y-axis	y-coordinate of the colour information	M	0-65535	None.
Brightness	Brightness of the colour	M	0 % to 100 %	None.

51	G1, Colour control XY	Status	6 Byte 242.600	CRT
See above				

16.5.9 XY (separate Objects)



Object	Object name	Function	Type	Flags
42	G1, Colour control X	Value	2 Byte 7.001	CW
Use this object to set the X value between 0 and 65535.				
43	G1, Colour control Y	Value	2 Byte 7.001	CW
Use this object to set the Y value between 0 and 65535.				
51	G1, Colour control X	Status	2 Byte 7.001	CRT
Use this object to send the set X value as group status.				
52	G1, Colour control Y	Status	2 Byte 7.001	CRT
Use this object to send the set Y value as group status.				

16.6 Scene objects

Scene objects are summarised in the channel "SCENES".

Object	Object name	Function	Type	Flags
11	Scdene number. xx	Start/ Program	1 Byte 18.001	CW
This object is used to invoke or program a scene. Up to 16 scenes are available in the Dali gateway. To program a set scene, set the top bit: Start Program Scene 1 0 128 Scene 2 1 129 ..... Scene 16 15 143				
12	Effect Nr. xx	Start/Stop	1 Byte 18.001	CW
This object is used to invoke or program an effect. Up to 16 effects are available in the Dali gateway. To start an effect, set the top bit. The effect stops when Bit 7 is deleted. This means: Effect Off Effect On Effect 1 0 128 Effect 2 1 129 ..... Effect 16 15 143				
1312 ff	Scene Nr.1, Dimming	Brighter/Darker	4 Bit 3.007	CW
This object is used for the relative dimming of scene 1. Bit 4 is set to dim up and deleted to dim down. Bits 0 to 3 refer to the increment size. Bit 0 to 3 deleted is interpreted as a stop telegram. The min/max values of each group that have been defined in the ETS, are also taken into consideration when dimming scenes..				

16.7 Time control objects

A communication object for enabling and disabling templates is available for each of the up to 16 templates in the colour control module. See chapter: --> Disable/Enable. These need to be enabled under time control in the DCA.

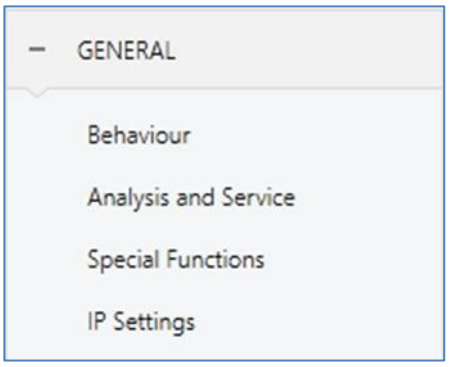
Object	Object name	Function	Type	Flags
1328	Template 1, Activation	Activate/ Stop	1 Bit 1.010	CW
Template 1 is activated via this object. The template is active when the value is 1 and will be executed according to schedule.				
....	Template X, Activation	Activate/ Stop	1 Bit 1.010	CW
Template X is activated via this object. The template is active when the value is 1 and will be executed according to schedule.				

17 ETS parameters

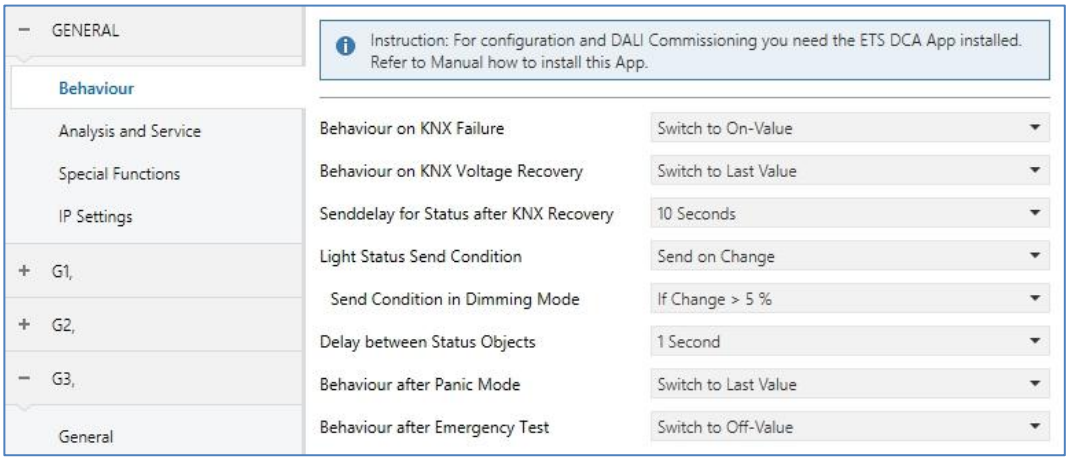
The ETS parameters of the device are distributed across different parameter pages. To simplify the overview, only the parameter pages of the device selected in the function tree are displayed.

17.1 General

Four parameter pages are available under the heading "General". The parameters are described below.



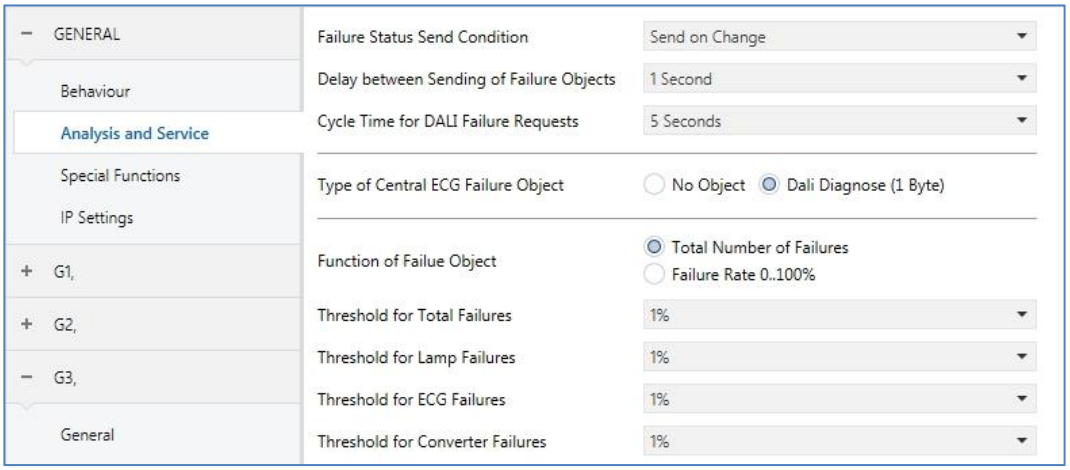
17.1.1 Parameter page: Behaviour



Parameter	Settings
Behaviour on KNX error	**No Action** Switch to On Value Switch to Off Value Switch to Panic Value
Use this parameter to set the behaviour of the connected ECGs/lamps when a KNX error occurs.	

