Chorus

KNX dimmer actuators for LED Vdc - DIN rail mounting

GW 90 764 - CVD and GW 90 765 - CCD

Technical Manual

Contents

1 Introduction

The KNX dimmer actuators for LEDs powered with continuous voltage (Vdc) - DIN rail mounted, are devices for adjusting the brightness of up to 4 monochrome LEDs or strips of RGB[W] LED spotlights.

They are available in two versions:

- GW90764 Dimmer actuator for CVD LEDs (constant voltage control) for regulating monochrome or RGB[W] strips

- GW90765 Dimmer actuator for CCD LEDs (constant current control) for regulating power LEDs (RGB[W] or monochrome)

The devices are identical from a functional viewpoint, apart from the fact that the dimmer actuator for CCD LEDs GW90765 offers the possibility to set - via a parameter - the drive current of the LED output (monochrome or for RGBW channels).

2 Application

The KNX dimmer actuators for LEDs allow you to regulate the brightness of strips of RGB or monochrome LEDs, whilst at the same time guaranteeing the usual domotic functions of the KNX actuators.
The KNX dimmer actuators for LEDs are powered from the BUS line and have 4 two-colour front LEDs for indicating the status of the outputs, 4 front command button keys for testing the outputs, 1 red LED for signalling any faults, 1 relay contact for controlling the network voltage of the LED auxiliary power supply, and 4 independent output channels.
The dimmer actuator is assembled on a DIN rail, inside electric boards or junction boxes.

The dimmer actuator is configured with the ETS software, to perform the following functions:

- **ON/OFF switching** (*)
  - Setting the degree of light intensity corresponding to the ON switching command
  - Setting the delay for switch-on and switch-off
- **Regulating the RGB[W] relative brightness** (*)
  - Parameterising the maximum and minimum regulation thresholds
  - Parameterising the relative regulation speeds between 0% and 50%, and between 50% and 100%
- **Regulating the RGB[W] absolute brightness** (*)
  - Setting the mode for reaching the required light intensity (via a ramp or jumping to that value)
  - Parameterising the ramp regulation speed 0% - 100%
- **Scenes** (*)
  - Memorising and activating 8 scenes (value 0 - 63)
  - Enabling/disabling scene learning from BUS
- **Colour sequences**
  - Execution of preconfigured colour sequences (e.g. strobe, rainbow, blinking, etc.)
  - Setting reproduction speeds, initial colour and number of repetitions
- **Priority command (Forcing)** (*)
  - Setting the degree of light intensity with forcing activation ON
  - Setting the forcing status upon BUS voltage reset
- **Timed switching (stair raiser lights)** (*)
  - Parameterising the light value during timing
  - Setting the activation time
  - Setting the pre-warning time
  - Parameterising the behaviour when a timed activation command is received with timing already active
  - Stairs light activation time setting by BUS
- **Block function** (*)
  - Parameterising the block activation value, behaviour when block is active, and behaviour when block is deactivated
  - Setting the block object value upon download and upon BUS voltage reset
- **Logic function**
  - Logic operation AND/NAND/OR/NOR with command object and logic function Logic function
  - Logic operations AND/NAND/OR/NOR/XOR/XNOR up to 4 logic inputs
  - Setting the NOT operation on the 4 inputs
- **Other functions**
  - Parameterising the output behaviour upon failure and reset of BUS voltage
  - Setting the transmission of information concerning the ON/OFF status and the current light intensity
  - percentage value
  - Setting the transmission of information concerning overheating, auxiliary voltage failure or polarity inversion
  - Setting the transmission of information concerning the absence of auxiliary voltage (with BUS voltage present)
  - Setting PWM frequencies
  - Setting output current values (CCD version) for each channel
  - Setting local button key operation

(*) This function can be configured for each single channel, or for all 4 channels simultaneously.

2.1 Association limits

Maximum number of group addresses: 254
Maximum number of associations: 254

This means that up to 254 group addresses can be defined, and up to 254 associations can be made (communication objects and group addresses).

3 *"Main"* menu

The ***Main*** menu contains the parameters used to enable the different functions implemented by the device and to set the main operating parameters. The parameters in the "Main" menu change according to the "Type of load connected". Below, you can see the three menus that ETS visualises on the basis of this parameter.

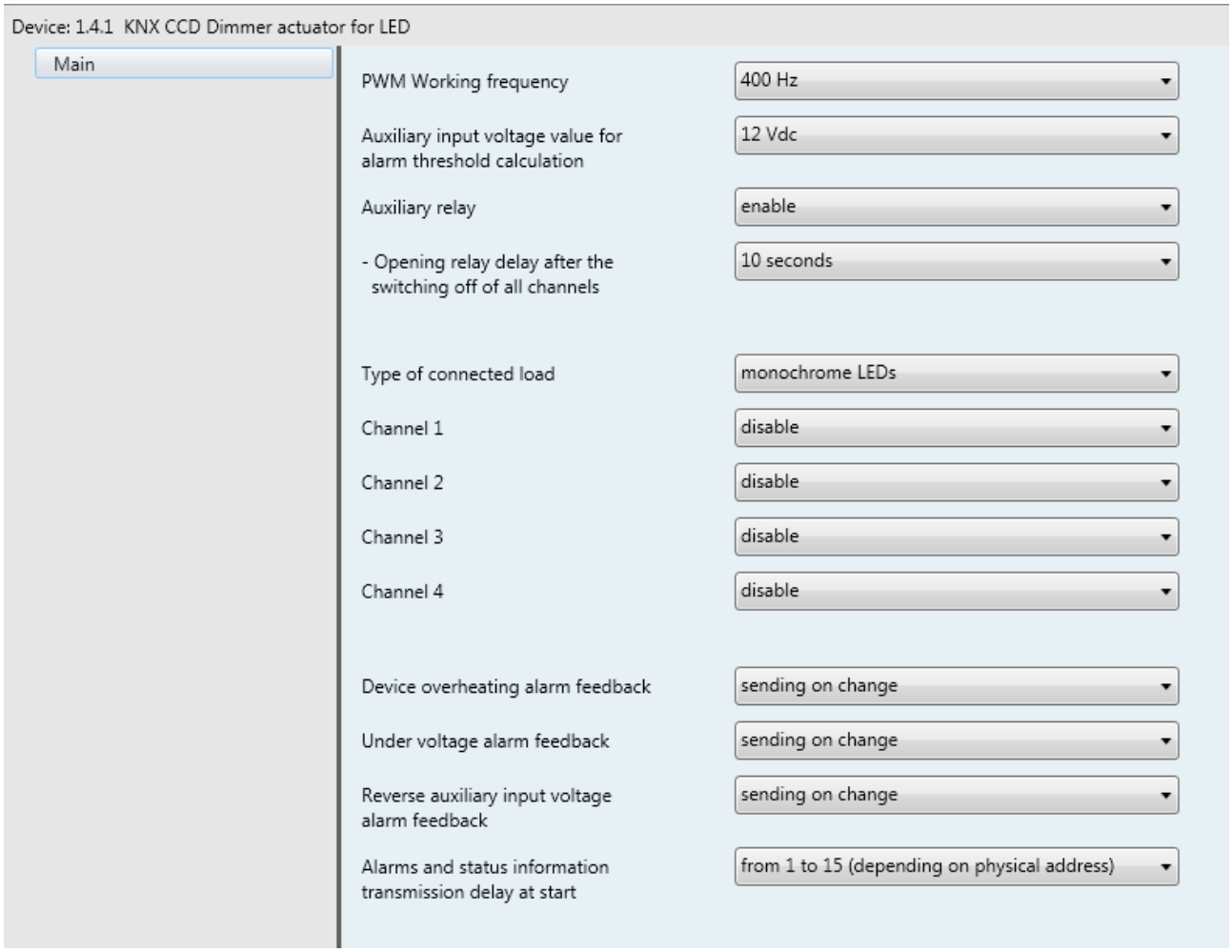


Fig. 3.1: "Main" menu with a monochrome LED load connected.

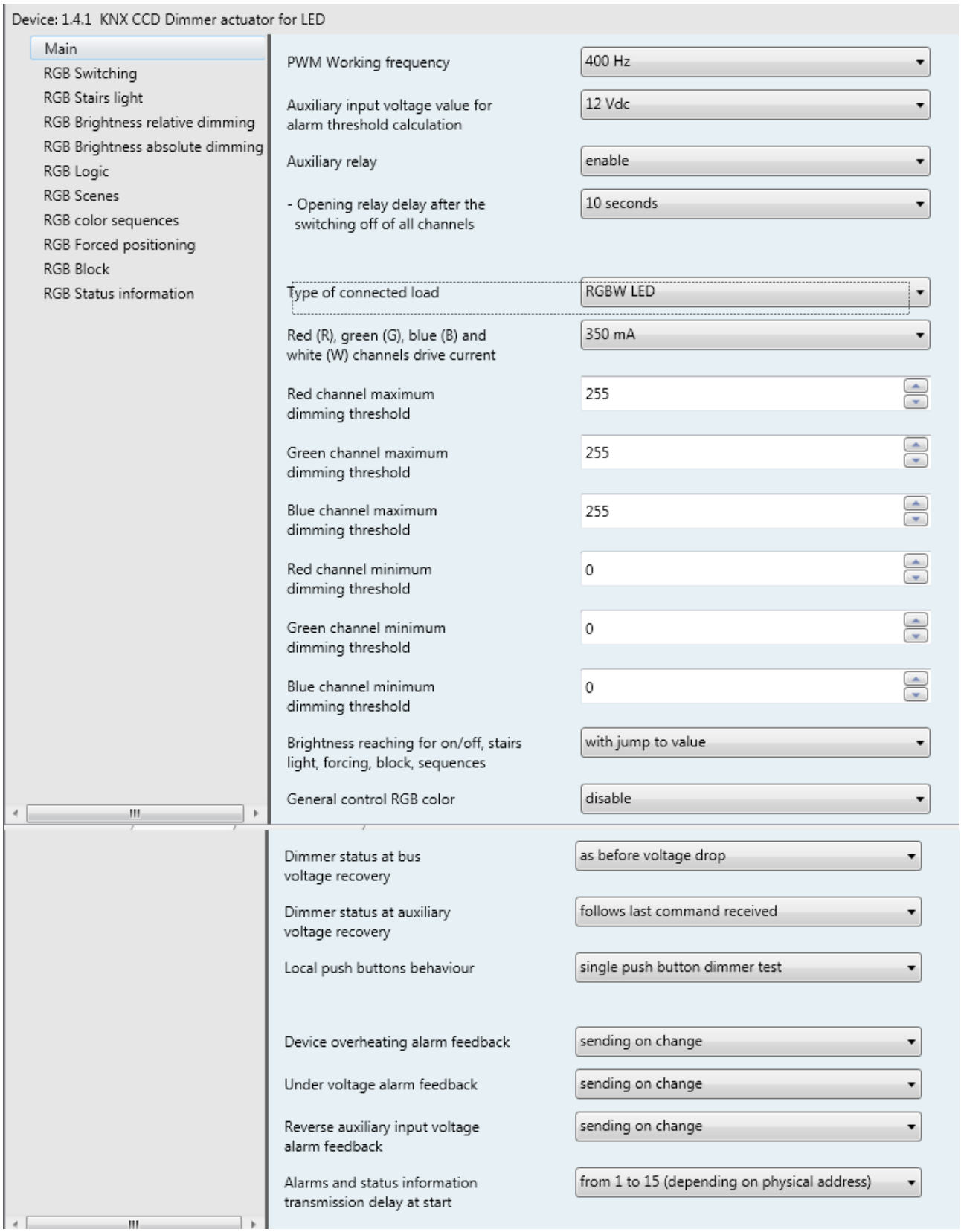


Fig. 3.2: “Main” menu with an RGBW LED load connected.

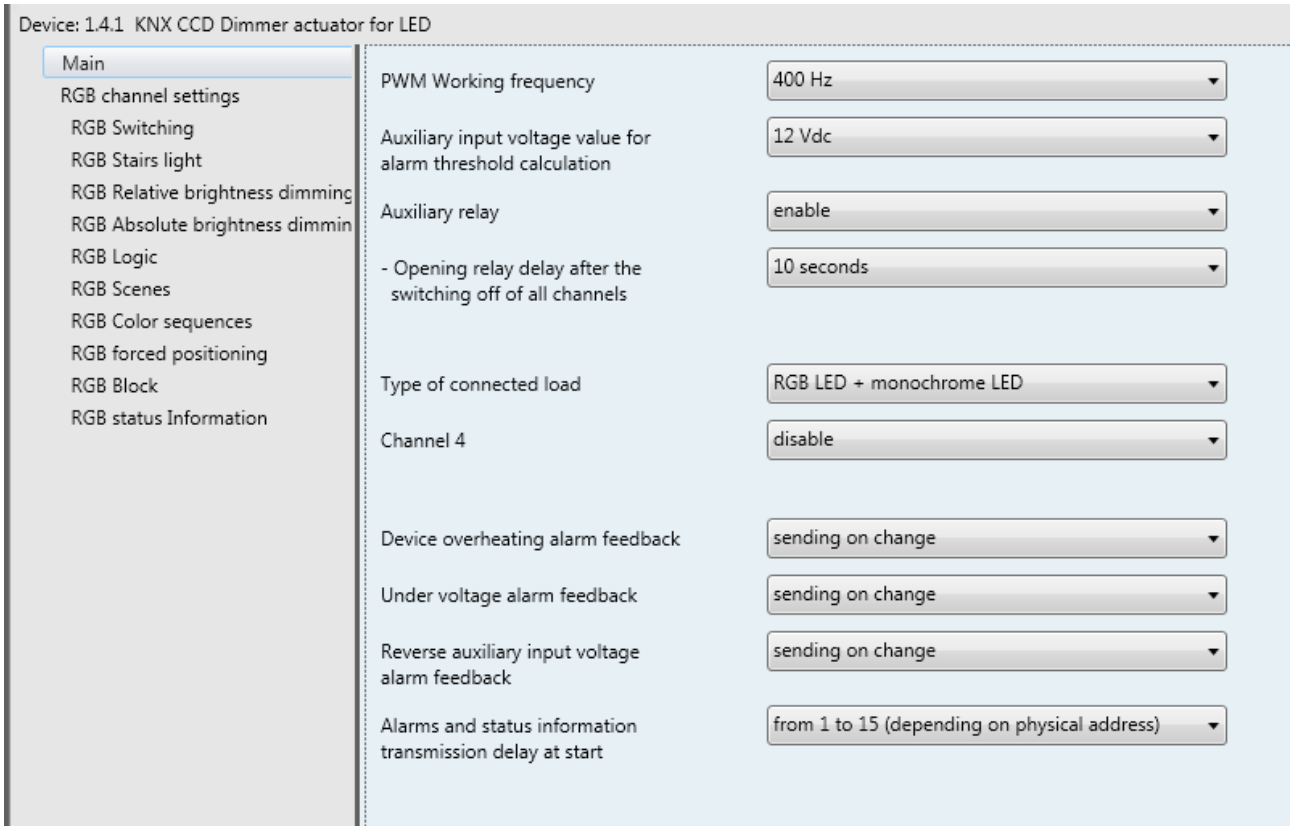


Fig. 3.3: “Main” menu with an RGB LED + monochrome LED load connected.

3.1 Parameters

3.1.1 PWM working frequency

The **“PWM working frequency”** parameter is used to select the PWM modulation frequency for driving the LEDs. The values that can be set are:

- ***200 Hz***
- ***260 Hz***
- ***400 Hz (default value)***

3.1.2 Auxiliary input voltage value for alarm threshold calculation

Used to define the auxiliary voltage value connected to the input terminals, so the threshold value for the "auxiliary voltage below threshold" alarm can be calculated (if enabled in the **Auxiliary voltage alarm signal** parameter described below). The threshold value is fixed, and is equal to 80% of the set auxiliary voltage value. The maximum values that can be set will vary according to the type of dimmer actuator for LEDs (CCD or CVD). They are:

- ***from 12V DC (default value) to 48V DC (in GW90765 for CCD LEDs), in steps of 1***
- ***from 12V DC (default value) to 24V DC (in GW90764 for CVD LEDs), in steps of 1***

3.1.3 Auxiliary relay

The device is equipped with a relay that can be used to interrupt the phase of the power supply connected to the input terminals of the KNX LED dimmer; when all the channels are switched off, the dimmer opens the relay and interrupts the power supply phase in order to maintain its functions as far as possible. The **"Auxiliary relay"** parameter enables the use of this local relay.
The values that can be set are:

- ***disable***
  The relay output contact is always open.
- ***enable (default value)***
  The relay closes when even just one of the channels has to be activated, and it opens when all the channels are OFF. Even if it is enabled, this function is not implemented when a light sequence or a colour sequence is being reproduced.

3.1.4 Opening relay delay after the switching off of all channels

It is possible to delay the opening of the relay (after the deactivation of all the channels) so that the process to regulate one channel or more is not delayed by any possible relay disconnection due to the deactivation - even just for a moment - of all the channels.
The **"Opening relay delay after the switching off of all channels"** parameter is used to activate and set the duration of the relay opening delay in relation to the moment when all the channels are deactivated. The values that can be set are:

- ***from 0 (no delay) to 255 seconds, in steps of 1 (default value 10)***

3.1.5 Type of connected load

The device is equipped with 4 output contacts with which it can drive up to 4 monochrome LEDs independently, or control an RGBW channel. The **"Type of connected load"** parameter is used to define the type of load connected to the dimmer. The values that can be set are:

- ***monochrome LEDs (default value)***
  The 4 channels are configured to work entirely independently of each other.
- ***RGBW LED***
  The 4 channels are configured to control loads containing the three colour components RGB, plus the component W. With this configuration, the three RGB colour components can be commanded independently while the W (White) component is controlled directly by the control logic of the device and is activated in place of the colour components when the value of the latter is roughly the same and the resulting colour is in the grey scale (thereby obtaining a "purer" white effect).
- ***RGB LED + monochrome LED***
  The channels are configured to control loads containing the three RGB colour components, with one (Channel 4) set aside for free use (regardless of the operating logic of the RGB channel).

Select the value "Monochrome LED" to visualise the parameters for enabling and configuring the 4 independent channels separately.
Chapter 5 describes the configuration parameters of a general channel "x" for commanding a monochrome LED.

If the type of load connected is "RGBW LED", you will see the parameters described below.

3.1.6 Red (R), green (G), blue (B) and white (W) channel drive current

The GW 90765 device is designed to power LEDs with a constant current (in fact, this parameter is only visible for this type of device for commanding CCD LEDs). The **"Red (R), green (G), blue (B) and white (W) channel drive current"** parameter is used to select the drive current for each channel of the RGBW LEDs. The values that can be set are:

- ***from 300mA to 700mA in steps of 50mA (default value 350mA)***

3.1.7 Red/green/blue channel maximum dimming threshold

For each of the three colours, the brightness regulation is limited by two threshold values set via the following parameters - one for the maximum regulation threshold and one for the minimum. The maximum regulation threshold may assume one of the following values:

- ***from 129 to 255 in steps of 1 (default value 255)***

The values relating to the colour brightness are expressed in absolute terms (not percentages) so that the contribution of each single channel to the final colour can be accurately defined.

3.1.8 Red/green/blue channel minimum dimming threshold

For each of the three colours, the brightness regulation is limited by two threshold values set via the following parameters - one for the maximum regulation threshold and one for the minimum. The minimum regulation threshold may assume one of the following values:

- ***from 0 to 128 in steps of 1 - (default value 0)***

The values relating to the colour brightness are expressed in absolute terms (not percentages) so that the contribution of each single channel to the final colour can be accurately defined.

3.1.9 Brightness reaching for on/off, timed switching, priority commands, block, sequences

The brightness value determined by activating/deactivating the on/off switching, stair raiser light, forcing, block and colour sequence deactivation can be reached via a ramp or by jumping directly to the value. This behaviour (identical for all 3 RGB colours) is determined by the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter, which may assume the following values:

- ***with jump to value (default value)***
  The LEDs reach the required brightness value directly, although the dimmer manages a "soft start".
- ***with ramp***
  The LEDs reach the required brightness value along a ramp. In this case, the regulation speed can be set via the **Ramp regulation speed 0-255** parameter.

3.1.10 Ramp regulation speed 0-255

If you set Brightness reaching with on/off commands, timed switching, priority commands, block via a ramp, this parameter allows you to set the duration of the brightness regulation from 0 (0%) to 255 (100%) for the following functions: on/off switching, stairs light, forcing and block of RGBW channel. The possible values are:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***
- ***1 minute***
- ***2 minutes***

- ***5 minutes***
- ***10 minutes***

3.1.11 General RGB colour control

If the load type is RGBW, you can use the RGB components to obtain the Tone, Saturation and Brightness values of the colour (HSL system of cylindrical coordinates) or the Tone, Saturation and Brilliancy of the colour (HSV system of cylindrical coordinates). Once these components have been calculated, you can regulate the brightness or brilliancy of the RGB colour while maintaining the same Tone and Saturation set. This will in turn modify the values of the RGB components to obtain the optical effect of passing from a lighter colour to a darker one, or vice versa. The ***RGB - General brightness regulation*** and ***RGB - General brightness value command*** or ***RGB - General brilliancy regulation*** and ***RGB - General brilliancy value command*** objects are used to make - respectively - the relative and absolute regulation of the brightness or brilliancy of the RGB colour, so that the colour brightness can be regulated.

Fig. 3.4 shows an example of the HSL system:

HSL system (Tone, Saturation and Brightness)

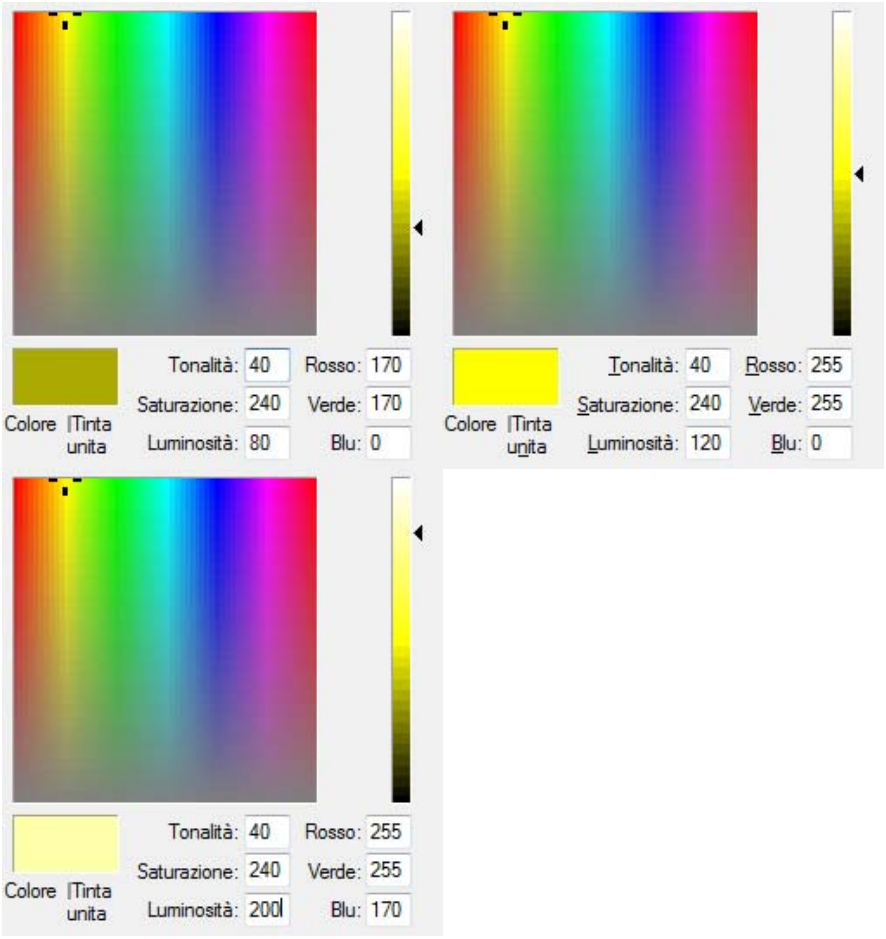


Fig. 3.4: Example of colour regulation based on the HSL system (Tone, Saturation and Brightness)

Fig. 3.5 shows an example based of the HSV system.

HSV system (Tone, Saturation and Brilliancy)

Fig. 3.5: Example of colour regulation based on the HSV system (Tone, Saturation and Brilliancy)

The above figures show that, by intervening on just the brightness or just the brilliancy of the RGB colour, you can obtain a lighter yellow or a darker yellow.
The Tone and Saturation values are calculated when at least one of the RGB components changes value via the various BUS commands; they are not updated when telegrams indicating the relative or absolute regulation of the RGB colour are received (even though these commands do actually modify the contributions of the various colours) via the following objects: ***RGB - General brightness regulation*** or ***RGB - General brilliancy regulation*** (Data Point Type: 3.007 DPT_Control_Dimming) and ***RGB - General brightness value command*** or ***RGB - General brilliancy value command*** (Data Point Type: 5.001 DPT_Scaling).
Apart from the possibility to regulate the brightness of the RGB colour, you can also switch it on and off via the BUS command on the ***RGB - General switching*** (Data Point Type: 1.001 DPT_Switch) communication object.

The **"General control RGB colour "** parameter is used to enable the control of the brightness or brilliancy of the RGB colour via BUS commands on the ***RGB - General brightness regulation*** or ***RGB - General brilliancy regulation***, ***RGB - General brightness value command*** or ***RGB - General brilliancy value command*** and ***RGB - General switching*** communication objects, without having to modify the single components. The values that can be set are:

- ***disable - (default value)***

- ***enable brilliancy control (HSV)***
  Selecting **enable brilliancy control (HSV)** displays the ***RGB - General brilliancy regulation***, ***RGB - General brilliancy value command*** and ***RGB - General switching*** communication objects for the relative and absolute regulation of the RGB colour brilliancy and the switching on and off of the colour itself.
- ***enable brightness control (HSL)***
  Selecting **enable brightness control (HSL)** displays the ***RGB - General brightness regulation***, ***RGB - General brightness value command*** and ***RGB - General switching*** communication objects for the relative and absolute regulation of the RGB colour brightness and the switching on and off of the colour itself.

The speeds during the relative regulation of the RGB colour are determined by the value of the **"Relative regulation speed between 0 and 128"** and **"Relative regulation speed between 128 and 255"** parameters of the **Brightness relative dimming** menu (see ch.8), while the regulation thresholds are fixed and equal to 0 and 255. In the same way, the reaching of the absolute brightness value of the RGBW colour is determined by the **"Brightness reaching with value command"** and **"Ramp regulation speed 0-255 for value command"** (if the value is reached via a ramp) parameters of the **Brightness absolute dimming** menu (see ch.9).
The brightness value of each colour component following an ON command on the ***RGB - General switching*** object with the dimmer OFF is equal to the value assumed prior to switch-off (memory); the brightness value can be reached following ON or OFF 0 (0%) commands via a ramp or a jump to the value, depending on the value of the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter.

3.1.12 Dimmer status at BUS voltage recovery

In the case of BUS voltage failure, the dimmer maintains the output status.
It is possible to set the status of the RGBW channel following BUS voltage recovery using the **"Dimmer status at BUS voltage recovery"** parameter, which may assume the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"**displays the **"Red channel brightness on bus voltage recovery"**, **"Green channel brightness on bus voltage recovery"** and **"Blue channel brightness on bus voltage recovery"** parameters, via which you can set the required brightness values for each colour.
- ***minimum dimming threshold value***
  When the BUS voltage is reset, the dimmer restores the minimum regulation threshold value for the outputs.
- ***maximum dimming threshold value***
  When the BUS voltage is reset, the dimmer restores the maximum regulation threshold value for the outputs.
- ***as before voltage drop - (default value)***
  When the BUS voltage is reset, the dimmer restores the outputs to the value in place prior to the voltage drop.

3.1.13 Red/green/blue channel brightness on bus voltage recovery

Setting the "**Dimmer status at bus voltage recovery**" parameter at "**Sets fixed value**" displays these parameters, via which you can specify the required brightness on the LED outputs when the BUS voltage is restored after a drop. The values that can be set for these parameters are:

- ***from 0 (default value) to 255, in steps of 1***

3.1.14 Dimmer status at auxiliary voltage recovery

With an auxiliary voltage failure, the dimmer will switch to the OFF status (brightness value 0).
The behaviour of the RGBW channel when the auxiliary voltage is reset (if BUS voltage was present at the time of the drop) is determined by the **"Dimmer status at auxiliary voltage recovery"** parameter, which may assume the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"**displays the **"Red channel brightness on auxiliary voltage recovery"**, **"Green channel brightness on auxiliary voltage recovery"** and **"Blue channel brightness on auxiliary voltage recovery"** parameters, via which you can set the required brightness values for each colour.
- ***minimum dimming threshold value***
  When the auxiliary voltage is reset, the dimmer restores the minimum regulation threshold value for the outputs.
- ***maximum dimming threshold value***
  When the auxiliary voltage is reset, the dimmer restores the maximum regulation threshold value for the outputs.
- ***as before voltage drop***
  In this case, the dimmer returns to the same conditions that were present at the time of the voltage drop, ignoring all the commands received while there was no network voltage.
- ***follows last command received - (default value)***
  If **"follow last command received"** is selected, the dimmer continues processing the commands while the auxiliary voltage is absent (as if the network were present), respecting the relative priorities. When the auxiliary voltage is reset, the dimmer takes the value determined by the last command received and applies it to the output.

3.1.15 Red/green/blue channel brightness on auxiliary voltage recovery

Setting the "**Dimmer status at auxiliary voltage recovery**" parameter at "**Sets fixed value**" displays these parameters, via which you can specify the required brightness on the LED outputs when the auxiliary voltage is restored after a drop. The values that can be set for these parameters are:

- ***from 0 (default value) to 255, in steps of 1***

The behaviour when the auxiliary voltage is reset is not respected if the power supply failed while an overheating alarm was in progress (e.g. if the user has disconnected the power supply in order to speed up the cooling process).

3.1.16 Local push-button behaviour

The device has 4 local push-buttons (one per colour). You can define their function when the type of load is an RGBW channel, using the **"Local push-button behaviour"** parameter, which may assume the following values:

- ***No effect***
  The four push-buttons are disabled
- ***test on/off***
  Each time the push-button is pressed, the dimmer will switch the associated colour between the ON value (255 brightness) and the OFF value (0 brightness), jumping to the value (soft start). This command has top priority and is executed regardless of the value of the communication objects (including the objects "Priority command" and "Block").
- ***single push-button dimmer test - (default value)***
  In this case, the front push-button acts like a single push-button that, when pressed briefly (0.5 sec), turns on (ON 100%) the output associated with channel x (if it is OFF), and turns it off (OFF) if it is ON (brightness value >0). if pressed for longer, it alternates the brightness increase and decrease commands (between 0% and 100%) and stops the regulation when released. The dimming speed is fixed at 5 seconds. This command has top priority and is executed whatever the value of the communication objects (including the objects "Ch.x - Priority command" and "Ch.x - Block").

Unless it is set at **no effect**, the local push-button controls the output connected to channel x, regardless of the device functions that are active at that moment but without changing the activation status of those functions. This means that if the block/forcing functions were active before the local push-button was pressed, they will continue to be active even if the brightness value is changed on the basis of how the front push-button is pressed.
If the White front push-button is pressed, this generates the activation of the white colour (deactivating the other three colour components). In the same way, if all three R, G and B components are activated at the same value, the White channel is powered in place of the other 3 (as during normal operation).

3.1.17 Overheating alarm feedback

Any overheating of the device can be signalled via the **"Overheating alarm"** (Data Point Type 1.005 DPT_Alarm) communication object. You can set the conditions that determine the sending of the communication object via the "**Device overheating alarm feedback**" parameter, which can have the following values:

- ***disabled***
- ***on demand only***
- ***on change - (default value)***

Setting a value other than **disabled** displays the ***Overheating alarm*** output communication object.

Any possible overheating is always signalled by a front "fault" LED (fixed red light), and the deactivation of the channel status LEDs.
During overheating, the dimmer output is fixed and equal to 10%, and every command received from the BUS is ignored. Any functions that were active at that moment are kept active, but they do not have any influence on the dimmer output.
There are two ways to try to eliminate the cause of the overheating:
- Wait for the dimmer temperature to decrease by itself
- Disconnect the network voltage. In this case, the dimmer output switches off and a normal operating temperature may be reached more quickly. To restore normal operation, the network voltage will obviously have to be reconnected

Once the cause of the overheating has been eliminated, you can restore normal operation and deactivate the overheating signal in the following ways:

- using the front button key of the dimmer to command the output. During overheating, the front button key must be able to command the dimmer regardless of the value of the **"Local push-buttons behaviour"** parameter. In particular, if the temperature has dropped below the alarm value, the dimmer performs a test by bringing all the outputs to the maximum brightness value. If the temperature remains below the alarm value after approx. 5 seconds, the "fault" LED will switch off, the corresponding alarm signal on the BUS will assume the value FALSE, and the dimmer will return to the status it was in prior to the overheating condition (including the status LEDs). During the reset time (approx. 5 seconds), the "fault" LED remains ON (fixed light) while the status LEDs flash red (frequency 1 Hz 50% On, 50% Off).

