Content

1 General product information

1.1 Using the application program

This application program description outlines the function of the IPAS KNX-DALI Gateway DaliControl b04 Pro software for devices equipped with firmware version 1.0.0 or higher.

Product family: Lighting
Product Type: Gateway
Manufacturer: IPAS GmbH
Name: DaliControl b04 Pro V1.0
Order number: 4101-145-30
Number of communication objects: 199

When using KNX Secure:
Number of secure group addresses for use: 600
Number of communication partners: 100

1.2 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 failure status such as light or ECG failures or for other light status information.

Via the connected control device / gateway, up to 32 DALI ECGs can be connected in one of four DALI segments.

A more detailed description of the DALI system can be found on the official website of the DALI Alliance:

➔ https://www.dali-alliance.org

1.3 DaliControl b04 Pro product features

The IPAS DALI Gateway DaliControl b04 Pro is a single-master application controller for controlling electronic ballasts with up to four DALI interfaces via the KNX installation bus. It supports ballasts according to EN 62386-102 ed1 (DALI1) as well as devices according to EN 62386-102 ed2 (DALI2).

The device transforms switching, dimming and colour control commands from the connected KNX system into corresponding DALI broadcast telegrams.

The DaliControl b04 Pro has 4 DALI outputs which can control up to 128 ECGs (each DALI Output supports 32 ECGs).

The required power supply for the connected ECGs is provided directly from the device. Additional DALI power supplies are not required and not allowed.

The gateway is checking the number of connected ECGs automatically. If more than 32 ECGs are connected to one channel, the channel stops working and generate an overload failure.

The device is vailable in a 4TE wide DIN rail housing for direct installation in an electrical distribution board. The bus connection is made via a standard KNX bus connector. Mains and DALI lines are connected via screw terminals on the device.

Per gateway the ECGs can be controlled in 4 Dali bus lines.

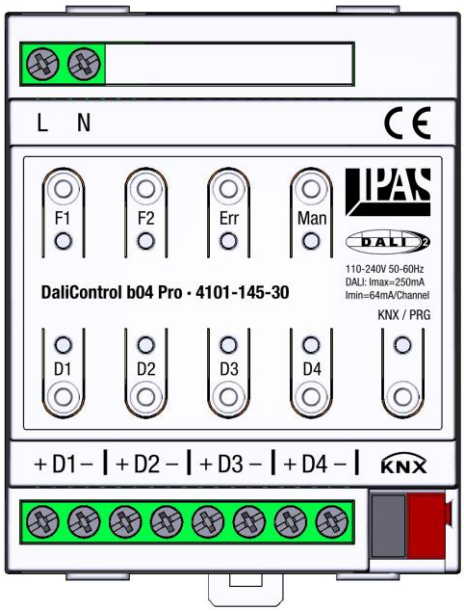
In addition to the pure gateway functions, the DaliControl b04 Pro offers numerous additional features:

- General adjustable Soft-Start Behaviour for ECGs
- Coloured light control with the support of Device Type 8 (DT-8) ballasts and control via communication objects
- Coloured light control depending on ballast Sub-Type:
  - Colour Temperatur (DT-8 Sub-Type Tc)
  - RGB (DT-8 Sub-Type RGBWAF)
  - HSV (DT-8 Sub-Type RGBWAF)
  - RGBW (DT-8 Sub-Type RGBWAF)
- Automatic change of colour temperature depending on the light value (Dimm-To-Cold)
- Various operating modes such as normal, night and staircase mode
- Individual time settings for staircase mode, switch-on and switch-off delays
- Specially adjustable behaviours for alarm and lock situations for each channel
- Integrated operating hours counter for each Dali channel
- Alarm when a defined end of life of lights is reached
- General device level error detection
- Individual fault detection with objects for each Dali channel
- Complex error evaluation on channel level with error number and error rate calculation
- Error threshold monitoring with individually adjustable threshold values
- Scene module for each channel to create up to 16 scenes each
- Scenes can be invoked and programmed by KNX objects
- Setting of brightness value, colour temperature and/or RGB(W) colour in DT-8 luminaires via scenes
- Energy-saving function with additional objects for each channel to de-energise ECGs
- Active Power Reporting of DT51 ECGs
- Manual operation and fault detection via keys and LEDs on the device

1.4 Scope of delivery and operating elements

The scope of delivery of the b04 Pro consists of:

- Complete device with plug-in KNX bus terminal
- 1x KNX protection cap
- Operating and installation instructions
- Packed in break-proof individual packaging



Screw Terminal on top at the REG casing:

- Mains connection L and N

Terminals at the bottom:

- 4 DALI channels D1 - D4
- KNX bus terminal

Control buttons of the device:

- F1 - Function Button New Installation (Long Push)
- F2 - Function Button Post Installation (Long Push)
- Err - Activation of error analysis
- Man - Activation manual operation
- D1 - D4 - Operation / Selection of channels (Short Push, Long Push)
- KNX/Prg. - Switching normal/addressing mode

Status and error LEDs of the device:

- F1/F2 - LEDs Error Code Detection
- Err - Analysis / Commissioning Mode activated – Blinking Error Detection
- Man - Manual operation activated
- D1 - D4 - Status of channels / Channel Selection in Error Analysis Mode

During the installation phase, the manual control on the device can be used to operate the individual DALI channels. Please see chapter: Manual operation

Once the installation phase is complete, the device should be downloaded with the ETS software and the correspondingly parameterised application program. Only then can all operating modes, special functions and time settings as well as analysis and service functions be used to their full extent.

1.5 Device operating concept

Like every KNX device, the DaliControl b04 Pro has a KNX connection, which also supplies it with power for operating the central controller and the user interface. In addition, the gateway requires a mains voltage supply to operate the DALI controller and supply the connected ECGs. An external DALI power supply unit is not required and not permitted.
The mains voltage is connected via the corresponding terminals.

The gateway is only fully operational when both KNX and mains voltage are present.

In principle, the KNX part is already accessible via the ETS when no mains voltage is applied. Planning and programming via the ETS can therefore take place before the DALI is connected and before the final DALI installation has been completed. The device LEDs and the operating buttons are also ready for operation without mains voltage being present. In this case, the KNX controller recognises a mains voltage error and the 'Err' and 'Man' LEDs flash alternately.
However, the availability of mains voltage is a prerequisite for the (also manual →see below) operation of connected DALI luminaires.

The KNX programming button and programming LED can be used without restriction if no mains voltage is present.

1.6 Manual Operation

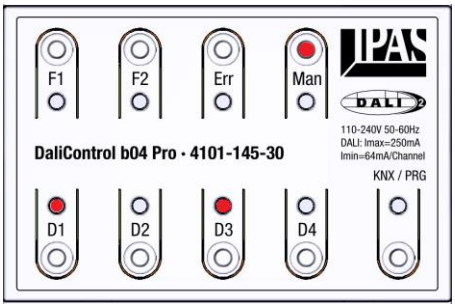
The DaliControl b04 Pro has 9 buttons and 9 status LEDs for manual operation and fault diagnosis. The buttons and LEDs are positioned on the front of the housing so that they can be operated without removing the protection cover once the devices have been installed in the distribution board.

The KNX programming button is located at the bottom right of the device. The button is used to switch between normal and programming mode and the associated LED lights up red when programming mode is activated.

The top right 'Man' button is used to activate manual operation. Whether manual operation is possible can be set via parameters or enabled via a KNX object. In addition, manual operation can also be switched off automatically after an adjustable time. An activated manual mode is indicated by the LED associated with the button.

In manual mode, the four DALI lines can be switched and dimmed by pressing buttons D1..D4 on the device. A short press of the button switches the associated luminaires on and off (toggle function) and the DALI luminaires can be dimmed up and down by a long press of the channel button (dimming direction also toggles).
The status LEDs of buttons D1..D4 indicate the status of the luminaires (ON / OFF) in normal mode or in manual mode.

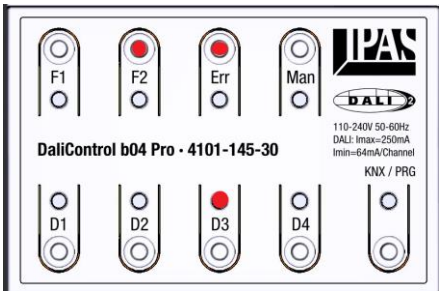
Example:
Manual operation active
Channel D1 and D3 light ON
Channel D2 and D4 light OFF



The ‘Err’ button and the corresponding LED are located next to the ‘Man’ button. A flashing ‘Err’ LED indicates that the gateway has detected an error. The device can be switched to error analysis mode by briefly pressing the ‘Err’ button. The LED is then permanently red (no flashing). Any previously activated manual mode is switched off.
In analysis mode, buttons D1..D4 can be used to select the DALI channel to be analysed. The combination of LEDs in buttons F1 and F2 indicates any errors within the selected channel. This means

LED F1 on F2 off	→	ECG error in the channel
LED F1 off, LED F2 on	→	Lamp error in the channel
LEDs F1 and F2 flash quickly	→	DALI overload (more than 32 ECGs) in the channel
LEDs F1 and F2 flash slowly	→	DALI short circuit in the channel

Example:
Error analysis channel 3 active
Lamp error detected



A missing mains voltage at the gateway generates an error that is valid for all channels. It is symbolised by the LEDs ‘Err’ and ‘Man’ flashing alternately

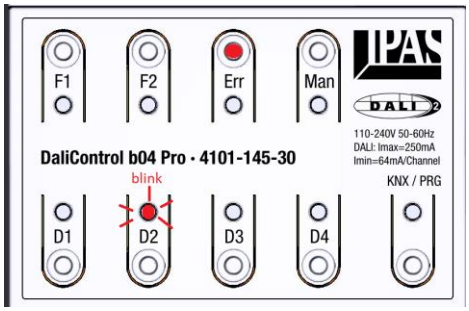
In addition to error detection, a new or post installation can also be forced if the error analysis operating mode is activated and any existing error due to ‘overload’ (too many ECGs taught in → see below) can be corrected. The installation processes are activated by a long press of the F1 and F2 buttons.

F1 button long press → Forces reinstallation
F2 button long press → Forces post-installation with system check (see below)

The respective installation process starts for the channel previously selected using the D1..D4 button. An ongoing installation process is then signalled by a flashing LED. This means

Slow flashing → New installation process is running
Fast flashing → Post-installation process is running

Example:
after long keypress of F2
Post-installation channel 2 running



The flashing of the respective LED (slow →Neuinstallation, fast → post-installation) is also activated if the corresponding process was started after a device start or reset by auto-commissioning (see below).

1.7 Auto Comissioning Concept

The complex functions of the DaliControl b04 Pro Broadcast DALI gateway require individual communication between the gateway and the connected ECGs. To make sure that the gateway can establish this communication, the ECGs must be given a short address. The short address can then be used to query the ECG status, any existing ECG errors or the lamp wattage (see DT-51 below).

The short address also ensures that no more than 32 ECGs are connected per channel of the gateway. If more than 32 ECGs are connected due to an installation error, this is recognised by the gateway, the channel is switched off and a fault message is generated → overload-error. **It is not possible to use more than 32 ECGs per channel!**

The short address is assigned automatically (so-called teach-in process) as soon as ECGs are connected and the device is started or runs through a KNX bus reset. Please note that ECGs can only be taught-in if they are supplied with power and ready for operation and if the gateway is also supplied with mains voltage. Automatic teach-in takes place on all 4 DALI channels simultaneously and independently and is indicated by the respective LED flashing (see also the 'Manual operation' chapter → LEDs). Depending on the number of connected or newly added ECGs, the teach-in process can take up to 60 seconds.

As an alternative to the automatic start, the installation processes described below can also be started manually using the buttons on the device (see chapter 'Manual operation').

Depending on the previous status of the device, the gateway carries out two different installation processes, a new installation or a post-installation.

1.7.1 Newinstallation

When connected for the first time in the delivery and defaut state, the gateway is not aware of any ECGs. In this case, the device will automatically carry out a new installation after start-up. During the new installation, the device searches the respective DALI channel for connected ECGs. The search is based on the 3-byte long address of the ECGs. If ECGs are found, the gateway assigns the ECGs a unique, ascending short address from 0 to 31.

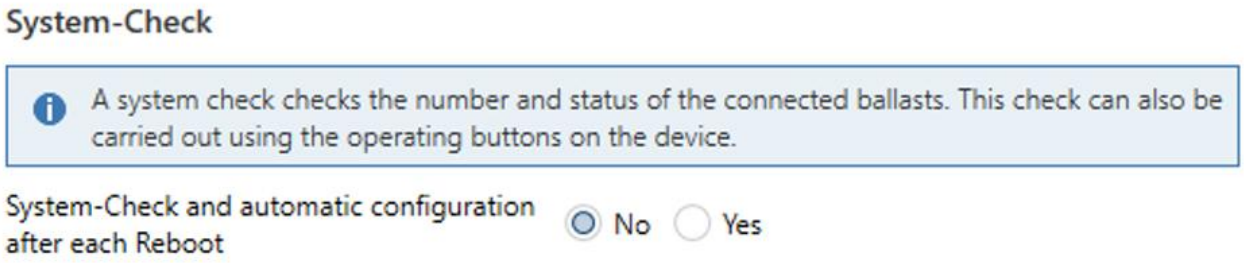
1.7.2 Post-installation

If a device start (bus reset) is carried out when ECGs have already been taught in, a post-installation is carried out. During post-installation, the gateway first uses the long and short addresses to check whether the ECGs previously taught-in and known by the gateway are still present. After the check, the gateway then scans the DALI line and uses the long addresses to search for any additionally installed, previously unknown ECGs. New ECGs are added to the installation and given a short address. Here, too, it is important to ensure that the number of ECGs never exceeds the maximum permissible limit of 32, otherwise the channel is switched off and a fault message is generated.

During subsequent installation, it should be noted that defective ECGs or ECGs that are no longer supplied with power (e.g. during maintenance) may also be connected to the DALI segment. In normal operation, such ECGs are recognised as faulty by the gateway and corresponding analysis data is provided via KNX.

A defective or switched off ECG can of course not respond during post-installation. To ensure that the error information is not lost, the automatic post-installation in the default configuration does not delete ECGs that no longer respond.

On the other hand, it is possible that the installation has been changed and ECGs have been deliberately removed from the DALI line. In this case, deleting the ECGs and cancelling the associated error message is desired. For this reason, an ETS parameter can be used to set whether the automatic post-installation should be carried out without a system check (no deletion of non-responding ECGs) or with a system check (ECGs that do not respond are deleted).



If post-installation is started manually using the button on the device, a system check is always carried out and non-responding ECGs are deleted.