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.	
Send delay for status after KNX Recovery	Immediately 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 bus reset
Determines the light status send conditions (switch status and value status) of the connected ECGs and groups.	
Send value status 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.	
Send delay between status objects	No delay **1 second** 2 seconds 3 seconds 4 seconds 5 seconds
Use this parameter to set the delay with which you want to send status information. A greater delay reduces the busload.	
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.	

17.1.2 Parameter page: Analysis and maintenance

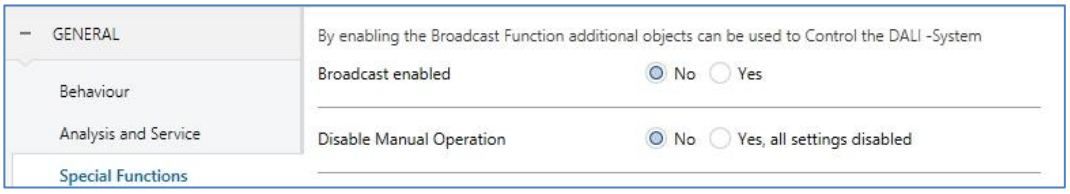


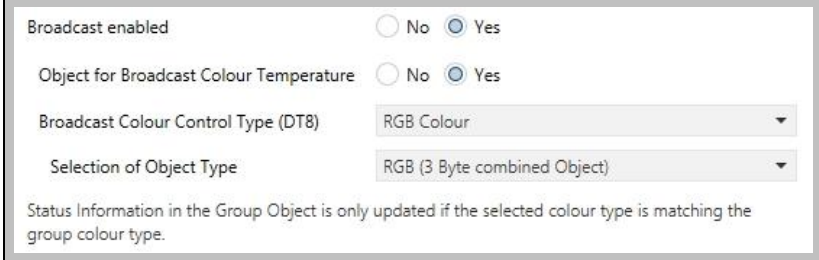
Parameter	Settings
Error status send condition	Send on Request **Send on Change** Send on Change and after Busreset
Sets the conditions under which the error status objects of the connected ECGs and groups are to be sent.	
Delay between sending of error objects	No request **1 Second** 2 Seconds 3 Seconds 4 Seconds 5 Seconds
Sets the delay with which error information is sent.	
Cycle time for error queries	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 errors, 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 errors can no longer be recognised. You should therefore use this setting only during service or in special cases.	
Type of central error object	**None** Dali Diagnostic (1 Byte)
Use this parameter to select whether you want to use the central error object for ECG and lamp errors (object number 29).	

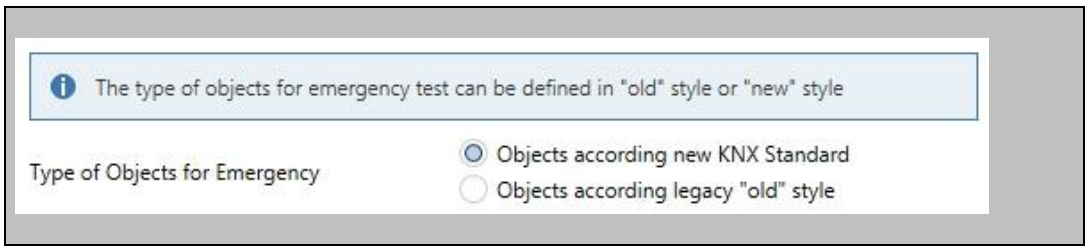
Function of the additional error object	**Total number of errors** Error rate 0..100%

Use this parameter to select whether you want to use the error analysis objects (objects number 16, 18, 20 and 22) to report the total amount of errors or the error rate in %.	
Threshold value for error alarm objects	**1%** 2% 3% 100%
Configures a threshold value for the general error alarm object (object 16). The threshold value takes all errors (ECG, lamp and converter errors) into consideration independently of the error type and relates them to the total number of connected ECGs and converters.	
Threshold value for lamp errors	**1%** 2% 3% 100%
Configures a threshold value for the lamp error alarm object (object 18). The threshold value considers all lamp errors in relation to the total number of connected lamps in the DALI segment.	
Threshold value for ECG errors	**1%** 2% 3% 100%
Configures a threshold value for the ECG error alarm object (object 20). The threshold value considers all ECG errors in relation to the total number of connected ECGs in the DALI segment.	
Threshold value for converter errors	**1%** 2% 3% 100%
Configures a threshold value for the converter error alarm object (object 22). The threshold value considers all converter errors in relation to the total number of connected converters in the DALI segment.	