- sending a command via BUS. If the temperature has dropped below the alarm value, the dimmer will perform a test (regardless of the command received) by bringing all the outputs to the maximum brightness value. If the temperature remains below the alarm value after approx. 5 seconds, the "fault" LED will switch off, the corresponding alarm signal on the BUS will assume the value FALSE, and the dimmer will carry out the last command received. During the reset time (approx. 5 seconds), the "fault" LED remains ON (fixed light) while the status LEDs flash red (frequency 1 Hz 50% On, 50% Off).

3.1.18 Auxiliary voltage alarm feedback

If the input voltage is absent, or falls below the threshold level, this can be indicated (as long as there is BUS voltage) via the ***Auxiliary voltage alarm*** (Data Point Type 1.005 DPT_Alarm) communication object. The alarm threshold can be set via the **Auxiliary input voltage value for alarm threshold calculation** (see par.3.1.2) parameter. The "**Auxiliary voltage alarm feedback**" parameter is used to define the conditions that determine the sending of the alarm communication object, and it may assume the following values:

- ***disabled***
- ***on demand only***
- ***on change - (default value)***

Setting a value other than **disabled** displays the ***Auxiliary voltage alarm*** output communication object.
The alarm for input voltage below the threshold is always signalled via the "fault" LED (ON) and the status LEDs all flashing yellow (frequency 1 Hz 50% On, 50% Off).
If the input voltage is disconnected during an overheating phase, the "fault" LED will remain ON (fixed red light) and the status LEDs will be OFF.

3.1.19 Auxiliary voltage polarity inversion alarm feedback

If there is a polarity inversion on the auxiliary voltage input terminals, this can be indicated (as long as there is BUS voltage) via the ***Auxiliary voltage polarity inversion alarm*** (Data Point Type 1.005 DPT_Alarm) communication object. The "**Auxiliary voltage polarity inversion alarm feedback**" parameter defines the conditions that determine the sending of the communication object, and it can have the following values:

- ***disabled***
- ***on demand only***
- ***on change - (default value)***

Setting a value other than **disabled** displays the ***Auxiliary voltage polarity inversion alarm*** output communication object.
The polarity inversion alarm is always signalled via a front "fault" LED (flashing red light) (frequency 1 Hz 50% On, 50% Off); the status LEDs will all be OFF.
Polarity inversion is different from an "input voltage below threshold" alarm so, when it occurs, the relative alarm feedback is sent on the BUS but not the alarm feedback for input voltage below the threshold. At the same time, the LED feedback relating to polarity inversion will be repeated, but not the feedback for voltage below the threshold.

3.1.20 Alarm and status information transmission delay [s]

It is possible to determine the delay for transmitting the status information (brightness values, on/off status and alarm feedback) on the BUS, via the **"Alarm and status information transmission delay [s]"** parameter. The parameter may have the following values:

- ***from 1 to 15 (depending on physical address) - (default value)***
- ***1***
- ***2***
- ***3***
- ***4***
- ***5***
- ***6***
- ***7***
- ***8***
- ***9***
- ***10***
- ***11***
- ***12***
- ***13***

- ***14***
- ***15***

By setting the default value “from 1 to 15 (depending on physical address)”, the device automatically calculates the transmission delay using an algorithm that takes into account the physical address of the device itself. This function avoids any risk that two devices which "wake up" simultaneously and have the same transmission delay try to transmit in the same moment, creating potential collisions.

3.1.21 Channel X

If the selected load is monochrome LED, the **“Channel 1”**, **“Channel 2”**, **“Channel 3”** and **“Channel 4”** parameters allow you to view and configure all the operating parameters of the relative channels grouped together in the **Channel 1 settings**, **Channel 2 settings**, **Channel 3 settings** and **Channel 4 settings** menus. The values that can be set for these parameters are:

- ***disable - (default value)***
- ***enable***

The **“Channel 4”** parameter is visible even if the selected load is RGB LED + monochrome LED.

The functions that can be configured for each channel are described in ch.5.

4 *"RGB channel settings"* menu

If the load type is RGB LED + monochrome LED, the ***RGB channel settings*** menu will appear. This allows you to configure the parameters that define the behaviour of the RGB LED connected to the dimmer (regardless of the specific functions implemented by the device). The basic structure of the menu is as follows:

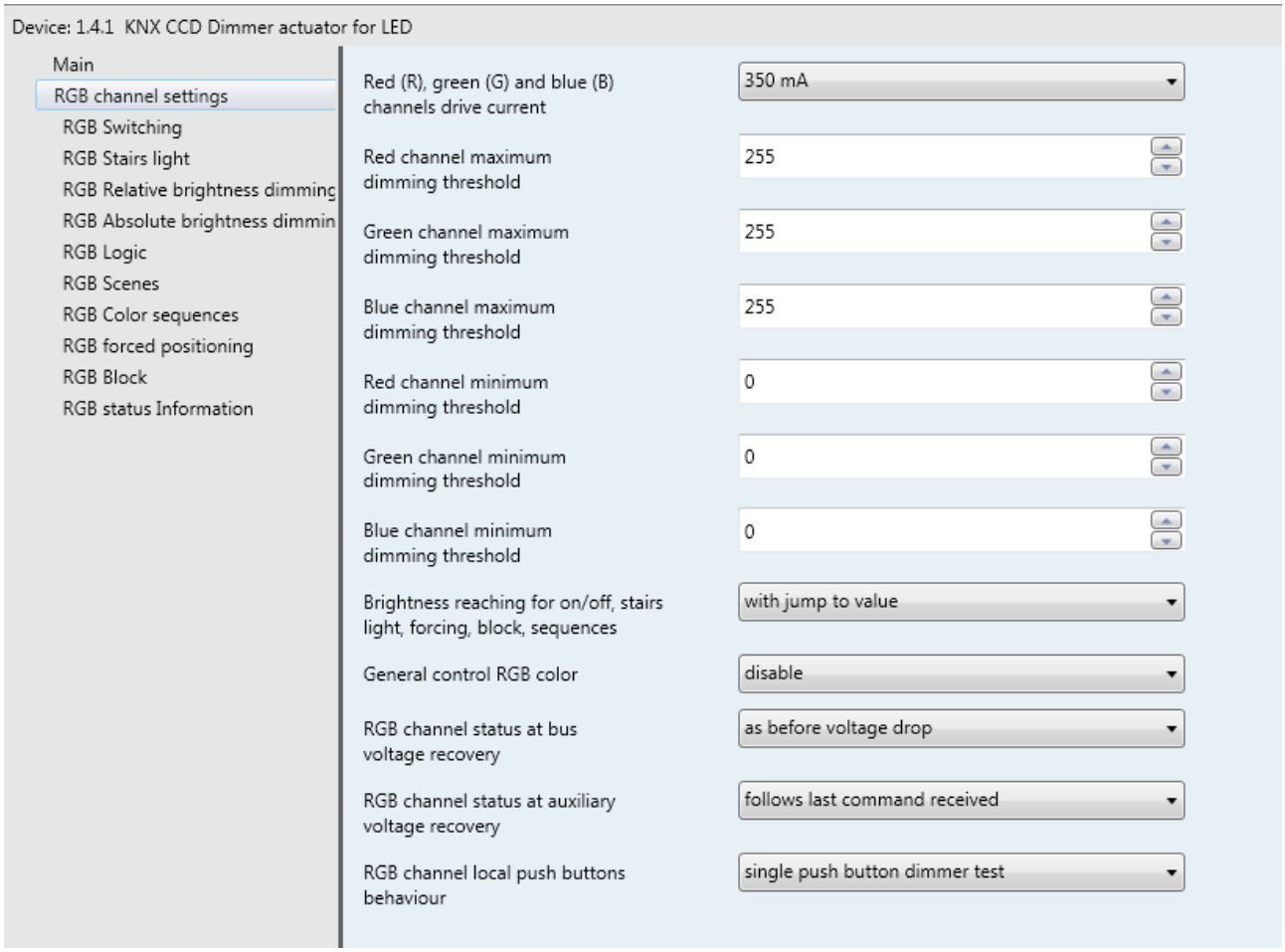


Fig. 4.1: "RGB channel settings" menu with an RGB LED + monochrome LED load connected.

4.1 Parameters

4.1.1 Red (R), green (G) and blue (B) channels drive current

The GW 90765 device is designed to power LEDs with a constant current (in fact, this parameter is only visible for this type of device for commanding CCD LEDs). The **"Red (R), green (G) and blue (B) channels drive current"** parameter is used to select the drive current for the three channels of the RGB LEDs. The values that can be set are:

- ***from 300mA to 700mA in steps of 50mA (default value 350mA)***

4.1.2 Red/green/blue channel maximum dimming threshold

For each of the three colours, the brightness regulation is limited by two threshold values set via the following parameters - one for the maximum regulation threshold and one for the minimum. The maximum regulation threshold may assume one of the following values:

- ***from 129 to 255 in steps of 1 (default value 255)***

The values relating to the colour brightness are expressed in absolute terms (not percentages) so that the contribution of each single channel to the final colour can be accurately defined.

4.1.3 Red/green/blue channel minimum dimming threshold

For each of the three colours, the brightness regulation is limited by two threshold values set via the following parameters - one for the maximum regulation threshold and one for the minimum. The minimum regulation threshold may assume one of the following values:

- ***from 0 to 128 in steps of 1 - (default value 0)***

The values relating to the colour brightness are expressed in absolute terms (not percentages) so that the contribution of each single channel to the final colour can be accurately defined.

4.1.4 Brightness reaching for on/off, timed switching, priority commands, block, sequences

The brightness value determined by activating/deactivating the on/off switching, stair raiser light, forcing, block and colour sequence deactivation can be reached via a ramp or by jumping directly to the value. This behaviour (identical for all 3 RGB colours) is determined by the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter, which may assume the following values:

- ***with jump to value (default value)***
  The LEDs reach the required brightness value directly, although the dimmer manages a "soft start".
- ***with ramp***
  The LEDs reach the required brightness value along a ramp. In this case, the regulation speed can be set via the **Ramp regulation speed 0-255** parameter.

4.1.5 Ramp regulation speed 0-255

If you set Brightness reaching with on/off commands, timed switching, priority commands, block via a ramp, this parameter allows you to set the duration of the brightness regulation from 0 (0%) to 255 (100%) for the following functions: on/off switching, stairs light, forcing and block of RGBW channel. The possible values are:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***
- ***1 minute***
- ***2 minutes***
- ***5 minutes***
- ***10 minutes***

4.1.6 General RGB colour control

You can use the RGB components to obtain the Tone, Saturation and Brightness values of the colour (HSL system of cylindrical coordinates) or the Tone, Saturation and Brilliancy values of the colour (HSV system of cylindrical coordinates). Once these components have been calculated, you can regulate the brightness or brilliancy of the RGB colour while maintaining the same Tone and Saturation set. This will in turn modify the values of the RGB components to obtain the optical effect of passing from a lighter colour to a darker one, or vice versa. The ***RGB - General brightness regulation*** and ***RGB - General brightness value command*** or ***RGB - General brilliancy regulation*** and ***RGB - General brilliancy value command*** objects are used to make - respectively - the relative and absolute regulation of the brightness or brilliancy of the RGB colour, so that the colour brightness can be regulated.

Fig. 4.2 shows an example of the HSL system.

HSL system (Tone, Saturation and Brightness)

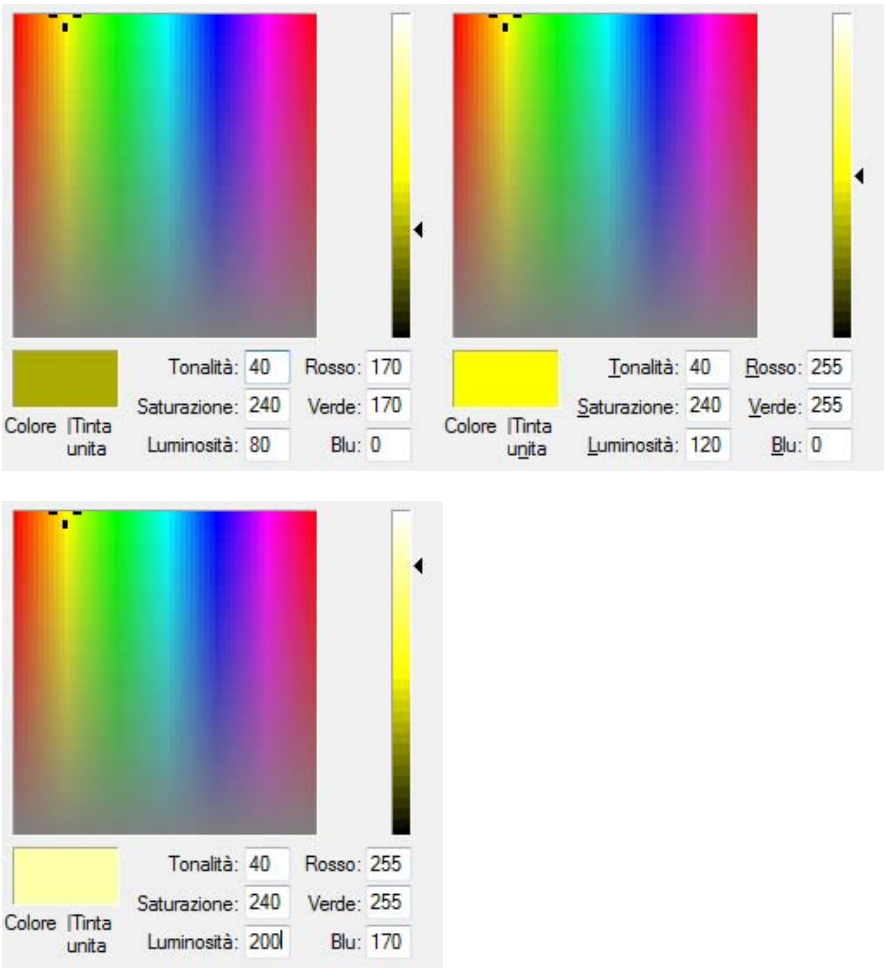


Fig. 4.2: Example of colour regulation based on the HSL system (Tone, Saturation and Brightness)

Fig. 4.3 shows an example based of the HSV system.

HSV system (Tone, Saturation and Brilliancy)

Fig. 4.3: Example of colour regulation based on the HSV system (Tone, Saturation and Brilliancy)

The above examples show that, by intervening on just the brightness or just the brilliancy of the RGB colour, you can obtain a lighter yellow or a darker yellow.
The Tone and Saturation values are calculated when at least one of the RGB components changes value via the various BUS commands; they are not updated when telegrams indicating the relative or absolute regulation of the RGB colour are received (even though these commands do actually modify the contributions of the various colours) via the following objects: ***RGB - General brightness regulation*** or ***RGB - General brilliancy regulation*** (Data Point Type: 3.007 DPT_Control_Dimming) and ***RGB - General brightness value command*** or ***RGB - General brilliancy value command*** (Data Point Type: 5.001 DPT_Scaling).
Apart from the possibility to regulate the brightness of the RGB colour, you can also switch it on and off via the BUS command on the ***RGB - General switching*** (Data Point Type: 1.001 DPT_Switch) communication object.

The **"General control RGB colour "** parameter is used to enable the control of the brightness or brilliancy of the RGB colour via BUS commands on the ***RGB - General brightness regulation*** or ***RGB - General brilliancy regulation***, ***RGB - General brightness value command*** or ***RGB - General brilliancy value command*** and ***RGB - General switching*** communication objects, without having to modify the single components. The values that can be set are:

- ***disable - (default value)***
- ***enable brilliancy control (HSV)***
  Selecting **enable brilliancy control (HSV)** displays the ***RGB - General brilliancy regulation***, ***RGB - General brilliancy value command*** and ***RGB - General switching*** communication objects for the

relative and absolute regulation of the RGB colour brilliancy and the switching on and off of the colour itself.

- ***enable brightness control (HSL)***
  Selecting **enable brightness control (HSL)** displays the ***RGB - General brightness regulation***, ***RGB - General brightness value command*** and ***RGB - General switching*** communication objects for the relative and absolute regulation of the RGB colour brightness and the switching on and off of the colour itself.

The speeds during the relative regulation of the RGB colour are determined by the value of the **"Relative regulation speed between 0 and 128"** and **"Relative regulation speed between 128 and 255"** parameters of the **Brightness relative dimming** menu (see ch.8), while the regulation thresholds are fixed and equal to 0 and 255. In the same way, the reaching of the absolute brightness value of the RGBW colour is determined by the **"Brightness reaching with value command"** and **"Ramp regulation speed 0-255 for value command"** (if the value is reached via a ramp) parameters of the **Brightness absolute dimming** menu (see ch.9).
The brightness value of each colour component following an ON command on the ***RGB - General switching*** object with the dimmer OFF is equal to the value assumed prior to switch-off (memory); the brightness value can be reached following ON or OFF 0 (0%) commands via a ramp or a jump to the value, depending on the value of the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter.

4.1.7 RGB channel status at bus voltage recovery

In the case of BUS voltage failure, the dimmer maintains the output status.
It is possible to set the status of the RGB channel following BUS voltage recovery using the **"Dimmer status at BUS voltage recovery"** parameter, which may assume the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"**displays the **"Red channel brightness on bus voltage recovery"**, **"Green channel brightness on bus voltage recovery"** and **"Blue channel brightness on bus voltage recovery"** parameters, via which you can set the required brightness values for each colour.
- ***minimum dimming threshold value***
  When the BUS voltage is reset, the dimmer restores the minimum regulation threshold value for the outputs.
- ***maximum dimming threshold value***
  When the BUS voltage is reset, the dimmer restores the maximum regulation threshold value for the outputs.
- ***as before voltage drop - (default value)***
  When the BUS voltage is reset, the dimmer restores the outputs to the value in place prior to the voltage drop.

4.1.8 Red/green/blue channel brightness on bus voltage recovery

Setting the "**RGB channel status at bus voltage recovery**" parameter at "**Sets fixed value**" displays these parameters, via which you can specify the required brightness on the LED outputs when the BUS voltage is restored after a drop. The values that can be set for these parameters are:

- ***from 0 (default value) to 255, in steps of 1***

4.1.9 RGB channel status at auxiliary voltage recovery

With an auxiliary voltage failure, the red, green and blue channels will switch to the OFF status (brightness value 0).
The behaviour of the RGB channel when the auxiliary voltage is reset (if BUS voltage was present at the time of the drop) is determined by the **"RGB channel status at auxiliary voltage recovery"** parameter, which may assume the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"**displays the **"Red channel brightness on auxiliary voltage recovery"**, **"Green channel brightness on auxiliary voltage recovery"** and **"Blue channel brightness on auxiliary voltage recovery"** parameters, via which you can set the required brightness values for each colour.
- ***minimum dimming threshold value***
  When the auxiliary voltage is reset, the dimmer restores the minimum regulation threshold value for the outputs.
- ***maximum dimming threshold value***
  When the auxiliary voltage is reset, the dimmer restores the maximum regulation threshold value for the outputs.
- ***as before voltage drop***
  In this case, the dimmer returns to the same conditions that were present at the time of the voltage drop, ignoring all the commands received while there was no network voltage.
- ***follows last command received - (default value)***
  If **"follow last command received"** is selected, the dimmer continues processing the commands while the auxiliary voltage is absent (as if the network were present), respecting the relative priorities. When the auxiliary voltage is reset, the dimmer takes the value determined by the last command received and applies it to the output.

4.1.10 Red/green/blue channel brightness on auxiliary voltage recovery

Setting the "**RGB channel status at auxiliary voltage recovery**" parameter at "**Sets fixed value**" displays these parameters, via which you can specify the required brightness on the LED outputs when the auxiliary voltage is restored after a drop. The values that can be set for these parameters are:

- ***from 0 (default value) to 255, in steps of 1***

The behaviour when the auxiliary voltage is reset is not respected if the power supply failed while an overheating alarm was in progress (e.g. if the user has disconnected the power supply in order to speed up the cooling process).

4.1.11 RGB channel local push-button behaviour

The device has 3 local push-buttons associated with the RGB channel. You can define their function via the **"Local push-button behaviour"** parameter, which may assume the following values:

- ***No effect***
  The three push-buttons are disabled
- ***test on/off***
  Each time the push-button is pressed, the dimmer will switch the associated colour between the ON value (255 brightness) and the OFF value (0 brightness), jumping to the value (soft start). This command has top priority and is executed regardless of the value of the communication objects (including the objects "Priority command" and "Block").
- ***single push-button dimmer test - (default value)***
  In this case, the front push-button acts like a single push-button that, when pressed briefly (0.5 sec), turns on (ON 100%) the output associated with channel x (if it is OFF), and turns it off (OFF) if it is ON (brightness value >0). if pressed for longer, it alternates the brightness increase and decrease commands (between 0% and 100%) and stops the regulation when released. The dimming speed is fixed at 5 seconds. This command has top priority and is executed whatever the value of the communication objects (including the objects "Ch.x - Priority command" and "Ch.x - Block").

Unless it is set at **no effect**, the local push-button controls the output connected to channel x, regardless of the device functions that are active at that moment but without changing the activation status of those functions. This means that if the block/forcing functions were active before the local push-button was pressed, they will continue to be active even if the brightness value is changed on the basis of how the front push-button is pressed.

In this case, the pressing of the White front push-button (channel 4) will cause an independent effect from the first three because it is associated with the channel that is dedicated to the independent monochrome LED.

5 *"Channel x settings"* menu

If the connected load type is "monochrome LED" (or RGB LED + monochrome LED), the configuration menu of the individual channels X will appear (in the case of RGB LED + monochrome LED, only those parameters relating to channel 4 for the monochrome LED). For the sake of simplicity, the items that make up the ***Channel 1 settings***, ***Channel 2 settings***, ***Channel 3 settings*** and ***Channel 4 settings*** menus will be described only once in the following chapters (with reference to the general ***Channel x settings*** menu), as these menus all have the same parameters and functions.
The **Channel x settings** menu contains the parameters that define the behaviour of the monochrome LED connected to channel x (beyond the specific functions implemented by the dimmer channel).

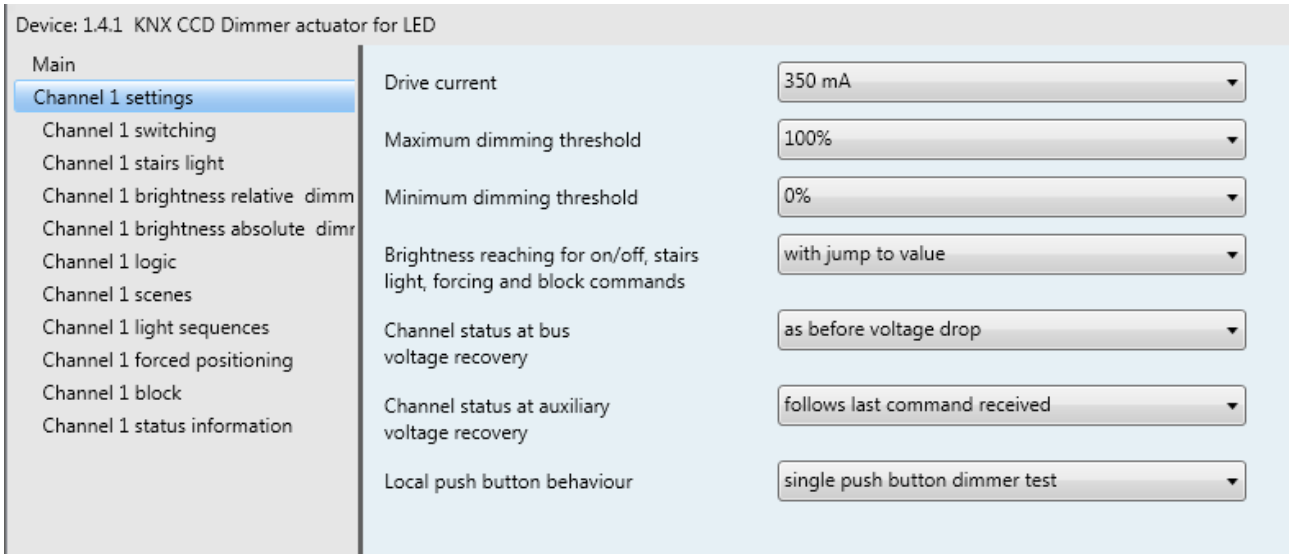


Fig. 5.1: "Channel x settings" menu

5.1 Parameters

5.1.1 Pilot current

The GW90765 device is designed to power LEDs with a constant current (in fact, this parameter is only visible for this type of device for commanding CCD LEDs). The **"Drive current"** parameter is used to select the drive current for channel X. The values that can be set are:

- ***from 300mA to 700mA in steps of 50mA (default value 350mA)***

5.1.2 Maximum dimming threshold

For each general x channel, the brightness regulation is limited by two threshold values that can be set via the **Maximum dimming threshold** and **Minimum dimming threshold** parameters. The **Maximum dimming threshold** parameter can have the values:

- ***from 55% to 100% in steps of 5% - (default value 100%)***

5.1.3 Minimum dimming threshold

For each general x channel, the brightness regulation is limited by two threshold values that can be set via the **Maximum dimming threshold** and **Minimum dimming threshold** parameters. The **Minimum dimming threshold** parameter can have the values:

- ***from 0% to 50% in steps of 5% - (default value 0%)***

5.1.4 Brightness reaching for on/off, stairs light, forcing and block commands

The brightness value determined by activating/deactivating the on/off switching, stairs light, forcing and block of channel x functions can be reached via a ramp or by jumping to the value. This behaviour is determined by the **"Brightness reaching for on/off, stairs light, forcing and block commands"** parameter, which can have the values:

- ***with jump to value (default value)***
  The LEDs reach the required brightness value directly, although the dimmer manages a "soft start".
- ***with ramp***
  The LEDs reach the required brightness value along a ramp. In this case, the regulation speed can be set via the **Ramp regulation speed 0-255** parameter.

5.1.5 Ramp regulation speed 0-255

If you set Brightness reaching with on/off commands, timed switching, priority commands, block via a ramp, this parameter allows you to set the duration of the brightness regulation from 0 (0%) to 255 (100%) for the following functions: on/off switching, stairs light, forcing and block of RGBW channel. The possible values are:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***
- ***1 minute***
- ***2 minutes***
- ***5 minutes***
- ***10 minutes***

5.1.6 Channel status at BUS voltage recovery

In the case of BUS voltage failure, the dimmer maintains the output status.
It is possible to set the status of channel X following BUS voltage recovery using the **"Channel status at bus voltage recovery"** parameter, which can have the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"** displays the **"Channel brightness at bus voltage recovery"** parameter, via which you can set the required brightness values for channel X.
- ***minimum dimming threshold value***
  When the BUS voltage is reset, channel X restores the minimum dimming threshold value for the outputs.
- ***maximum dimming threshold value***
  When the BUS voltage is reset, channel X restores the maximum dimming threshold value for the outputs.
- ***as before voltage drop - (default value)***
  When the BUS voltage is reset, channel X restores the outputs to the value in place prior to the voltage drop.

5.1.7 Channel brightness at bus voltage recovery

Setting the "**Channel status at bus voltage recovery**" parameter at "**Sets fixed value**" displays these parameters, via which you can specify the required brightness on output channel X when the BUS voltage is restored after a drop. The values that can be set for these parameters are:

- ***from 0% (default value) to 100%, in steps of 5%***

5.1.8 Channel status at auxiliary voltage recovery

With an auxiliary voltage failure, channel X will switch to the OFF status (brightness value 0).
The behaviour of channel X when the auxiliary voltage is reset (if BUS voltage was present at the time of the drop) is determined by the **"Channel status at auxiliary voltage recovery"** parameter, which may assume the following values:

- ***sets fixed value***
  Selecting "**sets fixed value"**displays the **"Red channel brightness on auxiliary voltage recovery"**, **"Green channel brightness on auxiliary voltage recovery"** and **"Blue channel brightness on auxiliary voltage recovery"** parameters, via which you can set the required brightness values for each colour.
- ***minimum dimming threshold value***
  When the auxiliary voltage is reset, channel X restores the minimum dimming threshold value for the outputs.
- ***maximum dimming threshold value***
  When the auxiliary voltage is reset, channel X restores the maximum dimming threshold value for the outputs.
- ***as before voltage drop***
  In this case, channel X returns to the same conditions that were present at the time of the voltage drop, ignoring all the commands received while there was no network voltage.
- ***follows last command received - (default value)***
  If the value **"follows last command received"** is selected, channel X continues processing the commands while the auxiliary voltage is absent, as if the network were present, respecting the relative priorities. When the auxiliary voltage is reset, channel X takes the value determined by the last command received and applies it to the output.

5.1.9 Channel brightness at auxiliary voltage recovery

Setting the "**Channel status at auxiliary voltage recovery**" parameter at "**Sets fixed value"**, channel X brings the output to the status set by the parameters, maintaining any other pre-existing condition (block, forcing). The above cited parameter may assume the following values:

- ***from 0% (default value) to 100%, in steps of 5%***

The behaviour when the auxiliary voltage is reset is not respected if the power supply failed while an overheating alarm was in progress (e.g. if the user has disconnected the power supply in order to speed up the cooling process).

5.1.10 Local push-button behaviour

The device has 4 local push-buttons (one per channel); it is possible to define the function of the local push-button associated with channel X via the **"Local push-button behaviour"** parameter, which can have the following values:

- ***No effect***
  The push-button is disabled
- ***test on/off***
  Each time the push-button is pressed, channel X will switch the associated colour between the ON value (255 brightness) and the OFF value (0 brightness), jumping to the value (soft start). This

command has top priority and is executed regardless of the value of the communication objects (including the objects “Priority command” and “Block”).

- ***single push-button dimmer test - (default value)***
  In this case, the front push-button acts like a single push-button that, when pressed briefly (0.5 sec), turns on (ON 100%) the output associated with channel x (if it is OFF), and turns it off (OFF) if it is ON (brightness value >0). if pressed for longer, it alternates the brightness increase and decrease commands (between 0% and 100%) and stops the regulation when released. The dimming speed is fixed at 5 seconds. This command has top priority and is executed whatever the value of the communication objects (including the objects “Ch.x - Priority command” and “Ch.x - Block”).

Unless it is set at **no effect**, the local push-button controls the output connected to channel x, regardless of the device functions that are active at that moment but without changing the activation status of those functions. This means that if the block/forcing functions were active before the local push-button was pressed, they will continue to be active even if the brightness value is changed on the basis of how the front push-button is pressed.
In the specific case of receiving block/forcing activation commands while the brightness is being regulated by means of a long operation of the front button key (only if **single push-button dimmer test**), the associated functions are still activated but the output is always managed by the relative dimming due to the local push-button.

6 *"RGB switching (Channel X switching)"* menu

Each channel can be switched on/off via the relative ***Ch. x - Switching*** communication object (Data Point Type: 1.001 DPT_Switch) if the load is monochrome LED; if the load is RGB, the on/off switching of each colour takes place via the ***RGB - Red switching***, ***RGB - Green switching*** and ***RGB - Blue switching*** (Data Point Type: 1.001 DPT_Switch) objects. The communication objects are always visible.