Attention: Every installation change in the DALI line where ECGs have been removed or replaced must be taught into the device → Carry out a post-installation with system check or alternatively a new installation. If ECGs that no longer exist are not deleted from the device, they generate an error message (ECG error). They also block the memory and the full number of ECGs can no longer be taught in.
If only ECGs are added to an installation and no ECGs are removed, a post-installation without a system check is sufficient as no deletion is required.

If a post-installation with system check is carried out when no ECGs are connected to the gateway DALI line, all previously taught-in ECGs are deleted from the device memory and the device is emptied. The next time the device is started, the gateway will automatically carry out a new installation on such an empty channel.

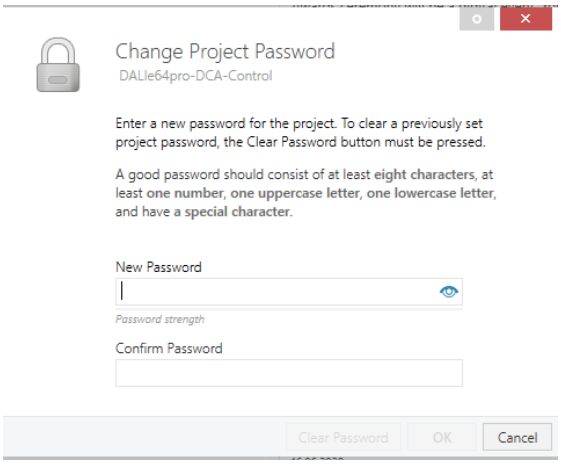
2 KNX Secure

The KNX standard has been extended by KNX Secure.
This enables the transmission of encrypted information within KNX. This allows secure encryption of ETS downloads as well as communication via objects.

Note: There are special conditions to be kept in mind when using secure devices in ETS. Please refer to the corresponding web pages on the KNX website.

➔ https://www.knx.org

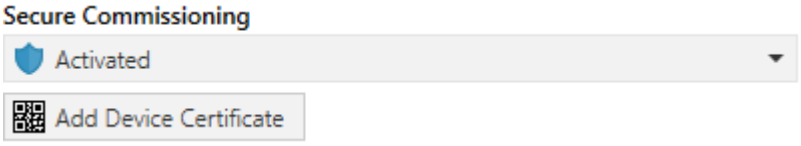
The DALIControl b04 Pro is equipped with a KNX Secure Stack.
In order to use a device "safely", the ETS project must first be protected with a password.



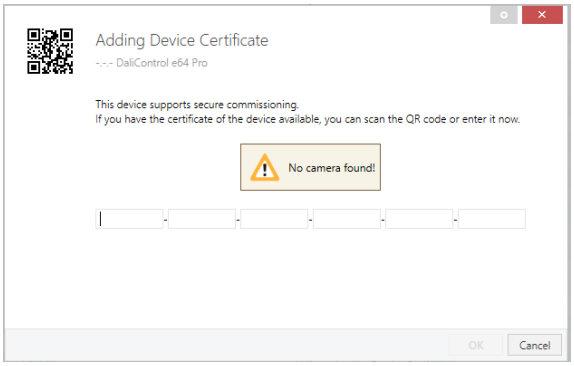
Note: "Safe" devices can only be downloaded with an interface that supports longer KNX telegrams (long frames).

2.1 Secure Usage

In the ETS the secured usage is shown in the device settings as follows:



Subsequently, the device certificate must be read in for each "safe" device. For this purpose, the camera is available as a QR Code Reader or the code must be entered manually:



The certificate consists of the serial number and an initial key FDSK (Factory Default Setup Key).
This code is only used for initial commissioning with the ETS. During the first download this key is replaced by the ETS. This prevents unauthorized persons from gaining access to the installation despite knowing the initial key.

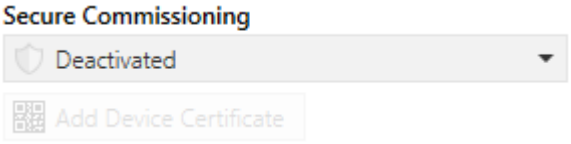
This initial key is printed on the device label both as a QR code and in text form.

Note: A "removable" sticker is also supplied, which the user can place in his documentation.

Note: The unit is designed to use up to 600 group addresses in secure communication. Up to 100 KNX communication partners are possible to communicate with the DALI Control b04 Pro via secure group communication objects.

2.2 Unsecure Usage

However, the DALI Control b04 Pro can also be configured as a "classic" KNX device in the ETS, as before. In this case, group communication with other devices can also be carried out as usual and no encrypted ETS download takes place.



2.3 Master-Reset

A master reset must be carried out so that the device can be returned to the manufacturing state and thus the initial key can be reactivated.

The following procedure must be followed for this:

1. Remove KNX connector
2. Keep commissioning KNX push button pressed
3. Add KNX connector
4. Keep KNX push button pressed for long time (~7sec) after KNX power supply connection

3 Colour control

The DaliControl b04 supports ECGs for colour control (device type 8 according to EN 62386-209). Such devices allow multi-channel colour control (RGB(W)) and thus enable the mixing of a light colour or the setting of a colour temperature (TC) via DALI.

3.1 Features of DALI device Type 8

ECGs for colour control (DT-8) are offered by various manufacturers. As a rule, these devices enable the direct control of LED modules with multi-coloured LEDs. The most common are modules with LEDs in the three colours red, green and blue (RGB), as well as modules with two different shades of white (Tunable White).

Attention: DT-8 ECGs for the sub-Type PrimaryN are not supported by the DALI gateway.

Occasionally, LED modules with an additional integrated white channel (RGBW) are also offered on the market. While 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 its own DALI short address. This means that two (tunable white), three (RGB) or even four (RGBW) short addresses are required to control a module. With a maximum number of 32 available short addresses per DALI segment, the number of usable luminaires would be greatly reduced. With a DT-8 device, on the other hand, only one short address is required for all colour channels and the maximum possible number of 32 luminaires can be controlled. The DALI standard EN 62386-209 defines various colour control methods for DT-8 devices. As a rule, a particular device only supports one of these possible methods. Therefore, please observe the specifications of the respective device or lamp manufacturer.

3.2 Colour display via colour temperature

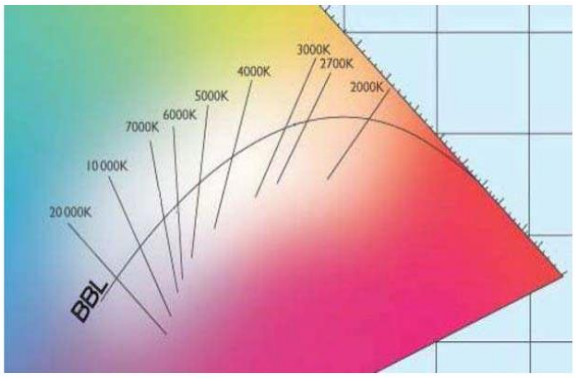


Figure: University of Cambridge press, source Wikipedia

The various shades of white are a subset of all possible colours in the colour space shown opposite. The white tones are located on a line across the entire colour space. The points on this so-called black-body line (BBL) are usually defined by a colour temperature in Kelvin. This makes it possible to precisely determine the white tone of a light between warm and cold with just one value. The colour temperature principle is therefore ideal for controlling white luminaires (tunable white).

DT-8 operating devices set the required colour temperature on a 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 8.000 Kelvin are common.

3.3 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.

In contrast to the methods described above, the colour definition in this case is not exact, but depends heavily on the specific physical properties of the LEDs used to generate the colour (wavelength, intensity). Nevertheless, specifying the percentage of primary colours within a system is useful for the relative description of a colour. With most DT-8 ballasts, the colour is set by defining 3 (RGB) or 4 (RGBW) values between 0 and 100%.

According to the DALI standard EN 62386-209, up to six colours (RGBWAF) can theoretically be used. However, the DaliControl b04 Pro only supports a maximum of 4 colours, corresponding to the ECGs currently available on the market.

4 Operating Modes, Special Functions and Time Settings

The DALI Gateway enables the use of various operating modes, special functions and time settings. These can be set individually on the respective parameter pages of the four DALI channels.

4.1 Operating Modes

The user can choose between the following two possible operating modes.

4.1.1 Normal Mode

In normal operation, ECGs can be dimmed and switched without restriction. Each DALI channel can be controlled via three communication objects (switching, dimming, set value). Numerous additional objects for light colour control are available for DT-8 ECGs. Separate status objects provide information about the switching, brightness value and colour status of the individual channels.

4.1.2 Normal / Night Mode

Night mode can be activated and deactivated via a general communication object of the gateway. For each of the four DALI channels, it is possible to parameterise an additional behaviour during the night. ECGs of the channel can either be set to a predefined permanent light value or can be switched off in one or two steps in a preconfigured time sequence.

Note: If the connected luminaires of a DALI channel are set to a permanent brightness value during the night, the manual and scene control of this channel is blocked.

4.2 Special Functions

Additional special functions are available for each DALI channel, such as active power, alarm, disable and energy-saving functions. These functions are described in more detail below.

4.2.1 Active Power Reporting

Active Power Reporting allows you to monitor the current energy consumed by the ECGs connected to a Dali channel. This requires ECGs that support DT51 according to Dali part 252. These ECGs measure the current consumption of the connected luminaires and make the measurement result available on the DALI bus. The measurement results of all ECGs connected to a channel are totalled and displayed as the total power consumption by the channels corresponding communication objects.

4.2.2 Alarm Function

Each DALI channel has an individually configurable alarm function in its parameters. The alarm can be activated and deactivated via the corresponding communication object of the channel. This means that different behaviours for activating and deactivating an alarm can be set for the connected luminaires of each individual DALI channel.

Note: If the alarm function is activated, manual and scene control of the corresponding channel is disabled. In addition, the night mode or a locking function of the channel have no effect in this state.

4.2.3 Locking Function

The locking function can be activated and deactivated via the corresponding channel object. Individual behaviours can be configured for the start and end of locking. Possible adjustable behaviours are switching on, switching off or set value of the channel. In addition, the behaviour of the locking function can be defined after a KNX download and after a KNX recovery.

Note: If a DALI channel is locked, manual and scene control of the channel are blocked.

4.2.4 Energy Saving

Energy can be saved with Energy Saving. This is achieved with the help of four additional communication objects that de-energise the ECGs connected to an additional switching actuator when they are switched off. When the Dali channel is switched on, the energy saving object assigned to the Dali channel is first sent to the KNX bus. This switches on the corresponding switch actuator channel before the actual Dali switch-on command is sent on the DALI bus. To prevent an ECG from not being able to react quickly enough when switching on, a transmission delay for the DALI command can be set in the general parameters. The four energy-saving objects can be individually assigned to the four DALI channels.

4.3 Time Settings

Three different time delay functions are available for each DALI channel. In addition to switch-on and switch-off delays, a staircase function with different operating modes can also be realised.

4.3.1 Staircase Time

There are two general options for using the staircase function. With a fixed time set in the parameters or with a variable time which is sent via a communication object. If a fixed time is set in the parameters, the staircase function is started using the channel's staircase start object. If the variable time variant is used, the function is started by sending the time in seconds to the variable time object.

The switch-off behaviour can also be defined for both variants. In addition to switching off immediately after the time has elapsed, a pre-warning can be used to announce the switch-off. This pre-warning can be signalled by flashing or gentle dimming of the lamps.

A possible retriggering of the function can be defined or not permitted. If the Dali channel is controlled via the on/off or the set value object, no switch-off timer is started. This enables a normal manual control of the connected lights.

Note: If the staircase function is used in a channel, it is not possible to switch between normal and night mode for this channel.

4.3.2 On-Delay Time

Each connected Dali line can be configured with an individual switch-on delay. It is possible to set an individually adjustable output value during the delay until the lighting switches to the final value. It is also possible to set whether the delay reacts to switching on and/or value setting telegrams. Finally, the option of retriggering can be set.

4.3.3 Off-Delay Time

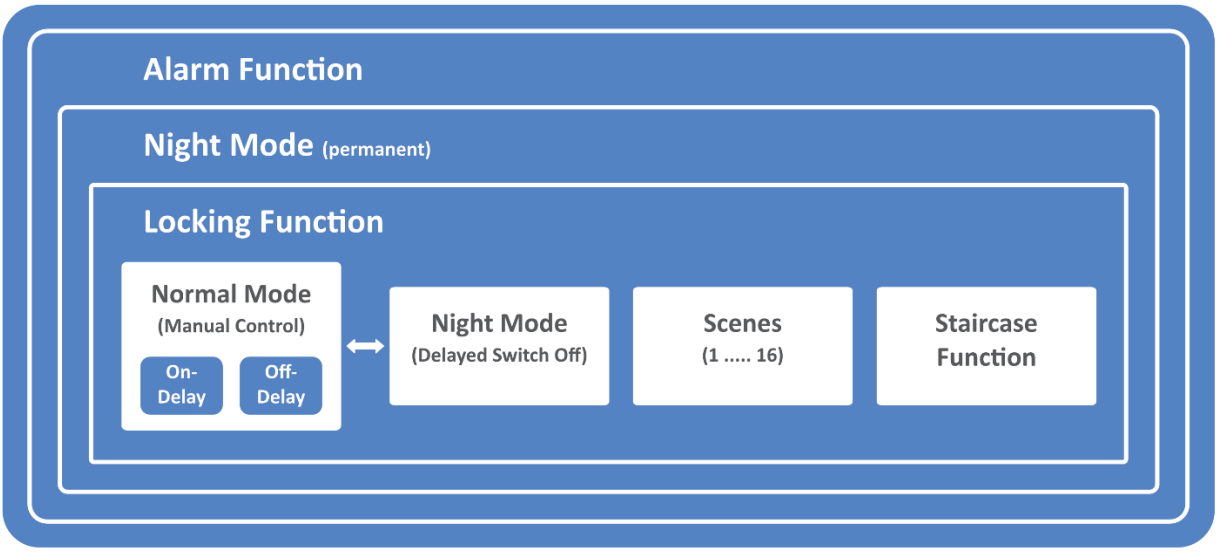
In addition to an on delay, each channel also has a timer for a switch-off delay. A reaction to switching off and/or setting a value can also be set for the off delay.

4.4 Scenes

Each DALI channel has up to 16 assignable and individually configurable scenes. These scenes can be called up and programmed via the channel's scene communication object. An individual scene number can be assigned to each scene in the channel parameters. In addition to the brightness value, the colour and/or colour temperature of DT8-compatible ECGs can also be programmed and invoked in scenes.