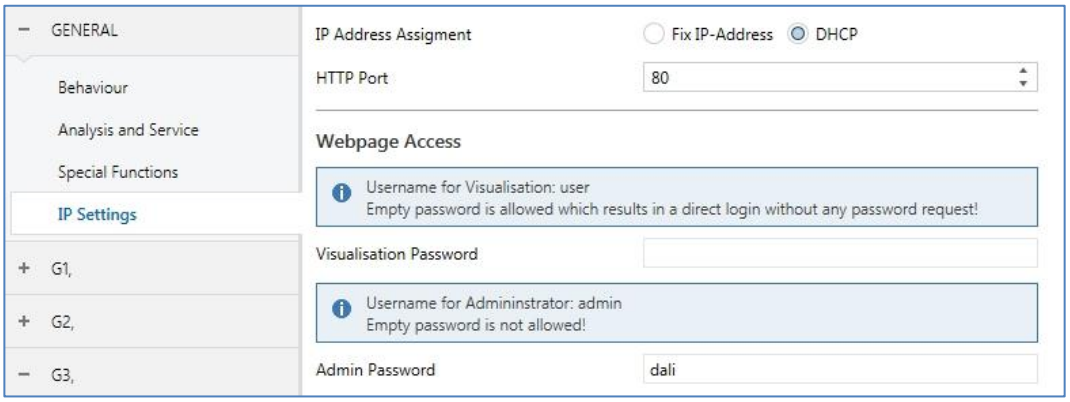
17.1.3 Parameter page: Special functions



Parameter	Settings
Broadcast enabled	**No** Yes
Use this parameter to enable the broadcast function in addition to group control. Note: ***When activating the broadcast function, additional objects to control the DALI system can be used and further parameters appear:*** 	
Object for broadcast colour temperature	**No** Yes
Defines whether a separate communication object for broadcast color temperature is to be displayed.	
Broadcast for colour ECGs (DT8)	**None** RGB Colour RGBW Colour XY Colour
Determines which type of colour control is to be used for the broadcast commands. ***Note: The status information is only updated if the selected type of colour control matches the type defined in the group.***	
Selection of the object type (when selecting RGB color)	**RGB (3 Byte combined object)** RGB (separate objects) HSV (separate objects)
This parameter can be used to select the type of color control.	
Selection of the object type (when selecting RGBW color)	**RGBW (6 Byte combined Object 251.600)** RGBW (separate objects) HSVW (separate objects)
This parameter can be used to select the type of color control.	
Disable manual mode	**No** Yes
Use this parameter to disable the manual mode directly on the device	
Object type for emergency light mode	New **Old**



17.1.4 Parameter page: IP settings

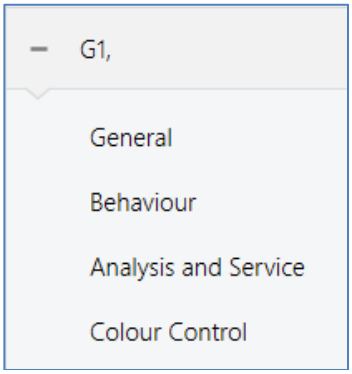


Parameter	Settings
Web access enabled	No **Yes**
This parameter makes it possible to principally disable web operation for security reasons. ***Attention:*** An IP connection to the firmware update is required. If de-activted, no firmware update is possible.	
Assigning an IP address	**Fixed IP address** DHCP
Determines whether the device is given a fixed IP address or a dynamic IP address via DHCP. When selecting the fixed IP address, the following additional parameters are shown:  	
Access via website allowed	No **Yes**
Use this parameter if you would like to disable the web server for control and operation of the device. ***Note:*** If access is disabled, there is no possibility of a firmware update via the IP connection. In this case access has to be enabled first in the ETS. The following parameters are only visible if web access has been enabled.	
IP address, subnet and gateway	**IP address entry**
Enter the required information in IPv4 format.	

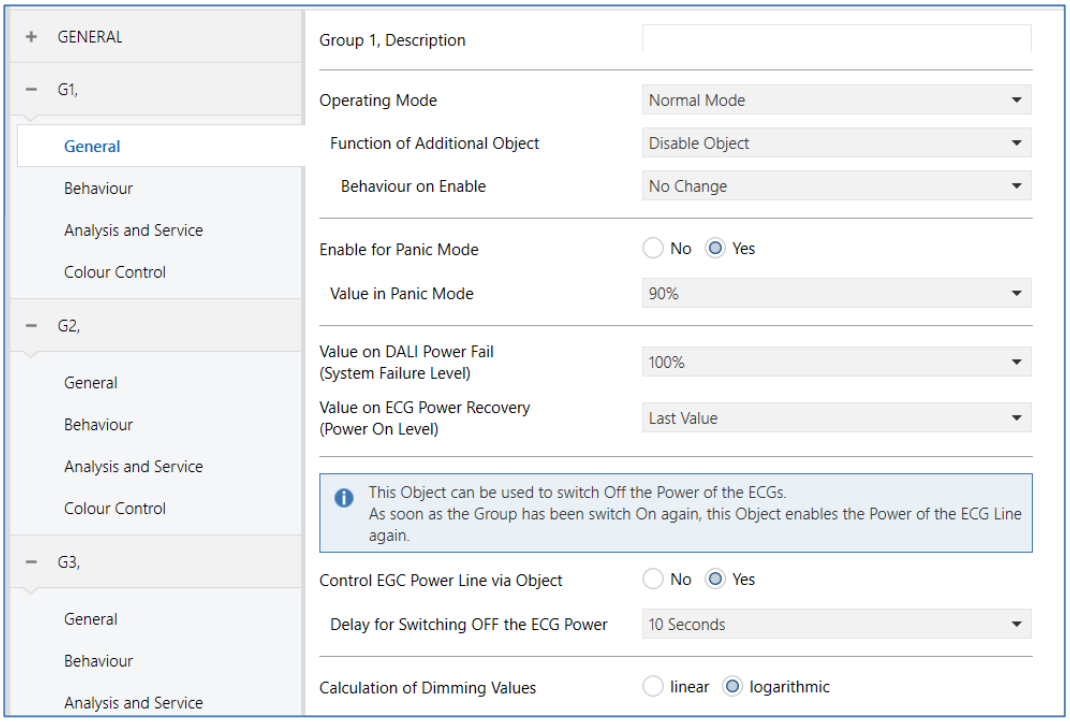
HTTP Port	**80**
The device has a small web server to visualise a status or for commissioning. The port is set to the standard value 80.	
Password visualisation	Entry (8 characters)
The standard operator is "user". The corresponding password can be defined here with a maximum length of 8 characters. ***Note:*** An empty password takes you to a direct link to the website without password request.	
Password administration	Entry (8 characters)
The standard operator is "admin". The corresponding password can be defined here with a maximum length of 8 characters. ***Note:*** An empty password is not allowed.	

17.2 Group

There are 4 parameter pages for group settings. The parameters are described below.