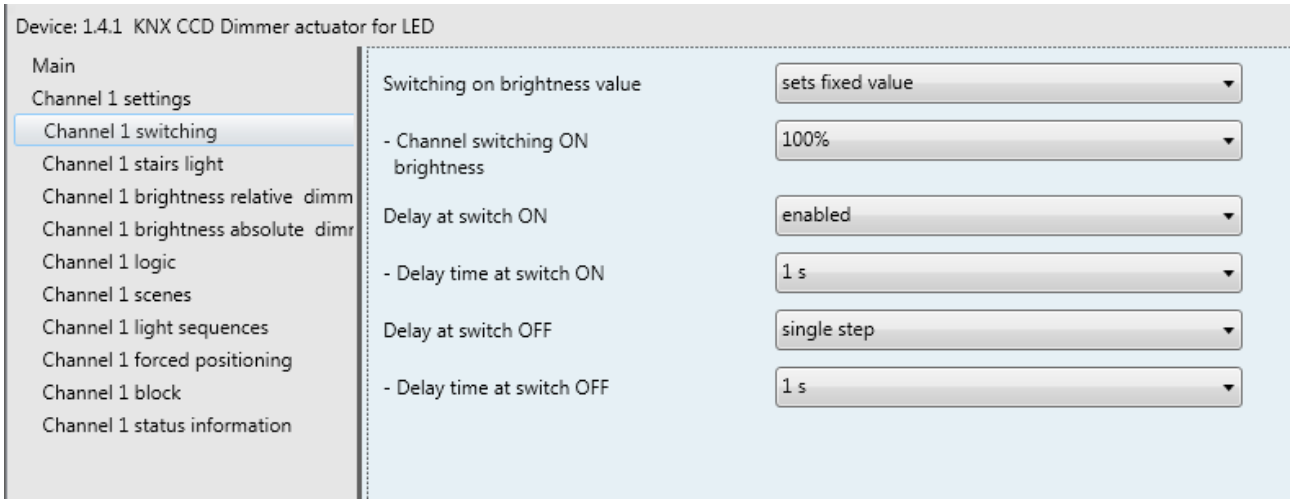


Fig. 6.1: "Channel X switching" menu

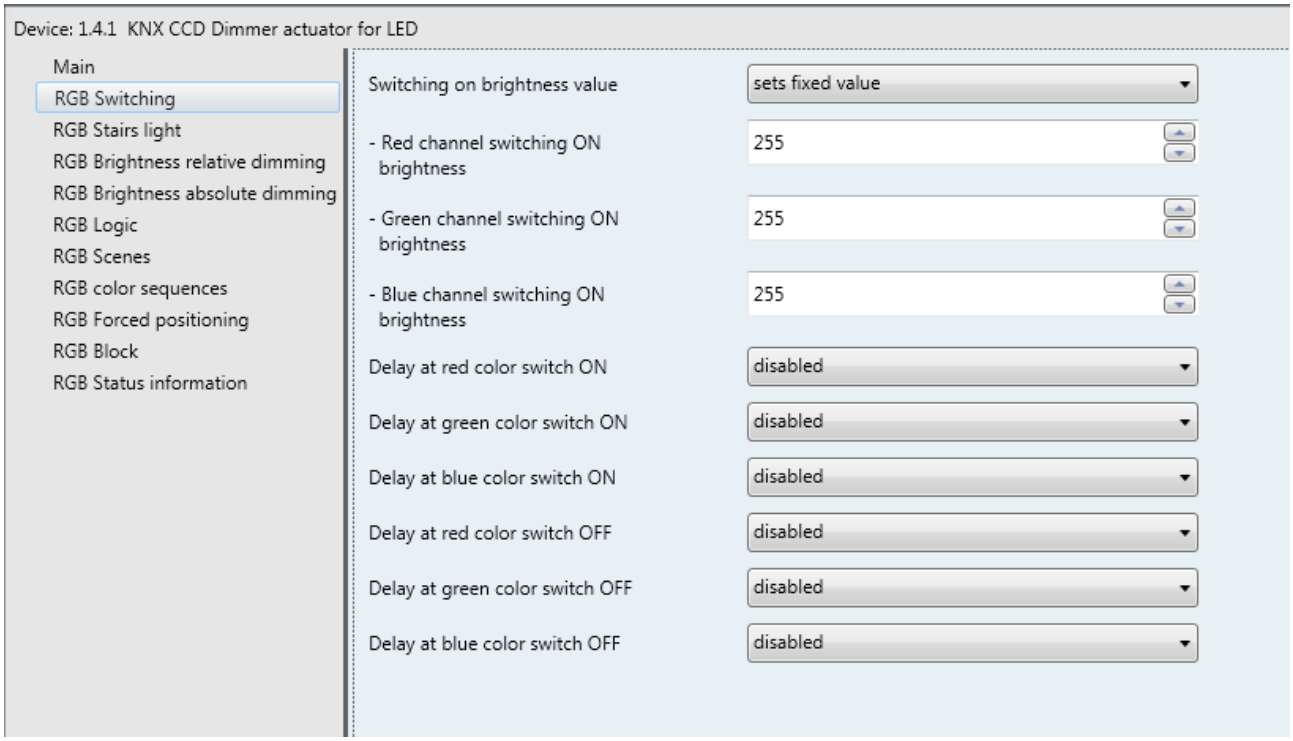


Fig. 6.2: "RGB switching" menu

6.1 Parameters

6.1.1 Switching ON brightness value

When the ON value (1) is received, the dimmer brings the RGB channel to the brightness value set via the **"Switching on brightness value**" parameter, which may assume the following values:

- ***last value when ON (memory) - (default value)***
  (NOTE: in this case, the memory function is active)
- ***maximum dimming threshold value***
- ***sets fixed value***

Selecting **sets fixed value** displays the **"Channel X switching ON brightness"** (if the load is monochrome) or the **"Red channel switching ON brightness"**, **"Green channel switching ON brightness" and "Blue channel switching ON brightness"** parameters for RGBW or RGB loads.

When switched on for the first time, the last ON status value may not be known: the value is initialised with the value "maximum dimming threshold". The last switching on value to use is always the last brightness value of the channel based on any command, before being switched off. In the case of a BUS voltage failure, the value is saved in the non-volatile memory.
When the OFF value (0) is received, the channel always switches to a brightness value of 0 (0%).

The brightness value can be reached in the ON status and the OFF status 0 (0%) via a ramp or by jumping to the value. This behaviour is determined by the **Brightness reaching for on/off, timed switching, priority commands, block, sequences** parameter of the **Main** menu (see par. 3.1.9) if the load type is RGBW, by the **"Brightness reaching with on/off, timed switching, priority commands, block"** parameter of the **Channel X settings** menu (see par. 5.1.4) if the load type is monochrome, or by the **"Brightness reaching with on/off, timed switching, priority commands, block"** parameter of the **Channel X settings** menu (see par. 4.1.4) if the load type is RGB.

6.1.2 Channel X switching ON brightness

In the case of a monochrome LED, this parameter specifies the required brightness for ON switching, indicating a fixed value that may be:

- ***from 5% to 100% (default value) in steps of 5%***

6.1.3 Red/green/blue channel switching ON brightness

In the case of an RGB or RGBW LED, this parameter specifies the required brightness for ON switching of the various colours, indicating a fixed value that may be:

- ***from 1 to 255 (default value) in steps of 1***

6.1.4 Delay at red/green/blue colour switch ON

You can set an activation (ON) delay time via the **"Delay at switch ON"** parameter if the load is monochrome, or via the **"Delay at red colour switch ON"**, **"Delay at green colour switch ON"** and **"Delay at blue colour switch ON"** parameters if the load is RGBW or RGB. These parameters can assume the following values:

- ***disabled - (default value)***
- ***enabled***

If they are enabled, the jump to "Switching on brightness value" or the start of the regulation ramp (when the ON command is received) is delayed by the value defined via the **"Delay time at switch ON"** parameter if the load is monochrome, or via the **"Delay time at red colour switch ON"**, **"Delay time at green colour switch ON"** and **"Delay time at blue colour switch ON"** parameters if the load is RGBW or RGB.

6.1.5 Delay time at red/green/blue colour switch ON

With these parameters you can specify the required activation (ON) delay. The parameters can assume the following values:

- ***1 s - (default value)***
- ***2 s***
- ***3 s***
- ***5 s***
- ***10 s***
- ***15 s***
- ***20 s***
- ***30 s***
- ***45 s***
- ***1 min***
- ***1 min 15 s***
- ***1 min 30 s***
- ***2 min***
- ***2 min 30 s***
- ***3 min***
- ***5 min***
- ***15 min***
- ***20 min***
- ***30 min***
- ***1h***
- ***2h***
- ***3h***
- ***5h***
- ***12h***
- ***24h***

The switching on delay cannot be reset. Fig. 6.3 shows the regulation trend:

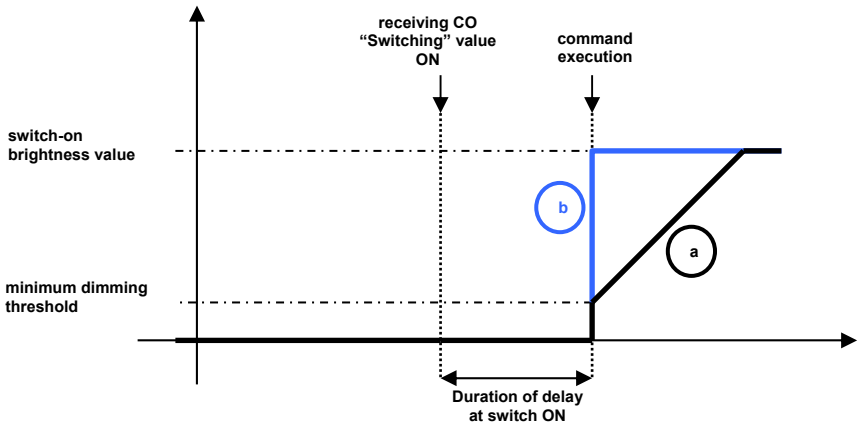


Fig. 6.3: Reaching the brightness value in the case of ON switching, with a delay or a jump to the value or a ramp

6.1.6 Delay at red/green/blue colour switch OFF

You can set an activation (ON) delay time via the **"Delay at switch OFF"** parameter if the load is monochrome, or via the **"Delay at red colour switch OFF"**, **"Delay at green colour switch OFF"** and **"Delay at blue colour switch OFF"** parameters if the load is RGBW or RGB. These parameters can assume the following values:

- ***disabled - (default value)***
- ***single step***
  If **single step** is selected, the jump to the value 0% or the start of the descent ramp (when the OFF command is received) is delayed by the value defined via the **"Delay time at switch OFF"** parameter if the load is monochrome, or via the **"Delay time at red colour switch OFF"**, **"Delay time at green colour switch OFF"** and **"Delay time at blue colour switch OFF"** parameters if the load is RGBW or RGB.

  Fig. 6.4 shows an example:

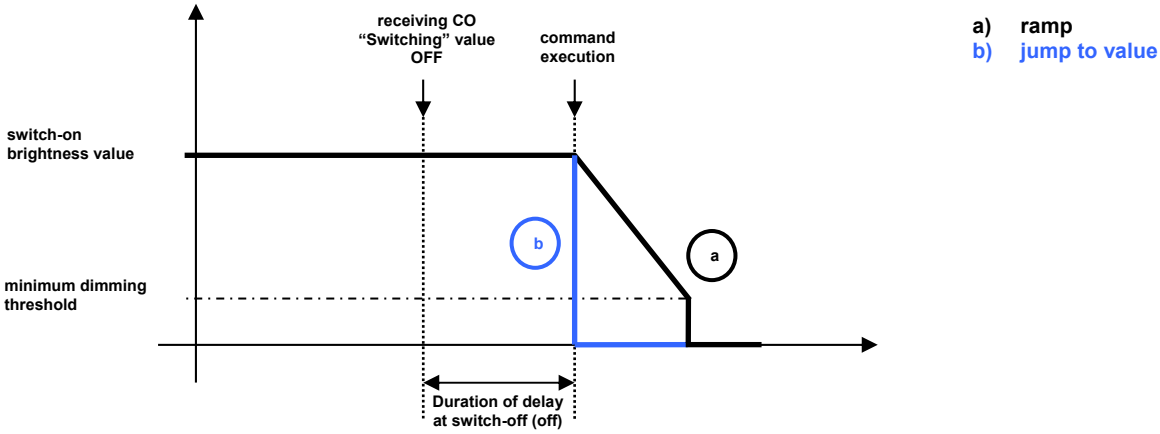
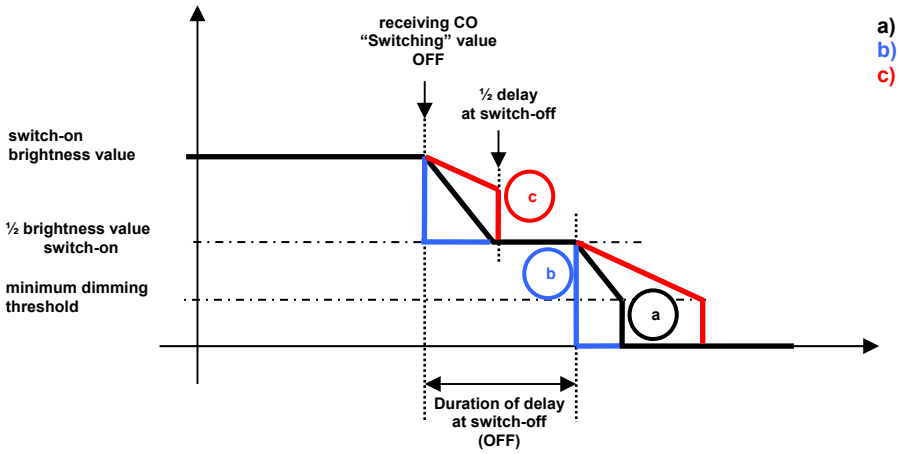


Fig. 6.4: Reaching the brightness value in the case of OFF switching, with a delay or a jump to the value or a ramp

- ***double step***
  If **double step** is selected, the channel/colour switch-off is sub-divided into two phases. The jump to the value 0% (0) or the start of the descent ramp (when the OFF command is received) is delayed by 50% of the value defined via the **"Delay time at switch OFF"** parameter if the load is monochrome, or via the **"Delay time at red colour switch OFF"**, **"Delay time at green colour switch OFF"** and **"Delay time at blue colour switch OFF"** parameters if the load is RGBW or RGB. The brightness value is taken (jump or ramp) to 50% (128) of the "Switching ON brightness value" and maintained for the remaining 50% of the time. When the delay has expired, the brightness value is taken to 0% (0) (jump or ramp).

  Fig. 6.5 shows an example:



a) ramp
b) jump to value
c) ramp (with dimming speed from "switch-on value" to "½ the switch-on value" greater than "½ duration of delay at switch-off")

Fig. 6.5: Reaching the brightness value in the case of OFF switching with a double step, a delay, a jump to the value or a ramp

6.1.7 Delay time at red/green/blue colour switch OFF

With these parameters you can specify the required deactivation (OFF) delay. The parameters can assume the following values:

- ***1 s - (default value)***
- ***2 s***
- ***3 s***
- ***5 s***
- ***10 s***
- ***15 s***
- ***20 s***
- ***30 s***
- ***45 s***
- ***1 min***
- ***1 min 15 s***
- ***1 min 30 s***
- ***2 min***
- ***2 min 30 s***
- ***3 min***
- ***5 min***
- ***15 min***
- ***20 min***
- ***30 min***
- ***1h***
- ***2h***
- ***3h***
- ***5h***
- ***12h***
- ***24h***

Delay at switch off cannot be reset.

7 *“RGB stairs light (Channel X stairs light)”* menu

It is possible to enable the timed switching function (stair light) that automatically switches off the device channels within a set time after receiving the ***RGB - Timed switching*** (Data Point Type: 1.010 DPT_Start) communication object if the load is RGBW or RGB, or the ***Ch. x - Timed switching*** object if the load is monochrome.
The **Channel x stairs light** menu is visible if the load type is monochrome; the **RGB stairs light** menu is visible if the load type is RGBW or RGB.
This function has the same priority as On/Off switching; this means that, for each channel, when one of the two functions is activated while the other is already active, it is executed, ending the one that was previously active. In particular, an on/off switching command on a specific channel terminates the stairs light function for that channel, but not for the others. In the case of an RGBW or RGB load, an on/off switching command on a specific colour terminates the stairs light function for that colour, and also for the others.
Depending on the type of load, the structure of the menu is as follows:

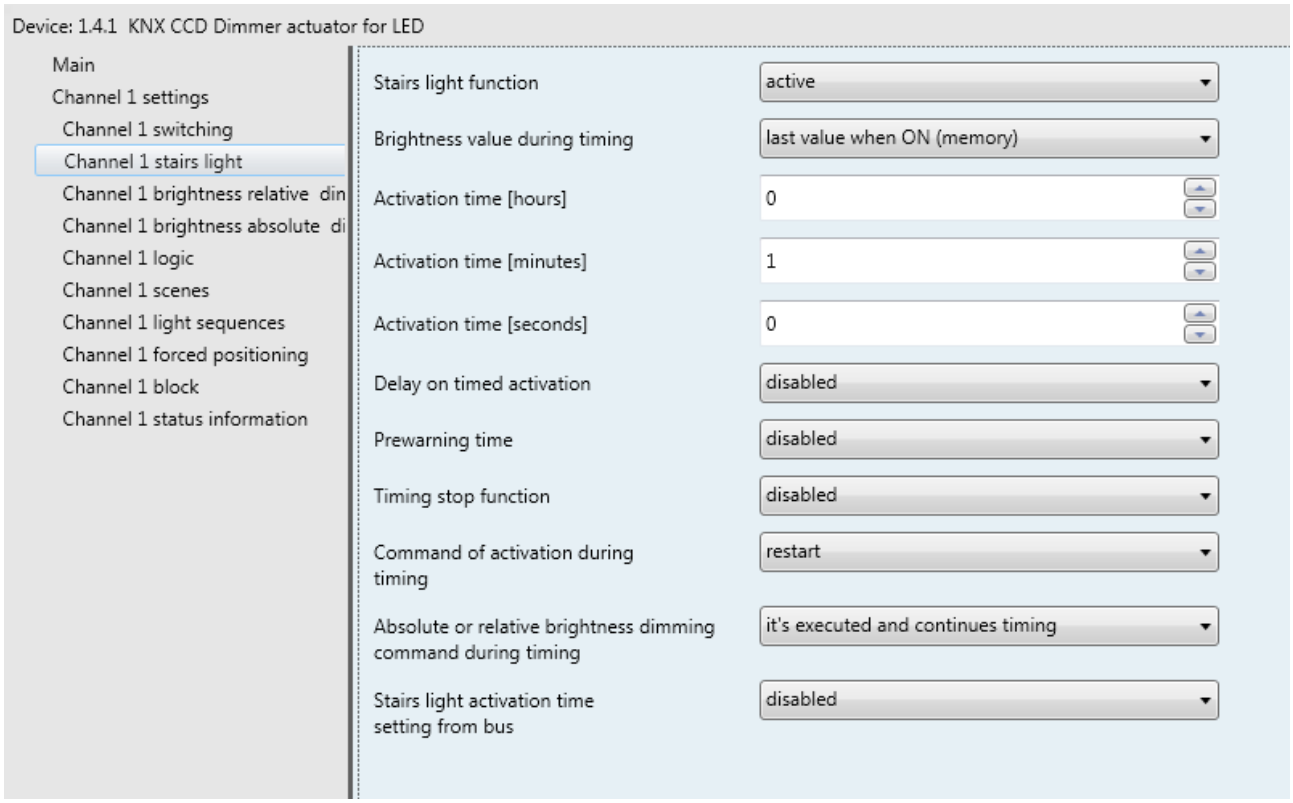


Fig. 7.1: “Channel x stairs light” menu

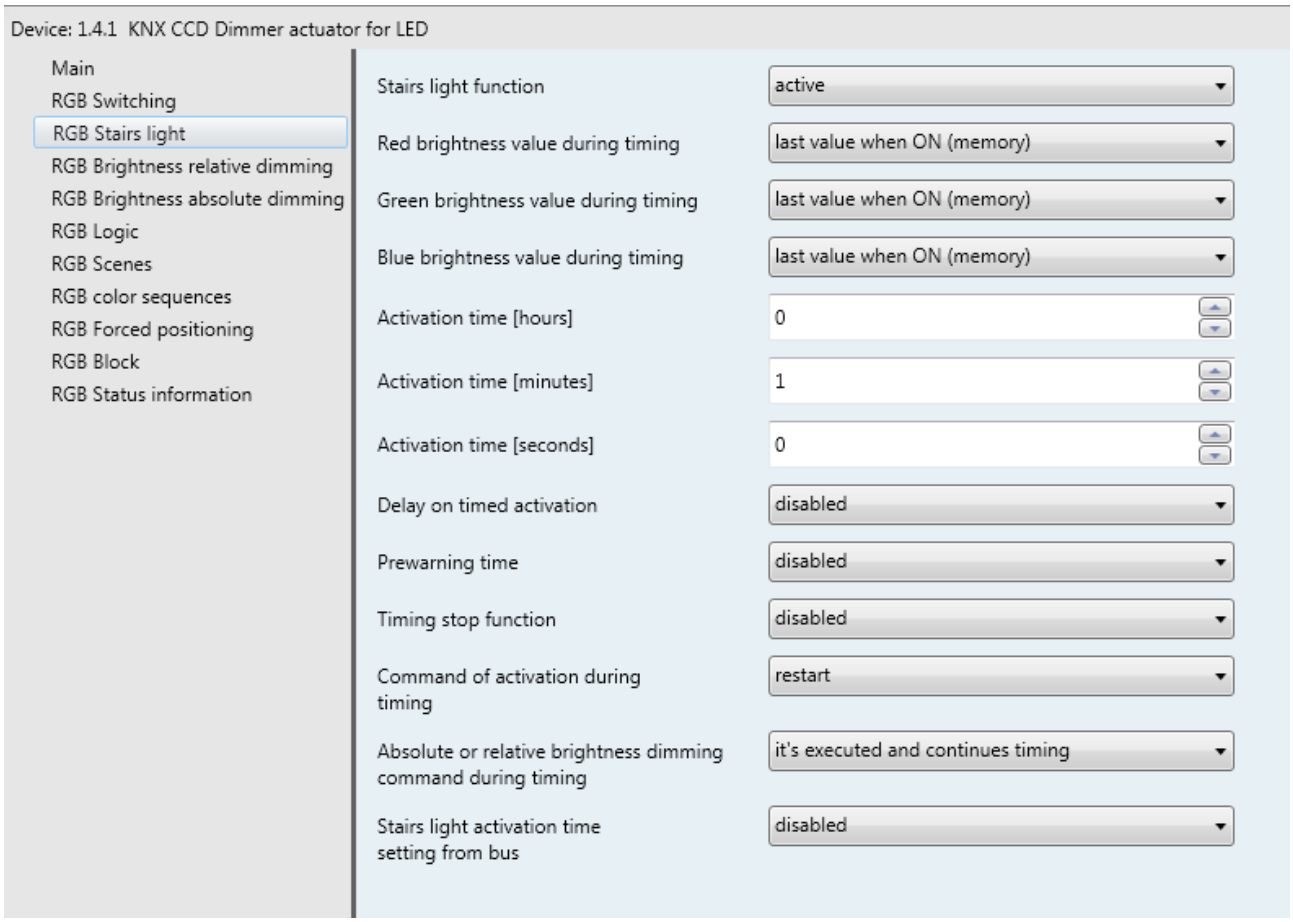


Fig. 7.2: “RGB stairs light” menu

7.1 Parameters

7.1.1 Stairs light function

The **“Stairs light function”** parameter is used to activate the function and allow the operating parameters and communication objects to be made visible and configurable. The values that can be set are:

- ***disabled - (default value)***
- ***active 1***

Selecting the value **active** displays the parameters and objects relative to that function.

7.1.2 Red/green/blue brightness value during timing

If the load type is RGBW or RGB, the **“Red brightness value during timing”**, **“Green brightness value during timing”** and **“Blue brightness value during timing”** parameters can be used to set the absolute brightness value that the colours must assume while the timing function is active.
The possible values are:

- ***last value when ON (memory) - (default value)***
- ***Maximum dimming threshold***
- ***sets fixed value***

Selecting **sets fixed value** displays the **“Red brightness during timing”**, **“Green brightness during timing”** and **“Blue brightness during timing”** parameters.

7.1.3 Red/green/blue brightness during timing

Used to set the brightness value of the various colours during the timing. The possible values for these parameters are:

- ***from 1 to 255 (default value) in steps of 1***

When switched on for the first time, the last ON status value may not be known: the value is initialised with the value “maximum dimming threshold”. The last value to use is always the last brightness value of the colour based on any command, before being switched off. In the case of a BUS voltage failure, the value is saved in the non-volatile memory.

7.1.4 Brightness value during timing

If the load type is monochrome, the **“Brightness value during timing”** parameter is used to set the absolute brightness value that channel X should assume while the timing function is active.
The possible values are:

- ***last value when ON (memory) - (default value)***
- ***Maximum dimming threshold***
- ***sets fixed value***

Selecting **sets fixed value** displays the **“Brightness value during timing”** parameter.

7.1.5 Brightness value during timing

Used to set the brightness value of channel X during the timing. The values that can be set are:

- ***from 5% to 100% (default value) in steps of 5%***

When switched on for the first time, the last ON status value may not be known: the value is initialised with the value “maximum dimming threshold”. The last value to use is always the last brightness value of the colour based on any command, before being switched off. In the case of a BUS voltage failure, the value is saved in the non-volatile memory.

7.1.6 Activation time [hours]

The **“Activation time [hours]”** parameter is used to define the number of hours for stairs light activation. The values that can be set are:

- ***from 0 (default value) to 23, in steps of 1***

7.1.7 Activation time [minutes]

The **“Activation time [minutes]”** parameter is used to define the number of minutes for stairs light activation. The values that can be set are:

- ***from 0 to 59 in steps of 1 - (default value 1)***

7.1.8 Activation time [seconds]

The **“Activation time [seconds]”** parameter is used to define the number of minutes for stairs light activation. The values that can be set are:

- ***from 0 (default value) to 59, in steps of 1***

If the set activation time is 0 hours 0 minutes and 0 seconds, the value is reset to 0 hours 0 minutes and 1 second.

7.1.9 Delay at timed activation

The **"Delay on timed activation"** parameter is used to define a delay between the moment when the ***RGB - Timed switching*** or ***Ch. x - Timed switching*** communication object is received and the moment when the command is actually executed (i.e. the moment when the jump or regulation ramp starts). The possible values are:

- ***disabled - (default value)***
- ***enabled***

Selecting the value **enabled** displays the **"Delay time on timed activation"** parameter, which is used to set the value of the delay.

7.1.10 Delay time on timed activation

Used to set the value of the delay, in seconds. The possible values are:

- ***1 s - (default value)***
- ***2 s***
- ***3 s***
- ***5 s***
- ***10 s***
- ***15 s***
- ***20 s***
- ***30 s***
- ***45 s***
- ***1 min***
- ***1 min 15 s***
- ***1 min 30 s***
- ***2 min***
- ***2 min 30 s***
- ***3 min***
- ***5 min***
- ***15 min***
- ***20 min***
- ***30 min***
- ***1h***
- ***2h***
- ***3h***
- ***5h***
- ***12h***
- ***24h***

The activation delay cannot be reset.

Example of control with jump to value:

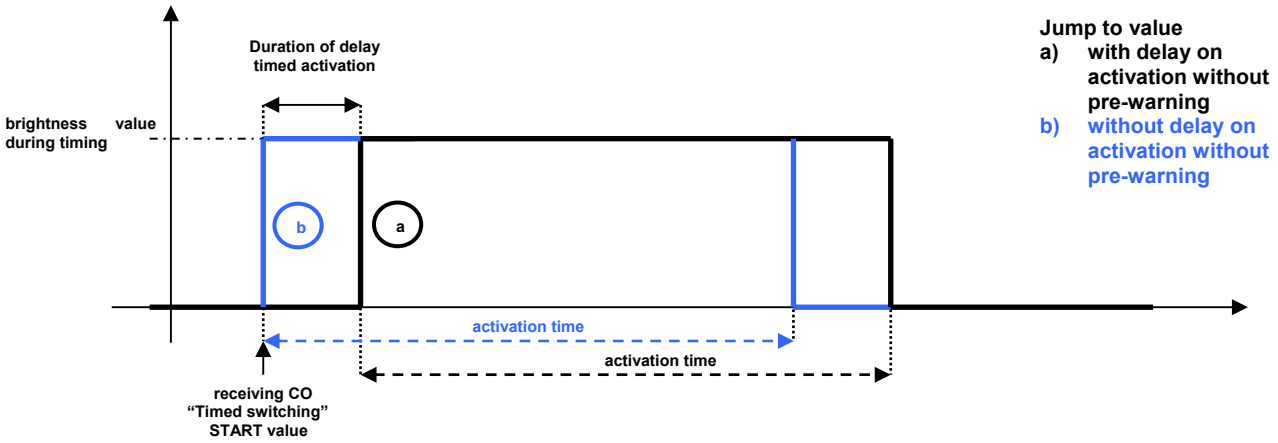


Fig. 7.3: Delay on timed activation when the "Timed switching" (= Start with jump to value) object is received

Example of control with ramp:

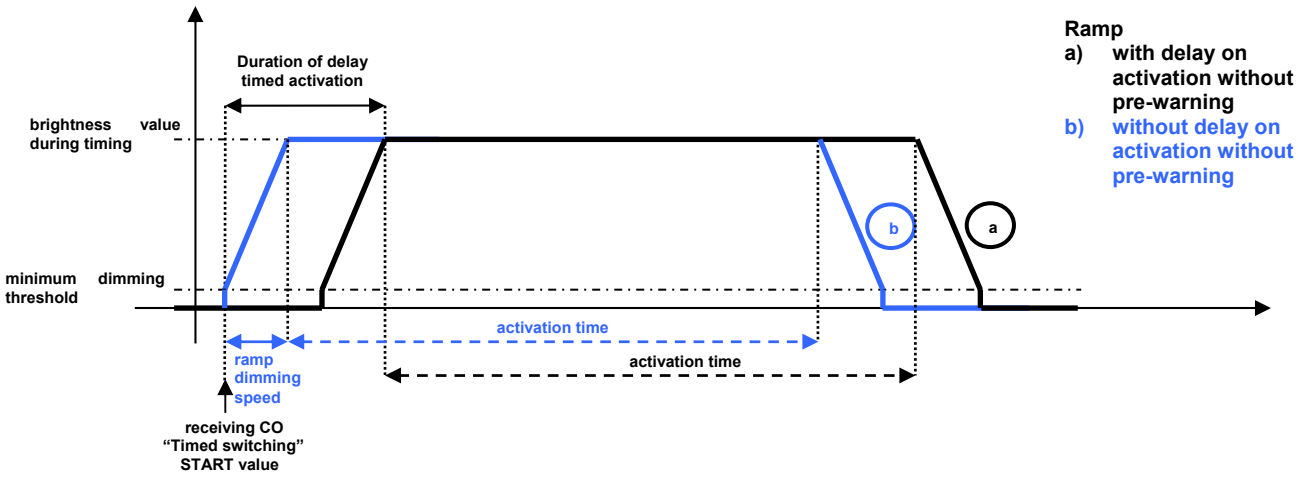


Fig. 7.4: Delay on timed activation when the "Timed switching" (= Start with ramp) object is received

7.1.11 Pre-warning time

The **Pre-warning time** parameter enables a signal that the channels/colours will soon be switched off. It does this by automatically reducing the brightness with a regulation ramp between the switch-on brightness value and the minimum regulation threshold, for the period of time defined in this parameter. The parameter may assume the following values:

- ***no pre-warning - (default value)***
- ***15 s***
- ***30 s***
- ***1 min.***

Figs. 7.5 and 7.6 show examples of how the pre-warning time works

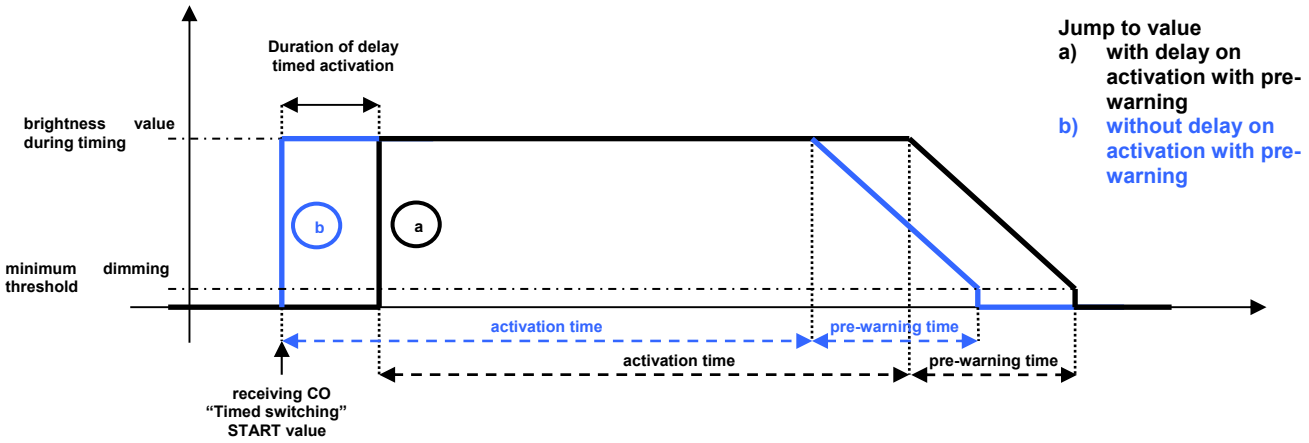


Fig. 7.5: Jump to value with or without delay on activation with pre-warning

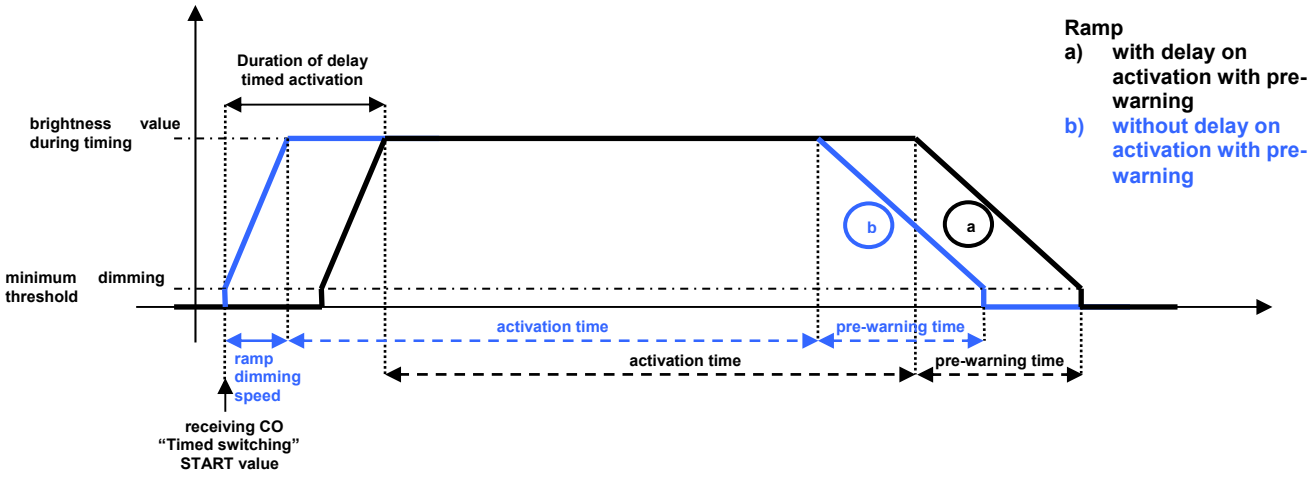


Fig. 7.6: Ramp with or without delay on activation with pre-warning

7.1.12 Timing stop

The **"Timing stop function"** parameter enables the possibility to end timed activation by receiving the value "0" on the ***RGB - Timed switching*** or ***Ch. x - Timed switching*** communication object. / The possible values are:

- ***disabled - (default value)***
- ***enabled***

Selecting **enabled**, the channel/colour terminates the timing when the value "0" is received (without implementing any pre-warning), and deactivates the channel/load according to the setting of the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter of the **Main** menu if the load type is RGBW, the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel X settings** menu if the load type is monochrome, or the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel X settings** menu if the load type is RGB.