4.5 Operating mode and special function hierarchy

Some of the individual operating modes described above have overriding functions and roles for the operation of the system as a whole. A prioritisation or hierarchy of operating modes is therefore required. The alarm function has the highest priority, followed by permanent night mode and the locking function. The normal and night mode with delayed switch-off have the same priority level in the hierarchy, as do scene calls and the staircase function.



By default, each DALI channel operates in normal mode. Night mode, locking, staircase or alarm functions must first be enabled and configured in the respective channel parameters.

5 Analysis and service functions

5.1 Recording operating hours

The DaliControl b04 Pro can be used to record the operating hours (burning time) for each DALI channel. Internal recording can be carried out to the second or hour. Externally, the values for each channel are available via communication objects either as DPT 13.100 or DPT 12.102.

The operating hours recording is independent of the dimming value. This means that every light value > 0% contributes to an increase in the operating hours of a DALI channel. The counter can be reset (when lamps are changed). To reset the counter, the value 1 is written to the "Reset operating hours" communication object.

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

Attention: In accordance with the KNX standards, the operating hours are sent in seconds (DPT 13.100). This standard setting for time recording can be changed in the general parameters on hours (DPT 12.102).

5.2 Failure analysis at channel level

Various communication objects are available for each channel to display errors. In addition to general failure objects for DALI, ECG and lamp failures within a channel, the number of faulty ECGs and lamps or an exceeded failure rate can be displayed via communication objects.

For details of channel-specific communication objects, please see the communication objects description below in chapter: 6.2.4 Channel objects Analysis and Services

5.3 Failure analysis at device level

In addition to objects for a Main Power failure and a general error object, a cyclically sent live sign object is also available at device level.

For further details regarding the communication objects, please see the communication objects description in chapter: 6.1.1 General objects

5.4 Parametrisation

The parameters and the corresponding group addresses can now be configured as with any other KNX product. Through the parameters, various operating modes and functions can also be configured. These are described in more detail in the chapter: 4 Operating Modes and Special Functions

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

6 ETS communication objects

The DaliControl b04Pro communicates via the KNX bus based on a powerful communication stack of the System B type. Altogether 199 communication objects are available, which are described below separated by function block.

Note: Up to 600 group addresses can be used in encrypted form, see chapter: 2.1 Secure Usage

6.1 General objects

6.1.1 General

Object	Object name	Function	Type	Flags
1	Central Switching	On/Off	1 Bit 1.001	CW
All lights on all channels can be switched together via this object.				
2	Central Set Value	Value	1 Byte 5.001	CW
All lights on all channels can be set to a common value via this object.				
6	Activate Night mode	Activate/Stop	1 Bit 1.010	CW
Use this object to activate or stop the night mode via the bus.				
7	General Failure	Yes/No	1 Bit 1.005	KLÜ
This object is used to report the presence of a general failure in the connected DALI lines independent of its type.				
8	Main Power Failure	Yes/No	1 Bit 1.005	KLÜ
This object is used to report a main power failure.				
24.. 27	Energy Saving Object 1.. 4	On/Off	1 Bit 1.001	KLÜ
If assigned accordingly in the channel parameters, these objects are also switched off when a channel is switched off. This allows the power supply to the ECGs to be interrupted using a switching actuator. If the associated channels are switched on again with a value > 0%, this object is switched on again beforehand and sent. In this case, a minimum time delay is parameterised so that the ECGs are ready for operation again after the voltage is switched on, see parameter page: General → Energy Saving				

6.1.2 Special Functions

Object	Object name	Function	Type	Flags
3	Life Signal	On	1 Bit 1.017	CT
This object can be used to send a cyclical life sign of the device. It is used to monitor the health of the device. The transmission cycle time can be set in the parameters. General → Special Functions → Device Health				
4	Master Keypad Operation	Enable/Disable	1 Bit 1.003	CW
This object is used to enable or disable the master keypad operation.				
5	Master Keypad Status	Enable/Disable	1 Bit 1.003	KLÜ
This object shows the status of the master keypad.				

6.2 Main objects

A set of communication objects are available for each one of the up to 4 possible Dali channels.
The following objects are available (Example for DALI channel 1):

6.2.1 Channel 1 objects Behaviour

Object	Object name	Function	Type	Flags
32	CH1, Switching	On/ Off	1 Bit 1.001	CW
Use this object to switch channel 1 on or off.				
33	CH1, Dimming	Brighter/Darker	4 Bit 3.007	CW
Used for the relative dimming of channel 1. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 1 to 3 deleted is interpreted as a stop telegram.				
34	CH1, Set Value	Value	1 Byte 5.001	CW
This object can be used to set channel 1 to a relative value.				
37	CH1, Status	On/Off	1 Bit 1.001	KLÜ
Sends the switch status of the channel. Any value >0% is interpreted as ON.				
38	CH1, Status	Value	1 Byte 5.001	KLÜ
Sends the relative value status of the channel in percentage.				

6.2.2 Channel objects Colour Control

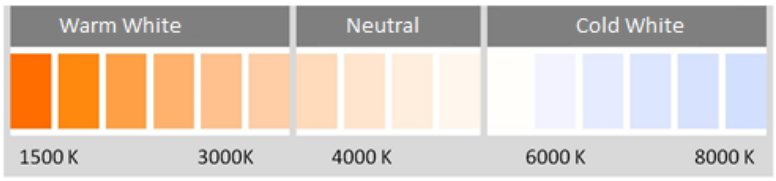
Different colour control options are supported:

- **Colour Temperature**
- **RGB**
- **HSV**
- **RGBW**
- **Colour Temperature + RGB**
- **Colour Temperature + RGBW**

Only one type of colour control can be selected per channel. All installed ECGs of this channel that support this type, can be controlled. Other ECG types will not react to the command. Depending on type of colour control chosen, different objects are displayed:

6.2.2.1 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".



Object	Object name	Function	Type	Flags
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, 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.				
50	CH1, Colour Control Fading	Warmer/Cooler	4 Bit 3.007	CW
The colour of the channel can be changed using this object. Increase the angle with bit 3 set, decrease the angle with bit 3 deleted. Bit 0..3 deleted is interpreted as a stop telegram. This means that the entire circumference of the circle can be circulated and every colour can be set.				
56	CH1, Colour Temperature	Status	2 Byte 4.600	KLÜ
Sends the set colour temperature as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.2.2 RGB

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

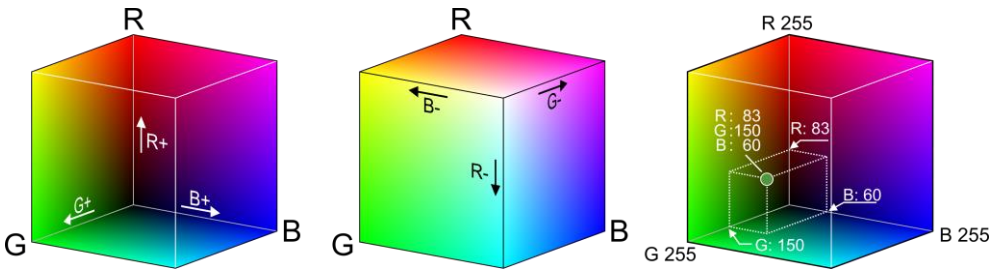
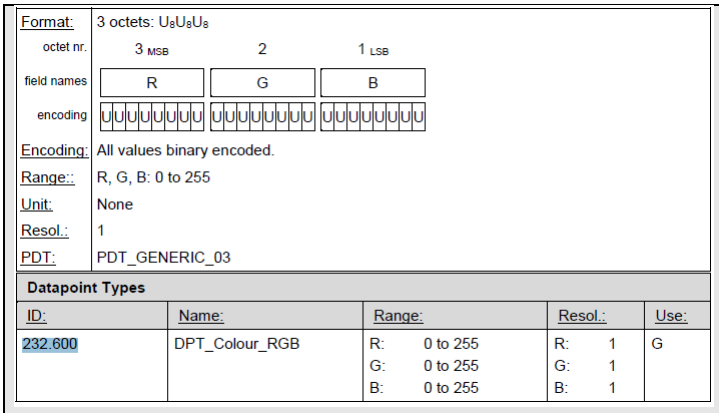


Figure 3: RGB cubes (source: Wikipedia)

6.2.2.2.1 RGB (3 Byte combined object)

Object	Object name	Function	Type	Flags
43	CH1, Colour RGB	Value	3 Byte 232.600	CW
Sets the colour of the channel as RGB.				



Format:	3 octets: U8U8U8			
octet nr.	3 MSB	2	1 LSB	
field names	R	G	B	
encoding	UUUUUUUU	UUUUUUUU	UUUUUUUU	
Encoding:	All values binary encoded.			
Range::	R, G, B: 0 to 255			
Unit:	None			
Resol.:	1			
PDT:	PDT_GENERIC_03			

Datapoint Types

ID:	Name:	Range:	Resol.:	Use:
232.600	DPT_Colour_RGB	R: 0 to 255 G: 0 to 255 B: 0 to 255	R: 1 G: 1 B: 1	G

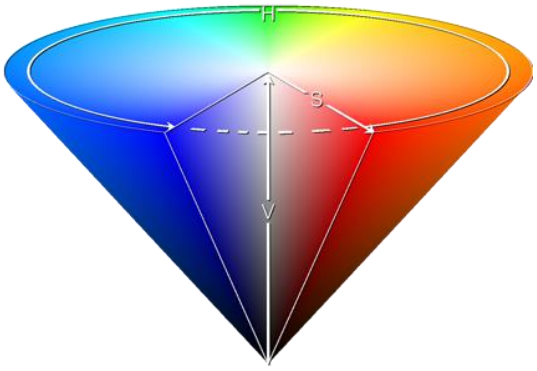
55	CH1, Colour RGB	Status	3 Byte 232.600	KLÜ
Use this object to send the set colour of the channel as status.				

6.2.2.2.2 RGB (separated objects)

Object	Object name	Function	Type	Flags
46	CH1, Colour (RGB) Red	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for red (R) are transmitted.				
47	CH1, Colour (RGB) Green	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for green (G) are transmitted.				
48	CH1, Colour (RGB) Blue	Value	1 Byte 5.001	CW
Sets the colour in the channel. The values for blue (B) are transmitted..				
51	CH1, (RGB) Fading Red	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour (R) of the channel. 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 1 to 3 deleted is interpreted as a stop telegram.				
52	CH1, (RGB) Fading Green	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour (G) of the channel. Description as for colour change RGB (R).				
53	CH1, (RGB) Fading Blue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour (B) of the channel. Description as for colour change RGB (R).				
57	CH1, Colour (RGB) Red	Status	1 Byte 5.001	KLÜ
Sends the selected colour (R) as channel status.				
58	CH1, Colour (RGB) Green	Status	1 Byte 5.001	KLÜ
Sends the selected colour (G) as channel status.				
59	CH1, Colour (RGB) Blue	Status	1 Byte 5.001	KLÜ
Sends the selected colour (B) as channel status.				

6.2.2.3 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 60/61. 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.



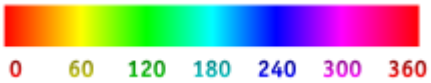


Figure 4: HSV colour value (Source: Wikipedia)

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

6.2.2.3.1 HSV (separated objects)

Object	Object name	Function	Type	Flags
46	CH1, Colour (HSV) 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°. 				
47	CH1, Colour (HSV) Saturation	Value	1 Byte 5.001	CW
Use this object to set the saturation. A value between 0° and 100% can be transmitted.				
51	CH1, Colour (HSV) Fading Hue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the hue of the channel. Bit 3 is set to increase the angle and deleted to decrease the angle. Bit 1 to 3 deleted is interpreted as a stop telegram. As the whole colour circle is accessible, any colour can be set.				
52	CH1, Colour (HSV) Fading Saturation	Brighter/Darker	4 Bit 3.007	CW
See change of hue above. The value between 0 and 100% is increased incrementally.				
57	CH1, Colour (HSV) Hue	Status	1 Byte 5.003	KLÜ
Sends the configured hue as channel status.				
58	CH1, Colour (HSV) Saturation	Status	1 Byte 5.001	KLÜ
Sends the configured saturation as channel status.				

6.2.2.4 RGBW

6.2.2.4.1 RGBW (6 Byte combined object DPT 251.600)

Object	Object name	Function	Type	Flags
43	CH1, Colour RGBW	Value	6 Byte 251.600	CW

Use this object to set the colour in the channel as RGBW. Enter the colour values for white, blue, green and red between 0 and 100% in the upper Bytes. 4 Bits in the 1st Byte determine whether the corresponding colour values are valid.

Datapoint Type					
DPT_Name:	DPT_Colour_RGBW				
DPT Format:	$U_8U_8U_8U_8r_8r_4B_4$		DPT_ID:	251.600	
Field	Description	Supp.	Range	Unit	Default
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 %	-	-
m_R	Shall specify whether the colour information red in the field R is valid or not.	M	{0,1}	None.	None.
m_G	Shall specify whether the colour information green in the field G is valid or not.	M	{0,1}	None.	None.
m_B	Shall specify whether the colour information blue in the field B is valid or not.	M	{0,1}	None.	None.
m_W	Shall specify whether the colour information white in the field W is valid or not.	M	{0,1}	None.	None.

Object	Object name	Function	Type	Flags
55	CH1, Colour RGBW	Status	6 Byte 251.600	KLÜ

Sends the set colour of the channel as status.

6.2.2.4.2 RGBW (seperated objects)

Object	Object name	Function	Type	Flags
46	CH1, Colour (RGB) Red	Value	1 Byte 5.001	CW

Sets the colour of the channel. The values for red (R) are transmitted.

Object	Object name	Function	Type	Flags
47	CH1, Colour (RGB) Green	Value	1 Byte 5.001	CW

Sets the colour of the channel. The values for green (G) are transmitted.

Object	Object name	Function	Type	Flags
48	CH1, Colour (RGB) Blue	Value	1 Byte 5.001	CW

Sets the colour of the channel. The values for blue (B) are transmitted.

Object	Object name	Function	Type	Flags
49	CH1, Colour White	Value	1 Byte 5.001	CW

Sets the colour of the channel. The values for white (W) are transmitted.

Object	Object name	Function	Type	Flags
51	CH1, (RGB) Fading Red	Brighter/Darker	4 Bit 3.007	CW

Use this object to change the colour (R) of the channel. 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 1 to 3 deleted is interpreted as a stop telegram.