17.2.1 General



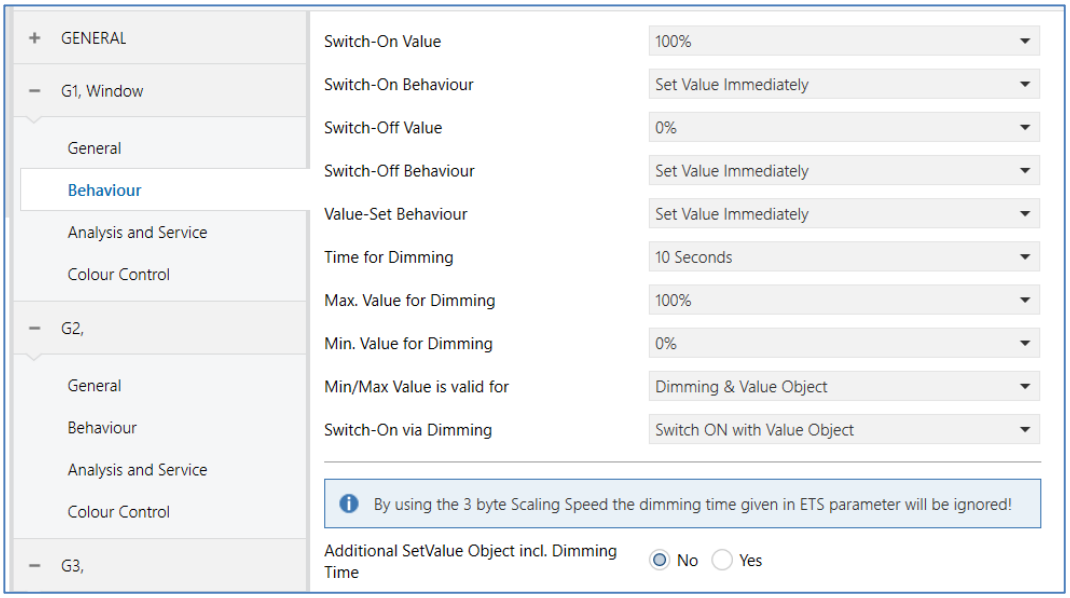
Parameter	Settings
Group description	
Use this parameter to define a group description. The description is shown for all communication objects. For example: Room1 (window) 32 G1, Switching, Window On/Off 33 G1, Dimming, Window Brighter/Darker 34 G1, Set Value, Window Value 36 G1, Disable, Window Yes/No 37 G1, Status, Window On/Off 38 G1, Status, Window Value	
Operating Mode	**Normal Mode** Permanent Mode Night Mode Staircase Mode
Use this parameter to set the operating mode of a group.	
Value in permanent mode (if permanent mode is selected)	0..100% **[50]**
Use this parameter to set 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.	

Behaviour in night mode (if night mode is selected)	**Delayed Switch-Off** Delayed Switch-Off in 2 Steps Delayed dim-down Activate Permanent Mode and ignore telegrams
Use this parameter to set the behaviour of the group when night mode has been activated via the night object (Nr 10). This parameter is only visible if you select 'night mode'. Special settings: • **Delayed switch-off in 2 steps:** 1. After a configured time, the value changes to 50% of the previous value. 2. After another minute the value changes to the switch-off value. • **Delayed dim-down:** 1. After the configured time, the device dims down to the switch off value.	
Automatic Switch-Off after	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'.	
Behaviour in staircase mode (if staircase mode is selected)	**Delayed Switch-Off** Delayed Switch-Off in 2 Steps Delayed dim-down
Use this parameter to set the behaviour of the group in staircase mode. This parameter is only visible if you select 'staircase mode'. • **Delayed switch-off in 2 steps:** 1. After a configured time, the value changes to 50% of the previous value. 2. After another minute the value changes to the switch-off value. • **Delayed dim-down:** 3. After the configured time, the device dims down to the switch off value.	
Automatic Switch-Off after	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 mode'.	

Function of the additional object	**No Object** Disable Object Enable Object Disable Staircase Function 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 "Enable object", value 1 enables the operation of the group. If you select " Disable Staircase Function Object ", value 1 disables only the staircase function. This can be used to temporarily disable the staircase function for example during cleaning.	
Behaviour when enabled	**No change** Change to switch on value Change to switch 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 8.	
Value in panic mode	**1%** .. **50%** .. 100%
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 return of ECG power supply (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.	
Switch ECG power supply via object	**No** Yes
Use this parameter to display object number 59 to switch off the ECG power supply via a separate actuator. The object is set to "0" with a delay (see next parameter) when all ECGs in a group are switched off. If a group is switched on, the object is set to "1" to activate the power supply. The first Dali telegram is sent with a delay. The object is always pre-set to "1" when you switch on the device.	

Delay until ECG power supply is switched off	**10 seconds** 30 seconds 1 minute 2 minutes 5 minutes 10 minutes
Sets the delay time until the object is switched off. The object is set to "0" with a delay, when all ECGs are switched off.	
Calculation of dim values	**logarythmic** linear
Sets the dimming curve for the group.	

17.2.2 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 lamp being switched off.	

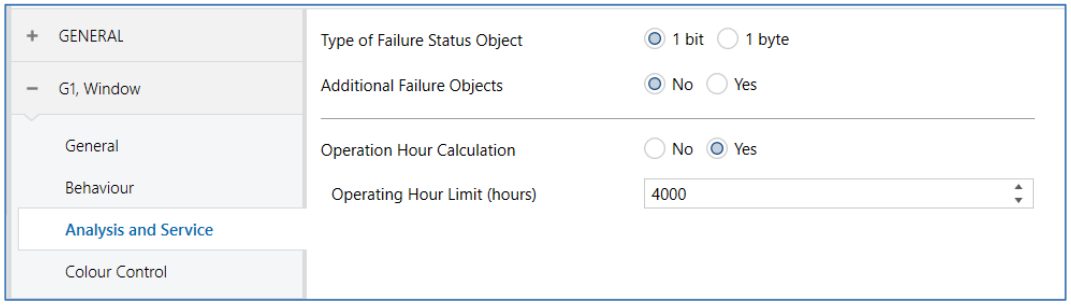
Switch-on behaviour	**Set Value Immediately** Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
Use this parameter to set the switch-on behaviour.	
Switch-off value	**0%** 5% 10% … 45% 50% … 95% **99%**

Use this parameter to set the switch-off value.	
Switch-off behaviour	**Set Value Immediately** Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
Use this parameter to set the switch-off behaviour.	
Value-set behaviour	**Set Value Immediately** Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
Use this parameter to configure the behaviour on receipt of a new dim value via value setting. Please remember that the dim time always refers to the full value range. Accordingly a dim 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.	