7.1.13 Activation command during timing

The **"Command of activation during timing"** parameter is used to define the behaviour of the device if a timed activation command is received while timing is already in progress. The possible values are:

- ***no effect***
- ***restart - (default value)***
- ***extend (multiply by factor)***

Selecting **extend (*multiply by factor)*** displays the **"Multiplicative factor maximum value"** parameter, which is used to set the maximum number of consecutive activation time extensions.

7.1.14 Multiplicative factor maximum value

Used to set the maximum number of consecutive activation time extensions. It may assume one of the following values:

- ***from 2 to 5 (default value) in steps of 1***

7.1.15 Brightness absolute or relative dimming command during timing

The **"Absolute or relative brightness dimming command during timing"** parameter is used to define the behaviour of the channel/colour if a brightness absolute regulation command and/or a brightness relative regulation command is received for channel X or for any colour affected by the timing while timing is already in progress (including commands received via ***RGB components - Value command***, ***RGB - General brilliancy regulation***, ***RGB - General brightness regulation***, ***RGB - General brilliancy value command*** and ***RGB - General brightness value command***).
The possible values are:

- ***it's executed and cancels timing***
  The command received is executed and the active timing of channel X or the RGB channel (all colours) is ended (including that of the other colours).
- ***it's executed and continues timing - (default value)***
  Sets both the execution of the command and the continuation of active timing, without any reset or extension of the activation time. In this case, only the brightness value of channel X/the colour is changed during timing.

7.1.16 Stairs light activation time setting by BUS

If the **"Stairs light activation time setting from bus"** parameter is enabled, it displays the ***RGB - Stairs light activation time*** (Data Point Type: 7.005 DPT_TimePeriodSec) input communication object if the load is RGBW or RGB, or the ***Ch. x - Stairs light activation time*** (Data Point Type: 7.005 DPT_TimePeriodSec) communication object if the load is monochrome. The object can be used to receive the stairs light function activation time via the BUS. The possible values are:

- ***disabled - (default value)***
- ***enabled***

8 *“RGB brightness relative dimming (Channel X brightness relative dimming)”* menu

The relative dimming of the brightness of each channel is performed via the ***Ch. x - Brightness dimming*** (Data Point Type: 3.007 DPT_Control_Dimming) communication object if the load is monochrome. If the load is RGBW or RGB, the relative brightness dimming of each colour takes place via the ***RGB - Red brightness dimming***, ***RGB - Green brightness dimming*** and ***RGB - Blue brightness dimming*** (Data Point Type: 3.007 DPT _Control_Dimming) objects.
These objects allow you to increase or decrease the brightness of the channel/colour according to the step value and the direction coded in the command. Receiving a brightness dimming stop command during the dimming process immediately stops the dimming and maintains the brightness value that was reached. The communication objects are always visible.
The structure of the menu is as follows:

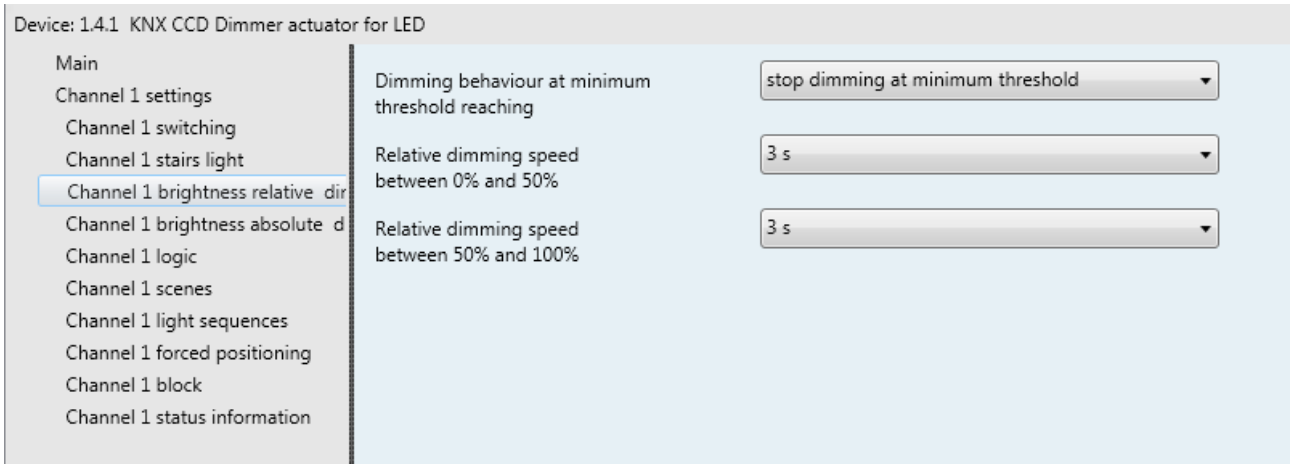


Fig. 8.1: “Channel X brightness relative dimming” menu

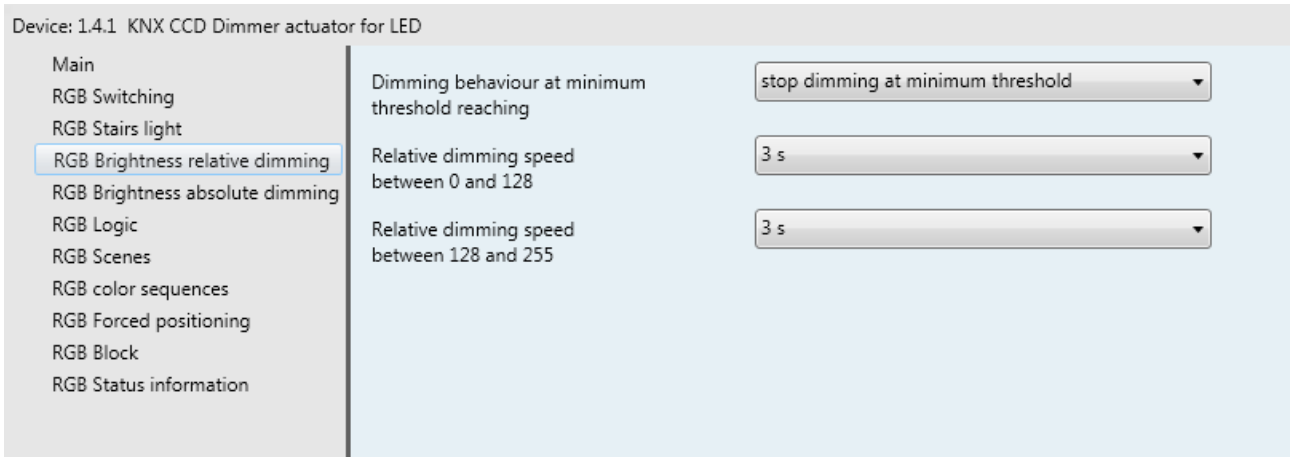


Fig. 8.2: “RGB brightness relative dimming” menu

The brightness dimming is limited by two threshold values that can be set via the **“Maximum dimming threshold”** and **“Minimum dimming threshold”** parameters of the **Main** menu if the load type is RGBW, via the **“Maximum dimming threshold”** and **“Minimum dimming threshold”** parameters of the **Channel X settings** menu if the load type is monochrome, or via the **“Maximum dimming threshold”** and **“Minimum dimming threshold”** parameters of the **RGB channel settings** menu if the load type is RGB.

The adjustment process is normally limited to the set threshold values: this means that if the calculated increasing dimming value exceeds the maximum dimming threshold value, the dimming is stopped and the final brightness value that is set will be the value of the maximum dimming threshold. Similarly, if the calculated decreasing dimming value is lower than the minimum dimming threshold value, the dimming is stopped and the final brightness value that is set will be the value of the minimum dimming threshold. This behaviour can be changed via the **"Dimming behaviour at minimum threshold reaching"** parameter.

8.1 Parameters

8.1.1 Dimming behaviour at minimum threshold reaching

The dimming behaviour when the minimum threshold is reached may vary in relation to the above indications for this parameter. The values that can be set are:

- ***switch-off consent (0%)***
  When the minimum threshold is reached, the actuator switches OFF.
- ***stop dimming at minimum threshold - (default value)***
  When the minimum threshold is reached, it stops at the pre-fixed value (specified in the "Minimum dimming threshold" parameter).

In the case of an RGBW or RGB load, the set behaviour is the same for all the colours.

8.1.2 Relative dimming speed between 0 and 50% and between 50% and 100% - Relative dimming speed between 0 and 128 and between 128 and 255

The dimming speed is determined by 2 time values that define the time interval for switching from 0% to 50% and for switching from 50% to 100%. The two values are defined via the **"Relative dimming speed between 0% and 50%"** and **"Relative dimming speed between 50% and 100%"** parameters if the load is a monochrome LED, or via the **"Relative dimming speed between 0 and 128"** and **"Relative dimming speed between 128 and 255"** parameters if the load is RGBW or RGB. The parameters can assume the following values:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***

Fig. 8.2 shows some examples of brightness regulation according to the minimum threshold set and the relative regulation speed.

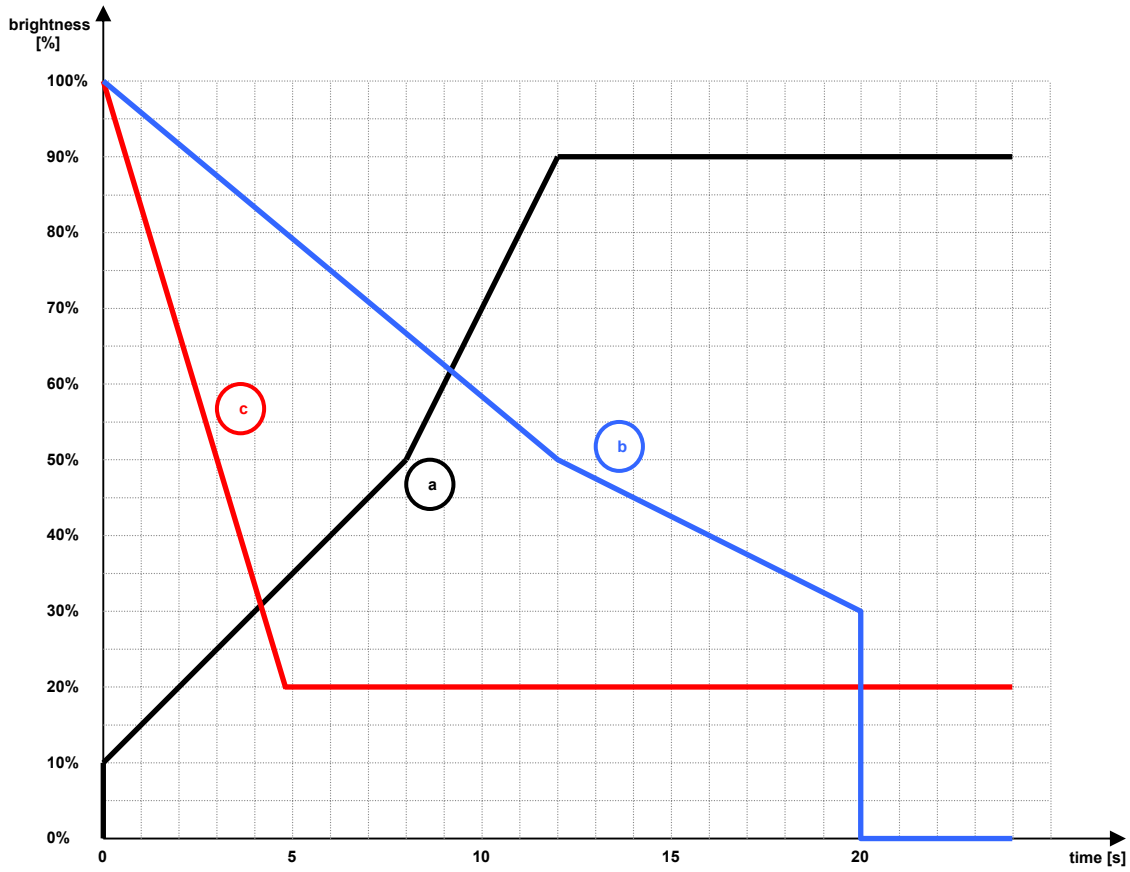


Fig. 8.2: Examples of brightness control according to the minimum threshold and the regulation speed

a) The black line in fig.8.2 shows the behaviour of the device when an “increase to 100%” command is received via the *Ch. x - Brightness dimming* object, with initial brightness 0% (off) and with the following settings: **Minimum dimming threshold → 10%,** , **Relative dimming speed between 0% and 50% → 10 s**, **Relative dimming speed between 55% and 100% → 5 s** and **Maximum dimming threshold → 90%**.
Reaching the minimum threshold starting from brightness value of 0% is always implemented with jump to value.

b) The blue line in fig.8.2 shows the behaviour of the device when a “decrease by 100%” command is received via the *Ch. x - Brightness dimming* object, with initial brightness 100% and with the following settings: **Minimum dimming threshold → 30%, Relative dimming speed between 0% and 50% → 20 s**, **Relative dimming speed between 55% and 100% → 12 s** and **Dimming behaviour at minimum threshold reaching → switching off consents (0%)**.
Reaching the value of 0% once the minimum threshold is reached is always implemented with jump to value.

c) The red line in fig.8.2 shows the behaviour of the device when a “decrease by 100%” command is received via the *Ch. x - Brightness dimming* object, with initial brightness 100% and with the following settings: **Minimum dimming threshold → 20%, Relative dimming speed between 0% and 50% → 3 s**, **Relative dimming speed between 55% and 100% → 3 s** and **Dimming behaviour at minimum threshold reaching → stop dimming at minimum threshold.**

In the case of an RGBW or RGB load, the set speeds are the same for all the colours.
Reaching the minimum threshold starting from brightness value of 0% is always implemented with a jump.

9 *"RGB brightness absolute dimming (Channel X brightness absolute dimming)"* menu

It is possible to set an absolute brightness value for each channel via the ***Ch. x - Value command*** (Data Point Type: 5.001 DPT_Scaling) communication object if the load is monochrome LED. If the load is RGBW or RGB, the absolute brightness dimming of each colour takes place via the ***RGB - Red command value***, ***RGB - Green command value*** and ***RGB - Blue command value*** (Data Point Type: 5.001 DPT_Scaling) objects. The communication objects are always visible.

The structure of the menu is as follows:

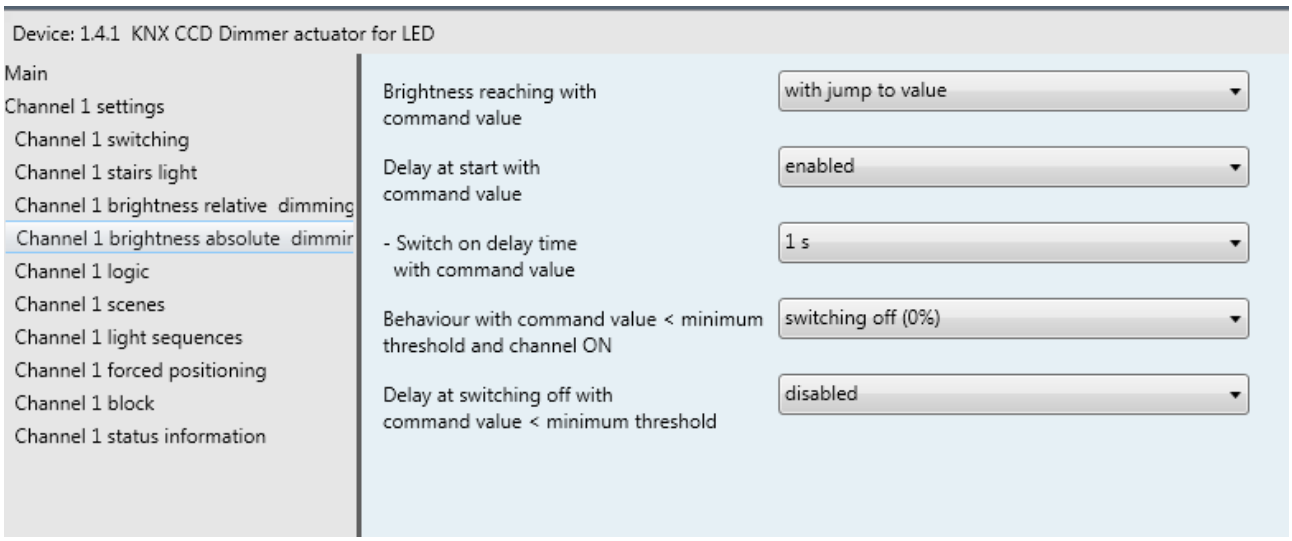


Fig. 9.1: "Absolute channel X brightness dimming" menu

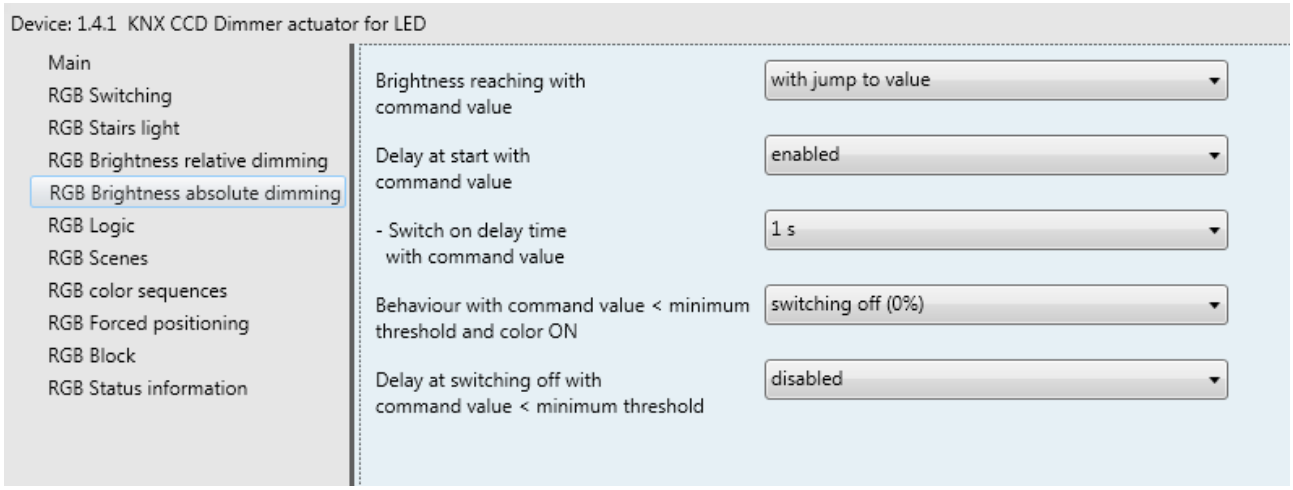


Fig. 9.2: "RGB brightness absolute dimming" menu

Starting from the OFF condition, if the brightness value received is lower than the minimum dimming threshold value, the brightness value to be set corresponds to the minimum dimming threshold value.
If the brightness value received with the command is higher than the maximum dimming threshold value, the brightness value to set corresponds to the maximum dimming threshold value.

9.1 Parameters

9.1.1 Brightness reaching with value command

Reaching the brightness value received can be implemented with jump to value or with a ramp. This behaviour is determined by the **"Brightness reaching with command value"** parameter, which can have the following values:

- ***with jump to value - (default value)***
  The dimmer manages a "soft start".
- ***with ramp***
  The **"Ramp dimming speed 0% - 100% for value command"** parameter is visible if the load type is monochrome LED. The **"Ramp dimming speed 0 - 255 for value command"** parameter is visible if the load type is RGBW or RGB.

9.1.2 Ramp dimming speed 0% - 100% / 0 - 255 for value command

This determines the ramp dimming speed in the case of a value command. This parameter may have the values:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***
- ***1 minute***
- ***2 minutes***
- ***5 minutes***
- ***10 minutes***

9.1.3 Delay at start with value command

It is possible to enable a delay at start (changing from OFF to ON with value command >0) via the **"Delay at start with command value"** parameter, which can have the following values:

- ***disabled - (default value)***
- ***enabled***

if **enabled** is selected, the jump to value or the dimming ramp start (when a value command is received (with value >0) and with the channel/colour off) is delayed by the value defined by the new parameter **"Switch on delay time with command value"**.

9.1.4 Switch on delay time with command value

The delay with a value command can have the following values:

- ***1 s - (default value)***
- ***2 s***
- ***3 s***
- ***5 s***
- ***10 s***
- ***15 s***
- ***20 s***
- ***30 s***
- ***45 s***
- ***1 min***
- ***1 min 15 s***
- ***1 min 30 s***
- ***2 min***
- ***2 min 30 s***
- ***3 min***
- ***5 min***
- ***15 min***
- ***20 min***
- ***30 min***
- ***1h***
- ***2h***
- ***3h***
- ***5h***
- ***12h***
- ***24h***

The delay at start with command value cannot be reset.

9.1.5 Behaviour with command value < minimum threshold and colour ON

Starting from the dimmer ON condition, you can decide whether dimmer switch-off (brightness=0%) is permitted when an absolute brightness percentage value lower than the minimum threshold is received via the **"Behaviour with command value < minimum threshold and channel ON"** parameter (if the load type is monochrome) or the **"Behaviour with command value < minimum threshold and colour ON"** parameter (if the load type is RGBW or RGB).
The parameters can assume the following values:

- ***switching off (0%) - (default value)***
- ***set minimum threshold value***

Selecting the value **switching off (0%)** makes it possible to delay the actual switch-off with respect to the moment when the absolute brightness dimming communication object is received via the new parameter **"Delay at switching off with command value < minimum threshold"**.

9.1.6 Delay at switching off with command value < minimum threshold

The parameter may have the values:

- ***disabled - (default value)***
- ***single step***
- ***double step***

if **single step** is selected, the jump to value 0% or the descent ramp start when a value command is received (with a brightness value lower than the minimum threshold) is delayed by the value defined by the **"Switch on delay time with command value < minimum threshold"** parameter.
If selecting the "**double step**" value, the load switching off phase is divided into two steps. When receiving the command value (with a brightness value lower than the minimum threshold), the jump to value 0% or the start of a down ramp are delayed by 50% of the value defined in the **"Switch off delay time with command value < minimum threshold"** parameter. The brightness value is changed (jump or ramp) to ½ of the brightness value set upon receiving the command and kept constant for the remaining 50% of the time. When the delay has expired, the brightness value is changed to 0% (jump or ramp).

Example:

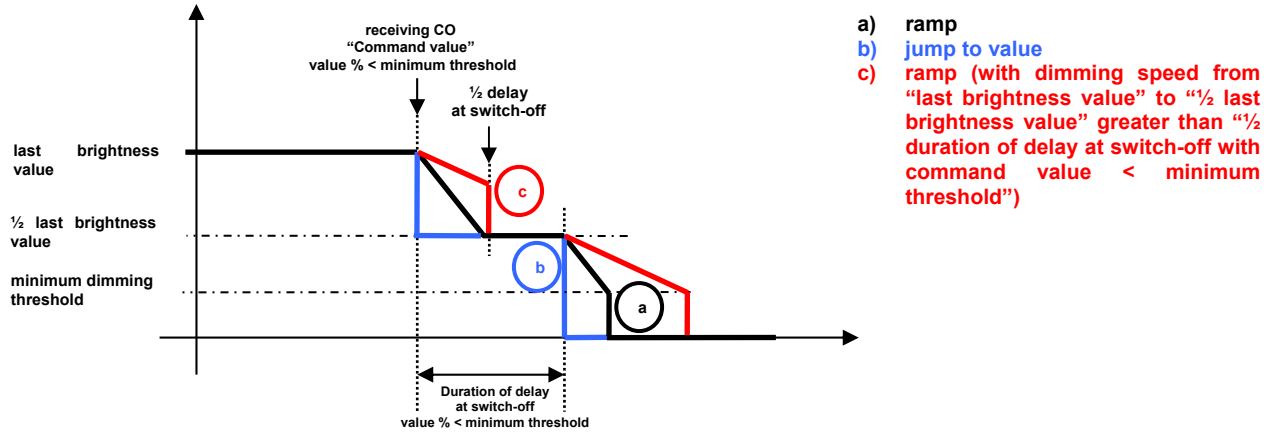


Fig. 9.3: Switch-off delay when the "Command value" object with double step is received

In the case of an RGBW or RGB load, the values set for the parameters of this menu are valid for all the colours.

If the load type is RGBW or RGB, you can control the three colours via a single communication object - ***RGB - RGB components command value*** (Data Point Type: 232.600 DPT_Colour_RGB). The behaviour set for the absolute brightness dimming is also applied to the commands received via the above-mentioned object.

9.1.7 Switch off delay time with command value < minimum threshold

The parameter may have the values:

- ***1 s - (default value)***
- ***2 s***
- ***3 s***
- ***5 s***
- ***10 s***
- ***15 s***
- ***20 s***
- ***30 s***
- ***45 s***
- ***1 min***
- ***1 min 15 s***
- ***1 min 30 s***
- ***2 min***
- ***2 min 30 s***
- ***3 min***
- ***5 min***
- ***15 min***
- ***20 min***
- ***30 min***
- ***1h***
- ***2h***
- ***3h***
- ***5h***
- ***12h***
- ***24h***

10 *“RGB logic (Channel X logic)”* menu

It is possible to subordinate the activation/deactivation of the colours or channel X according to the result of the logic operations, which have dedicated communication objects as inputs. You can enable the logic function via the **”Logic function”** parameter, which can assume the following values:

- ***disabled - (default value)***
- ***enabled***

If it is enabled, the following menu structure appears:

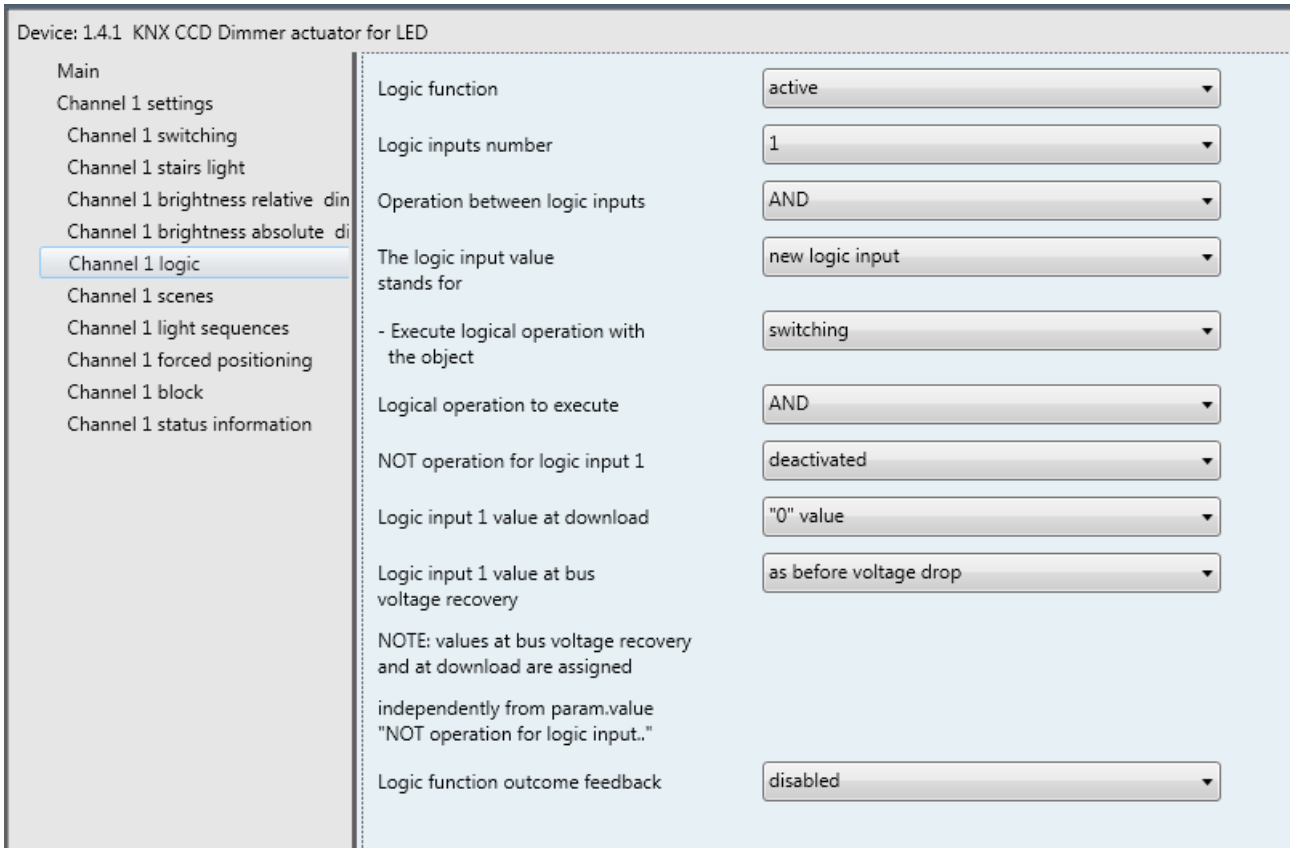


Fig. 10.1: “Channel x - Logic” menu

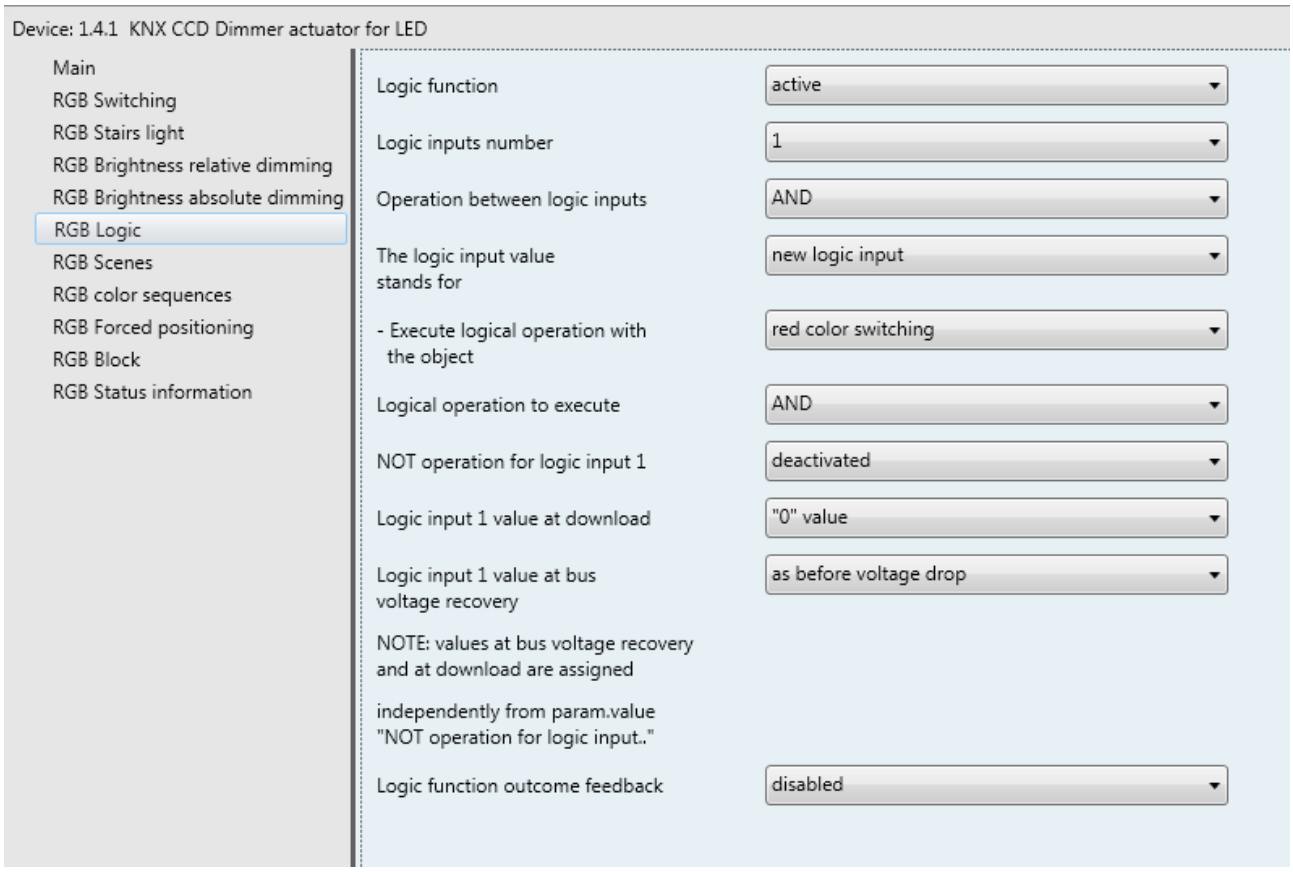


Fig. 10.2: “RGB logic” menu

10.1 Parameters

10.1.1 Number of logic inputs

If the function is enabled, it is possible to set the number of logic inputs via the **”Logic inputs number”** parameter, which can assume the following values:

- ***1 - (default value)***
- ***2***
- ***3***
- ***4***

Depending on the value selected, the **“NOT operation for logic input i”**, **“Logic input i value at download”** and **“Logic input i value at bus voltage recovery”** (1 ≤ i ≤ 4) parameters are visualised, along with the ***Ch. x - Logic input 1***, ***Ch. x - Logic input 2***, ***Ch. x - Logic input 3*** and ***Ch. x - Logic input 4*** (Data Point Type: 1.002 DPT_Bool) communication objects (if the load type is monochrome), or the ***RGB - Logic input 1***, ***RGB - Logic input 2***, ***RGB - Logic input 3*** and ***RGB - Logic input 4*** (Data Point Type: 1.002 DPT_Bool) objects (if the load type is RGBW or RGB).