Object	Object name	Function	Type	Flags
52	CH1, (RGB) Fading Green	Brighter/Darker	4 Bit 3.007	CW

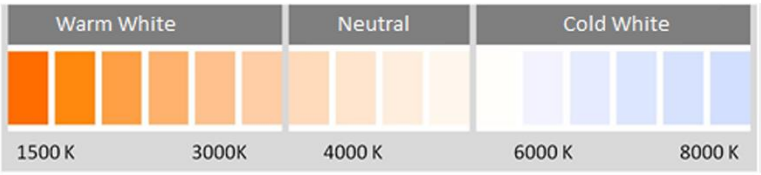
Use this object to change the colour (G) of the channel. Description as for colour change (red).

53	CH1, (RGB) Fading Blue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour (B) of the channel. Description as for colour change (red).				
54	CH1, Fading White	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour green of the channel. Description as for colour change (red).				
57	CH1, Colour (RGB) Red	Status	1 Byte 5.001	KLÜ
Sends the set colour red as channel status.				
58	CH1, Colour (RGB) Green	Status	1 Byte 5.001	KLÜ
Sends the set colour green as channel status.				
59	CH1, Colour (RGB) Blue	Status	1 Byte 5.001	KLÜ
Sends the set colour blue as channel status.				
60	CH1, Colour White	Status	1 Byte 5.001	KLÜ
Sends the set colour white as channel status.				

6.2.2.4.3 HSVW (separate objects)

See chapter: 6.2.2.4.2 HSV (separate objects)

6.2.2.5 Colour Temperature + RGB



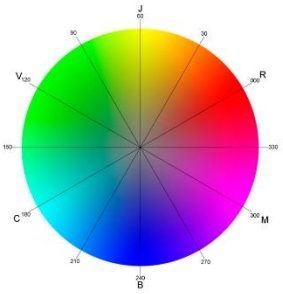


Figure 6: Colour temperatur + RGB (Source: Wikipedia)

6.2.2.5.1 Colour Temperature + RGB (3 Byte combined Objects DPT 232.600)

Object	Object name	Function	Type	Flags
43	CH1, Colour RGB	Value	3 Byte 232.600	CW
The colour can be set as RGB in the channel via this object. The colour values for white, blue, green and red are given in the lower bytes in the value range of 0 ... 100%. In the 5th byte, 4 bits indicate whether the corresponding colour values are valid.				
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				

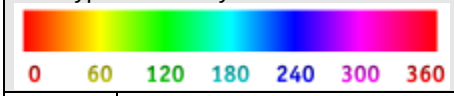
50	CH1, Colour Control Fading	Warmer/Colder	4 Bit 3.007	CW
Changes the colour temperature of the channel. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 1 to 3 deleted is interpreted as a stop telegram.				
55	CH1, Colour RGB	Status	3 Byte 232.600	KLÜ
Sends the set RGB colour as channel status.				
56	CH1, Colour Temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.2.5.2 Colour Temperature + RGB (RGB separated objects)

Object	Object name	Function	Type	Flags
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
46	CH1, Colour (RGB Red)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for red (R) are transmitted.				
47	CH1, Colour (RGB Green)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for green (G) are transmitted.				
48	CH1, Colour (RGB Blue)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for blue (B) are transmitted.				
50	CH1, Colour Control Fading	Warmer/Cooler	4 Bit 3.007	CW
Changes the colour temperature of the channel. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 1 to 3 deleted is interpreted as a stop telegram.				
51	CH1, Colour (RGB) Fading Red	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour red of the channel. 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 1 to 3 deleted is interpreted as a stop telegram.				
52	CH1, Colour (RGB) Fading Green	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour green of the channel. Description as for colour change (red).				
53	CH1, Colour (RGB) Fading Blue	Brighter/Darker	4 Bit 3.007	CW

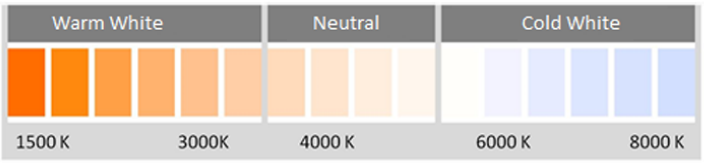
Use this object to change the colour blue of the channel. Description as for colour change (red).				
56	CH1, Colour temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status.				
57	CH1, Colour (RGB Red)	Status	1 Byte 5.001	KLÜ
Sends the set colour red as channel status.				
58	CH1, Colour (RGB Green)	Status	1 Byte 5.001	KLÜ
Sends the set colour green as channel status.				
59	CH1, Colour (RGB Blue)	Status	1 Byte 5.001	KLÜ
Sends the set colour blue as channel status.				
61	CH1, Colour temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

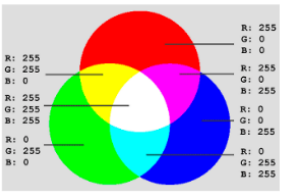
6.2.2.5.3 Colour Temperature + RGB (HSV separated objects)

Object	Object name	Function	Type	Flags
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
46	CH1, Colour (HSV) 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°. 				
47	CH1, Colour (HSV) Saturation	Value	1 Byte 5.001	CW
Use this object to set the saturation. A value between 0° and 100% can be transmitted.				
50	CH1, Colour Control Fading	Warmer/Cooler	4 Bit 3.007	CW
The colour of the channel can be changed using this object. Increase the angle with bit 3 set, decrease the angle with bit 3 deleted. Bit 0..3 deleted is interpreted as a stop telegram. This means that the entire circumference of the circle can be circulated and every colour can be set.				
51	CH1, Colour Control (HSV) Fading Hue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the hue of the channel. Bit 3 is set to increase the angle and deleted to decrease the angle. Bit 1 to 3 deleted is interpreted as a stop telegram. As the whole colour circle is accessible, any colour can be set.				
52	CH1, Colour Control (HSV) Fading Saturation	Brighter/Darker	4 Bit 3.007	CW
See change of hue above. The value between 0 and 100% is increased incrementally				

56	CH1, Colour Temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status				
57	CH1, Colour (HSV) Hue	Status	1 Byte 5.003	KLÜ
Sends the configured hue as channel status.				
58	CH1, Colour (HSV) Saturation	Status	1 Byte 5.003	KLÜ
Sends the configured saturation as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.2.6 Colour Temperature + RGBW





6.2.2.6.1 Colour Temperature + RGBW (6 Byte combined Object DPT 251.600)

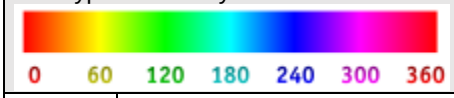
Object	Object name	Function	Type	Flags
43	CH1, Colour RGBW	Value	6 Byte 251.600	CW
The colour can be set as RGB of the channel via this object. The colour values for white, blue, green and red are given in the lower bytes in the value range of 0 ... 100%. In the 5th byte, 4 bits indicate whether the corresponding colour values are valid.				
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
50	CH1, Colour Control Fading	Warmer/Colder	4 Bit 3.007	CW
Changes the colour temperature of the channel. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 1 to 3 deleted is interpreted as a stop telegram.				
55	CH1, Colour RGBW	Status	6 Byte 251.600	KLÜ
Sends the set RGB colour as channel status.				
56	CH1, Colour Temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.2.6.2 Colour Temperature + RGBW (RGBW separated objects)

Object	Object name	Function	Type	Flags
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
46	CH1, Colour (RGB Red)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for red (R) are transmitted.				
47	CH1, Colour (RGB Green)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for green (G) are transmitted.				
48	CH1, Colour (RGB Blue)	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for blue (B) are transmitted.				
49	CH1, Colour White	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for white (W) are transmitted.				
50	CH1, Colour Control Fading	Warmer/Colder	4 Bit 3.007	CW
Changes the colour temperature of the channel. Bit 4 is set to dim up and deleted to dim down. Bits 1 to 3 refer to the increment size. Bit 1 to 3 deleted is interpreted as a stop telegram.				
51	CH1, Colour (RGB) Fading Red	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour red of the channel. 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 1 to 3 deleted is interpreted as a stop telegram.				
52	CH1, Colour (RGB) Fading Green	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour green of the channel. Description as for colour change (red).				
53	CH1, Colour (RGB) Fading Blue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the colour blue of the channel. Description as for colour change (red).				
54	CH1, Colour Fading White	Brighter/Darker	4 Bit 3.007	CW
Use this object to change white of the channel. Description as for colour change (red).				
56	CH1, Colour Temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status.				
57	CH1, Colour (RGB Red)	Status	1 Byte 5.001	KLÜ
Sends the set colour red as channel status.				

58	CH1, Colour (RGB Green)	Status	1 Byte 5.001	KLÜ
Sends the set colour green as channel status.				
59	CH1, Colour (RGB Blue)	Status	1 Byte 5.001	KLÜ
Sends the set colour blue as channel status.				
60	CH1, Colour White	Status	1 Byte 5.001	KLÜ
Sends the set white as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.2.6.3 Colour Temperature + RGBW (HSVW separated objects)

Object	Object name	Function	Type	Flags
44	CH1, Colour Temperature	Value	2 Byte 7.600	CW
Sets the colour temperature of the channel.				
45	CH1, Colour Temperature relative	Value	1 Byte 5.001	CW
Sets the colour temperature of the channel relatively between 0 and 100%. The value range 0 to 100% is automatically converted to the possible colour temperature range.				
46	CH1, Colour (HSV) 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°. 				
47	CH1, Colour (HSV) Saturation	Value	1 Byte 5.001	CW
Use this object to set the saturation. A value between 0° and 100% can be transmitted.				
49	CH1, Colour White	Value	1 Byte 5.001	CW
Sets the colour of the channel. The values for white (W) are transmitted.				
50	CH1, Colour Control Fading	Warmer/Cooler	4 Bit 3.007	CW
The colour of the channel can be changed using this object. Increase the angle with bit 3 set, decrease the angle with bit 3 deleted. Bit 0..3 deleted is interpreted as a stop telegram. This means that the entire circumference of the circle can be circulated and every colour can be set.				
51	CH1, Colour (HSV) Fading Hue	Brighter/Darker	4 Bit 3.007	CW
Use this object to change the hue of the channel. Bit 3 is set to increase the angle and deleted to decrease the angle. Bit 1 to 3 deleted is interpreted as a stop telegram. As the whole colour circle is accessible, any colour can be set.				
52	CH1, Colour (HSV) Fading Saturation	Brighter/Darker	4 Bit 3.007	CW
See change of hue above. The value between 0 and 100% is increased incrementally				

54	CH1, Colour Fading White	Brighter/Darker	4 Bit 3.007	CW
Use this object to change white of the channel. Description as for colour change (red).				
56	CH1, Colour Temperature	Status	2 Byte 7.600	KLÜ
Sends the set colour temperature as channel status.				
57	CH1, Colour (HSV) Hue	Status	1 Byte 5.003	KLÜ
Sends the configured hue as channel status.				
58	CH1, Colour (HSV) Saturation	Status	1 Byte 5.003	KLÜ
Sends the configured saturation as channel status.				
60	CH1, Colour White	Status	1 Byte 5.003	KLÜ
Sends the set white as channel status.				
61	CH1, Colour Temperature relative	Status	1 Byte 5.001	KLÜ
Sends the set relative colour temperature as channel status.				

6.2.3 Channel objects Time Settings

35	CH1, Fix Satircase Time	Start/Stop	1 Bit 1.010	CW
Use this object to start and stop the fix staircase time.				
35a	CH1, Variable Staircase Time	Time(s)	2 Byte 7.005	CW
Use this object to set a variable staircase time.				

6.2.4 Channel objects Analysis and Service

Object	Object name	Function	Type	Flags
39	CH1, DALI Failure	Yes/No	1 Bit 1.005	KLÜ
This object is used to report the presence of a DALI short-circuit in the channel.				
40	CH1, Failure Status	Status	1 Bit 1.005	KLÜ
This object is used to report the presence of a general failure in the channel.				
40a	CH1, ECG Failure Status	Status	1 Bit 1.005	KLÜ
This object is used to report the presence of an ECG error in the channel.				
41	CH1, Lamp Failure Status	Status	1 Byte 1.005	KLÜ
This object is used to report the presence of a lamp error in the channel.				

42	CH1, Failure Exceeds Threshold	Yes/No	1 Bit 1.005	KLÜ
This object is used to report that the sum of all lamp failures detected in the DALI channel exceeds the threshold value set in the parameters.				
42a	CH1, Failure Rate in Total	Value	1 Byte 5.010	KLÜ
This object is used to report the total of all lamp failures detected in the DALI channel.				
42b	CH1, Failure Rate in %	Value	1 Byte 5.001	KLÜ
This object is used to report the lamp faults in the DALI channel as a percentage.				
62	CH1, Operating Hours Reset	Yes/No	1 Bit 1.015	CW
Resets the operating hours in the channel via value "1". **Note:** The objects 62-64 are shown for the following parameter: Main → Channel 1 → C "Operation Hours Calculation" = “Yes”.				
63	CH1, Operating Hours (Seconds)	Value	4 Byte 13.100	KLÜ
Counts the operating hours of the channel. By default the value is transmitted in seconds according to DPT 13.100.				
63a	CH1, Operating Hours (Hours)	Value	4 Byte 12.102	KLÜ
Counts the operating hours of the channel. The value is transmitted in hours according to DPT 12.102. **Note:** The data type of the communication object can be changed in the parameter: General → Operating Hours.				
64	CH1, Life Time Exceeded	Yes/No	1 Bit 13.010	KLÜ
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 value.				
67	CH1, Active Power	Value	4 Byte 14.056	KLÜ
This object represents the active power consumption in total from all connected device type 51 capable ECGs of the channel. **Note:** ECGs with device type 51 according to DALI Part 252 – Energy Reporting – which provide energy information are required.				