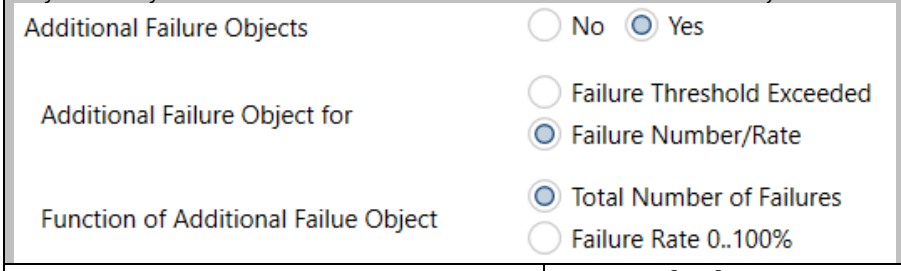
Time for Dimming	3 Seconds 4 Seconds 5 Seconds 6 Seconds **10 Seconds** 20 Seconds 30 Seconds 60 Seconds
Use this parameter to set the dim time for relative dimming in relation to a value range from 0 to 100%.	
Max. value for dimming	50% 55% **100%**
Use this parameter to configure the maximum dim value 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 values are valid for	**Dim object** Value object Dim and 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 dim object **Switch on with value object** Switch on with dim and value object
Use this parameter to select whether a switched off group should be switched on when receiving a relative 4 Bit dim object, a value setting object or both.	
Additional value setting object with dim time.	**No** Yes
Determines whether the value object is to be used with the combined dim time (DPT 225.001) See object Nr. 35. ***Note:*** If you select the 3 Byte object (combination of value and dim time), the dim time in the ETS is ignored!	

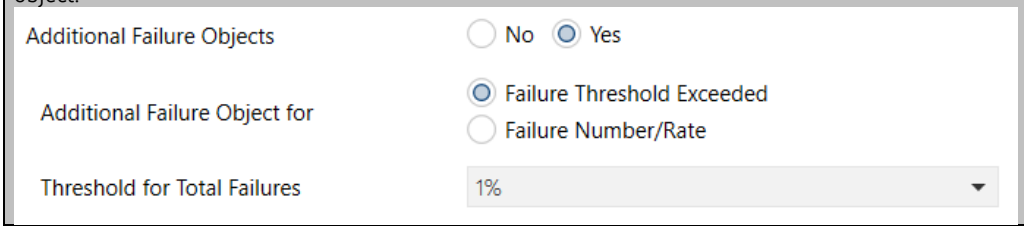
17.2.3 Analysis and service



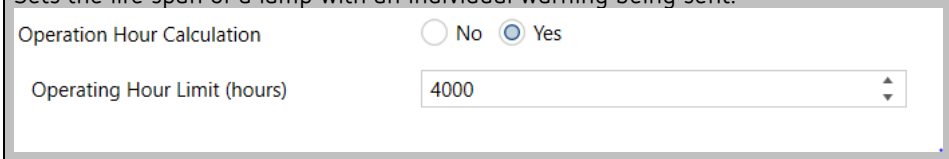
Parameter	Settings
Type of error status object	**1 Bit** 1 Byte
Determines whether the error object should be sent as a 1 Bit object without differentiation after the error type has been detected or as an 8 Bit object with differentiation.	
Additional error objects	**No** Yes
Use this parameter if you want to define additional error objects.	
Additional error object for	**Error threshold exceeded** Number of errors / error rate
Determines whether the additional error object should be used as a 1 Byte object for number of errors/error rate or as a 1 Bit object for exceeding the error threshold.	
Function of the additional error object	**Number of errors altogether** Error rate 0..100%
Use this parameter to select either number of all errors in a group or error rate in %. This parameter is only visible if you select "Number of errors/error rate" as additional error object	
Error threshold for error alarm object	1%...100% **[1%]**



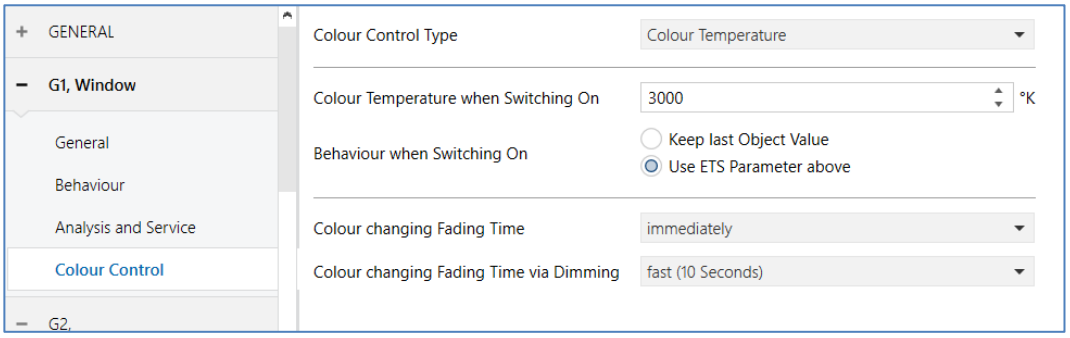
Use this parameter to enter the threshold in %. When the threshold is exceeded, the error alarm object is sent. This parameter is only visible when you select "Error threshold value exceeded" as additional error object.