10.1.2 Operation between logic inputs

If the number of logic inputs set is greater than 1, it is possible to set the logic operation to be executed between the logic inputs. The operation is selected using the **“Operation between logic inputs”** parameter, which can assume the following values:

- ***AND - (default value)***
- ***OR***
- ***NAND***
- ***NOR***
- ***XOR***
- ***XNOR***

The outcome of the operations between logic inputs (or the value of the individual logic input, if only one logic input was set) can be used as follows:

1 as the input of another logic operation, performed with one of the objects ***Ch. x - Switching***, ***Ch. x - Timed switching*** or ***Ch. x - Light sequences i*** if the load is monochrome, or with one of the objects ***RGB - Red switching***, ***RGB - Green switching***, ***RGB - Blue switching***, ***RGB - Timed switching*** or ***Colour sequence i*** if the load is RGBW or RGB. The operating diagram is shown in fig. 10.3:

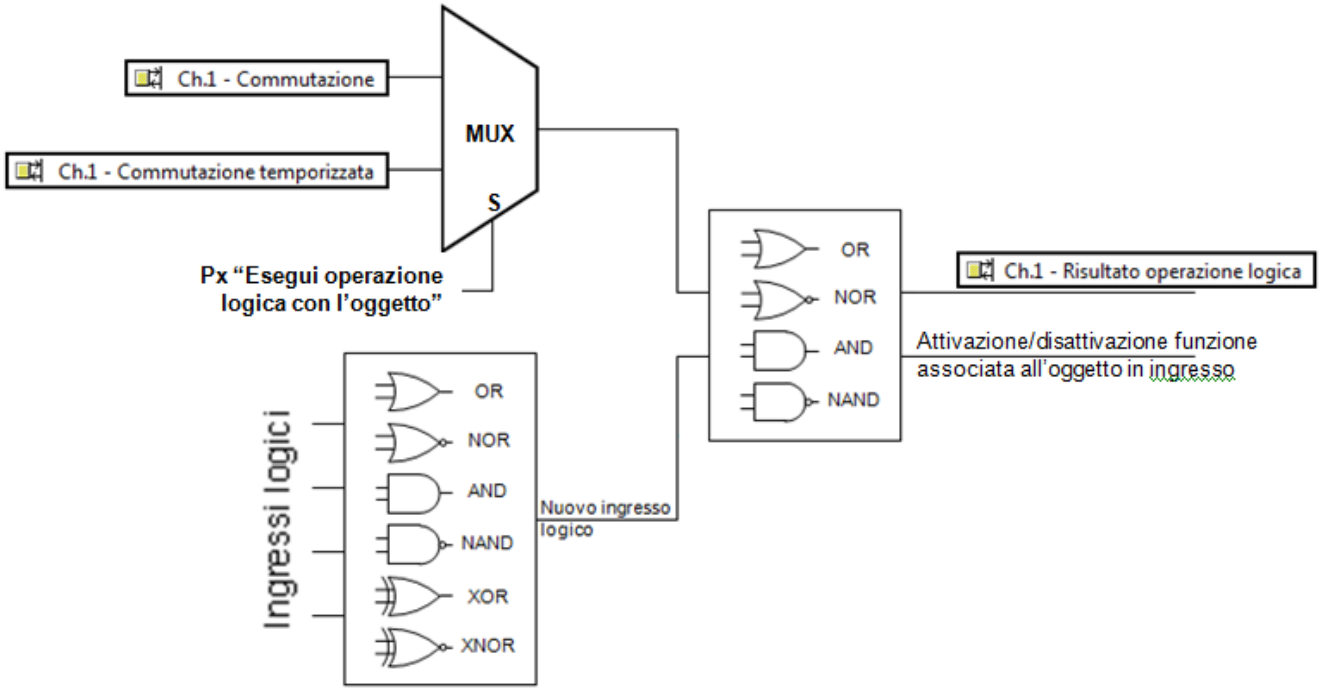


Fig. 10.3: Logic network with the use of the Multiplexer (MUX)

2 to enable the execution of commands received via the BUS on the ***Ch. x - Switching***, ***Ch. x - Timed switching***, ***Ch. x - Brightness dimming***, ***Ch. x - Command value***, ***Ch. x - Scene*** or ***Ch. x - Light sequences i*** objects (if the load is monochrome), or on the ***RGB - Red switching***, ***RGB - Green switching***, ***RGB - Blue switching***, ***RGB - Timed switching***, ***RGB - Brightness dimming***, ***RGB - Red brightness dimming***, ***RGB - Green brightness dimming***,**RGB - Blue brightness dimming**, *RGB - Red command value*, ***RGB - Green command value***, ***RGB - Blue command value***, ***RGB - RGB components command value***, ***RGB - Scene*** or ***RGB - Colour sequence i*** objects (if the load is RGBW or RGB).

Fig. 10.4 shows an example.

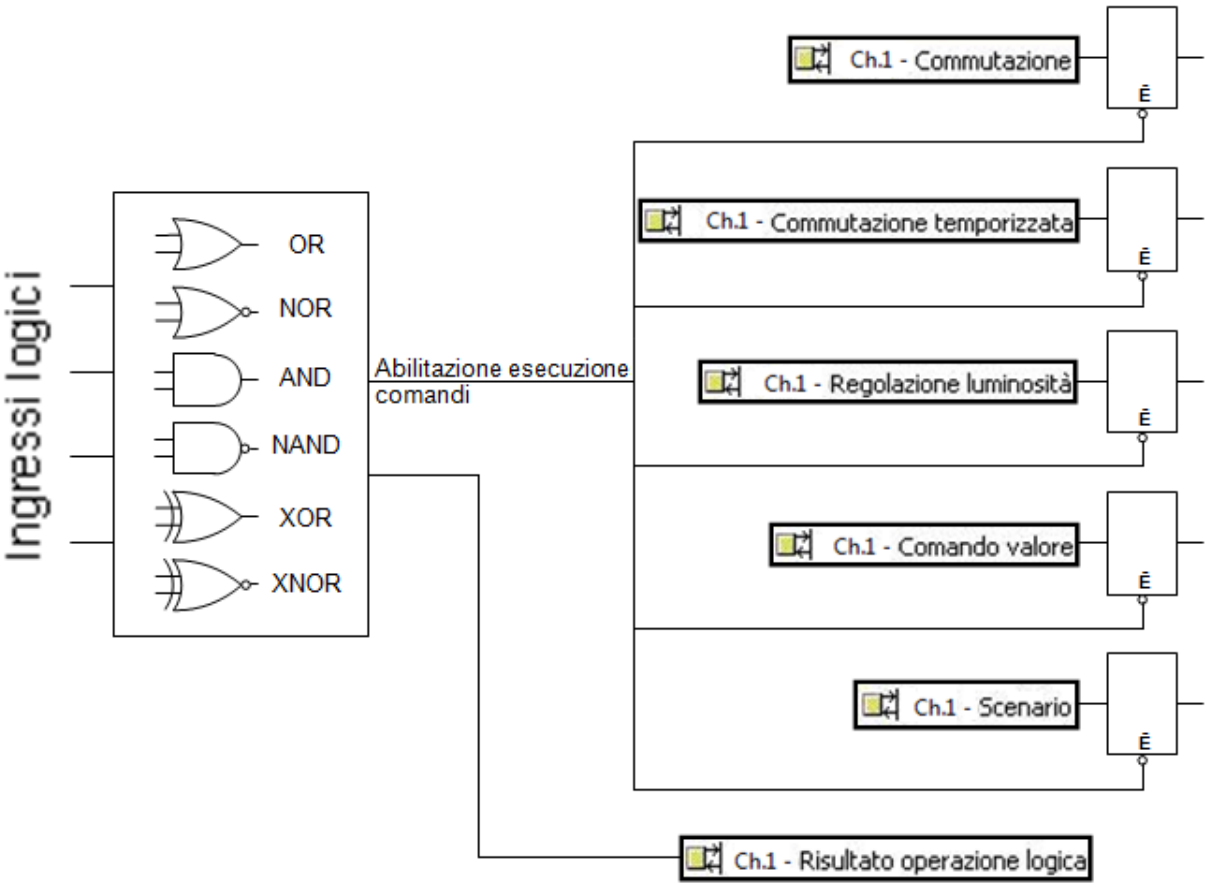


Fig. 10.4: Logic network for enabling commands received via the BUS on the various communication objects

10.1.3 The outcome of the operation between logic inputs represents

The parameter for selecting the function of the result of the operation between logic inputs is **"The outcome of the operation between logic inputs represents"**; in the case of a single logic input, this is replaced by the **"The logic input value stands for"** parameter. These parameters can assume the following values:

- ***new logic input - (default value)***
- ***bus commands execution enabling***

If **new logic input** (default value) is selected, you can define which object should be used to execute the new logic operation via the **"Execute logical operation with the object"** parameter, and which logic operation should be executed with the selected object via the **"Logical operation to execute"** parameter.

10.1.4 Execute logical operation with the object

The **"Execute logical operation with the object"** parameter may assume different values, depending on the type of load.

If the load type is monochrome:

- ***switching - (default value)***
- ***timed switching***
- ***light sequence 1***
- ***light sequence 2***
- ***light sequence 3***

- ***light sequence 4***

If the load type is RGBW or RGB:

- ***red colour switching - (default value)***
- ***green colour switching***
- ***blue colour switching***
- ***timed switching***
- ***colour sequence 1***
- ***colour sequence 2***
- ***colour sequence 3***
- ***colour sequence 4***
- ***colour sequence 5***
- ***colour sequence 6***
- ***colour sequence 7***
- ***colour sequence 8***
- ***RGB colour switching***

10.1.5 Logical operation to execute

The **"Logic operation to be executed"** parameter may assume the following values:

- ***AND - (default value)***
- ***OR***
- ***NAND***
- ***NOR***

10.1.6 On/off switching commands – Absolute brightness dimming commands – Relative brightness dimming commands – Timed switching commands – Scene commands – Light sequence commands

If the **The outcome of the operation between logic inputs represents** parameter is set at "***bus commands execution enabling"***, a series of parameters will appear. You can use them to establish which commands received from the BUS need to be enabled in order to be executed.
If the load is a monochrome LED, the parameters in question are **"Switching commands (on/off)"**, **"Absolute brightness dimming commands"**, **"Relative brightness dimming commands"**, **"Timed switching commands"**, **"Scene commands"** and **"Light sequence commands"**.

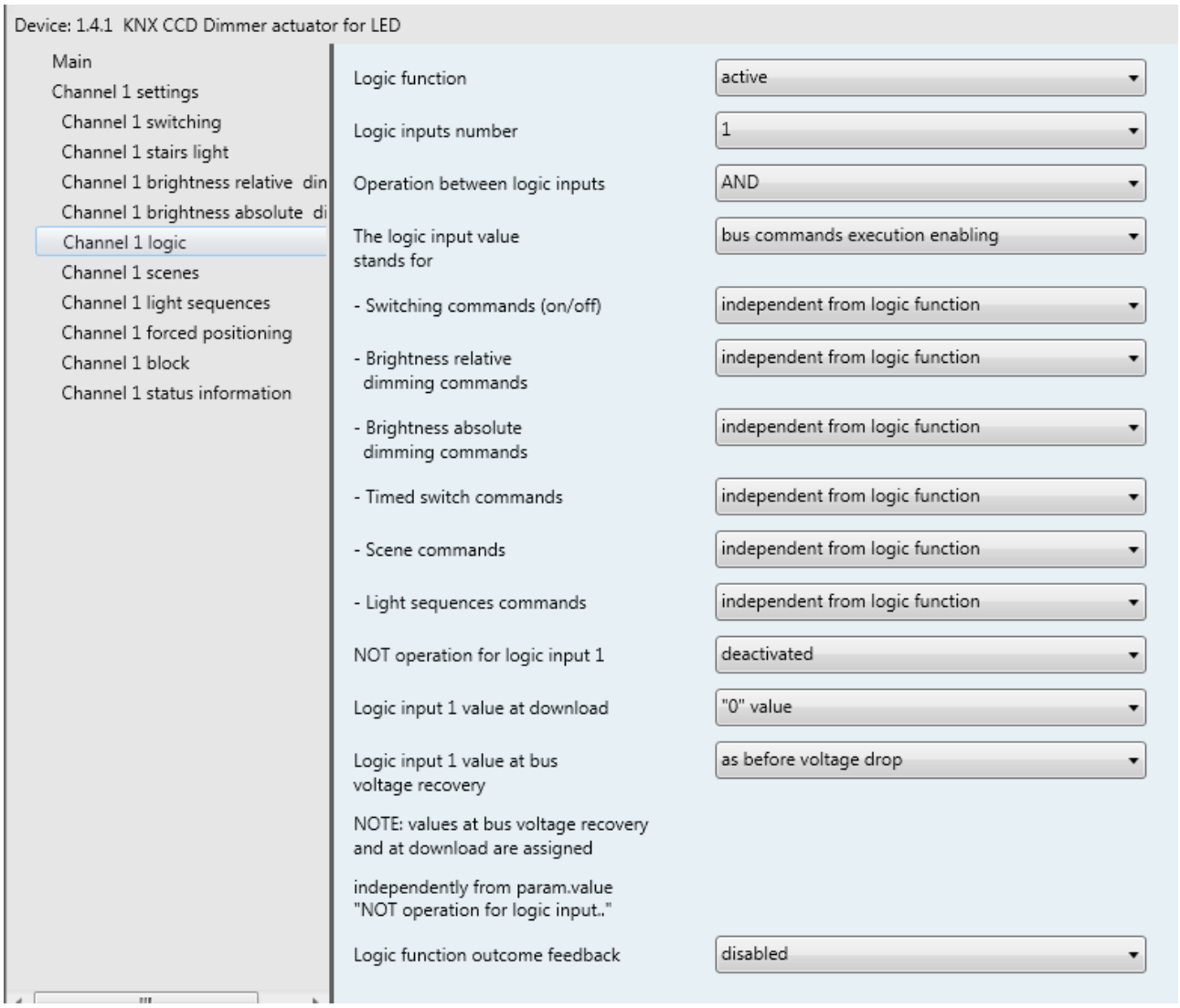


Fig. 10.5: Channel X logic menu, where “The logic input value stands for” item enables the execution of BUS commands with a monochrome LED load

The possible values for these parameters are:

- ***independent from logic function - (default value)***
- ***enabled from logic function***

The commands enabled by the logic function are only executed if the outcome of the logic operation is true. If the outcome of the logic operation changes from false to true, the commands received after the status change will be executed. The commands received when the outcome of the logic function is false are ignored.

10.1.7 Red/green/blue on/off switching commands – Red/green blue absolute brightness dimming commands – Red/green/blue relative brightness dimming commands – RGB component absolute brightness dimming commands – RGB channel on/off switching commands - RGB channel absolute brilliancy/brightness dimming commands - RGB channel relative brilliancy/brightness dimming commands - Timed switching commands – Scene commands – Colour sequence commands

If the **The outcome of the operation between logic inputs represents** parameter is set at "***bus commands execution enabling"***, a series of parameters will appear. You can use them to establish which commands received from the BUS need to be enabled in order to be executed.
If the load is RGBW or RGB, the **"Red on/off switching commands"**, **"Green on/off switching commands"**, **"Blue on/off switching commands"**, **"Red relative brightness dimming commands"**, **"Green relative brightness dimming commands"**, **"Blue relative brightness dimming commands"**, **"Red absolute brightness dimming commands"**, **"Green absolute brightness dimming commands"**, **"Blue absolute brightness dimming commands"**, **"RGB component absolute brightness dimming commands"**, **"RGB channel on/off switching commands"**, **"RGB channel absolute brilliancy/brightness dimming commands"**, **"RGB channel relative brilliancy/brightness dimming commands"**, **"Timed switching commands"**, **"Scene commands"**and **"Colour sequence commands"** parameters will appear.

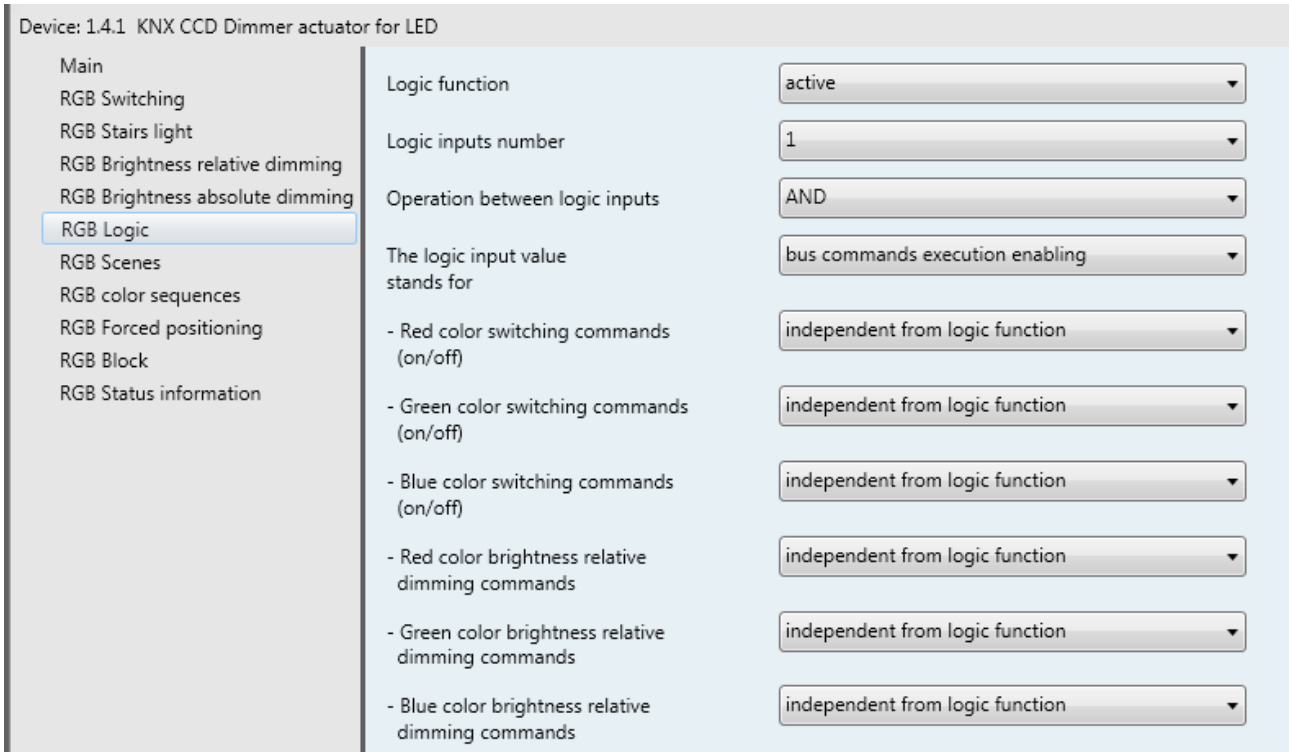


Fig. 10.6: RGB logic menu where "The logic input value stands for" item enables the execution of commands from the BUS with an RGB or RGBW load (the figure shows only some of the parameters mentioned).

The possible values for these parameters are:

- ***independent from logic function - (default value)***
- ***enabled from logic function***

The commands enabled by the logic function are only executed if the outcome of the logic operation is true. If the outcome of the logic operation changes from false to true, the commands received after the status change will be executed. The commands received when the outcome of the logic function is false are ignored.

10.1.8 NOT operation for logic input N

It is possible to refuse the value received from the BUS on the communication objects associated with the logic inputs. This is done via the **"NOT operation for logic input 1"**, **"NOT operation for logic input 2"**, **"NOT operation for logic input 3"** and **"NOT operation for logic input 4"** parameters (whose visibility depends on the number of logic inputs enabled). These parameters may assume the following values:

- ***disabled - (default value)***
- ***active***

10.1.9 Logic input N value at download

You can set the value of the logic inputs on ETS download using the **"Logic input 1 value at download"**, **"Logic input 2 value at download"**, **"Logic input 3 value at download"**and **"Logic input 4 value at download"** parameters (whose visibility depends on the number of logic inputs enabled). These parameters may assume the following values:

- ***value "0" - (default value)***
- ***value "1"***

10.1.10 Logic input N value at bus voltage recovery

You can set the value of the logic inputs when the BUS voltage is restored via the **"Logic input 1 value at BUS voltage recovery"**, **"Logic input 2 value at BUS voltage recovery"**, **"Logic input 3 value at BUS voltage recovery"**and **"Logic input 4 value at BUS voltage recovery"** parameters (whose visibility depends on the number of logic inputs enabled). These parameters may assume the following values:

- ***value "0"***
- ***value "1"***
- ***as before voltage drop - (default value)***

NOTE: the values on BUS voltage recovery and on download are assigned to the logic objects regardless of the value of the **Px+4 "NOT operation for logic input i"** parameters (1<i<4).

10.1.11 Logic function outcome warning

It is possible to enable the sending of the outcome of the logic function on the BUS, and specify whether this information should always be sent when an input changes, or only if the outcome of the logic function changes via the **"Logic function outcome feedback"**parameter, which can have the following values:

- ***disabled - (default value)***
- ***only if the outcome changes***
- ***even if the outcome does not change***

Setting a value other than **disabled** displays the ***Ch. x - Logic operation outcome***. (Data Point Type: 1.002 DPT_Bool) output communication object if the load is monochrome, or the ***RGB - Logic operation outcome*** (Data Point Type: 1.002 DPT_Bool) object if the load is RGBW or RGB.
The value transmitted on the BUS is the result of the operation between the outcome of the logic inputs logic operation and the object selected in the **"Execute logic operation with the object"** parameter, if the **"The outcome of the operation with logic inputs stands for"** parameter assumes the **new logic input** value, or the outcome of the operation between logic inputs if the parameter assumes the **BUS command execution enabling** value. When the BUS voltage is restored, the logic is calculated and the result of the operation is transmitted spontaneously on the BUS via the relative object - ***Ch. x - Logic operation outcome*** if the load is monochrome, or ***RGB - Logic operation outcome*** if the load is RGBW or RGB.

11 *"RGB scenes (Channel X scenes)"* menu

The scenes function is used to replicate a certain pre-set or previously memorised status when the scene execution command is received.
The structure of the menu is as follows:

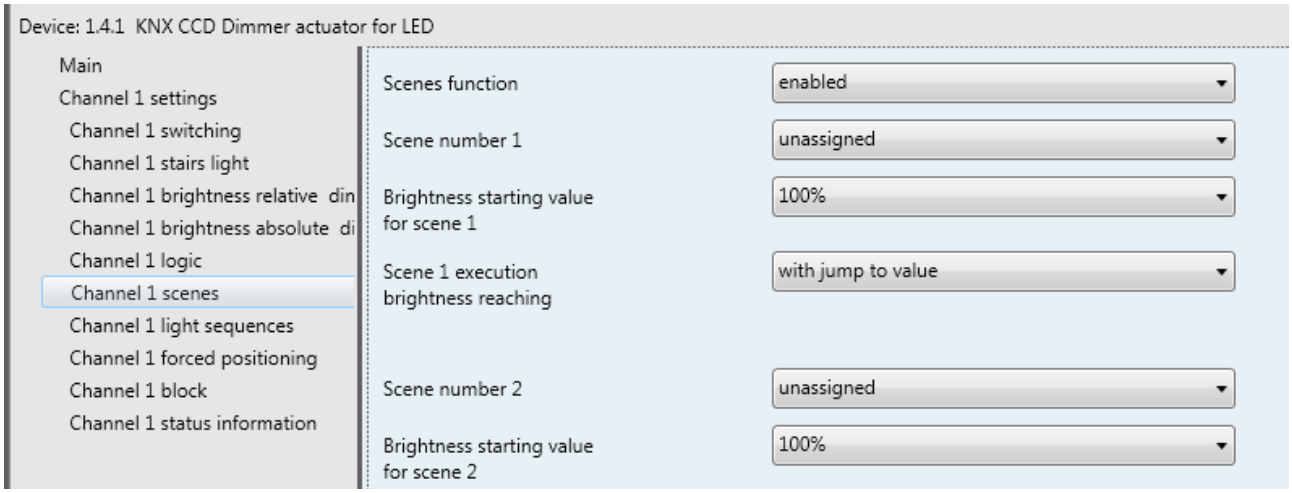


Fig. 11.1: "Channel x scenes" menu

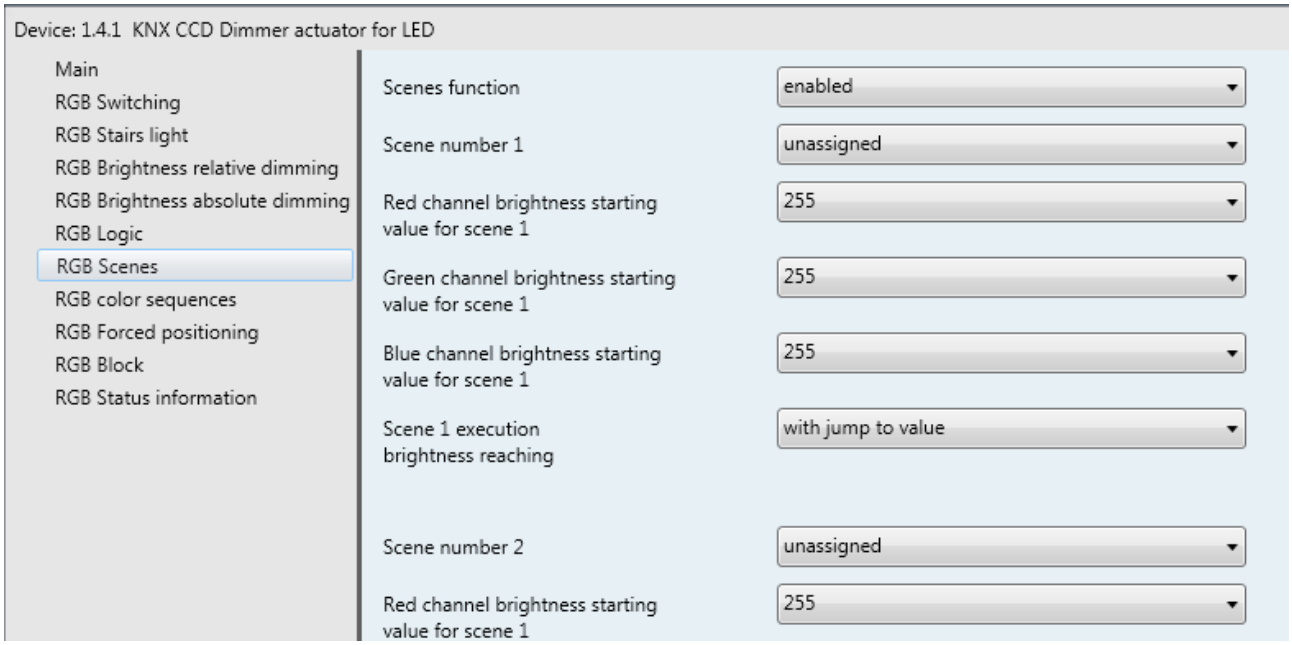


Fig. 11.2: "RGB scenes" menu

11.1 Parameters

11.1.1 Scene function

The **Scene function** parameter is used to activate and configure the function, displaying various function configuration parameters and the relative communication objects.
The scene function is used to send two possible commands to the device:

- scene execution, which is the command to switch to a determined previously memorised brightness value
- scene storage, which is a command to memorise the current brightness (the moment the command is received).

This function provides 8 scenes, for which the device can store/reproduce 8 different conditions of these functional parameters. The values that can be set are:

- ***disable - (default value)***
- ***enable***

Selecting the value **enabled** (if the load type is monochrome) displays the **"Scene number i"**, **"Brightness starting value for scene i"**, **"Scene i execution brightness reaching"** (1 ≤ i ≤ 8) and **"Scene storing enabling"**parameters, along with the ***Ch. x - Scene*** (Data Point Type: 18.001 DPT_SceneControl) communication object via which the scene execution/storage telegrams are received.

Selecting **enabled** with an RGBW or RGB load displays the **"Scene number i"**, **"Red channel brightness starting value for scene i"**, **"Green channel brightness starting value for scene i"**, **"Blue channel brightness starting value for scene i"**, **"Scene i execution brightness reaching"** (1 ≤ i ≤ 8) and **"Scene storing enabling"** parameters, along with the ***RGB - Scene*** (Data Point Type: 18.001 DPT_SceneControl) communication object via which the scene execution/storage telegrams are received.

11.1.2 Scene number

Via the **"Scene number i"** parameter (1 ≤ i ≤ 8) you can set the numerical value for identifying and therefore executing/memorising the i-th scene. The possible values are:

- ***unassigned - (default value)***
- ***0***
- ***1***
- ***..***
- ***..***
- ***63***

11.1.3 Red/green/blue channel brightness starting value for scene i

The **"Brightness starting value for scene i"**, **"Red channel brightness starting value for scene i"**, **"Green channel brightness starting value for scene i"** and **"Blue channel brightness starting value for scene i"** parameters (1 ≤ i ≤ 8) are used to define the initial brightness value to be reached by the channel (or colour) with which the parameter is associated, when a telegram for the execution of the i-th scene is received. This value must be overwritten following a scene storing command.
The possible values are:

- ***minimum dimming threshold value***
- ***maximum dimming threshold value***
- ***from 0% to 100% (default value) in steps of 5% if the load is monochrome***
- ***from 0 to 255 (default value) in steps of 1 if the load is RGBW***

11.1.4 Scene i execution brightness reaching

The **"Scene i execution brightness reaching"** parameter (1 ≤ i ≤ 8) determines how the channel or colours reach the brightness value associated with the i-th scene. The parameter may have the following values:

- ***with jump to value - (default value)***
- ***with ramp***

Selecting the value **with jump to value**, the dimmer will manage a soft start hardware.

If **with ramp** is selected, the **"Ramp dimming speed 0% - 100% for execution of scene i"** parameter is visible if the load is monochrome, while the **"Ramp dimming speed 0 - 255 for execution of scene i"** parameter is visible if the load is RGBW.

11.1.5 Ramp dimming speed 0% - 100% / 0 - 255

These parameters can assume the following values:

- ***1 second***
- ***2 seconds***
- ***3 seconds***
- ***4 seconds - (default value)***
- ***5 seconds***
- ***6 seconds***
- ***7 seconds***
- ***8 seconds***
- ***9 seconds***
- ***10 seconds***
- ***15 seconds***
- ***20 seconds***
- ***25 seconds***
- ***30 seconds***
- ***1 minute***
- ***2 minutes***
- ***5 minutes***
- ***10 minutes***

In the case of an RGBW or RGB load, this value is applied to all the colours.