6.2.5 Channel objects Special Functions and Scenes

36	CH1, Activate Locking with 1	Yes/No	1 Bit 1.003	CW
With this object the channel can be locked and unlocked. Object = 0 → Channel control enabled Object = 1 → Channel control disabled **Note:** Object 36 is shown if: Channel 1 → Special Functions → Locking Function → “Enabled”				
36a	CH1, Activate Locking with 0	Yes/No	1 Bit 1.003	CW
With this object the channel can be locked and unlocked. Object = 0 → Channel control disabled Object = 1 → Channel control enabled **Note:** Object 36a is shown if: Channel 1 → Special Functions → Locking Function → “Enabled”				

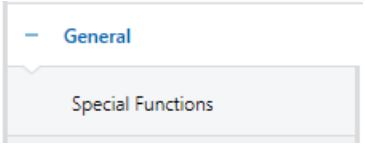
65	CH1, Scene invoke	Scene No.	1 Byte 17.001	CW
This object can be used to call up the up to 16 scenes set for this channel.				
65a	CH1, Scene invoke/progam	Scene No.	1 Bit 18.001	CW
This object can be used to call up and programm the up to 16 scenes set for this channel.				
66	CH1, Activate Alarm with 1	On/Off	1 Bit 1.005	CW
This object can be used to activate the alarm mode set for the channel. Object = 0 → Alarm off Object = 1 → Alarm on **Note:** Object 66 is shown if: Channel 1 → Special Functions → Alarm Function → “Enabled”				
66a	CH1, Activate Alarm with 0	On/Off	1 Bit 1.005	CW
This object can be used to activate the alarm mode set for the channel. Object = 0 → Alarm on Object = 1 → Alarm off **Note:** Object 66a is shown if: Channel 1 → Special Functions → Alarm Function → “Enabled”				

7 ETS parameters

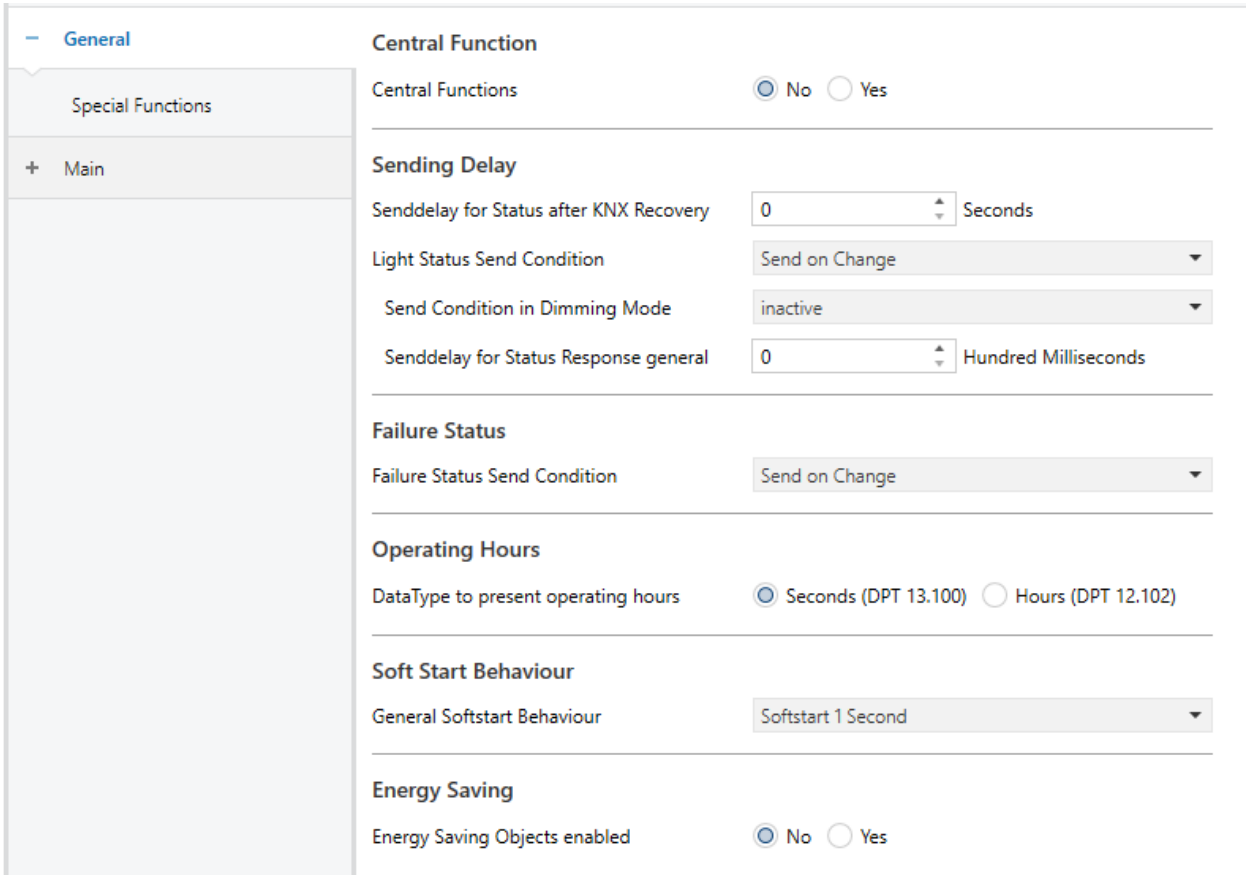
The ETS parameters of the device are clearly organised on different parameter pages. At the top of the parameter pages are the general and general special settings of the device.
In the following, parameter settings written in **bold** are standard values and default settings.

7.1 Parameterpages: General

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



7.1.1 General



Central Function

Parameter	Settings
Central Funtions	**No** Yes
This parameter can be used to enable the central function in addition to the channel control. If this function is used, in second step it can also be activated individually for each channel. See “Channel X” → “Central Function” → “Activation for Central Function”. When the function is activated, the general communication objects 1 and 2 become visible.	

Sending Delay

Senddelay for Status after KNX Recovery	**0 Seconds** 1 Second 2 Seconds … 90 Seconds
Sets a delay for sending status objects after KNX voltage recovery or a bus reset. In installations with more than one gateway, different settings for this parameter can prevent all devices from sending at the same time.	
Light Status Send Condition	Send on Request **Send on Change** Send on Change and after Busreset
This parameter sets the light status sending conditions (switch status and value status) of the channels.	
Send Condition in Dimming Mode	If Change > 2% If Change > 5% If Change > 10% If Change > 20% **inactive**
Use this parameter to set whether and when you want to send a value status via a 4-bit dimming telegram during dimming (relative dimming). If you use the inactive setting, the value is only sent after the dimming process has been completed.	
Senddelay for Status Rsponse general	**0 Hundres Milliseconds** 1 Hundred Milliseconds 2 Hundred Milliseconds … 90 Hundred Milliseconds
This parameter can be used to set the pause between the individual polls. If several devices are connected to the same line, this parameter should be set differently for all units.	

Failure Status

Parameter	Settings
Failure Status Send Condition	Send on Request **Send on Change** Send on Change and after Busreset
Defines the conditions under which the failure status objects of the device are to be sent.	

Operating Hours

Data Type to present operating hours	**Seconds (DPT 13.100)** Hours (DPT 12.102)
Using this parameter the operating hours can be presented as Seconds or Hours.	

Soft Start Behaviour

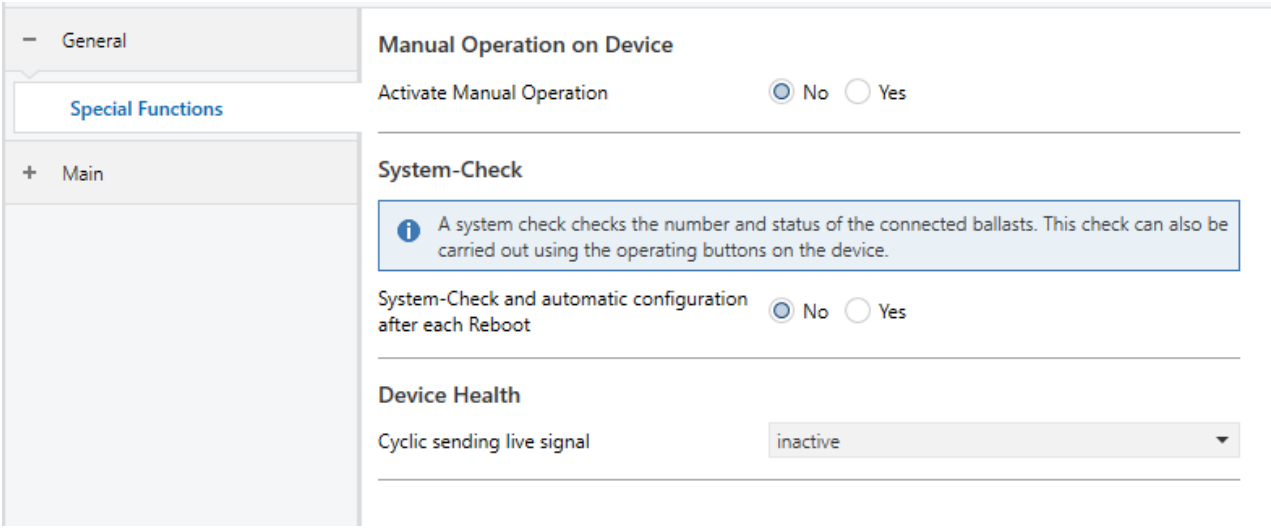
General Soft Start Behaviour	No Softstart **Softstart 1 Second** Softstart 1.5 Seconds Softstart 2 Seconds
This parameter defines the general fading time if an ECG is switched on and off.	

Energy Saving

Energy Saving Objects enabled	**No** Yes
When this function is activated, 4 Energy Saving objects are displayed. One of the objects can be assigned to each Dali channel to switch off the power supply to the ECGs when the lighting is switched off.	

Delay for Switching OFF the ECG Power	**10 Seconds** 30 Seconds 1 Minute … 5 Minutes 10 Minutes
Delay time before switching off the power.	
Delay for Switching ON the ECGs	**0.1 Seconds** 0.2 Seconds 0.3 Seconds … 1.8 Second 2 Seconds
Delay until the Dali ECGs of a channel are switched on. During this time the actuator controlling the power supply must have switched safely.	

7.1.2 Special Functions



Manual Operation on Device

Activate Manual Operation	**No** Yes
This parameter activates or deactivates the manual operation modes available on the device. **Note:** "Yes" also enables the new and subsequent installation of ECGs on each individual channel on the device itself.	
Enable button for manual operation via object	**No** Yes
If this parameter is enabled, the additional communication object 4 for enabling/disabling manual operation is displayed under General → Special Functions.	
Suspend manual operation automaticlly	**No** Yes
This parameter can be used to enable the automatic suspend of manual operation after a set time.	
Suspend manual operation after (1..48 hour)	1 hour **2 hours** 3 hours .. 47 hours 48 hours

This parameter can be used to set time for automatic suspend of manual operation.	
Send status of manual operation via object	**No** Yes
If this parameter is enabled to "Yes", the additional communication object 5 for the manual mode status is displayed under General → special functions and can be queried.	

System Check

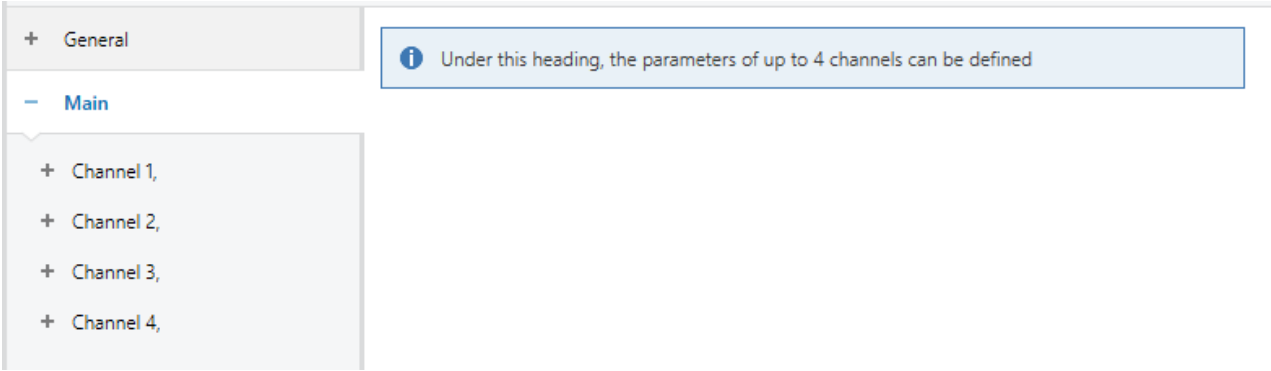
System Check and automatic configuration after each Reboot	**No** Yes
This parameter enables the System Check and automatic reconfiguration after each Reboot. **Note:** If you select 'No', the ECGs that are not recognised after a reset retain their short addresses. Newly recognised ECGs receive a new address, which is appended to the end of the address table. This can lead to the maximum number of ECGs on a channel being exceeded, although this is not physically the case. If you select 'Yes', ECGs that are no longer found or respond after a reset are deleted and newly found ECGs receive their short address.	

Device Health

Cyclic sending life signal	**inactive** 3 Seconds 4 Seconds .. 60 Seconds 90 Secondshours
This parameter can be used to disable or set a time for cyclic sending a life signal "On" telegram via communication object 3. The communication object is only displayed when a time is selected.	

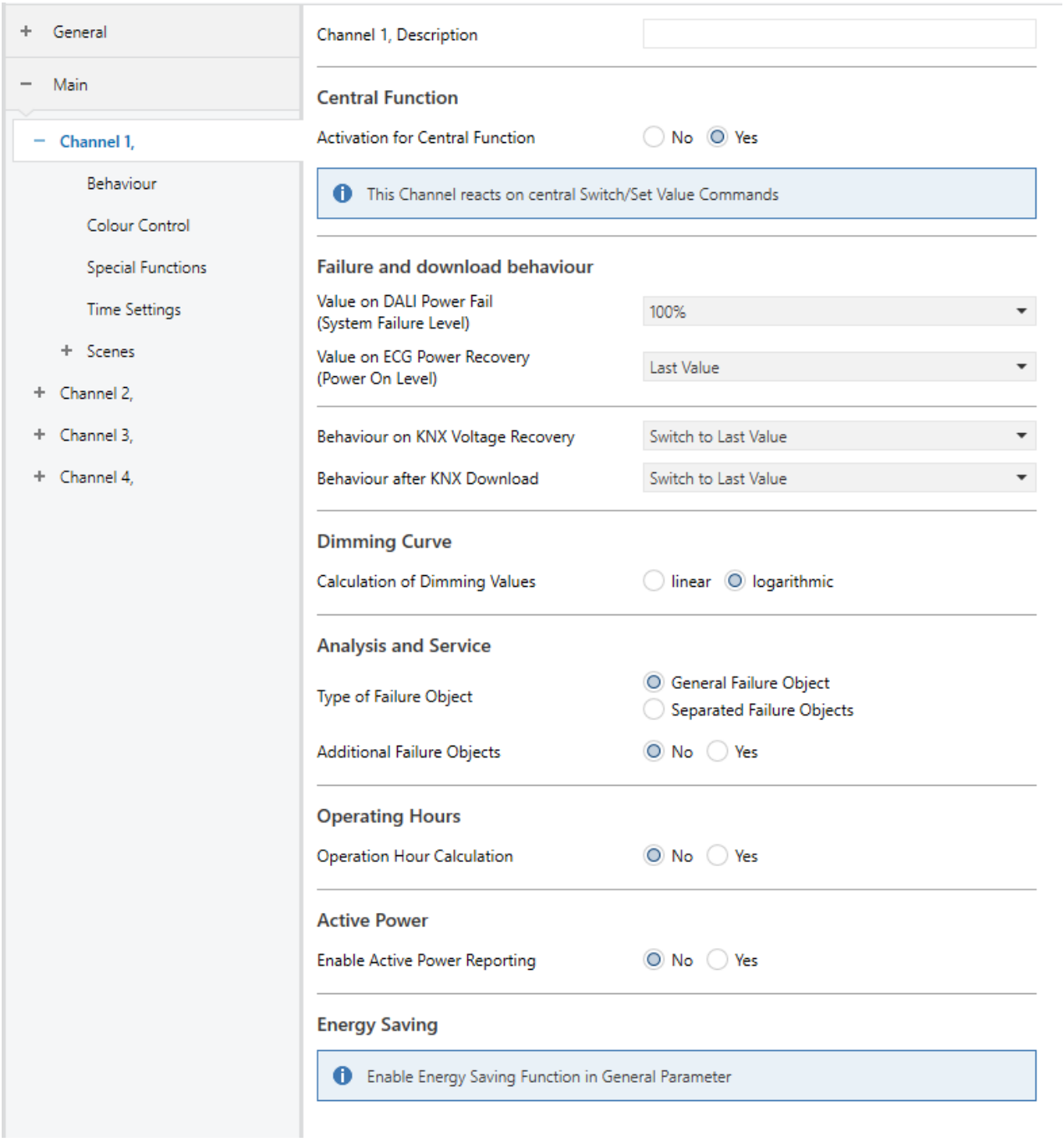
7.2 Parameterpages: Main

There are 4 parameter pages for the 4 channels setting. The parameters are described below.
The ETS parameters of the DaliControl b04 Pro application are divided into several channels. Each channel can contain several parameter pages. Some channels or parameter pages are shown or hidden depending on certain parameter settings.