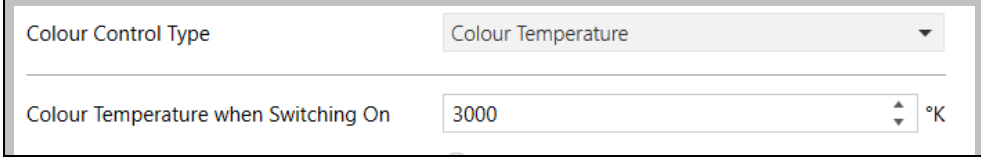
Operating hours calculation	Yes **No**
Use this parameter if you want to count the operating hours of a group.	
Life span threshold (hours)	1 h..200.000 h **[4000 h]**
Sets the life span of a lamp with an individual warning being sent.	

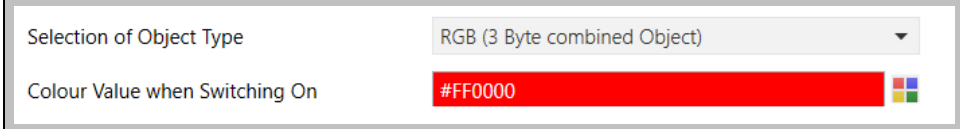
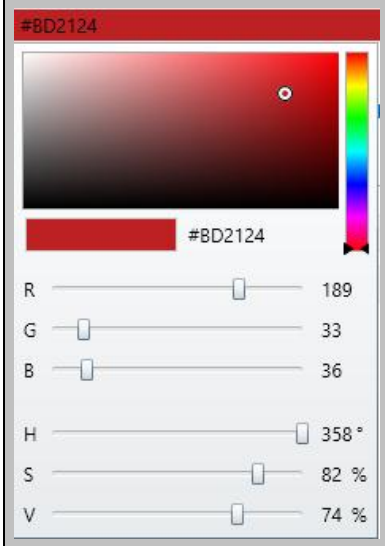


17.2.4 Colour control

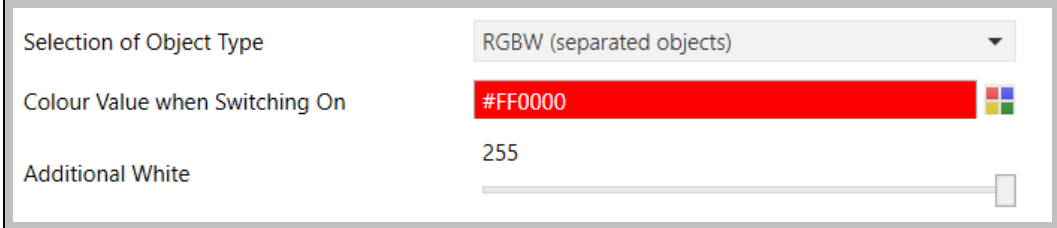


Parameter	Settings
Type of colour control	**None** Colour temperature RGB colour RGBW colour XY colour
Sets the colour control used for the group. Please make sure that the ECGs in this group support this type of control.	
Switch-on colour temperature (if "colour temperature" has been selected)	**1000 K..10000 K [3000 K]**
Sets the switch-on colour temperature.	

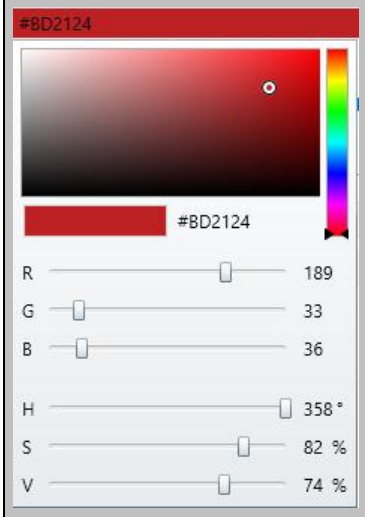


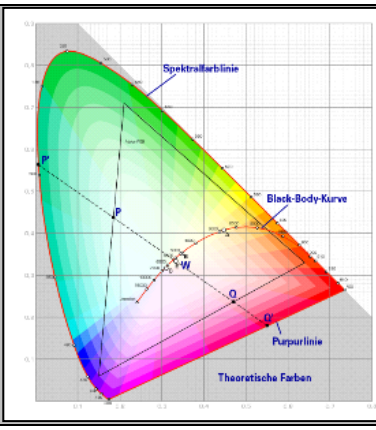
Switch-on behaviour	**Keep last object value** Use ETS parameters as set above
Use this parameter to select whether to use the last valid colour value or the colour temperature that has been set with the ETS. ***Attention:*** If you select "Keep last object value" and the object value is invalid, the colour that was pre-set in the ETS will be used.	
Time for colour change	**Immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds
Use this parameter to decide how quickly you want to change the colour temperature.	
Time for colour change when dimming	**Quick (10 seconds)** Standard (20 seconds) Slow (40 seconds)
Use this parameter to select how quickly you want to change the colour temperature when dimming.	
Object type (when selecting "RGB colour")	**RGB (3 Byte combined object)** RGB (separate objects) HSV (separate objects)
Use this parameter to select which objects you want to use for colour control.  	
Switch-on colour value	**Colour selection**
Defines the switch-on colour value. A window for colour selection is displayed in the ETS.  	

Switch-on behaviour.	**Keep last object value** Use ETS parameters as set above
Use this parameter to select whether to use the last valid colour value or the colour temperature that has been set with the ETS. ***Attention:*** If you select "Keep last object value" and the object value is invalid, the colour that was pre-set in the ETS will be used.	
Time for colour change	**Immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds
Use this parameter to decide how quickly you want to change the colour temperature.	
Time for colour change when dimming	**Quick (10 seconds)** Standard (20 seconds) Slow (40 seconds)
Use this parameter to select how quickly you want to change the colour temperature when dimming.	
Object type (when selecting "RGBW colour")	**RGBW (6 Byte combined object 251.600)** RGBW (separate objects) HSVW (separate objects)
Use this parameter to select which objects you want to use for colour control. The combined object is described in chapter: --> *RGBW (DPT 251.600)* .	



Switch-on colour value	**Colour selection**
Defines the switch-on colour value. A window for colour selection is displayed in the ETS.	