11.1.6 Scene storing enabling

The **"Scene storing enabling"** parameter is used to enable/disable the possibility of scene learning via the ***RGB - Scene*** or ***Ch. x - Scene*** communication object. The parameter may assume the following values:

- ***disabled***
- ***enabled - (default value)***

If the value **disable** is selected, any scene storing command received from the BUS will be ignored and all the scenes will always replicate the initial conditions set in the relative configuration menus; in this case, the format of the ***RGB - Scene*** or ***Ch. x - Scene*** communication object becomes *17.001 DPT_SceneNumber*.
Selecting **enable** displays the ***Ch. x - Scene storing enabling***(Data Point Type: 1.003 DPT_Enable) communication object if the load is monochrome, or ***RGB - Scene storing enabling*** (Data Point Type: 1.003 DPT_Enable) communication object if the load is RGBW or RGB. This allows you to enable/disable - via the BUS - the possibility of scene learning via the ***RGB - Scene*** or ***Ch. x - Scene*** communication object.

12 *“RGB colour sequences”* menu

If the load type is RGBW or RGB, you can manage various pre-configured colour sequences which, by dynamically modifying the contribution of the single colours, create plays of light.
The structure of the menu is as follows:

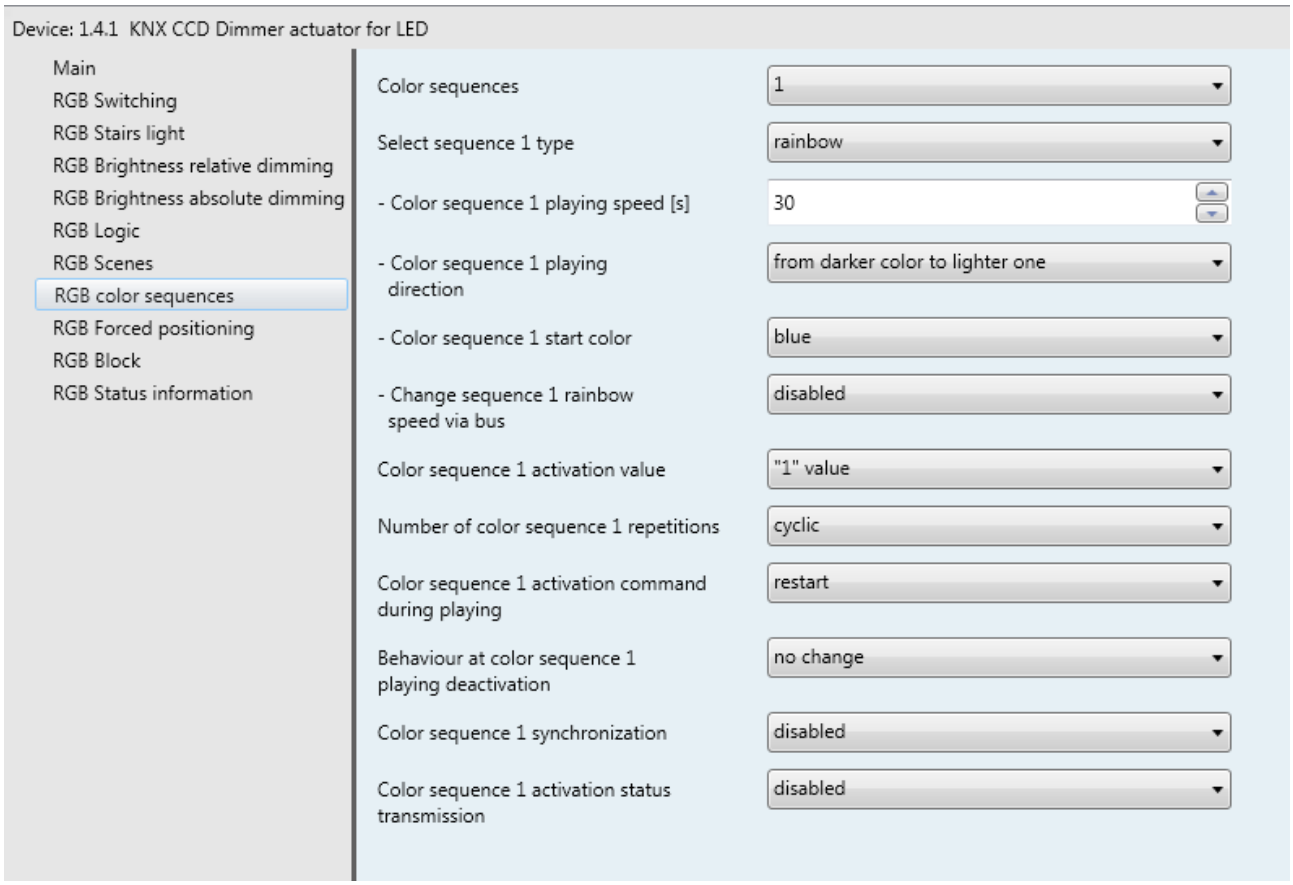


Fig. 12.1: “RGB colour sequences” menu

12.1 Parameters

12.1.1 Colour sequences

The **“Colour sequences”** parameter is used to enable various communication objects for activating the colour sequences via a BUS telegram. The values that can be set are:

- ***disabled - (default value)***
- ***1***
- ***2***
- ***3***
- ***4***
- ***5***
- ***6***
- ***7***
- ***8***

Depending on the number of sequences selected, the **“Select sequence i type”**, **“Colour sequence i activation value”**, **“Colour sequence i activation command during playing”**, **“Number of colour**

sequence i repetitions" and **"Behaviour at colour sequence i playing deactivation"** parameters (1 ≤ i ≤ 8) will appear, along with the relative communication objects.

12.1.2 Select sequence type

The **"Select sequence i type"** parameters (1 ≤ i ≤ 8) are used to associate the colour sequence to be repeated via the ***RGB - Colour sequence 1***, ***RGB - Colour sequence 2***, ***RGB - Colour sequence 3***, ***RGB - Colour sequence 4***, ***RGB - Colour sequence 5***, ***RGB - Colour sequence 6***, ***RGB - Colour sequence 7*** and ***RGB - Colour sequence 8*** (Data Point Type: 1.010 DPT_Start) BUS communication objects. Via these objects, you can activate/deactivate the set sequence from the BUS. The values that can be set for this parameter are:

- ***rainbow - (default value)***
- ***rainbow - warm colours***
- ***rainbow - cold colours***
- ***monochrome strobe***
- ***rainbow - strobe***
- ***rainbow strobe - warm colours***
- ***rainbow strobe - cold colours***
- ***monochrome blinking***
- ***two-colour blinking***
- ***colour brilliancy scale***

Selecting **rainbow**, **rainbow - warm colours** or **rainbow - cold colours** displays the **"Colour sequence i playing speed [s]"**, **"Colour sequence i playing direction"**, **"Colour sequence i start colour"** and **"Change sequence i rainbow speed via bus"** parameters (1 ≤ i ≤ 8).
Selecting **monochrome strobe** displays the **"Colour sequence i strobe effect time [0.1 s]"**, **"Colour sequence i colour"** and **"Change the strobe effect time of sequence i via bus"** parameters (1 ≤ i ≤ 8).
Selecting **rainbow strobe**, **rainbow strobe - warm colours** or **rainbow strobe - cold colours** displays the **"Rainbow colour sequence i playing speed [s]"**, **"Colour sequence i strobe effect time [0.1 s]"**, **"Colour sequence i playing direction"**, **"Colour sequence i start colour"** and **"Change the strobe effect time of sequence i via bus"** parameters (1 ≤ i ≤ 8).
Selecting **monochrome blinking** displays the **"Colour sequence i blinking activation time (seconds)"**, **"Colour sequence i blinking deactivation time (seconds)"** and **"Colour sequence i colour"** parameters (1 ≤ i ≤ 8).
Selecting **two-colour blinking** displays the **"Colour sequence i colour A blinking activation time (seconds)"**, **"Colour B blinking activation time for sequence i (seconds)"**, **"Colour sequence i colour A"** and **"Colour sequence i colour B"** parameters (1 ≤ i ≤ 8).
Selecting **colour brilliancy scale** displays the **"Colour sequence i playing speed [s]"**, **"Colour sequence i colour"** and **"Change the sequence i scale playing speed via bus"** parameters (1 ≤ i ≤ 8).

12.1.3 Colour sequence i playing speed [s]

The **"Colour sequence i playing speed [s]"** parameter is used to personalise the playing speed of the entire range of colours of the "rainbow", "rainbow - warm colours", "rainbow - cold colours", "rainbow strobe" "rainbow strobe - warm colours", "rainbow strobe - cold colours" sequences, or the playing of the entire brilliancy scale of the "colour brilliancy scale" sequence. In this way, in the former case you can slow down or speed up the change from one colour to another while in the latter case you can slow down or speed up the playing speed of the entire scale of the selected colour.
The values that can be set are:

- ***from 1 to 255 in steps of 1 (default value 30)***

12.1.4 Colour sequence i playing direction

The **"Colour sequence i playing direction"** parameter is used to select the playing direction of the "rainbow", "rainbow - warm colours", "rainbow - cold colours", "rainbow strobe" "rainbow strobe - warm colours" or "rainbow strobe - cold colours" sequence. The values that can be set are:

- ***from lighter colour to darker one***
- ***from darker colour to lighter one - (default value)***

12.1.5 Colour sequence i start colour

The **"Colour sequence i start colour"** parameter is used to select the initial colour of the "rainbow", "rainbow - warm colours", "rainbow - cold colours", "rainbow strobe" "rainbow strobe - warm colours" or "rainbow strobe - cold colours" sequence. The values that can be set are:

- ***yellow*** ***not visible for rainbow strobe - cold colours***
- ***magenta*** ***not visible for rainbow strobe - cold colours***
- ***red*** ***not visible for rainbow strobe - cold colours***
- ***turquoise*** ***not visible for rainbow strobe - warm colours***
- ***green*** ***not visible for rainbow strobe - warm colours***
- ***blue - (default value) not visible for rainbow strobe - warm colours***
- ***current colour*** ***not visible for rainbow strobe - warm and cold colours***
- ***personalised*** ***not visible for rainbow strobe - warm and cold colours***

Selecting **current colour**, the initial colour of the sequence is the one set in the moment when the sequence activation command is received. If you want to reset the sequence reproduction, the initial colour will again be the one set in the moment when the reproduction reset command is received.
Selecting **customise** displays the **"RED"**, **"GREEN"** and **"BLUE"** parameters.
Selecting **current colour** or **personalised** when the RGB components (excluding white) all have the same value (saturation =0), the "rainbow", "rainbow - warm colours", "rainbow strobe" and "rainbow strobe - warm colours" sequences will begin from red, while the "rainbow - cold colours" and "rainbow strobe - cold colours" sequences will begin from green.

12.1.6 RED, GREEN, BLUE

You can use the **"RED"**, **"GREEN"** and **"BLUE"** parameters to set the value of each colour component. The values that can be set are:

- ***from 0 to 255 (default value) in steps of 1***

12.1.7 Change sequence i rainbow speed via bus

The **"Change sequence i rainbow speed via bus"** parameter is used to enable the communication object for modifying the playing speed of the rainbow effect via the BUS. The values that can be set are:

- ***disabled - (default value)***
- ***enable modification of absolute value***
- ***enable increase/decrease step regulation***

Selecting **enable modification of absolute value** displays the ***RGB - Sequence i rainbow speed*** (Data Point Type: 7.005 DPT_TimePeriodSec) communication object, via which the device receives the new value for the rainbow effect playing speed (expressed in seconds); the value "0" is interpreted as limit value "1".
Selecting **enable increase/decrease step regulation** displays the ***RGB - Sequence i rainbow speed regulation*** (Data Point Type: 1.007 DPT_Step) communication object, via which the device receives the step commands to increase (value "1")/decrease (value "0") the current value of the rainbow effect playing speed.

The speed increase/decrease step is defined via the new parameter **"Colour sequence i playing speed regulation step [s]"**.

12.1.8 Colour sequence i playing speed regulation step [s]

The speed regulation steps may assume the following values:

- ***from 1 (default value) to 10, in steps of 1***

12.1.9 Colour sequence i strobe effect time [0.1 s]

The **"Colour sequence i strobe effect time [0.1 s]"** parameter is used to personalise the length of the strobe effect - i.e. the time between one "light flash" and the next. The values that can be set are:

- ***from 1 to 255 in steps of 1 (default value 5)***

12.1.10 Change the strobe effect time of sequence i via bus

The **"Change the strobe effect time of sequence i via bus"** parameter is used to enable the communication object for modifying the execution time of the strobe effect via the BUS. The values that can be set are:

- ***disabled - (default value)***
- ***enable modification of absolute value***
- ***enable increase/decrease step regulation***

Selecting **enable modification of absolute value** displays the ***RGB - Colour sequence i strobe time*** (Data Point Type: 7.004 DPT_TimePeriod100Msec) communication object, via which the device receives the new value of the strobe effect execution time, expressed in tenths of a second; the value "0" is interpreted as limit value "1".
Selecting **enable increase/decrease step regulation** displays the ***RGB - Colour sequence i strobe period regulation*** (Data Point Type: 1.007 DPT_Step) communication object, via which the device receives the step commands to increase (value "1")/decrease (value "0") the current value of the strobe effect execution period. The period increase/decrease step is defined via the new parameter **"Sequence i strobe effect period regulation [0.1 s]"**.

12.1.11 Sequence i strobe effect period regulation step [0.1 s]

The regulation steps for the strobe effect period are:

- ***from 1 (default value) to 10, in steps of 1***

12.1.12 Colour sequence i colour

The **"Colour sequence i colour"** parameter is used to select the colour of the "monochrome strobe", "monochrome blinking" or "colour brightness scale" sequence. The values that can be set are:

- ***yellow***
- ***magenta***
- ***red***
- ***turquoise***
- ***green***
- ***blue - (default value)***
- ***current colour***
- ***customise***

Selecting **current colour**, the sequence colour is the one set in the moment when the sequence activation command is received.
Selecting **customise** displays the **"RED"**, **"GREEN"** and **"BLUE"** parameters.
Selecting **current colour** or **customise** when the RGB components (excluding white) are all at 0 (black), the "monochrome strobe" and "monochrome blinking" sequences will begin from the last colour that was active prior to switch-off.

12.1.13 RED, GREEN, BLUE

You can use the **"RED"**, **"GREEN"** and **"BLUE"** parameters to set the value of each colour component. The values that can be set are:

- ***from 0 to 255 (default value) in steps of 1***

12.1.14 Colour sequence i blinking activation time [s]

The **"Colour sequence i blinking activation time [s]"** parameter is used to set the activation period for the selected colour for the "monochrome blinking" sequence. The values that can be set are:

- ***from 0 to 59 in steps of 1 (default value 5)***

12.1.15 Colour sequence i blinking deactivation time [s]

The **"Colour sequence i blinking deactivation time [s]"** parameter is used to set the deactivation period for the selected colour for the "monochrome blinking" sequence. The values that can be set are:

- ***from 0 to 59 in steps of 1 (default value 5)***

12.1.16 Colour A/B blinking activation time for colour sequence i [s]

The **"Colour A (or B) blinking activation time for colour sequence i [s]"** parameter is used to set the activation period for colour A or B selected for the "two-colour blinking" sequence. The values that can be set are:

- ***from 0 to 59 in steps of 1 (default value 5)***

12.1.17 Colour A for colour sequence i [s]

The **"Colour A for colour sequence i [s]"** parameter is used to select colour A of the "two-colour blinking" sequence. The values that can be set are:

- ***yellow***
- ***magenta***
- ***red***
- ***turquoise***
- ***green***
- ***blue - (default value)***
- ***current colour***
- ***customise***

Selecting **current colour**, colour A of the sequence is the one set in the moment when the sequence activation command is received.

Selecting **customise**, you can use the **"RED"**, **"GREEN"** and **"BLUE"** parameters to set the initial value of each colour component. The values that can be set are:

- ***from 0 to 255 (default value) in steps of 1***

12.1.18 Colour B for colour sequence i [s]

The **"Colour B for colour sequence i [s]"** parameter is used to select colour A of the "two-colour blinking" sequence. The values that can be set are:

- ***yellow***
- ***magenta***
- ***red - (default value)***
- ***turquoise***
- ***green***
- ***blue -***
- ***current colour***
- ***customise***

Selecting **current colour**, colour B of the sequence is the one set in the moment when the sequence activation command is received.
Selecting **customise**, you can use the **"RED"**, **"GREEN"** and **"BLUE"** parameters to set the initial value of each colour component. The values that can be set are:

- ***from 0 to 255 (default value) in steps of 1***

12.1.19 Change sequence i scale playing speed via bus

The **"Change sequence i scale playing speed via bus"** parameter is used to enable the communication object for modifying the playing speed of the brilliancy scale effect via the BUS. The values that can be set are:

- ***disabled - (default value)***
- ***enable modification of absolute value***
- ***enable increase/decrease step regulation***

Selecting **enable modification of absolute value** displays the ***RGB - Sequence i brilliancy scale speed*** (Data Point Type: 7.005 DPT_TimePeriodSec) communication object, via which the device receives the new value for the brilliancy scale playing speed (expressed in seconds); the value "0" is interpreted as limit value "1".
Selecting **enable increase/decrease step regulation** displays the ***RGB - Colour sequence i scale speed regulation*** (Data Point Type: 1.007 DPT_Step) communication object, via which the device receives the step commands to increase (value "1")/decrease (value "0") the current value of the brilliancy scale playing speed. The speed increase/decrease step is defined via the new parameter **"Colour sequence i playing speed regulation step [s]"**.

12.1.20 Colour sequence i playing speed regulation step [s]

The speed increase/decrease step is defined via the parameter **"Colour sequence i playing speed regulation step [s]"**, which may assume the following values:

- ***from 1 (default value) to 10, in steps of 1***

12.1.21 Colour sequence i activation value

The **"Colour sequence i activation value"** parameters (1 ≤ i ≤ 8) are used to define which logical value received via the ***RGB - Colour sequence 1***, ***RGB - Colour sequence 2***, ***RGB - Colour sequence 3***, ***RGB - Colour sequence 4***, ***RGB - Colour sequence 5***, ***RGB - Colour sequence 6***, ***RGB - Colour sequence 7*** and ***RGB - Colour sequence 8*** objects should activate the colour sequence; the value opposite the selected one is used to stop the current sequence.
The values that can be set for this parameter are:

- ***value "0"***
- ***value "1" - (default value)***

You can use the ***RGB - Colour sequence 1***, ***RGB - Colour sequence 2***, ***RGB - Colour sequence 3***, ***RGB - Colour sequence 4***, ***RGB - Colour sequence 5***, ***RGB - Colour sequence 6***, ***RGB - Colour sequence 7*** and ***RGB - Colour sequence 8*** communication objects to activate/deactivate the associated colour sequence via BUS commands; by activating a colour sequence different from the one being played, the new sequence is launched while the previously active one is deactivated. This means that only one sequence can be active at one time and, when it is deactivated, the dimmer sets the conditions for the deactivation of the current sequence without necessarily having to deactivate the colour sequences previously activated.

12.1.22 Number of colour sequence i repetitions

The **"Number of colour sequence i repetitions"** parameters (1 ≤ i ≤ 8) define how often the set sequence must be repeated when an activation command is received via the BUS. The values that can be set are:

- ***1, 2, .. 254, cyclic (default value)***

12.1.23 Colour sequence i activation command during playing

The **"Colour sequence i activation command during playing** parameters (1 ≤ i ≤ 8) are used to define the behaviour of the device if an i-th sequence activation command is received while the sequence is already in progress. The possible values are:

- ***no effect***
- ***restart - (default value)***
- ***extend (multiply by factor)***

Selecting **restart**, the sequence is restarted from the initial colour, so also the count of the number of sequence repetitions is reset.
Selecting **extend** displays the **"Multiplicative factor maximum value"** parameter, which can be used to set the maximum number of consecutive activation time extensions. If the sequence repetition is cyclical, the extension has no effect.

12.1.24 Multiplicative factor maximum value

The **"Multiplicative factor maximum value"** parameter may assume the following values:

- ***from 2 to 5 (default value) in steps of 1***

12.1.25 Behaviour at colour sequence i playing deactivation

You can define the behaviour of the device when the colour sequence is deactivated, using the **"Behaviour at colour sequence i playing deactivation"** parameter (1 ≤ i ≤ 8), which may assume the following values:

- ***switch off***

- ***no change - (default value)***
- ***set previously active colour***
- ***sets fixed value***

Setting **switch off**, the load is deactivated.
Setting **no change**, the colour remains the one reached in the moment when the sequence was deactivated.
Select **set previously active colour** to restore the colour that was active before the sequence activation command was received.
Selecting **sets fixed value** displays the **"Red channel brightness on colour sequence i deactivation"**, **"Green channel brightness on colour sequence i deactivation"** and **"Blue channel brightness on colour sequence i deactivation"** parameters. The possible values for these parameters are:

- **from 0 (default value) to 255, in steps of 1**

The behaviour determined by the **"Behaviour at colour sequence i playing deactivation"** parameter (1 ≤ i ≤ 8) is valid for both sequence deactivation due to a BUS deactivation telegram and the reaching of the set number of sequence repetitions. The brightness value on sequence deactivation can be reached with a jump to value or with a ramp. This behaviour is determined by the **Brightness reaching for on/off, timed switching, priority commands, block, sequences** parameter of the **Main** menu if the load is RGBW, or by the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter of the **RGB channel settings** menu if the load is RGB.

12.1.26 Colour sequence i synchronisation

Several LED dimmers controlling different RGB loads may be installed in a single room; if these LED dimmers have to execute the same colour sequence at the same time, the colours on the various dimmers may no longer be aligned after a few cycles have been executed. For this reason, you can enable the master-slave synchronisation mechanism whereby one device acts as Master and, at the end of each colour sequence cycle, sends the Slave devices a synchronisation command that realigns them. When the synchronisation telegram is received, the Slave device reactivates the execution of the sequence from the start, to align itself with the Master device (increasing the sequence execution cycle count if necessary).

The **"Sequence i synchronisation"** parameter is used to enable the master-slave synchronisation for the i-th sequence, and determine the role of the device in this process. The values that can be set are:

- ***disabled - (default value)***
- ***enabled - slave operation***
- ***enabled - master operation***

Selecting "enabled - slave operation", the device is a Slave and receives the synchronisation telegrams from the Master via the ***RGB - Sequence i synchronisation input*** (Data Point Type: 1.017 DPT_Trigger) communication object.
Selecting "enabled - master operation", the device is the Master and sends the synchronisation telegrams to the Slaves via the ***RGB - Sequence i synchronisation sending*** (Data Point Type: 1.017 DPT_Trigger) communication object.

12.1.27 Colour sequence i activation status transmission

You can use this parameter to establish the method for sending the ***RGB – Colour sequence i status*** (Data Point Type: 1.001 DPT_Switch) status object.
The values that can be set are:

- ***disabled - (default value)***
- ***on demand only***
  The status object is only sent in response to a read request via the BUS.
- ***on change***
  The ***RGB – Colour sequence i status*** status object is sent on the BUS with every light sequence activation/deactivation.

13 *“Channel x light sequences”* menu

If the load type is monochrome, you can manage various pre-configured light sequences which, by dynamically modifying the light of channel X, create plays of light.
The structure of the menu is as follows:

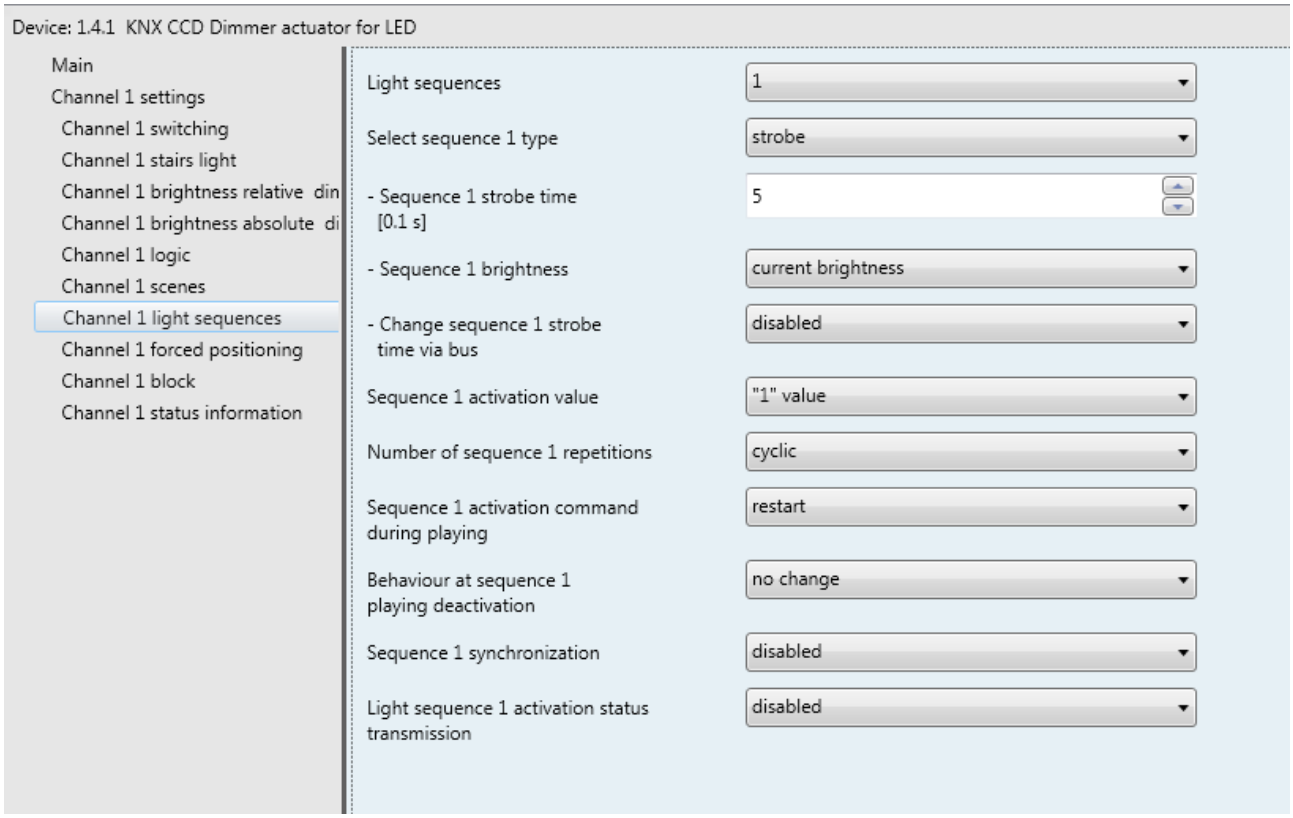


Fig. 13.1: “Channel x light sequences” menu

13.1 Parameters

13.1.1 Light sequences

The **“Light sequences”** parameter is used to enable various communication objects for activating the colour sequences via a BUS telegram. The values that can be set are:

- ***disabled - (default value)***
- ***1***
- ***2***
- ***3***
- ***4***

Depending on the number of sequences selected, the **“Select sequence i type”**, **“Sequence i activation value”**, **“Sequence i activation command during playing”**, **“Number of sequence i repetitions”** and **“Behaviour at sequence i playing deactivation”** parameters ($1 \leq i \leq 4$) will appear, along with the relative communication objects.

13.1.2 Select sequence type

The **"Select sequence i type"** parameters (1 ≤ i ≤ 8) are used to associate the light sequence to be repeated via the ***Ch.x - Light sequence 1***, ***Ch.x - Light sequence 2***, ***Ch.x - Light sequence 3*** and ***Ch.x - Light sequence 4*** (Data Point Type: 1.010 DPT_Start) BUS communication objects. Via these objects, you can activate/deactivate the set sequence from the BUS. The values that can be set for this parameter are:

- ***strobe - (default value)***
- ***blinking***
- ***brightness scale***

Selecting **strobe** displays the **"Sequence i strobe time [0.1 s]"**, **"Sequence i brightness"** and **"Change sequence i strobe time via bus"** parameters (1 ≤ i ≤ 4).
Selecting **blinking** displays the **"Sequence i blinking activation time [s]"**, **"Sequence i blinking deactivation time [s]"** and **"Sequence i brightness"** parameters (1 ≤ i ≤ 4).
Selecting **brightness scale** displays the **"Sequence i playing speed [s]"**, **"Sequence i brightness"** and **"Change the sequence i scale playing speed via bus"** parameters (1 ≤ i ≤ 4).

13.1.3 Sequence i playing speed [s]

The **"Sequence i playing speed [s]"** parameter is used to personalise the playing speed of the "brightness scale" sequence, setting the time; you can slow down or speed up the playing of the entire brightness scale. The values that can be set are:

- ***from 1 to 255 in steps of 1 (default value 30)***

13.1.4 Sequence i strobe time [0.1 s]

The **"Sequence i strobe time [0.1 s]"** parameter is used to personalise the length of the strobe effect - i.e. the time between one "light flash" and the next. The values that can be set are:

- ***from 1 to 255 in steps of 1 (default value 5)***

13.1.5 Change the strobe effect time of sequence i via bus

The **"Change the strobe effect time of sequence i via bus"** parameter is used to enable the communication object for modifying the execution time of the strobe effect via the BUS. The values that can be set are:

- ***disabled - (default value)***
- ***enable modification of absolute value***
- ***enable increase/decrease step regulation***

Selecting **enable modification of absolute value** displays the ***Ch. x - Brightness sequence i strobe time*** (Data Point Type: 7.004 DPT_TimePeriod100Msec) communication object, via which the device receives the new value of the strobe effect execution time, expressed in tenths of a second; the value "0" is interpreted as limit value "1".
Selecting **enable increase/decrease step regulation** displays the ***Ch. x - Sequence i strobe period regulation*** (Data Point Type: 1.007 DPT_Step) communication object, via which the device receives the step commands to increase (value "1")/decrease (value "0") the current value of the strobe effect execution period. The period increase/decrease step is defined via the new parameter **"Sequence i strobe effect period regulation [0.1 s]"**.

13.1.6 Sequence i strobe effect period regulation step [0.1 s]

The regulation steps for the strobe effect period are:

- ***from 1 (default value) to 10, in steps of 1***

13.1.7 Sequence i brightness

The **"Sequence i brightness"** parameter is used to select the brightness of the "strobe", "blinking" or "brightness scale" sequence. The values that can be set are:

- ***current brightness - (default value)***
- ***customise***

Selecting **current brightness**, the sequence brightness is the one set in the moment when the sequence activation command is received.
Selecting **personalise** displays the **"Percentage value"** parameter.
Selecting **current brightness** when the brightness level is 0%, the level for the "monochrome strobe" and "monochrome blinking" sequences will be the one that was active prior to switch-off.

13.1.8 Percentage value

You can use the **"Percentage value"** parameter to set the brightness value of the brightness sequence. The values that can be set are:

- ***from 0% to 100% (default value) in steps of 5%***

13.1.9 Sequence i blinking activation time [s]

The **"Sequence i blinking activation time [s]"** parameter is used to set the activation period for the selected brightness for the "blinking" sequence. The values that can be set are:

- ***from 0 to 59 in steps of 1 (default value 5)***

13.1.10 Sequence i blinking deactivation time [s]

The **"Sequence i blinking deactivation time [s]"** parameter is used to set the deactivation period for the selected brightness for the "blinking" sequence. The values that can be set are:

- ***from 0 to 59 in steps of 1 (default value 5)***

13.1.11 Change sequence i scale playing speed via bus

The **"Change sequence i scale playing speed via bus"** parameter is used to enable the communication object for modifying the playing speed of the brightness scale effect via the BUS. The values that can be set are:

- ***disabled - (default value)***
- ***enable modification of absolute value***
- ***enable increase/decrease step regulation***

Selecting **enable modification of absolute value** displays the ***Ch. x - Sequence i brilliancy scale speed*** (Data Point Type: 7.005 DPT_TimePeriodSec) communication object, via which the device receives the new value for the brightness scale effect playing speed (expressed in seconds); the value "0" is interpreted as limit value "1".

Selecting **enable increase/decrease step regulation** displays the ***Ch. x - Sequence i scale speed regulation*** (Data Point Type: 1.007 DPT_Step) communication object, via which the device receives the step commands to increase (value "1")/decrease (value "0") the current value of the brightness scale effect playing speed. The speed increase/decrease step is defined via the new parameter **"Sequence i scale playing speed regulation step [s]"**.

13.1.12 Sequence i scale playing speed regulation step [s]

The speed increase/decrease step is defined via the **"Sequence i scale playing speed regulation step [s]"** parameter, which may assume the following values:

- ***from 1 (default value) to 10, in steps of 1***

13.1.13 Sequence i activation value

The **"Sequence i activation value"** parameters (1 ≤ i ≤ 4) are used to define which logical value received via the ***Ch.x - Light sequence 1***, ***Ch.x - Light sequence 2***, ***Ch.x - Light sequence 3*** and ***Ch.x - Light sequence 4*** objects should activate the brightness sequence; the value opposite the selected one is used to stop the current sequence. The values that can be set for this parameter are:

- ***value "0"***
- ***value "1" - (default value)***

You can use the ***Ch.x - Brightness sequence 1***, ***Ch.x - Brightness sequence 2***, ***Ch.x - Brightness sequence 3*** and ***Ch.x - Brightness sequence 4*** communication objects to activate/deactivate the associated brightness sequence via BUS commands; by activating a sequence different from the one being played, the new sequence is launched while the previously active one is deactivated. This means that only one sequence can be active at one time and, when it is deactivated, the dimmer sets the conditions for the deactivation of the current sequence without necessarily having to deactivate the brightness sequences previously activated.