7.2.1 Channel 1

Only the parameters for the channel 1 are described. The parameters for the other 3 channels are to be considered analogously.



Parameter	Settings
Channel 1, Description	„…“

Use this parameter to define a channel description. The description is shown for all communication objects.
For example: „Room1“.

CH1, Switching, Room 1	On/Off
CH1, Dimming, Room 1	Brighter/Darker
CH1, Set Value, Room 1	Value
CH1, Status, Room 1	On/Off
CH1, Status, Room 1	Value
CH1, DALI Failure, Room 1	Yes/No
CH1, Failure Status, Room 1	Status

Failure and download behaviour

Parameter	Settings
Value on DALI Power Fail (System Failure Level)	0% 1% 5% … 95% **100%** Last Value
Use this parameter to set the value of a lamp during a DALI failure. The value is saved in the ECG and the device automatically switches to this value if there is a DALI bus failure or short circuit on the DALI bus.	
Value on ECG Power Recovery (Power On Level)	0% 5% 10% … 95% 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.	
Behaviour on KNX Voltage Recovery	**Switch to Last Value** Switch to On-Valu Switch to Off-Value Switch to Value
Use this parameter to set a behaviour for all lamps in this channel on KNX voltage recovery.	
Value after KNX Recovery	**0%** 5% 10% … 90% 95% 100%
Use this parameter to set a value for the lamps of the channel after KNX bus recovery.	
Behaviour after KNX Download	**Switch to Last Value** Switch to On-Value Switch to Off-Value Switch to Value
Use this parameter to set a behaviour for all lamps of a channel after KNX ETS application of device was download.	

Value after KNX Download	**0%** 5% 10% … 90% 95% 100%
Use this parameter to set a value for the lamps of the channel after KNX Download.	

Dimming Curve

Calculation of Dimming Values	linear **logarithmic**
This parameter sets the dimming curve for the ECGs of this DALI channel.	

Analysis and Service

Type of Failure Object	**General Failure Object** Seperated Failure Objects
This parameter decides whether a general failure object (no. 40) is displayed for the channel or whether two separate objects for ECG failure object (no. 40) and lamp failure object (no. 41) are displayed.	
Additional Failure Object	**No** Yes
This parameter activates an additional failure object (no. 42) for this channel. The error object can either display an exceeded error threshold, the number of errors in total or the error rate in percentage.	
Additional Failure Object for	**Failure Threshold Exceeded** Failure Number/Rate
Determines whether the additional failure object should be used as a 1 Byte object for number of failures/failure rate or as a 1 Bit object for exceeding the failure threshold.	
Threshold for Total Failures	**1%..** 100% **[1%]**
Use this parameter to define the threshold value for exceeding the ECG failures.	
Function of Additional Failure Object	**Total Number of Failures** Failure Rate 0..100%
Use this parameter to select either total number of all failures in a channel or failure rate in %. This parameter is only visible if you select "Failure Number/Rate" as additional failure object in the parameter before.	

Operating Hours

Operation Hours Calculation	**No** Yes
Use this parameter if you want to count the operating hours of a channel.	
Operating Hour Limit (hours)	1h.. 200.000h **[50000h]**
This parameter can be used to define an individual service life for the lamps connected to this channel. If the defined time is exceeded, an alarm is sent via the object (no. 64).	

Active Power

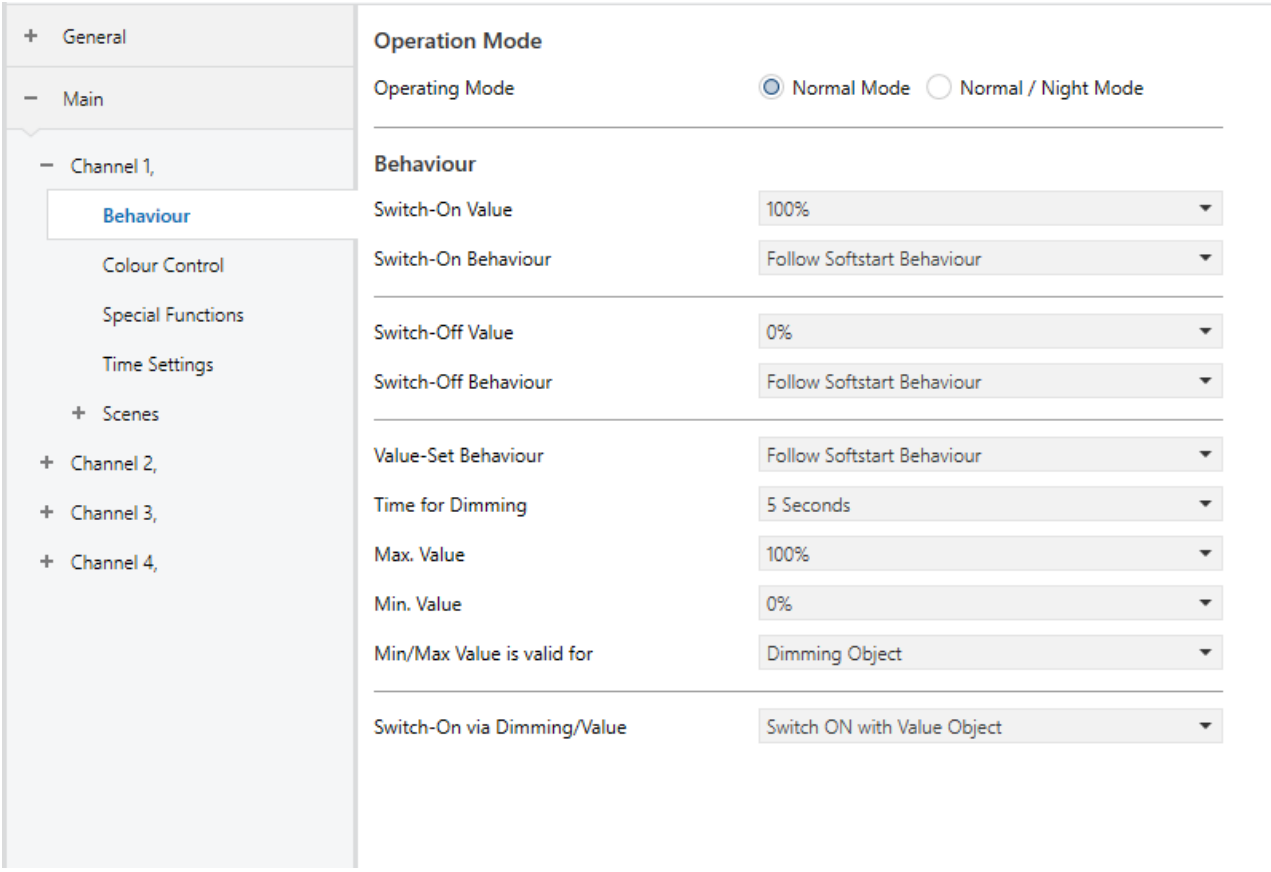
Enable Active Power Repporting	**No** Yes
This parameter activates the active power reporting for ECGs for this channel. ECGs with DT 51 according to DALI Part 252 – Energy Reporting – which provide energy information are required for this function. The active power consumption of all ECGs connected to this channel is output in total on the KNX object 67.	

Delay time to read energy data after value change	Only cyclically every hour 4 Seconds … **32 Seconds** … 60 Seconds
This parameter can be used to define a delay time to read the energy data from ECG after value is change. An appropriate delay time should be set, as the ECGs only provide a correct measured value after a few seconds. This delay varies depending on the manufacturer.	

Energy Saving

Parameter	Settings
Energy Saving Objects enabled	**No** Yes
This parameter activates the option of assigning an Energy Saving object for this channel.	
Assigned Energy Saving Object	1.. 4 **[1]**
This parameter is used to assign one of the four energy saving objects to the channel.	

7.2.2 Behaviour



Operating Mode

Operating Mode	**Normal Mode** Normal/Night Mode
The Normal Mode enables normal operation and behaviour of the channel. If Normal/Night Mode is selected, further settings for night mode can be parameterised.	

Behaviour in Night Mode	**Delayed Switch-Off automatically** Activate Permanent Mode and Ignore Telegramms
This parameter defines the behaviour for the Night Mode when Night Mode will be activated.	
Automatic Switch-Off after	5s 7s … **1min** … 50min 1h
After the time defined here, this channel is automatically switched off.	
Switch-Off Pre-Warning	**No** Yes
This parameter can be used to activate or deactivate an additional pre-warning.	
Pre-Warning starts before end	5s **10s** … 2min 5min
A time can be set here for a pre-warning before the switch-off time expires. **Note:** Automatic Switch-Off Time must be longer than Pre-Warning Start Time	
Pre-Warning Behaviour	Delayed Switch-Off in 2 steps **Delayed Dimm-Off Mode** Delayed Blinking Mode
This setting can be used to set one of three pre-warning behaviours. Delayed Switch-Off in 2 steps: The light is delayed switched off in two steps Delayed Dimm-Off Mode: The light is dimmed down with a delay Delayed Blinking Mode: Switching off the light is signalled by a delayed blinking light	
Value in Permanent Mode	0% 5% … **50%** … 95% 100%
This parameter defines the value for permanent mode during the night mode.	

Behaviour

Switch-On Value	1% 5% … 95% **100%** Last Value
This parameter defines the switch on value for the ECGs of the channel.	
Switch-On Behaviour	**Follow Softstart Behaviour** Dimm to Value in 3 Seconds Dimm to Value in 4 Seconds … Dimm to Value in 10 Minutes
This parameter defines the switch-on behaviour of the ECGs. The default setting "Follow Softstart Behaviour" uses the setting that is set under the "General" -> "Soft Start Behaviour" parameter. Individual dimming times can be set for this channel using the other selection options.	

Switch-Off Value	**0%** 5% … 95% 99%
This parameter defines the switch off value for the ECGs of the channel.	
Switch-Off Behaviour	**Follow Softstart Behaviour** Dimm to Value in 3 Seconds Dimm to Value in 4 Seconds … Dimm to Value in 10 Minutes
This parameter defines the switch-off behaviour of the ECGs. The default setting "Follow Softstart Behaviour" uses the setting that is set under the "General" -> "Soft Start Behaviour" parameter. Individual dimming times can be set for this channel using the other selection options.	
Value-Set Behaviour	**Follow Softstart Behaviour** Dimm to Value in 3 Seconds Dimm to Value in 4 Seconds … Dimm to Value in 10 Minutes
This parameter defines the value-set behaviour of the ECGs. The default setting "Follow Softstart Behaviour" uses the setting that is set under the "General" -> "Soft Start Behaviour" parameter. Individual dimming times can be set for this channel using the other selection options.	
Time for Dimming	3s 4s **5s** … 30s 60s
Use this parameter to set the dimming time for relative dimming in relation to a value range from 0 to 100%.	
Max. Value	50% 55% …. 95% 100%
Use this parameter to configure the maximum dimming value that can be set through relative dimming.	
Min. Value	**0%** 0.5% 1% … 45% 50%
Use this parameter to configure the minimum dim value that can be set through relative dimming.	
Min/Max Value is valid for	**Dimming Object** Value Object Dimming & Value Object
Use this parameter to select the object that minimum and maximum values are valid for. It is possible to set, for example, 60% via dimming and 100% via value setting.	
Switch ON via Dimming/Value	No Switch ON with Dimming Object **Switch ON with Value Object** Switch ON with Dimming & Value Object
Use this parameter to select whether a switched off group should be switched on when receiving a relative 4 Bit dimming object, a value setting object or both.	

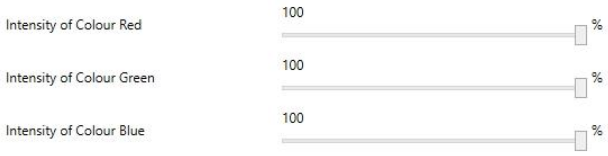
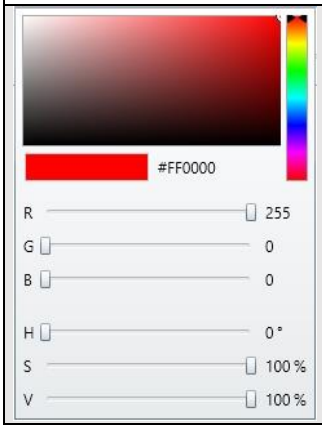
7.2.3 Colour control

Parameter	Settings
Colour Control Type	**none** Colour temperature RGB colour RGBW colour Colour temperature + RGB Colour temperature + RGBW
This parameter can be used to set which colour control should be used in this channel. Please make sure that the ECGs in this group also support this type of control.	