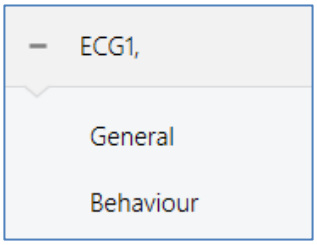


Additional white value	**0..100% (Slider)**
Use this parameter to set the additional white value within a value range from 0 to 100%.	
Switch-on behaviour	**Keep last object value** Use ETS parameters as set above
Use this parameter to select whether to use the last valid colour value or the colour temperature that has been set with the ETS. ***Attention:*** If you select "Keep last object value" and the object value is invalid, the colour that was pre-set in the ETS will be used.	
Time for colour change	**Immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds
Use this parameter to decide how quickly you want to change the colour temperature.	
Time for colour change when dimming	**Quick (10 seconds)** Standard (20 seconds) Slow (40 seconds)
Use this parameter to select how quickly you want to change the colour temperature when dimming.	
Object type (when selecting "XY colour")	**XY (separate objects)** XY (combined object 242.600), see ***XY (DPT 242.600)***
Use this parameter to select which objects you want to use for colour control. Selection of Object Type: XY (separated objects) / XY (combined object 242.600) Colour X-Value when Switching On (0..1): 0.33 Colour Y-Value when Switching On (0..1): 0.33	
Switch-on X-colour value (0..1)	**0,33 value between (0..1)**
	Defines the switch-on X-colour value. The value range is between 0 and 1. X= 0,33 and Y=0,33 corresponds to the white point.

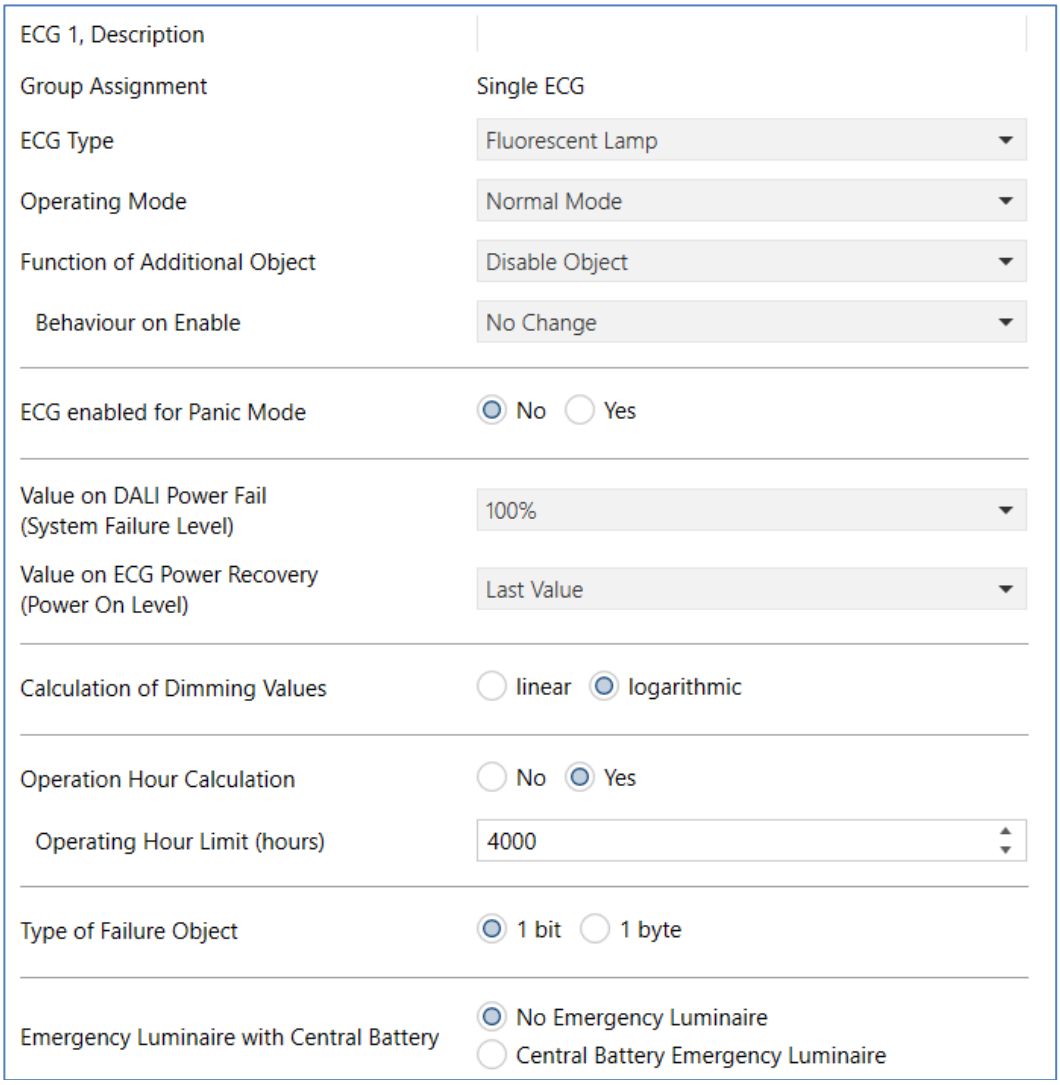
Switch-on Y-colour (0..1)	**0,33 value between (0..1)**
Defines the switch-on Y-colour value.	
Switch-on behaviour.	**Keep last object value** Use ETS parameters as set above
Use this parameter to select whether to use the last valid colour value or the colour temperature that has been set with the ETS. ***Attention:*** If you select "Keep last object value" and the object value is invalid, the colour that was pre-set in the ETS will be used.	
Time for colour change	**Immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds
Use this parameter to decide how quickly you want to change the colour temperature.	

17.3 ECG

There are two parameter pages for ECG settings for individual ECGs that have not been assigned to a group. The parameters are described below.