13.1.14 Number of sequence i repetitions

The **"Number of colour sequence i repetitions"** parameters (1 ≤ i ≤ 8) define how often the set sequence must be repeated when an activation command is received via the BUS. The values that can be set are:

- ***1, 2, .. 254, cyclic (default value)***

13.1.15 Sequence i activation command during playing

The **"Sequence i activation command during playing** parameters (1 ≤ i ≤ 4) are used to define the behaviour of the device if an i-th sequence activation command is received while the sequence is already in progress. The possible values are:

- ***no effect***
- ***restart - (default value)***
- ***extend (multiply by factor)***

Selecting **restart**, the sequence is restarted from the initial colour, so also the count of the number of sequence repetitions is reset.
Selecting **extend** displays the **"Multiplicative factor maximum value"** parameter, which can be used to set the maximum number of consecutive activation time extensions. If the sequence repetition is cyclical, the extension has no effect. Selecting either restart or extend will also reset the count of the number of sequence repetitions when a new sequence activation command is received.

13.1.16 Multiplicative factor maximum value

The **"Multiplicative factor maximum value"** parameter may assume the following values:

- ***from 2 to 5 (default value) in steps of 1***

13.1.17 Behaviour at sequence i playing deactivation

You can define the behaviour of the device when the brightness sequence is deactivated, using the **"Behaviour at sequence i playing deactivation"** parameter (1 ≤ i ≤ 4), which may assume the following values:

- ***switch off***
- ***no change - (default value)***
- ***set previously active brightness***
- ***sets fixed value***

Setting **switch off**, the load is deactivated.
Setting **no change**, the brightness remains the one reached in the moment when the sequence was deactivated.
Selecting **set previously active brightness** restores the brightness level that was active before the sequence activation command was received.
Selecting **sets fixed value** displays the **"Channel brightness at sequence i deactivation"** parameter. The values that can be set are:

- ***from 0% (default value) to 100% in steps of 5%***

The behaviour determined by the **"Behaviour at sequence i playing deactivation"** parameter (1 ≤ i ≤ 4) is valid for both sequence deactivation due to a BUS deactivation telegram and the reaching of the set number of sequence repetitions. The brightness value on sequence deactivation can be reached with a jump to value or with a ramp. This behaviour is determined by the **"Brightness reaching with on/off command, timed switching, priority commands, block"** parameter of the **Channel x settings** menu.

13.1.18 Sequence i synchronisation

Several LED dimmers controlling different RGB loads may be installed in a single room; if these LED dimmers have to execute the same colour sequence at the same time, the colours on the various dimmers may no longer be aligned after a few cycles have been executed. For this reason, you can enable the master-slave synchronisation mechanism whereby one device acts as Master and, at the end of each colour sequence cycle, sends the Slave devices a synchronisation command that realigns them. When the synchronisation telegram is received, the Slave device reactivates the execution of the sequence from the start, to align itself with the Master device (increasing the sequence execution cycle count if necessary).

The **"Sequence i synchronisation"** parameter is used to enable the master-slave synchronisation for the i-th sequence, and determine the role of the device in this process. The values that can be set are:

- ***disabled - (default value)***
- ***enabled - slave operation***
- ***enabled - master operation***

Selecting "enabled - slave operation", the device is a Slave and receives the synchronisation telegrams from the Master via the ***Ch. x - Sequence i synchronisation input*** (Data Point Type: 1.017 DPT_Trigger) communication object.
Selecting "enabled - master operation", the device is the Master and sends the synchronisation telegrams to the Slaves via the ***Ch. x - Sequence i synchronisation sending*** (Data Point Type: 1.017 DPT_Trigger) communication object.

13.1.19 Brightness sequence i activation status transmission

You can use this parameter to establish the method for sending the ***Ch. x – Brightness sequence i status*** (Data Point Type: 1.001 DPT_Switch) status object.
The values that can be set are:

- ***disabled - (default value)***
- ***on demand only***
  The status object is only sent in response to a read request via the BUS.
- ***on change***
  The ***Ch. x – Brightness sequence i status*** status object is sent on the BUS with every brightness sequence activation/deactivation.

14 *“RGB forced positioning (Channel X forced positioning)”* menu

You can enable the forced positioning function on the load via the **Forced positioning function** parameter. Depending on the type of load (monochrome LED or RGBW/RGB), one of the following menus will appear:

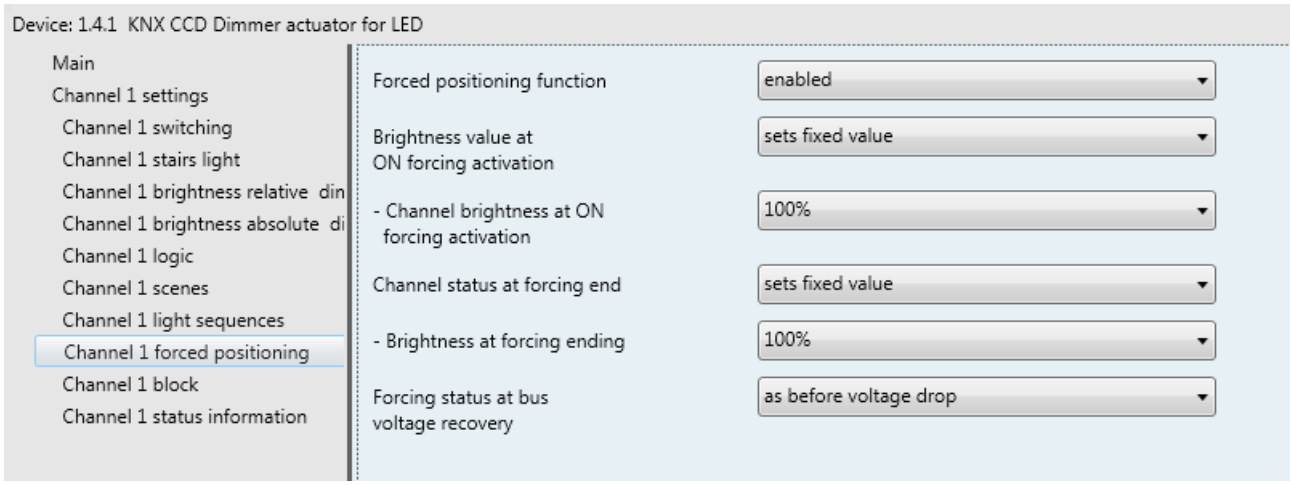


Fig. 14.1: “Channel x forced positioning" menu

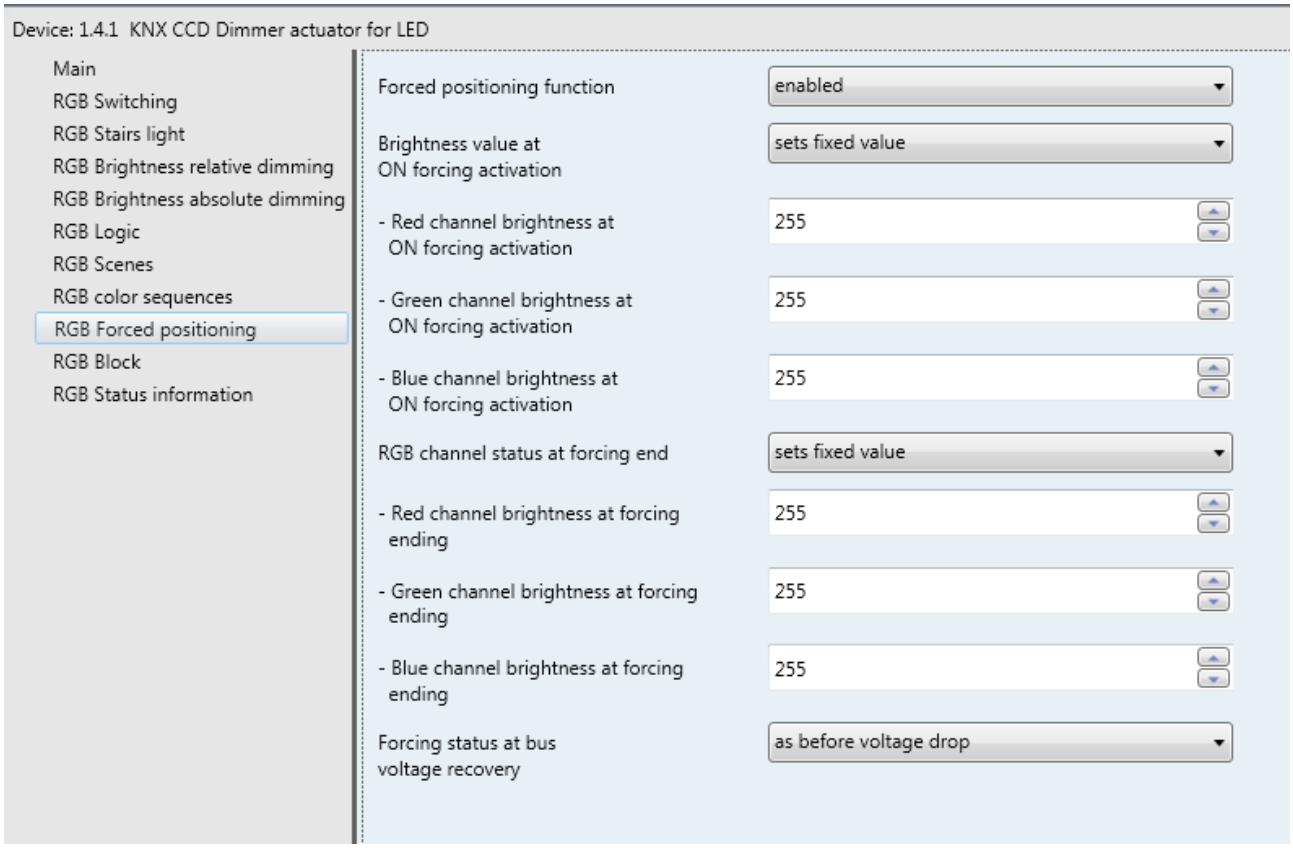


Fig. 14.2: “RGB forced positioning” menu

14.1 Parameters

14.1.1 Forcing function

It is possible to enable the function via the **"Forced positioning function"** parameter, which can have the following values:

- ***disabled - (default value)***
- ***enabled***

If the function is enabled, this displays the ***Ch. x - Priority command*** (Data Point Type: 2.001 DPT_Switch_Control) communication object if the load is monochrome, or the ***RGB - Priority command*** (Data Point Type: 2.001 DPT_Switch_Control) communication object if the load is RGBW or RGB, along with the function configuration parameters.

14.1.2 Brightness value at ON forcing activation

When a priority command is received with the ON forcing activation value, channel X (or the colours) switches to the brightness value set via the **"Brightness value at ON forcing activation"** parameter, which can have the following values:

- ***switching ON brightness value (default value)***
- ***maximum dimming threshold***
- ***sets fixed value***

Selecting **sets fixed value** displays the **"Channel brightness at ON forcing activation"** parameter if the load is monochrome, or the **"Red channel brightness at ON forcing activation"**, **"Green channel brightness at ON forcing activation"** and **"Blue channel brightness at ON forcing activation"** parameters if the load is RGBW or RGB.

14.1.3 Channel brightness at ON forcing activation and Red/green/blue channel brightness at ON forcing activation

The possible values for these parameters are:

- ***from 5% to 100% (default value) in steps of 5% if the load is monochrome***
- ***from 1 to 255 (default value) in steps of 1 if the load is RGBW or RGB***

When receiving a priority command with the forcing value OFF, the channel will switch to the brightness value of 0%.
The brightness value can be reached in the ON and the OFF (0%) forcing status via a ramp or by jumping to the value. This behaviour is determined by the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter of the **Main** menu if the load type is RGBW, the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel x settings** menu if the load type is monochrome, or the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel x settings** menu if the load type is RGB.
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14.1.4 Channel x/RGB status at end of forcing

When a forcing deactivation command is received, the channels assume the brightness value defined in the **"Channel x status at forcing end"** parameter if the load is monochrome, or **"RGB channel status at forcing end"** parameter if the load is RGBW or RGB. The possible values are:

- ***follows last command received - (default value)***
- ***status prior to forcing***

- ***no change***
- ***maximum dimming threshold value***
- ***minimum dimming threshold value***
- ***sets fixed value***

By selecting the value **follows last command received**, each channel follows the dynamics determined by the last command, as if command execution was initiated at the moment in which the command was actually received. Essentially, the command is executed in the background and is applied to the channel at the moment forcing is ended. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of forcing deactivation or to brightness absolute value dimming commands in which the moment of reaching the set brightness is later than the moment of forcing deactivation. If no telegram is received during the forcing activation period, upon deactivation of the forcing the channel will return to its conditions prior to the activation itself.

At the end of forcing, the reaching of the values set in the **"Channel x status at forcing end"** parameter (if the load is monochrome) or the **"RGB channel status at forcing end"** parameter (if the load is RGBW or RGB), when the selected value is **status prior to forcing**/**maximum dimming threshold value**/**minimum dimming threshold value**/**sets fixed value**, is determined by the value of the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter of the **Main** menu if the load type is RGBW, the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel x settings** menu if the load type is monochrome, or the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel x settings** menu if the load type is RGB.

In the extreme case in which the behaviour **no change** upon forcing deactivation is set and a forcing deactivation command is received while the dimming ramp is in progress for reaching the requested forced value, dimming is stopped and the brightness reached at the moment of receiving the forcing deactivation command is maintained.

Selecting **sets fixed value** displays the **"Channel x brightness at forcing ending"** parameter if the load is monochrome, or the **"Red channel brightness at forcing ending"**, **"Green channel brightness at forcing ending"** and **"Blue channel brightness at forcing ending"** parameters if the load is RGBW or RGB.

14.1.5 Channel x brightness at forcing ending and Red/green/blue channel brightness at forcing ending

The possible values for these parameters are:

- ***from 0% to 100% (default value) in steps of 5% if the load is monochrome***
- ***from 1 to 255 (default value) in steps of 1 if the load is RGBW or RGB***

14.1.6 Forcing status at BUS voltage recovery

The **"Forcing status on bus voltage recovery" (="Forced positioning status on bus voltage recovery")** parameter is used to determine the status of the forcing function on bus voltage recovery. This parameter is useful if the function is active when the BUS voltage drops and you want to have the channel behaviour not be changed after voltage drop. The parameter may assume the following values:

- ***deactivated***
- ***as before voltage drop - (default value)***

Selecting **deactivated** (when forcing was active prior to the BUS voltage drop), the forcing function is deactivated when the BUS voltage is restored and the channels behave as set in the **"Channel x status at forcing end"** parameter if the load is monochrome, or the **"RGB channel status at forcing end"** parameter if the load is RGBW or RGB. If the value set for this last parameter is **follows last command received**, the channel will execute the last command received before the BUS voltage drop that, as a result, must be stored in the non-volatile memory. If the last command received before voltage drop is a timed activation

command, when the BUS voltage is recovered the command will not be executed and the channel will switch to the OFF status (brightness 0%).

If the value **as before voltage drop** is selected (and forcing was activated before BUS voltage drop), when the BUS voltage is recovered the forcing function is reactivated and the channel switches to the status determined by the forcing activation command. If a forcing deactivation command is received and the value of the **“Channel x status at forcing end”** parameter (for monochrome load) or the **"RGB channel status at forcing end"** parameter (if the load is RGBW or RGB) is **follows last command received**, the channel executes the last command received before the BUS voltage drop, which, as a result, must be stored in the non-volatile memory. If the last command received before the voltage drop was a timed activation command, the command is not executed when the BUS voltage is restored, and the channel switches OFF (brightness 0%).

15 *“RGB block (Channel X block)”* menu

It is possible to block the channel in a certain (settable) condition after receiving the ***Ch. x - Block*** (Data Point Type: 1.003 DPT_Enable) communication object (monochrome load), or the ***RGB - Block*** (Data Point Type: 1.003 DPT_Enable) communication object (RGBW or RGB load) which activates the block function; until it is deactivated, any command received on all other input communication objects will not be executed.
The block function is the function with the highest priority. This function can be enabled via the **“Block function”** parameter. The menus visualised by ETS are the following (depending on the type of load):

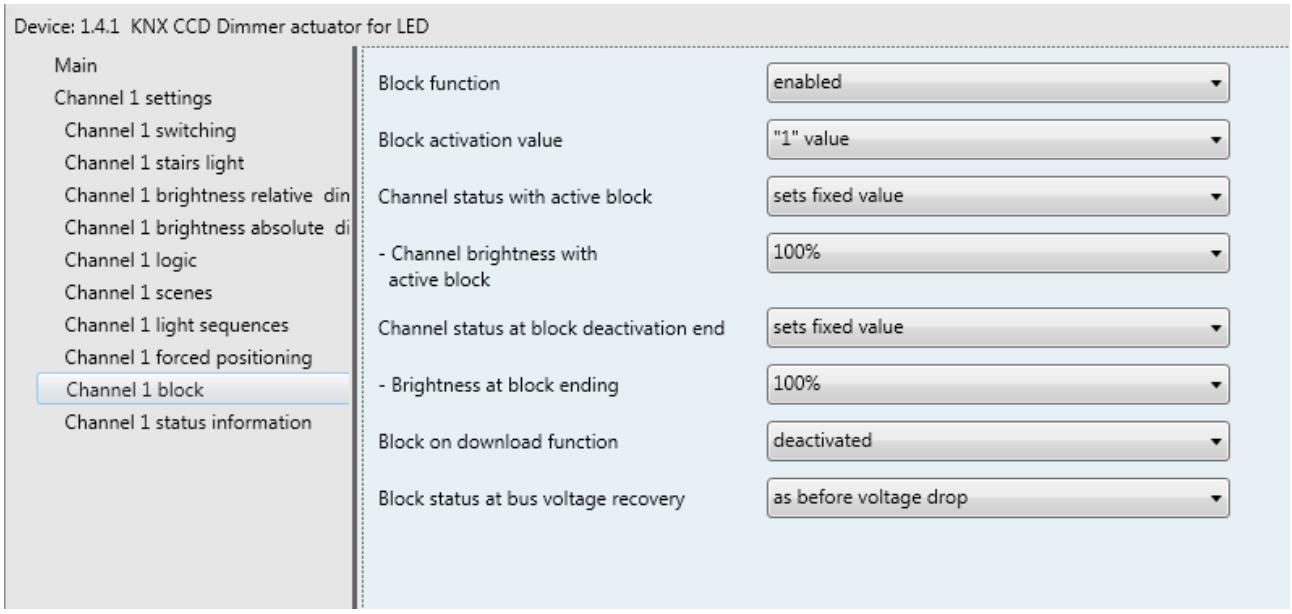

Fig. 15.1: “Channel X block” menu

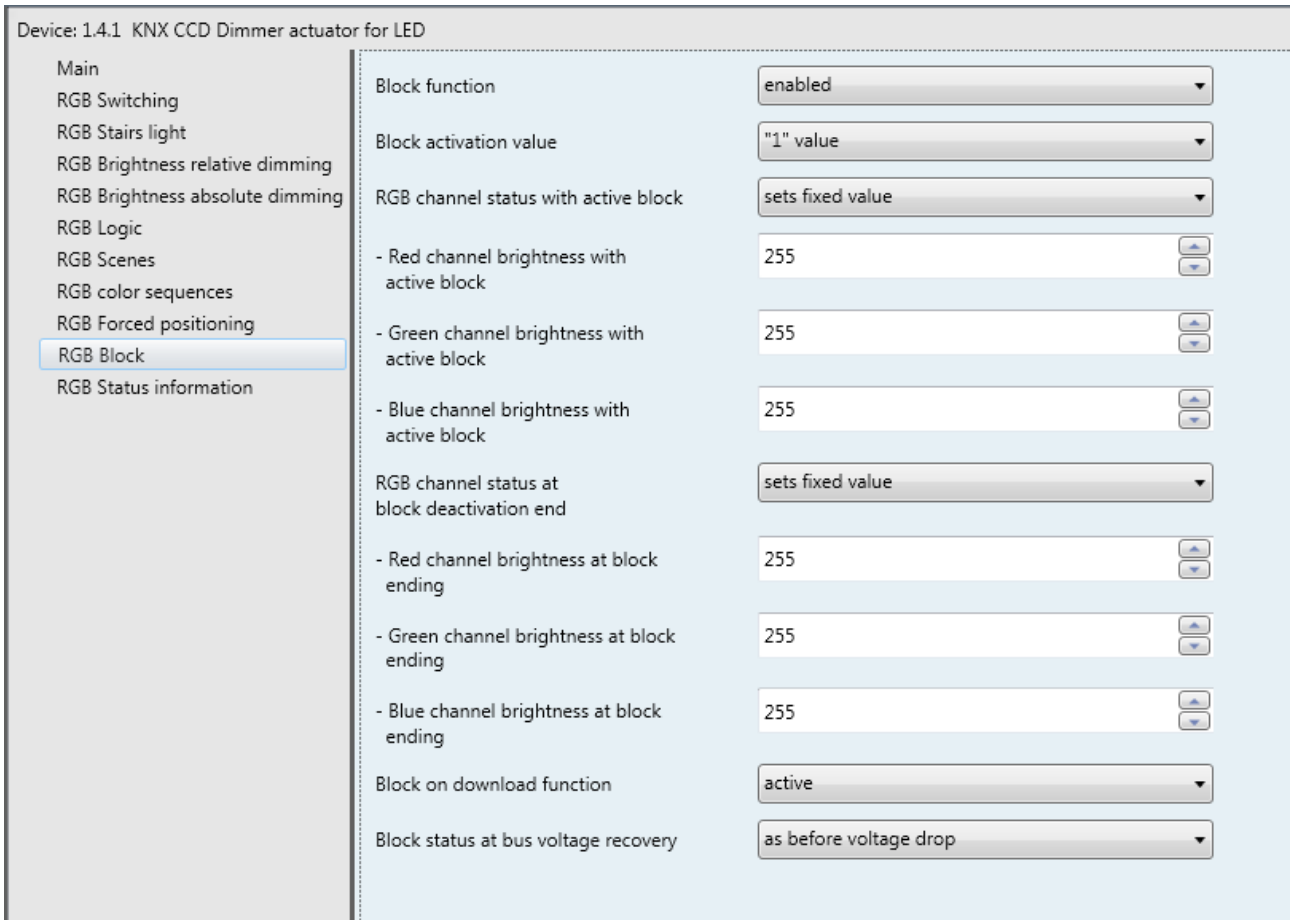

Fig. 15.2: “RGB block” menu

15.1 Parameters

15.1.1 Block function

You can enable the function via the **“Block function”** parameter, which can have the following values:

- ***disabled - (default value)***
- ***enabled***

Selecting **enabled** displays the ***Ch. x - Block*** or ***RGB - Block*** communication object and the function configuration parameters shown in fig. 15.1 and fig. 15.2.

15.1.2 Block activation value

The **“Block activation value”** parameter determines which logic value received via the ***RGB - Block*** or the ***Ch. x - Block*** communication object should activate the function. The possible values are:

- ***value “0”***
- ***value “1” - (default value)***

15.1.3 Channel status/RGB channel status with active block

The **“Channel status with active block”** parameter (monochrome load) or the **“RGB channel status with active block”** parameter (RGBW or RGB load) is used to set the status that the channel must assume if the block function is activated. The possible values are:

- ***maximum dimming threshold value - (default value)***
- ***minimum dimming threshold value***
- ***no change***
- ***last switching on value (memory)***
- ***sets fixed value***

In the extreme case in which the behaviour **no change** with active block is set and a block activation command is received while the dimming ramp is in progress for reaching the requested value by a function with lower priority than blocking, dimming is stopped and the brightness reached at the moment of receiving the block activation command is maintained.

Selecting **sets fixed value** displays the **"Channel 1 brightness with active block"** parameter (monochrome load) or the **"Red channel brightness with active block"**, **"Green channel brightness with active block"** and **"Blue channel brightness with active block"** parameters (RGBW or RGB load).

15.1.4 Channel x brightness with active block and Red/green/blue channel brightness with active block

The possible values for these parameters are:

- ***from 0% to 100% (default value) in steps of 5% if the load is monochrome***
- ***from 1 to 255 (default value) in steps of 1 if the load is RGBW or RGB***

15.1.5 Channel status/RGB channel status at block deactivation end

The **"Channel status at block deactivation end"** parameter (monochrome load) or the **"RGB channel status at block deactivation end"** parameter (RGBW or RGB load) is used to set the status that the channel must assume when the block function is deactivated. The possible values are:

- ***maximum dimming threshold value***
- ***minimum dimming threshold value***
- ***no change***
- ***last switching on value (memory)***
- ***follows last command received - (default value)***
- ***as prior to the block activation***
- ***sets fixed value***

By selecting the value **follows last command received**, the channel follows the dynamics determined by the last command as if the execution of the command was initiated at the moment in which it was effectively received. Essentially, the command is executed in the background and is applied to the output in the moment in which the block is deactivated. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of block deactivation or to brightness absolute value dimming commands in which the moment of reaching the set brightness is later than the moment of block deactivation. If no telegram is received during the block activation period, upon deactivation of the block the channel will return to its conditions prior to the activation itself.

In the extreme case in which the behaviour **no change** upon block deactivation is set and a block deactivation command is received while the dimming ramp is in progress for reaching the requested forced value with the block active, dimming is stopped and the brightness reached at the moment of receiving the block deactivation command is maintained.
Reaching the brightness value following block activation/deactivation can be reached via a ramp or by a jump to value. This behaviour is determined by the **"Brightness reaching for on/off, timed switching, priority commands, block, sequences"** parameter of the **Main** menu if the load type is RGBW, the **"Brightness reaching with on/off commands, timed switching, priority commands, block"** parameter of the **Channel x settings** menu if the load type is monochrome, or the **"Brightness reaching with on/off**

commands, timed switching, priority commands, block" parameter of the **Channel x settings** menu if the load type is RGB.

Selecting **sets fixed value** displays the **"Channel x brightness at block deactivation end"** parameter if the load is monochrome, or the **"Red channel brightness at block deactivation end"**, **"Green channel brightness at block deactivation end"** and **"Blue channel brightness at block deactivation end"** parameters if the load is RGBW or RGB.

15.1.6 Channel x brightness at block deactivation end and Red/green/blue channel brightness at block deactivation end

The possible values for these parameters are:

- ***from 0% to 100% (default value) in steps of 5% if the load is monochrome***
- ***from 1 to 255 (default value) in steps of 1 if the load is RGBW or RGB***

15.1.7 Block on download function

The **"Block on download function"** parameter sets the block function status after downloading the application from ETS. The possible values are:

- ***disabled - (default value)***
- ***active***

15.1.8 Block status at bus voltage recovery

The **"Block function at bus voltage recovery"** parameter is used to set the status of the block function after the BUS power supply voltage is reset. The possible values are:

- ***deactivated***
- ***active***
- ***as before voltage drop - (default value)***

Selecting **deactivated** (if the block function was active prior to the BUS voltage drop), the block function is deactivated when the BUS voltage is restored and the channels behave as set in the **"Channel status at block deactivation end"** parameter if the load is monochrome, or the **"RGB channel status at block deactivation end"** parameter if the load is RGBW or RGB. If the value set for this last parameter is **follows last command received**, the channel will execute the last command received before the BUS voltage drop that, as a result, must be stored in the non-volatile memory. If the last command received before voltage drop is a timed activation command, when the BUS voltage is recovered the command will not be executed and the channel will switch to the OFF status (brightness 0%).

Selecting **as before bus voltage drop** (if the block function was active prior to the BUS voltage drop), the block function is reactivated when the BUS voltage is restored and the channel behaves as set in the **"Channel status with active block"** parameter (monochrome load) or the **"RGB channel status with active block"** parameter (RGBW or RGB load). If a block deactivation command is received and the value of the **"Channel status at block deactivation end"** parameter (monochrome load) or the **"RGB channel status at block deactivation end"** parameter (RGBW or RGB load) is **follows last command received**, the channel will execute the last command received before the BUS voltage drop which, as a result, must be stored in the non-volatile memory. If the last command received before voltage drop is a timed activation command, when the BUS voltage is recovered the command will not be executed and the channel will switch to the OFF status (brightness 0%).

16 *"RGB status information (Channel X status information)"* menu

The **Status information** menu contains the parameters used to set the conditions for sending the channel X or colour status feedback that the device sends via BUS telegrams.
The structure of the menu is as follows:

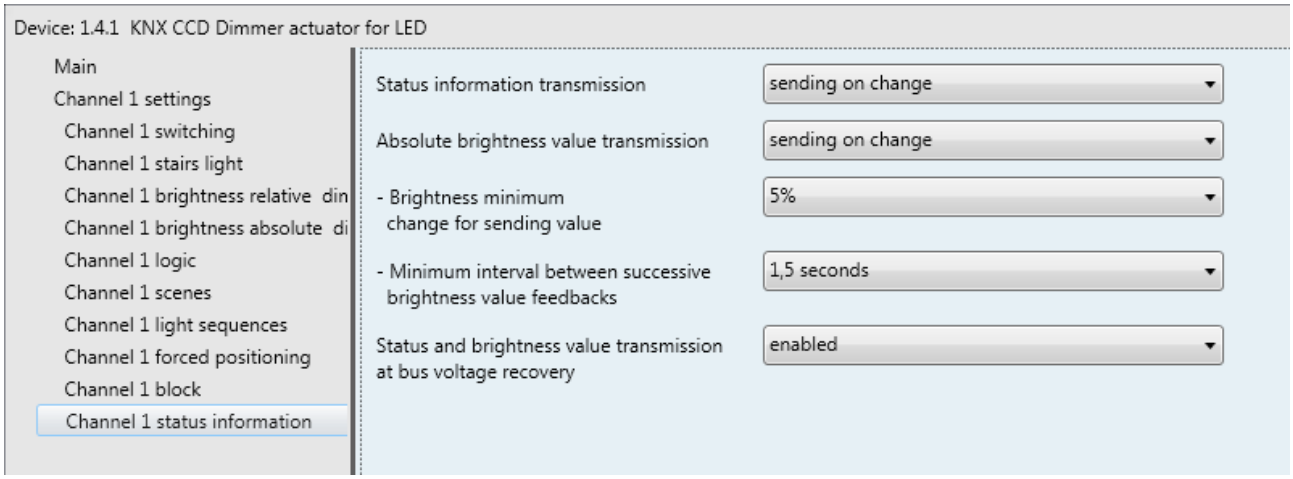

Fig. 16.1: "Channel X status information" menu

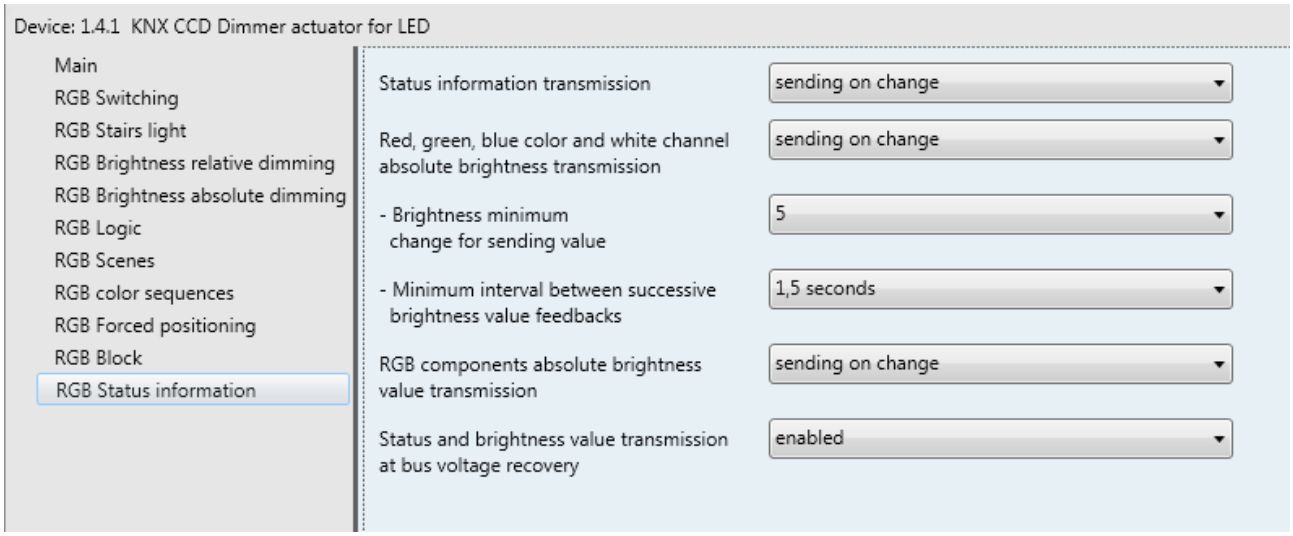

Fig. 16.2: "RGB status information" menu

If the load type is monochrome, the device signals the status of the connected channel X via the ***Ch. x - Status*** (Data Point Type 1.001 DPT_Switch) communication object; if the load type is RGBW or RGB, the device signals the status of the three colours via the ***RGB - Red status***, ***RGB - Green status*** and ***RGB - Blue status*** (Data Point Type 1.001 DPT_Switch) objects.
In the case of an RGBW load, the White channel is autonomously activated by the device as an alternative to the Red, Green and Blue channels when the latter have almost the same brightness value. This generates a colour in the grey scale. There is a different type of feedback for the White channel compared to that for the other three: in this case, the ***RGB - White channel status*** (Data Point Type 1.001 DPT_Switch) object is used to indicate whether the White channel is powered or not. Example: the R, G and B colour components have a value of 255, and the resulting colour is white. The device deactivates the R, G and B channels and activates the W channel. The feedback on the BUS indicates that the R, G and B colours are active (even though the channels are not powered) and the white channel is powered. The status feedback for the R, G

and B colours may therefore differ from the actual powering condition of the connected load, precisely for the fact that the W LED is used to obtain a “purer” white when necessary.
The “Status” communication object assumes the value 1 = ON when the absolute dimming percentage value >0. It assumes the value 0 = OFF when the percentage dimming value is = 0.