7.2.3.1 Colour Temperature

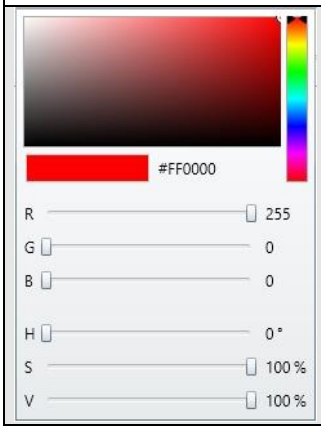
Parameter	Settings
Colour Temperature warm	1.000 °K ..5.000 °K **[2000 °K]**
Parameter for setting the colour temperature warm.	
Colour Temperature cold	5.010 °K ..20.000 °K **[6000 °K]**
Parameter for setting the colour temperature cold.	
Dimming up to cold colour	**No** YES
You can use this parameter to activate or deactivate the dimming to cold function. An activated function means that the colour temperature is changed from the set warm colour temperature to the set cold colour temperature during relative dimming from 0% to 100%.	
Colour changing Fading Time via Dimming	**fast (10 Seconds)** standard (20 Seconds) slow (40 Seconds)
Use this parameter to set the colour fading time via dimming for 4bit colour control fading (warmer/cooler).	
Colour changing Fading Time	**immediately** 1Second 5 Seconds … 60 Seconds 90 Seconds
Use this parameter to set the fade time of the colour when a relative (1Byte in per cent) or absolute (2Byte in Kelvin) colour temperature value is set.	
Behaviour when Switching On	**Keep last Object Value** Use ETS Parameter below
Use this parameter to set the behaviour for the colour temperature when switching on.	
Clour Temperature when Switching ON	1.000 °K ..20.000 °K **[3000 °K]**
If the "Behaviour when Switching On" parameter has been set to "Use ETS Parameter below", a fixed colour temperature for switching back on can be set here.	

7.2.3.2 RGB Colour

Parameter	Settings
Selection of Object Type	**RGB (3 Byte combined Object)** RGB (seperated objects) HSV (separated objects)
When selecting "RGB colour", these types of control are supported.	
Colour changing Fading Time via Dimming	**fast (10 seconds)** standard (20 seconds) slow (40 seconds)
This parameter is used to decide how quickly the colour temperature should be changed when dimming.	
Colour changing Fading Time	**immediately** 1Second 5 Seconds … 60 Seconds 90 Seconds
This parameter is used to decide how quickly the colour temperature should be changed.	
Correction Value for special LED	
Under certain circumstances, the intensity of the colours red, green, blue may not be exactly matched to the illuminants and the ballast. In order to carry out a subsequent correction, the weighting of the individual colours can be changed here. An intensity of 100% means that this colour is controlled to 100%.	
Behaviour when Switching ON	**Keep last Object Value** Use ETS Parameter below
This parameter is used to decide whether the last valid colour value should always be used or basically the colour that was set with the ETS parameter below. **Note:** in case of "Keep last Object Value" - **Attention:** in case of an invalid object value, the preset colour of the ETS is used.	
Colour value when Switching ON	
	This parameter defines the RGB colour when switching on. To do this, a window for colour selection is displayed via the button in the ETS.

7.2.3.3 RGBW Colour

Parameter	Settings
Selection of Object Type	**RGB (3 Byte combined Object)** RGB (seperated objects) HSV (separated objects)
When selecting "RGB colour", these types of control are supported.	

Behaviour when Switching ON	**Keep last Object Value** Use ETS Parameter below
This parameter is used to decide whether the last valid colour value should always be used or basically the colour temperature that was set with the ETS. **Note:** in case of "Keep last Object Value" - **Attention:** in case of an invalid object value, the preset colour of the ETS is used.	
Use ETS parameters as set below	
	This parameter defines the RGBW colour when switching on. To do this, a window for colour selection is displayed via the button in the ETS.

7.2.3.4 Colour Temperature + RGB

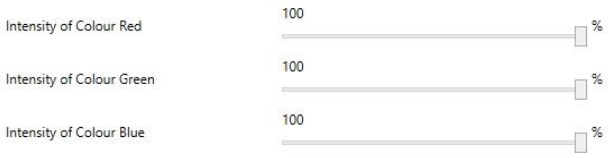
Selection of Object Type	**RGB (3 Byte combined Object)** RGB (seperated objects) HSV (separated objects)
When selecting "RGB colour", these types of control are supported.	
Colour Temperature warm	1.000 °K ..5.000 °K **[2000 °K]**
Parameter for setting the colour temperature warm.	
Colour Temperature cold	5.010 °K ..20.000 °K **[6000 °K]**
Parameter for setting the colour temperature cold.	
Dimming up to cold colour	**No** YES
You can use this parameter to activate or deactivate the dimming to cold function. An activated function means that the colour temperature is changed from the set warm colour temperature to the set cold colour temperature during relative dimming from 0% to 100%.	

Time at colour change via dimming	**Fast (10 seconds)** Standard (20 seconds) Slowly (40 seconds)

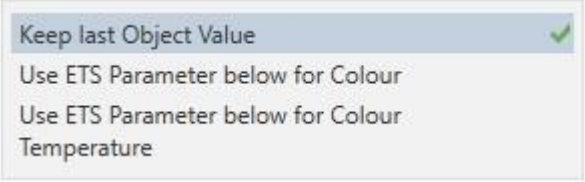
This parameter is used to decide how quickly the colour should be changed when dimming.

Time at colour change	**immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds

This parameter is used to decide how quickly the colour should be changed.

Correction value for special LED	

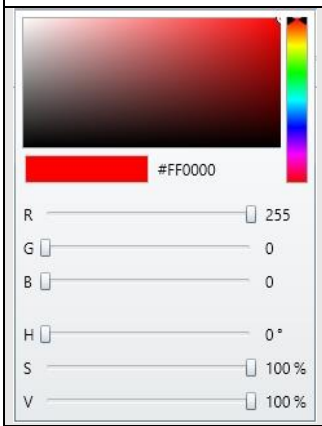
Under certain circumstances, the intensity of the colours red, green, blue may not be exactly matched to the illuminants and the ballast.
In order to carry out a subsequent correction, the weighting of the individual colours can be changed here. An intensity of 100% means that this colour is controlled to 100%.

Behaviour when Switching ON	

This parameter is used to decide whether the last valid colour value should always be used or basically the colour temperature that was set with the ETS.

Note: in case of "Keep last Object Value" - **Attention:** in case of an invalid object value, the preset colour of the ETS is used.

Use ETS parameters as set below	

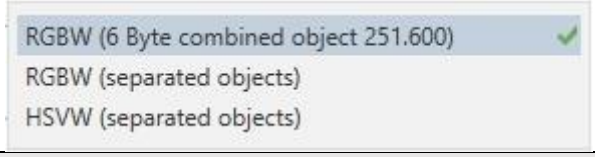
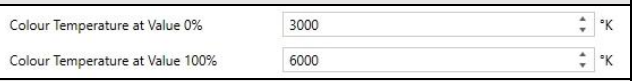
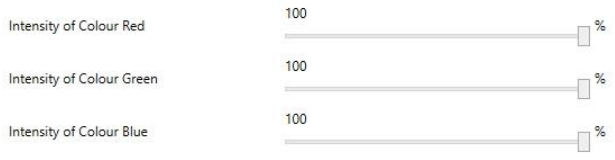
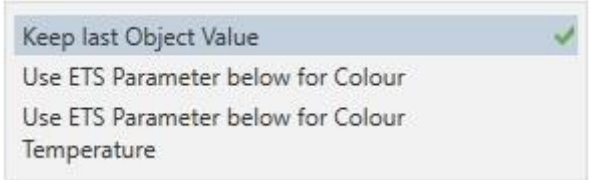


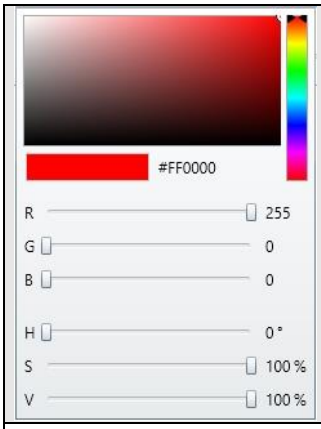
This parameter defines the RGB colour when switching on. To do this, a window for colour selection is displayed via the button in the ETS.

Behaviour when Switching ON	

Colour temperature on power on with the option "Use ETS parameters for colour temperature as set below" enabled.

7.2.3.5 Colour Temperature + RGBW

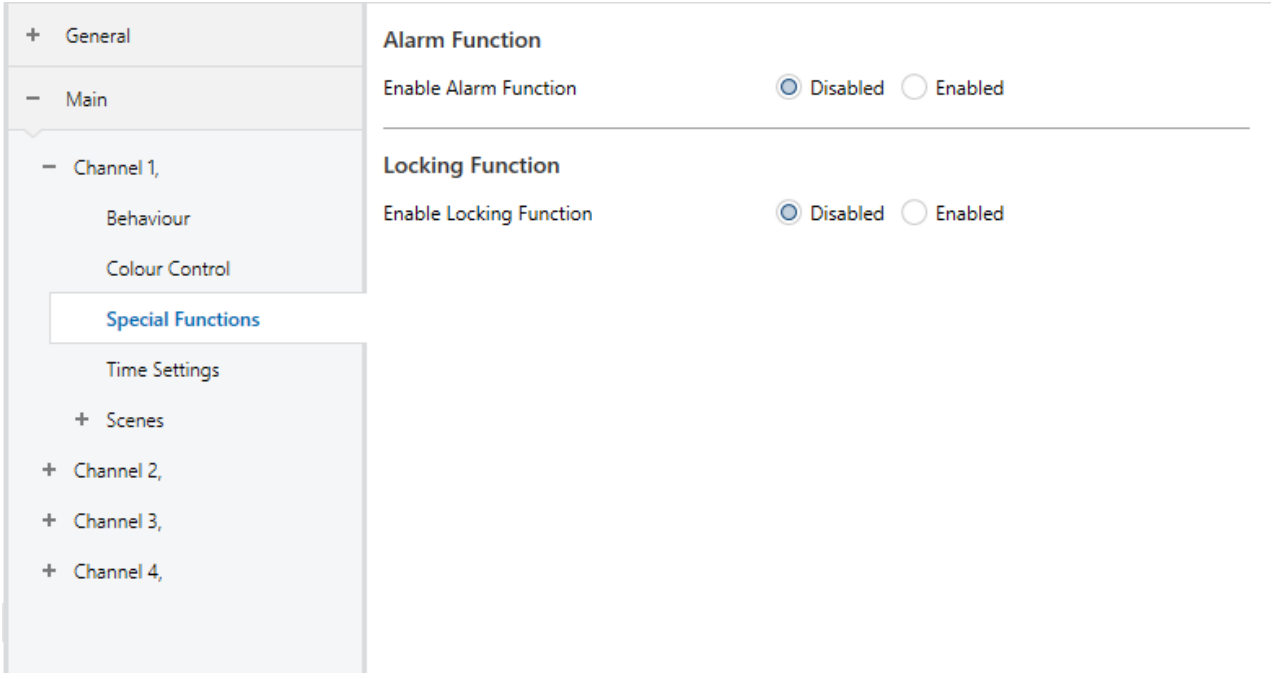
Parameter	Settings
Selection of the Object Type (when selecting "Colour Temperatur + RGBW")	
When selecting "Colour Temperatur + RGBW", these types of control are supported.	
Dimming up to cold colour temperature	**No** Yes
When this option is activated, the color temperature is changed as the light is dimmed up. The corresponding values are set in the following parameter	
Colour temperature at 0% Colour temperature at 100%	
Parameters for setting the colour temperature (warm) in dimmed light and (cold) in high dimmed light.	
Colour changing Fading Time via Dimming	**Fast (10 seconds)** Standard (20 seconds) Slow (40 seconds)
This parameter is used to decide how quickly the colour should be changed when dimming.	
Colour changing Fading Time	**immediately** 1 second 5 seconds 10 seconds 20 seconds 30 seconds 60 seconds 90 seconds
This parameter is used to decide how quickly the colour should be changed.	
Correction Value for special LED	
Under certain circumstances, the intensity of the colours red, green, blue may not be exactly matched to the illuminants and the ballast. In order to carry out a subsequent correction, the weighting of the individual colours can be changed here. An intensity of 100% means that this colour is controlled to 100%.	
Behaviour when Switching ON (when selecting "ETS Parameter below for Colour")	
This parameter is used to decide whether the last valid colour value should always be used or basically the colour temperature that was set with the ETS. **Note:** in case of "Keep last object value" - **Attention:** in case of an invalid object value, the preset colour of the ETS is used.	
Use ETS Parameter below (when selecting "ETS Parameter below for Colour Temperature")	



This parameter defines the RGB colour when switching on. To do this, a window for colour selection is displayed via the button in the ETS.

Behaviour when Switching ON	3000 °K
Colour temperature on power on with the option "Use ETS parameters for colour temperature as set below" enabled.	

7.2.4 Special Functions



Alarm Function

Parameter	Settings
Alarm Function	**Disabled** Enabled
This Parameter activates the alarm function of the channel.	
Alarm	At object value „0“ **At object value „1“**
This parameter is used to set whether the alarm function is triggered with an object value="0" or value="1".	