17.3.1 General



Parameter	Settings
ECG x, Description	
Use this parameter for an ECG description. The description is shown for all communication objects.	
ECG Type	**Fluorescent lamp** Self contained battery lamp 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

Use this parameter to select the operating mode that the ECG is to run in.	
Value in permanent mode	1..100% **[50%]**
Use this parameter to select the value of a lamp in 'permanent mode'. A lamp in this mode cannot be switched or changed. It remains at the set value. This parameter is only visible if you select 'permanent mode'.	
Behaviour in Night Mode	**Delayed Switch-Off** Delayed Switch-Off in 2 Steps Delayed Dim-Off Activate Permanent Mode and ignore telegrams
Use this parameter to set the behaviour of the ECG when night mode has been activated via the night object. This parameter is only visible if you select 'normal/night mode'. Special settings: • **Delayed switch-off in 2 steps:** 1. After a configured time, the value changes to 50% of the previous value. 2. After another minute the value changes to the switch-off value. • **Delayed dim-down:** 1. After the configured time, the device dims down to the switch off value.	

Automatic switch-off after (minutes)	1 minute 2 minutes 3 minutes 4 minutes **5 minutes** 10 minutes 15 minutes ... 90 minutes
Function of the additional object	**No object** Disable object Enable object
Use this parameter to set the function of the additional object. If you select "Disable object", value 1 disables the operation of the ECG. If you select "Enable object", value 1 enables the operation of the ECG.	
Behaviour when enabled	**No change** Change to switch- on value Change to switch- off value
This parameter only appears when an additional object has been selected. It defines the behaviour when enabled.	
ECG enabled for emergency / panic mode	Yes **No**
Determines whether the ECG should be considered during panic mode. The panic mode is controlled via central object number 8.	
Value in panic mode	1% .. **50%** .. 100%
Selects 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 return of ECG power supply (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 dim values	**Logarythmic** linear
Sets the dimming curve for the group.	
Calculation of operating hours	Yes **No**
Use this parameter if you require individual operating hours to be calculated for the group.	

Life span threshold (hours) (when calculating operating hours).	1 h..200.000 h **[4000 h]**
Sets the life span of a lamp with an individual warning being sent.	
Type of error object	**1 bit** 1 byte
Defines whether to notify an error in bit format (Alarm DPT 1.005) or via a Byte object with information about lamp and ECG errors, see chapter: --> ECG objects.	
Emergency lights with central battery	**No emergency lighting** Emergency lighting with central battery
Use this parameter if you want the ECG to control an emergency light with central battery. Devices defined as emergency lights are specifically marked during status notifications and a special test mode can be activated via an object. This parameter is not visible if 'self contained emergency light' has been selected.	
Value in test mode	1% 5% .. **50%** .. 100%
Use this parameter to select the value of a lamp in 'test mode'. A lamp in this mode cannot be switched or changed. It remains at the set value. This parameter is only visible if you select 'emergency lighting with central battery'. The test mode is started with object 9.	
Duration of test mode (minutes)	5 minutes 10 minutes **15 minutes** .... 4 hours
Use this parameter to configure for how long the lamp will be on after starting the test mode. A lamp in this mode cannot be switched or changed. It remains at the set value. This parameter is only visible if you select 'emergency lights with central battery'.	

17.3.2 Verhalten

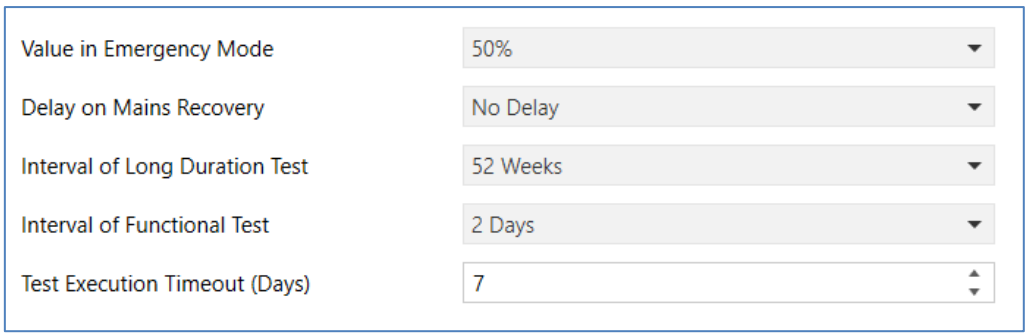
Parameter	Settings
Switch-on value	1% 5% 10% ... 95% **100%** Last value
Use this parameter to set the switch-on value. If you select 'last value', the value is set to the dim value prior to the lamp being switched off.	
Switch-on behaviour	**Set Value Immediately** Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim 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** Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes
Use this parameter to set the switch-off behaviour.	

	Set Value Immediately Dim to Value in 3s Dim to Value in 6s Dim to Value in 10s Dim to Value in 20s Dim to Value in 30s Dim to Value in 1 Minute Dim to Value in 2 Minutes Dim to Value in 5 Minutes Dim to Value in 10 Minutes

Use this parameter to configure the behaviour on receipt of a new dim value via value setting. Please remember that the dim time always refers to the full value range. Accordingly, a dim 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 between 0 and 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 values are valid for	**Dim object** Value object Dim and 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 dim object **Switch on with value object** Switch on with dim and value object
Use this parameter to select whether a switched off ECG should be switched on when receiving either a relative 4 Bit dim object, a value setting object or both.	

17.3.3 Emergency mode settings

This parameter page is only displayed if you select ECG type 'emergency lights'.



Parameter	Settings
Value in Emergency Mode	1..100% **[50]**
Sets the light value of a self-contained battery emergency light in case of a power failure or during a long duration test.	
Delay after return of power supply	**No delay** 30 seconds 1 minute 2 minutes 3 minutes 4 minutes 5 minutes 10 minutes
Sets the delay until a self-contained battery lamp changes back into normal mode after power has been restored.	
Interval of long duration test	No automatic test 1 week 2 week .... **52 weeks**
Use this parameter to set the intervals at which the converter is to perform automatic long duration tests.	
Interval of function test	No automatic test 1 day **2 days** .... 28 days
Use this parameter to set the intervals at which the converter is to perform automatic functional tests.	
Time exceeded after test start (Tage)	0..255 **[10]**
If a function or long duration test cannot be started immediately, (for example because the battery is not fully charged), the converter tries to execute the test later. Use this parameter to configure how long to attempt another test start and when to send an error notification that the time has been exceeded. If the setting is 0, timeout will occur after 15 minutes.	

18 DCA OSS

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1.)
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