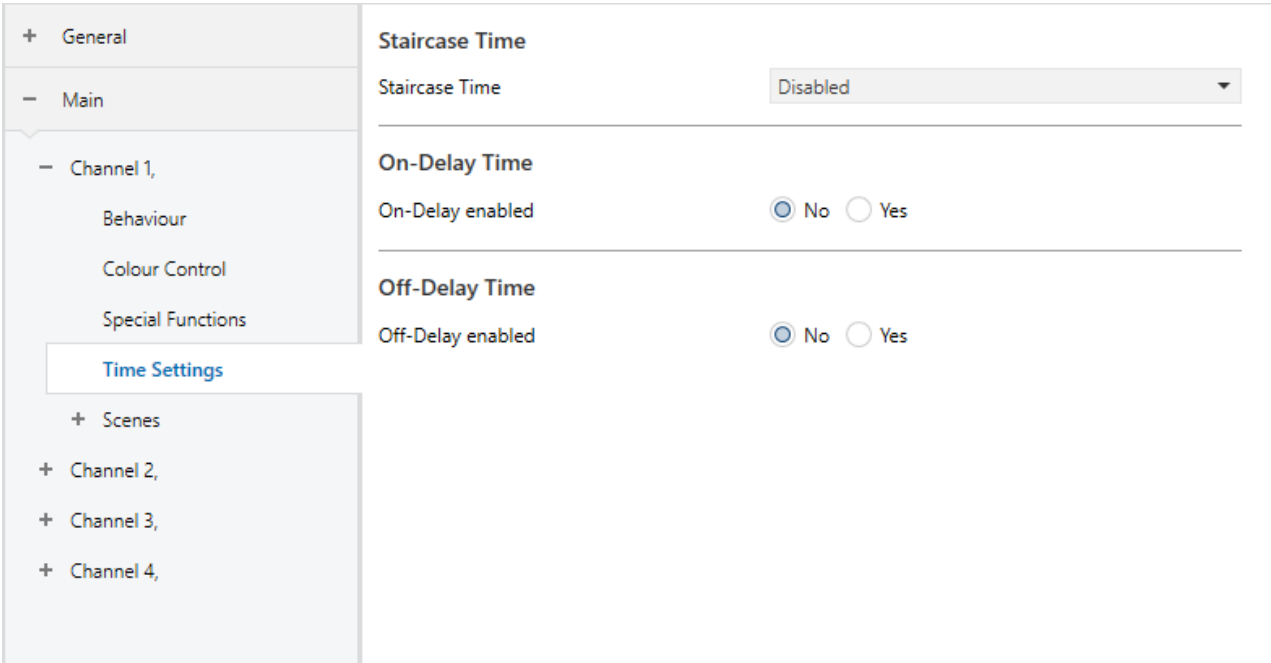
Behaviour at start of Alarm	No Change **Switch to On-Value** Switch to Off-Value Switch to selectable Brightness
This parameter defines the behaviour at the start of the alarm function.	
Value in Alarm Mode	1% 5% … **50%** … 95% 100%
The parameter sets the brightness value while alarm function is activated.	
Behaviour at end of Alarm	**No Change** Switch to On-Value Switch to Off-Value Switch to selectable Brightness Switch to state received during alarm mode
This parameter defines the behaviour at the end of the alarm function.	
Value after Alarm Mode	**0%** 1% … 50% … 95% 100%
The parameter sets the selectable brightness value after alarm function is deactivated.	
Alarm State after KNX Recovery	**Disable** Enable Set as before
The parameter defines the behaviour for the alarm state after KNX recovery.	

Locking Function

Parameter	Settings
Locking Function	**Disabled** Enabled
This Parameter activates the locking function of the channel.	
Enable Locking by	At object value „0“ **At object value „1“**
This parameter is used to set whether the locking function is triggered with an object value="0" or value="1".	
Behaviour at start of Locking	**No Change** Switch to On-Value Switch to Off-Value Switch to selectable Brightness
This parameter defines the behaviour at the start of the locking function.	
Value at start of Locking	**0%** 1% … 50% … 95% 100%

The parameter sets the brightness value while locking function is activated.	
Behaviour at end of Locking	**No Change** Switch to On-Value Switch to Off-Value Switch to selectable Brightness Switch to state received during disable (lock)
This parameter defines the behaviour at the end of the locking function.	
Value at end of Locking	**0%** 1% … 50% … 95% 100%
The parameter sets the selectable brightness value after locking function is deactivated.	
Behaviour after Download	Disable **Enable** As before download
This parameter defines the behaviour of the locking function after downloading the ETS application.	
Behaviour after bus voltage recovery	Disable **Enable** As before bus voltage failure
This parameter defines the behaviour of the locking function after KNX bus voltage recovery.	

7.2.5 Time Settings



Staircase Time

Parameter	Settings
Staircase Time	**Disabled** Fix Variable

This parameter allows you to set a fixed or variable time for a staircase function.	
Manual Switch Off allowed	**No** Yes
This parameter can be used to allow the staircase lighting to be switched off manually or not.	
Automatic Switch-Off after	5s 7s … **1min** … 50min 1h
This parameter can be used to adjust the delay time for the staircase function.	
Time extension	**Not retriggerable** Retriggerable Retriggerable and adding
This parameter defines a possible retrigger or maximum number of retriggers of the delay time.	
Max. Number of Additions	2.. 5 **[2]**
This parameter is used to set the maximum number of additions.	
Switch-Off Pre-Warning	**No** Yes
This parameter allows to set a pre-warning before the light is switched off.	
Pre-Warning starts before end	5s **10s** … 30s … 2min 5min
This parameter defines the pre-warning point in time before the light will be switched off. **Note:** “Switch-Off” time must be longer than the “Pre-Warning” time	
Pre-Warning Behaviour	Delayed Switch-Off in 2 steps **Delayed Dimm-Off Mode** Delayed Blinking Mode
This parameter defines the behaviour for the pre-warning before light will be switched off. **Note:** The light flashes twice briefly during the pre-warning	

On-Delay Time

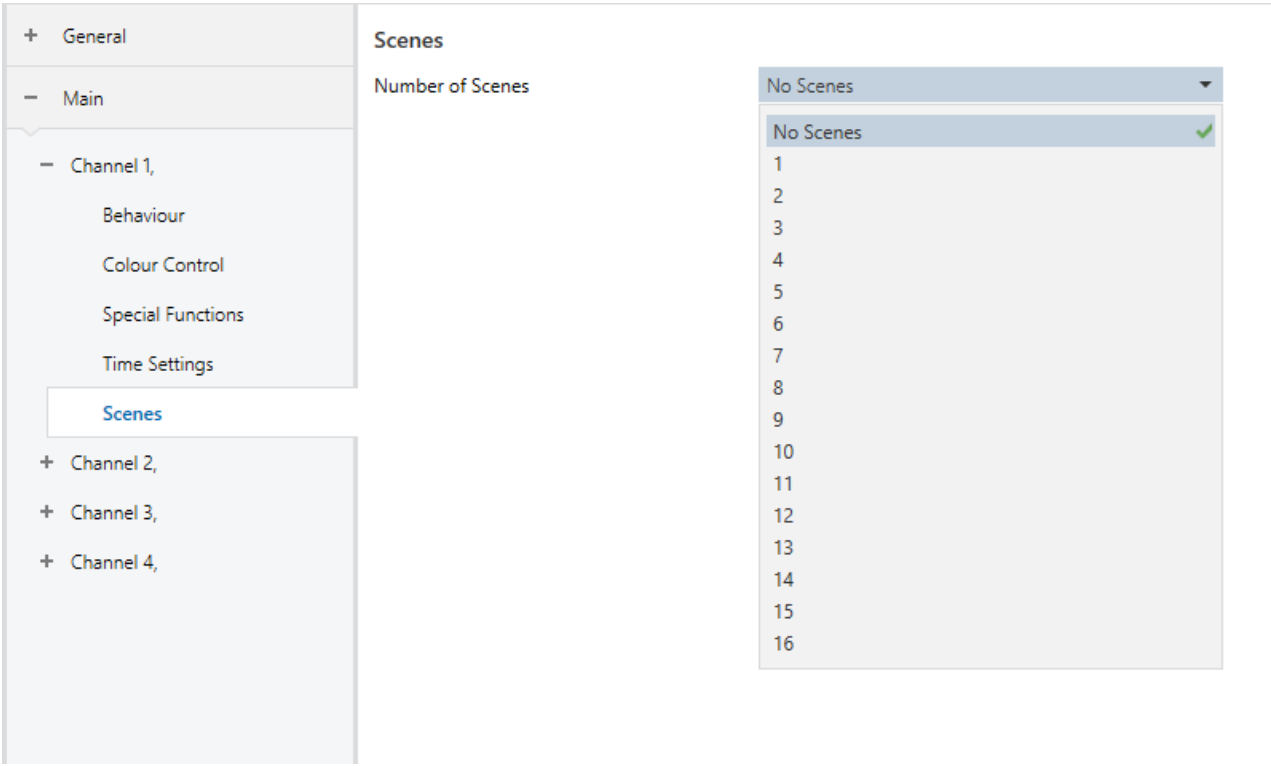
Parameter	Settings
On-Delay enabled	**No** Yes
This parameter can be used to activate a switch-on delay time.	
On-Delay Mode	**Not retriggerable** Retroggerable
This parameter defines whether the switch-on delay mode can be retriggered.	

On-Delay Time	0ms 100ms … **1s** … 50min 1h
This parameter can be used to adjust the on-delay time.	
Delay works on Switch Object	☑
If the parameter is ticked, the on-delay reacts in conjunction with the switch object.	
Delay works on Value Object	☑
If the parameter is ticked, the on-delay reacts in conjunction with the value object.	

Off-Delay Time

Parameter	Settings
Off-Delay enabled	**No** Yes
This parameter can be used to activate a switch-off delay time.	
On-Delay Time	0ms 100ms … **1s** … 50min 1h
This parameter can be used to adjust the off-delay time.	
Delay works on Switch Object	☑
If the parameter is ticked, the off-delay reacts in conjunction with the switch object.	
Delay works on Value Object	☑
If the parameter is ticked, the off-delay reacts in conjunction with the value object.	

7.2.6 Scenes



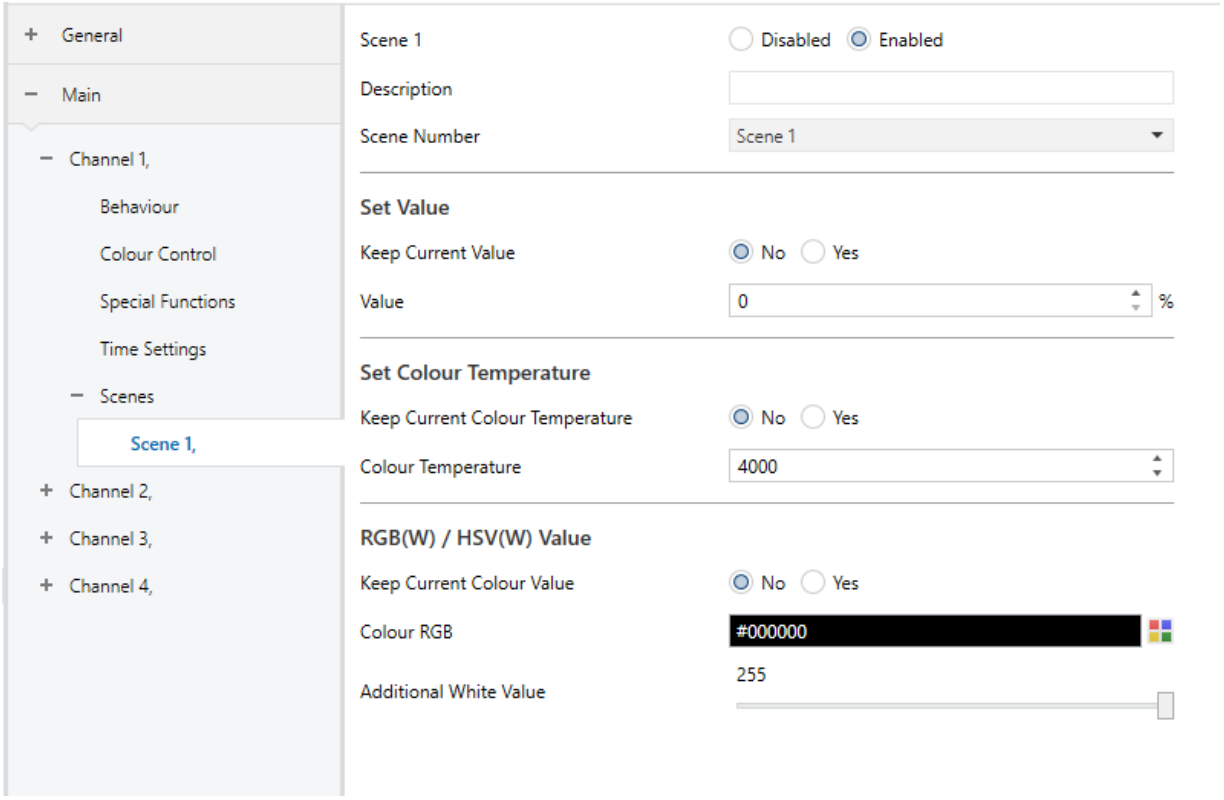
Up to 16 scenes are available for each channel. These are invoked and programmed via the scene object of the respective channel.

Scenes

Parameter	Settings
Number of Scenes	1.. 16 **[No Scenes]**
Parameter for setting whether and how many scenes can be used with this channel. Up to 16 scenes are available per channel.	
Enable learning of scenes	**No** Yes
This parameter defines if scenes can only be invoked or also be programmed by the scene object. **Note:** This parameter changes the type of scene communication object from “invoke” to “invoke / programm”	

7.2.6.1 Scene 1.. 16

Only the parameters for scene 1 are described below.



Scene 1

Parameter	Settings
Scene 1	Disabled **Enable**
This parameter enables or disables scene 1.	
Description	**„…“**
Use this parameter to define a scenes description.	
Scene Number	Scene 1.. Scene 64 **[Scene 1]**
Use this parameter to assign a scene number to this internal scene 1.	

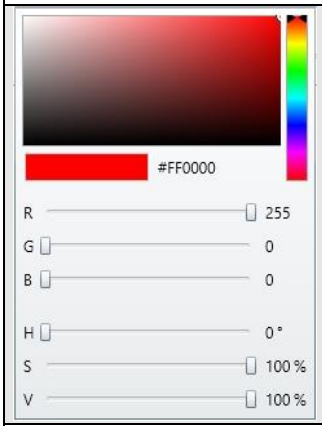
Set Value

Parameter	Settings
Keep Current Value	**No** Yes
This parameter enables or disables scene 1.	
Value	0%.. 100% **[0%]**
Use this parameter to define a scenes description.	

Set Colour Temperature

Parameter	Settings
Keep Current Colour Temperature	**No** Yes
This parameter decides whether the currently set colour temperature value is retained or whether a new colour temperature is set by calling up the scene.	
Colour Temperature	1000K.. 20.000K **[4000K]**
Use this parameter to define a scenes description.	

RGB(W) / HSV(W) Value

Parameter	Settings
Keep Current Colour Value	**No** Yes
This parameter decides whether the currently set colour value is retained or whether a new colour is set by calling up the scene.	
Colour RGB	#000000
 This parameter defines the RGB colour when the scene will be invoked. To do this, a window for colour selection is displayed via the button in the ETS.	
Additional White Value	255 0.. 255 **[255]**
This parameter defines the additional white value when the scene will be invoked	

8 Disclaimer for cyber security

In order to protect plants, systems, machines and networks from online threats, it is necessary to implement a holistic, state-of-the-art security concept and keep it up to date.

You are responsible for preventing unauthorized access to your plants, systems, machines and networks. These should only be connected to a network or the Internet if and to the extent that the connection is necessary and appropriate security measures (e.g. firewalls or network segmentation) are in place.

IPAS GmbH strongly recommends to use updates as soon as they are available and to always use the latest versions. Using versions that are no longer supported or not using the latest updates may increase your risk of online threats. IPAS GmbH strongly recommends that you follow security recommendations regarding the latest security threats, patches, and related measures.