16.1 Parameters

16.1.1 Status information transmission

It is possible to set the conditions that determine the sending via the **“Status information transmission”** parameter, which can have the following values:

- ***disabled***
- ***on demand only***
- ***sending on change - (default value)***

Selecting any value other than **disabled** displays the ***Ch. x - Status*** communication object if the load is monochrome, the ***RGB - Red status***, ***RGB - Green status***, ***RGB - Blue status*** and ***RGB - White status*** objects if the load is RGBW, or the ***RGB - Red status***, ***RGB - Green status*** and ***RGB - Blue status*** objects if the load is RGB.

Selecting the value **sending on change**, the communication object(s) is/are sent spontaneously when the status switches from ON to OFF and vice versa. This means that if the brightness dimming is changed, staying higher than 0 (“ON” status), the communication object does not need to be retransmitted on the BUS. In the case of an RGBW or RGB load, the sending condition is valid for all four objects relating to the various colours.
If the load type is monochrome, the device signals the current percentage brightness value of channel X via the ***Ch. x - Brightness value*** (Data Point Type 5.001 DPT_Scaling) communication object; if the load type is RGBW or RGB, the device signals the current absolute brightness value of the colours via the ***RGB - Red brightness value***, ***RGB - Green brightness value*** and ***RGB - Blue brightness value*** communication objects.
In the case of an RGBW load, the White channel is autonomously activated by the device as an alternative to the Red, Green and Blue channels when the latter have almost the same brightness value. This generates a colour in the grey scale. There is a different type of feedback for the White channel compared to that for the other three: in this case, the ***RGB - White channel brightness value*** (Data Point Type 5.001 DPT_Scaling) object indicates the absolute brightness value which the channel assumes. Example: the R, G and B colour components have a value of 255, and the resulting colour is white. The device deactivates the R, G and B channels and activates the W channel. The feedback on the BUS indicates that the brightness of the R, G and B colours is "255" (even though the channels are not powered) and the current white channel brightness is "255". The absolute current brightness value for the R, G and B colours may therefore differ from the actual powering condition of the connected load, precisely for the fact that the W LED is used to obtain a “purer” white when necessary.

16.1.2 Absolute brightness value transmission and red/green/blue/white channel absolute brightness transmission

You can set the conditions that determine the sending of the brightness feedback communication objects via the **“Absolute brightness value transmission”** parameter if the load is monochrome, via the **“Red/green/blue/white channel absolute brightness transmission”** parameter if the load is RGBW, or via the **“Red/green/blue channel absolute brightness transmission”** parameter if the load is RGB.
These parameters can assume the following values:

- ***disabled***
- ***on demand only***
- ***on change - (default value)***

Selecting any value other than **disabled** displays the ***Ch. x - Brightness value*** communication object if the load is monochrome, the ***RGB - Red brightness value***, ***RGB - Green brightness value***, ***RGB - Blue***

brightness value and ***RGB - White brightness value*** objects if the load is RGBW, or the ***RGB - Red brightness value*** , ***RGB - Green brightness value*** and ***RGB - Blue brightness value*** objects if the load is RGB.

Selecting the value **sending on change** displays the **"Brightness minimum change for sending value"** and **"Minimum interval between successive brightness value feedbacks"** parameters.

16.1.3 Brightness minimum change for sending value

The **"Brightness minimum change for sending value"** parameter is used to set the value of the minimum change necessary for triggering the sending of the communication object dedicated to the brightness value. The parameter may have the following values:

If the load type is monochrome:

- ***1%***
- ***2%***
- ***5% - (default value)***
- ***10%***
- ***15%***
- ***25%***

If the load type is RGBW or RGB:

- ***1***
- ***2***
- ***5 - (default value)***
- ***10***
- ***15***
- ***25***

16.1.4 Minimum interval between successive brightness value feedbacks

If the brightness value feedback for the monochrome channel or the RGBW colours takes place "on change", there is the risk that the brightness values change quickly during a dimming ramp and the device is unable to send all the feedback correctly. To avoid this problem, a minimum time interval can be defined between sending one brightness value and the next one via the **"Minimum interval between successive brightness value feedbacks"** parameter, which is only assessed if there was a change in brightness that exceeds the minimum value set via the **"Brightness minimum change for sending value"** parameter.
The **"Minimum interval between successive brightness value feedbacks"** parameter can assume the following values:

- ***500 ms***
- ***1 second***
- ***1.5 seconds - (default value)***
- ***2 seconds***

16.1.5 Status and brightness value transmission at bus voltage recovery

You can use the **"Status and brightness value transmission at bus voltage recovery"** parameter to determine whether the "Status" and "Brightness value" communication objects (both those dedicated to each colour component and the general ones) must be transmitted when the BUS voltage is restored. The parameter may have the following values:

- ***disabled***
- ***enabled - (default value)***

16.1.6 RGB components absolute brightness value transmission

If the load type is RGBW or RGB, the brightness value of the three colours (red, green and blue) can be indicated via a single telegram on a single communication object - ***RGB - RGB components brightness value*** (Data Point Type: 232.600 DPT_Colour_RGB). The **"RGB components absolute brightness value transmission"** parameter can have the following values:

- ***disabled***
- ***on demand only***
- ***sending on change - (default value)***

Selecting any value other than **disabled** displays the communication object. Selecting **sending on change**, a telegram is sent when even just one of the three colours changes its brightness value by at least 1 unit. The minimum gap between one brightness value feedback and the next is 2 seconds.

16.1.7 RGB colour status feedback

If the load type is RGBW (or RGB) and the **"General RGB colour control"** parameter of the **Main** menu (or of the **RGB channel settings** menu) is set at **enable brilliancy control (HSV)**, it is possible to indicate the brilliancy value (one of the three components of the HSV cylindrical coordinates system) of the set RGB colour and the activation status of the RGB colour (ON if at least one colour component is enabled, OFF if all the colour components are disabled).
In the same way, if the value **enable brightness control (HSL)** is set, it is possible to indicate the brightness value (one of the three components of the HSL cylindrical coordinates system) of the set RGB colour and the activation status of the RGB colour (ON if at least one colour component is enabled, OFF if all the colour components are disabled).
The **"RGB colour status feedback"** parameter is used to enable RGB colour status feedback via the ***RGB - General status*** communication object. The values that can be set are:

- ***disabled***
- ***on demand only***
- ***sending on change - (default value)***

Selecting any value other than **disabled** displays the ***RGB - General status*** communication object. Selecting the value **sending on change**, the communication object is sent spontaneously when the status switches from ON to OFF and vice versa. This means that if the brightness value is changed (but remains higher than 0 - "ON" status), the communication object does not need to be transmitted again on the BUS.

16.1.8 RGB colour brilliancy feedback

The **"RGB colour brilliancy feedback"** parameter is used to enable RGB colour brilliancy feedback via the ***RGB - General brilliancy value*** communication object. The values that can be set are:

- ***disabled***
- ***on demand only***
- ***sending on change - (default value)***

Selecting any value other than **disabled** displays the ***RGB - General brilliancy value*** communication object. Selecting the value **sending on change** displays the **"Brilliancy minimum change for sending value"** and **"Minimum interval between successive brilliancy value feedbacks"** parameters.

16.1.9 RGB colour brightness feedback

The **"RGB colour brightness feedback"** parameter is used to enable RGB colour brightness feedback via the ***RGB - General brightness value*** communication object. The values that can be set are:

- ***disabled***
- ***on demand only***
- ***sending on change - (default value)***

Selecting any value other than **disabled** displays the ***RGB - General brightness value*** communication object.
Selecting the value **sending on change** displays the **"Brightness minimum change for sending value"** and **"Minimum interval between successive brightness value feedbacks"** parameters.

16.1.10 Brilliancy minimum change for sending value

The **"Brilliancy minimum change for sending value"** parameter is used to set the minimum change necessary for triggering the transmission of the ***RGB - General brilliancy value*** communication object. The parameter may have the following values:

- ***1%***
- ***2%***
- ***5% - (default value)***
- ***10%***
- ***15%***
- ***25%***

If the RGB colour brilliancy value feedback takes place "on change", there is the risk that the brilliancy value changes quickly during a dimming ramp and the device is unable to send all the feedback correctly. To avoid this problem, the **"Minimum interval between successive brilliancy value feedbacks"** parameter can be used to set a minimum time interval between the sending of one brilliancy value and the next. This is only considered if there is a brilliancy variation that exceeds the minimum value set with the **"Brilliancy minimum change for sending value"** parameter.

16.1.11 Minimum interval between successive brilliancy value feedbacks

The **"Minimum interval between successive brilliancy value feedbacks"** parameter can assume the following values:

- ***500 ms***
- ***1 second***
- ***1.5 seconds - (default value)***
- ***2 seconds***

16.1.12 Brightness minimum change for sending value

The **"Brightness minimum change for sending value"** parameter is used to set the minimum change necessary for triggering the transmission of the ***RGB - General brightness value*** communication object. The parameter may have the following values:

- ***1%***
- ***2%***
- ***5% - (default value)***
- ***10%***
- ***15%***
- ***25%***

If the RGB colour brightness value feedback takes place "on change", there is the risk that the brightness value changes quickly during a dimming ramp and the device is unable to send all the feedback correctly. To avoid this problem, the **"Minimum interval between successive brightness value feedbacks"** parameter can be used to set a minimum time interval between the sending of one brightness value and the next. This is only considered if there is a brightness variation that exceeds the minimum value set with the **"Brightness minimum change for sending value"** parameter.

16.1.13 Minimum interval between successive brightness value feedbacks

The **"Minimum interval between successive brightness value feedbacks"** parameter can assume the following values:

- ***500 ms***
- ***1 second***
- ***1.5 seconds - (default value)***
- ***2 seconds***

17 Behaviour in the case of BUS/auxiliary voltage drop and recovery, front button keys operation, priority functions

The behaviour of the dimmer in the event of a BUS/auxiliary voltage drop and recovery is explained below.

17.1 Behaviour at BUS voltage failure

In the case of BUS voltage failure, the dimmer maintains the output status.

17.2 Behaviour at BUS voltage recovery

You can set the status that the channel/colour must assume on BUS voltage recovery using the **"Dimmer status at bus voltage recovery"** parameter of the **Main** menu if the load is RGBW, the **"Channel x status at bus voltage recovery"** parameter of the **Channel x settings** menu if the load is monochrome, or the **"RGB channel status at bus voltage recovery"** parameter of the **RGB channel settings** menu if the load is RGB.
When the BUS voltage is restored, the following items are evaluated in order of priority for each channel/colour:

1 "Block object value at bus voltage recovery" if the block is not active
2 "Forcing status at bus voltage recovery" if forcing is not active
3 "Dimmer status at BUS voltage recovery"

17.3 Behaviour at auxiliary voltage drop

With an auxiliary voltage failure, the dimmer will switch to the OFF status (brightness value 0%). If the BUS voltage is present, a signal is transmitted on the BUS via the ***Auxiliary voltage absence alarm*** communication object.

17.4 Behaviour at auxiliary voltage recovery

The behaviour when the auxiliary voltage is restored is determined by the **"Dimmer status at auxiliary voltage recovery"** parameter of the **Main** menu if the load is RGBW, by the **"Channel x status at auxiliary voltage recovery"** parameter of the **Channel x settings** menu or the **"RGB channel status at auxiliary voltage recovery"** parameter of the **RGB channel settings** menu if the load is RGB.

18 Front button keys operation and priority functions

18.1 Front button key operation

The behaviour of the front button key on the device associated with channel X is defined by the **"Local push-button behaviour"** parameter of the **Channel x settings** menu if the load is monochrome. The behaviour of the 4 front button keys associated with the colours R, G, B and W is defined by the **"Local push-button behaviour"** parameter of the **Main** menu if the load is RGBW. The behaviour of the 3 front button keys associated with the colours R, G and B is defined by the **"RGB channel local push-button behaviour"** parameter of the **RGB channel settings** menu if the load is RGB.

18.2 Function priorities

The priority of the functions is shown in the following table:

Function	**Priority**	
Relative brightness dimming (Brightness relative dimming)	1	low
On/off switching	1	
Timed switching	1	
Absolute brightness dimming (Brightness absolute dimming)	1	
RGB component dimming	1	
Scenes	1	
Colour sequences/Brightness sequences	1	
Logic function (if used for enabling of commands)	2	
Channel x/RGB status at end of forcing	3	
Channel x/RGB status at block deactivation	4	
Dimmer/channel x status on BUS voltage recovery	5	
Forcing status at BUS voltage recovery	6	
Block function at BUS voltage recovery	7	
Forced positioning	8	
Block	9	
Front button key	10	
Dimmer/channel x status on auxiliary voltage recovery with BUS voltage present	11	
Status at auxiliary voltage failure with BUS voltage present (OFF)	12	
Status at BUS voltage drop (OFF)	13	
Overheating alarm	14	high

19 Communication objects

The communication objects are listed in the following table:

Input objects

#				Object name	Object function	Description	Datapoint type
Ch 1	Ch 2	Ch 3	Ch 4				
0	32	64	96	Ch.x - Switch	On/Off	ON/OFF switching command of channel X	1.001 DPT_Switch
1	33	65	97	Ch.x – Brightness dimming	Increase/Decrease	Brightness relative dimming of channel x	3.007 DPT_Control_Dimming
2	34	66	98	Ch.x - Command value	% Value	Sets the brightness absolute value (% value) of channel x	5.001 DPT_Scaling
3	35	67	99	Ch.x - Timed switch	Start/Stop	Staircase light timing command of channel x	1.010 DPT_Start
4	36	68	100	Ch.x - Scene	Execute/Store	Allows scenes execution/learning of channel x	18.001 DPT_SceneControl
5	37	69	101	Ch.x - Priority command	On/Off forced positioning	Forces the value of the channel x output in a given state	2.001 DPT_Switch_Control
6	38	70	102	Ch.x - Block	Switching On/Off	Block channel x status in a settable condition	1.003 DPT_Enable
7	39	71	103	Ch.x - Logic input 1	Logic	Logic input 1 of channel x	1.002 DPT_Bool
8	40	72	104	Ch.x - Logic input 2	Logic	Logic input 2 of channel x	1.002 DPT_Bool
9	41	73	105	Ch.x - Logic input 3	Logic	Logic input 3 of channel x	1.002 DPT_Bool
10	42	74	106	Ch.x - Logic input 4	Logic	Logic input 4 of channel x	1.002 DPT_Bool
14	46	78	110	Ch.x - Stairs light activation time	Value in seconds	Staircase light time value of channel x	7.005 DPT_TimePeriodSec
15	47	79	111	Ch.x - Scene storing enabling	Enable/Disable	Enable/disable scenes storing of channel x	1.003 DPT_Enable
16	48	80	112	Ch.x - Light sequence 1	Start/Stop	Allows light sequence 1 playing/stop of channel x	1.010 DPT_Start
17	49	81	113	Ch.x - Sequence 1 synchronisation input	Receive synchronisation	Channel x light sequence 1 synchronisation command input from master dimmer	1.017 DPT_Trigger
18	50	82	114	Ch.x - Sequence 1 scale speed regulation	1 = Increase/0 = Decrease	Receives speed increase/decrease command step of channel x light sequence 1	1.007 DPT_Step
18	50	82	114	Ch.x - Sequence 1 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of channel x light sequence 1	1.007 DPT_Step
18	50	82	114	Ch.x - Light sequence 1 strobe time	Value 1 - 255 [seconds]	Receives speed value of channel x light sequence 1	7.005 DPT_TimePeriodSec
18	50	82	114	Ch.x - Light sequence 1 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of channel x light sequence 1	7.004 DPT_TimePeriod100Msec
20	52	84	116	Ch.x - Light sequence 2	Start/Stop	Allows light sequence 2 playing/stop of channel x	1.010 DPT_Start
21	53	85	117	Ch.x - Sequence 2 synchronisation input	Receive synchronisation	Channel x light sequence 2 synchronisation command input from master dimmer	1.017 DPT_Trigger
22	54	86	118	Ch.x - Sequence 2 scale speed regulation	1 = Increase/0 = Decrease	Receives speed increase/decrease command step of channel x light sequence 2	1.007 DPT_Step
22	54	86	118	Ch.x - Sequence 2 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of channel x light sequence 2	1.007 DPT_Step
22	54	86	118	Ch.x - Sequence 2 scale speed value	Value 1 - 255 [seconds]	Receives speed value of channel x light sequence 2	7.005 DPT_TimePeriodSec
22	54	86	118	Ch.x - Light sequence 2 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of channel x light sequence 2	7.004 DPT_TimePeriod100Msec
24	56	88	120	Ch.x - Light sequence 3	Start/Stop	Allows light sequence 3 playing/stop of channel x	1.010 DPT_Start

25	57	89	121	Ch.x - Sequence 3 synchronisation input	Receive synchronisation	Channel x light sequence 3 synchronisation command input from master dimmer	1.017 DPT_Trigger
26	58	90	122	Ch.x - Sequence 3 scale speed regulation	1 = Increase/0 = Decrease	Receives speed increase/decrease command step of channel x light sequence 3	1.007 DPT_Step
26	58	90	122	Ch.x - Sequence 3 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of channel x light sequence 3	1.007 DPT_Step
26	58	90	122	Ch.x - Sequence 3 scale speed value	Value 1 - 255 [seconds]	Receives speed value of channel x light sequence 3	7.005 DPT_TimePeriodSec
26	58	90	122	Ch.x - Light sequence 3 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of channel x light sequence 3	7.004 DPT_TimePeriod100Msec
28	60	92	124	Ch.x - Light sequence 4	Start/Stop	Allows light sequence 4 playing/stop of channel x	1.010 DPT_Start
29	61	93	125	Ch.x - Sequence 4 synchronisation input	Receive synchronisation	Channel x light sequence 4 synchronisation command input from master dimmer	1.017 DPT_Trigger
30	62	94	126	Ch.x - Sequence 4 scale speed regulation	1 = Increase/0 = Decrease	Receives speed increase/decrease command step of channel x light sequence 4	1.007 DPT_Step
30	62	94	126	Ch.x - Sequence 4 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of channel x light sequence 4	1.007 DPT_Step
30	62	94	126	Ch.x - Sequence 4 scale speed regulation	Value 1 - 255 [seconds]	Receives speed value of channel x light sequence 4	7.005 DPT_TimePeriodSec
30	62	94	126	Ch.x - Sequence 4 strobe time regulation	Value 1 - 255 [0.1 seconds]	Receives strobe time value of channel x light sequence 4	7.004 DPT_TimePeriod100Msec
128				RGB - Red switching	On/Off	ON/OFF switching command of red channel	1.001 DPT_Switch
129				RGB - Green switching	On/Off	ON/OFF switching command of green channel	1.001 DPT_Switch
130				RGB - Blue switching	On/Off	ON/OFF switching command of blue channel	1.001 DPT_Switch
131				RGB - Red brightness dimming	Increase/Decrease	Brightness relative dimming of red channel	3.007 DPT_Control_Dimming
132				RGB - Green brightness dimming	Increase/Decrease	Brightness relative dimming of green channel	3.007 DPT_Control_Dimming
133				RGB - Blue brightness dimming	Increase/Decrease	Brightness relative dimming of blue channel	3.007 DPT_Control_Dimming
134				RGB - Red command value	Value 0 - 255	Sets the brightness absolute value (0-255) of red channel	5.001 DPT_Scaling
135				RGB - Green command value	Value 0 - 255	Sets the brightness absolute value (0-255) of green channel	5.001 DPT_Scaling
136				RGB - Blue command value	Value 0 - 255	Sets the brightness absolute value (0-255) of blue channel	5.001 DPT_Scaling
137				RGB - RGB component command value	RGB Component value 0 - 255	Sets the brightness absolute value (0-255) of red, green and blue components	232.600 DPT_Colour_RGB
138				RGB - Timed switch	Start/Stop	Staircase light timing command of RGB channel	1.010 DPT_Start
139				RGB - Scene	Execute/Store	Allows scene execution/learning of RGB channel	18.001 DPT_SceneControl
140				RGB - Priority command	On/Off forced positioning	Forces the value of the RGB channel output in a given state	2.001 DPT_Switch_Control
141				RGB - Block	Switching On/Off	Block RGB channel status in a settable condition	1.003 DPT_Enable
142				RGB - Logic input 1	Logic	Logic input of RGB channel	1.002 DPT_Bool
143				RGB - Logic input 2	Logic	Logic input of RGB channel	1.002 DPT_Bool
144				RGB - Logic input 3	Logic	Logic input of RGB channel	1.002 DPT_Bool
145				RGB - Logic input 4	Logic	Logic input of RGB channel	1.002 DPT_Bool
156				RGB - Stairs light activation time	Value in seconds	Staircase light time value of RGB channel	7.005 DPT_TimePeriodSec
157				RGB - Scene storing enabling	Enable/Disable	Enable/disable scene storing of RGB channel	1.003 DPT_Enable

158	RGB - Colour sequence 1	Start/Stop	Allows colour sequence 1 playing/stop	1.010 DPT_Start
159	RGB - Colour sequence 1 synchronisation input	Receive synchronisation	Colour sequence 1 synchronisation command input from master dimmer	1.017 DPT_Trigger
160	RGB - Colour sequence 1 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 1	1.007 DPT_Step
160	RGB - Colour sequence 1 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 1	1.007 DPT_Step
160	RGB - Colour sequence 1 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 1	1.007 DPT_Step
160	RGB - Sequence 1 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 1	7.005 DPT_TimePeriodSec
160	RGB - Colour sequence 1 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 1	7.004 DPT_TimePeriod100Msec
160	RGB - Sequence 1 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 1	7.005 DPT_TimePeriodSec
162	RGB - Colour sequence 2	Start/Stop	Allows colour sequence 2 playing/stop	1.010 DPT_Start
163	RGB - Colour sequence 2 synchronisation input	Receive synchronisation	Colour sequence 2 synchronisation command input from master dimmer	1.017 DPT_Trigger
164	RGB - Colour sequence 2 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 2	1.007 DPT_Step
164	RGB - Colour sequence 2 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 2	1.007 DPT_Step
164	RGB - Colour sequence 2 scale speed regulation 2	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 2	1.007 DPT_Step
164	RGB - Sequence 2 rainbow speed	Value 1 - 255 [0.1 seconds]	Receives rainbow speed value of colour sequence 2	7.005 DPT_TimePeriodSec
164	RGB - Colour sequence 2 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 2	7.004 DPT_TimePeriod100Msec
164	RGB - Sequence 2 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 2	7.005 DPT_TimePeriodSec
166	RGB - Colour sequence 3	Start/Stop	Allows colour sequence 3 playing/stop	1.010 DPT_Start
167	RGB - Colour sequence 3 synchronisation input	Receive synchronisation	Colour sequence 3 synchronisation command input from master dimmer	1.017 DPT_Trigger
168	RGB - Colour sequence 3 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 3	1.007 DPT_Step
168	RGB - Colour sequence 3 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 3	1.007 DPT_Step
168	RGB - Colour sequence 3 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 3	1.007 DPT_Step
168	RGB - Sequence 3 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 3	7.005 DPT_TimePeriodSec
168	RGB - Colour sequence 3 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 3 colour 3	7.004 DPT_TimePeriod100Msec
168	RGB - Sequence 3 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 3	7.005 DPT_TimePeriodSec
170	RGB - Colour sequence 4	Start/Stop	Allows colour sequence 4 playing/stop	1.010 DPT_Start
171	RGB - Colour sequence 4 synchronisation input	Receive synchronisation	Colour sequence 4 synchronisation command input from master dimmer	1.017 DPT_Trigger
172	RGB - Colour sequence 4 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 4	1.007 DPT_Step

172	RGB - Colour sequence 4 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 4	1.007 DPT_Step
172	RGB - Colour sequence 4 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 4	1.007 DPT_Step
172	RGB - Sequence 4 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 4	7.005 DPT_TimePeriodSec
172	RGB - Colour sequence 4 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 4	7.004 DPT_TimePeriod100Msec
172	RGB - Sequence 4 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 4	7.005 DPT_TimePeriodSec
174	RGB - Colour sequence 5	Start/Stop	Allows colour sequence 5 playing/stop	1.010 DPT_Start
175	RGB - Colour sequence 5 synchronisation input	Receive synchronisation	Colour sequence 5 synchronisation command input from master dimmer	1.017 DPT_Trigger
176	RGB - Colour sequence 5 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 5	1.007 DPT_Step
176	RGB - Colour sequence 5 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 5	1.007 DPT_Step
176	RGB - Colour sequence 5 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 5	1.007 DPT_Step
176	RGB - Sequence 5 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 5	7.005 DPT_TimePeriodSec
176	RGB - Colour sequence 5 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 5	7.004 DPT_TimePeriod100Msec
176	RGB - Sequence 5 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 5	7.005 DPT_TimePeriodSec
178	RGB - Colour sequence 6	Start/Stop	Allows colour sequence 6 playing/stop	1.010 DPT_Start
179	RGB - Colour sequence 6 synchronisation input	Receive synchronisation	Colour sequence 6 synchronisation command input from master dimmer	1.017 DPT_Trigger
180	RGB - Colour sequence 6 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 6	1.007 DPT_Step
180	RGB - Colour sequence 6 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 6	1.007 DPT_Step
180	RGB - Colour sequence 6 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 6	1.007 DPT_Step
180	RGB - Sequence 6 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 6	7.005 DPT_TimePeriodSec
180	RGB - Colour sequence 6 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 6	7.004 DPT_TimePeriod100Msec
180	RGB - Sequence 6 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 6	7.005 DPT_TimePeriodSec
181	RGB - Colour sequence 7	Start/Stop	Allows colour sequence 7 playing/stop	1.010 DPT_Start
182	RGB - Colour sequence 7 synchronisation input	Receive synchronisation	Colour sequence 7 synchronisation command input from master dimmer	1.017 DPT_Trigger
184	RGB - Colour sequence 7 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 7	1.007 DPT_Step
184	RGB - Colour sequence 7 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 7	1.007 DPT_Step
184	RGB - Colour sequence 7 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 7	1.007 DPT_Step
184	RGB - Sequence 7 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 7	7.005 DPT_TimePeriodSec

184	RGB - Colour sequence 7 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 7	7.004 DPT_TimePeriod100Msec
184	RGB - Sequence 7 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 7	7.005 DPT_TimePeriodSec
185	RGB - Colour sequence 8	Start/Stop	Allows colour sequence 8 playing/stop	1.010 DPT_Start
186	RGB - Colour sequence 8 synchronisation input	Receive synchronisation	Colour sequence 8 synchronisation command input from master dimmer	1.017 DPT_Trigger
188	RGB - Colour sequence 8 rainbow speed regulation	1 = Increase/0 = Decrease	Receives rainbow speed increase/decrease command step of colour sequence 8	1.007 DPT_Step
188	RGB - Colour sequence 8 strobe time regulation	1 = Increase/0 = Decrease	Receives strobe time increase/decrease command step of colour sequence 8	1.007 DPT_Step
188	RGB - Colour sequence 8 scale speed regulation	1 = Increase/0 = Decrease	Receives brightness scale speed increase/decrease command step of colour sequence 8	1.007 DPT_Step
188	RGB - Sequence 8 rainbow speed	Value 1 - 255 [seconds]	Receives rainbow speed value of colour sequence 8	7.005 DPT_TimePeriodSec
188	RGB - Colour sequence 8 strobe time	Value 1 - 255 [0.1 seconds]	Receives strobe time value of colour sequence 8	7.004 DPT_TimePeriod100Msec
188	RGB - Sequence 8 lightness scale speed	Value 1 - 255 [seconds]	Receives lightness scale speed value of colour sequence 8	7.005 DPT_TimePeriodSec
190	RGB - General switching	On/Off	ON/OFF switching command of RGB channel	1.001 DPT_Switch
191	RGB - General lightness dimming	Increase/Decrease	Brightness relative dimming of RGB channel	3.007 DPT_Control_Dimming
191	RGB - General brightness dimming	Increase/Decrease	Relative dimming RGB colour lightness	3.007 DPT_Control_Dimming
192	RGB - General lightness command value	% Value	Sets the brightness absolute value (% value) of RGB channel	5.001 DPT_Scaling
192	RGB - General brightness command value	% Value	Sets absolute lightness value (% value) of RGB colour	5.001 DPT_Scaling

Output objects

#				Object name	Object function	Description	Datapoint type
Ch 1	Ch 2	Ch 3	Ch 4				
11	43	75	107	Ch.x - Status	On/Off	On/Off status of channel x	1.001 DPT_Switch
12	44	76	108	Ch.x - Brightness value	% Value	Current brightness value of channel x	5.001 DPT_Scaling
13	45	77	109	Ch.x - Logical operation outcome	Logic	Logic output of channel x	1.002 DPT_Bool
17	49	81	113	Ch.x - Sequence 1 synchronisation output	Send trigger synchronisation	Channel 1 light sequence 1 synchronisation command output to slave dimmer	1.017 DPT_Trigger
19	51	83	115	Ch.x - Light sequence 1 status	On/Off	On/Off status of light sequence 1 of channel x	1.001 DPT_Switch
21	53	85	117	Ch.x - Sequence 2 synchronisation output	Send trigger synchronisation	Channel x light sequence 2 synchronisation command output to slave dimmer	1.017 DPT_Trigger
23	55	87	119	Ch.x - Light sequence 2 status	On/Off	On/Off status of light sequence 2 of channel x	1.001 DPT_Switch
25	57	89	121	Ch.x - Sequence 3 synchronisation output	Send trigger synchronisation	Channel x light sequence 3 synchronisation command output to slave dimmer	1.017 DPT_Trigger
27	59	91	123	Ch.x - Light sequence 3 status	On/Off	On/Off status of light sequence 3 of channel x	1.001 DPT_Switch
29	61	93	125	Ch.x - Sequence 4 synchronisation output	Send trigger synchronisation	Channel x light sequence 4 synchronisation command output to slave dimmer	1.017 DPT_Trigger
31	63	95	127	Ch.x - Light sequence 4 status	On/Off	On/Off status of light sequence 4 of channel x	1.001 DPT_Switch
146				RGB - Red status	On/Off	On/Off status of red channel	1.001 DPT_Switch

147	RGB - Green status	On/Off	On/Off status of green channel	1.001 DPT_Switch
148	RGB - Blue status	On/Off	On/Off status of blue channel	1.001 DPT_Switch
149	RGB - Red brightness value	Value 0 - 255	Current brightness value of red colour	5.001 DPT_Scaling
150	RGB - Green brightness value	Value 0 - 255	Current brightness value of green colour	5.001 DPT_Scaling
151	RGB - Blue brightness value	Value 0 - 255	Current brightness value of blue colour	5.001 DPT_Scaling
152	RGB - RGB component brightness value	RGB Component brightness	Current brightness value 0 - 255 of the three components red, green and blue	232.600 DPT_Colour_RGB
153	RGB - White channel status	On/Off	On/Off status of white channel	1.001 DPT_Switch
154	RGB - White channel brightness value	Value 0 - 255	Current brightness value of white channel	5.001 DPT_Scaling
155	RGB - Logical operation outcome	Logic	Logic output of RGB channel	1.002 DPT_Bool
159	RGB - Colour sequence 1 synchronisation output	Send trigger synchronisation	Colour sequence 1 synchronisation command output to slave dimmer	1.017 DPT_Trigger
161	RGB - Colour sequence 1 status	On/Off	On/Off status of colour sequence 1	1.001 DPT_Switch
163	RGB - Colour sequence 2 synchronisation output	Send trigger synchronisation	Colour sequence 2 synchronisation command output to slave dimmer	1.017 DPT_Trigger
165	RGB - Colour sequence 2 status	On/Off	On/Off status of colour sequence 2	1.001 DPT_Switch
167	RGB - Colour sequence 3 synchronisation output	Send trigger synchronisation	Colour sequence 3 synchronisation command output to slave dimmer	1.017 DPT_Trigger
169	RGB - Colour sequence 3 status	On/Off	On/Off status of colour sequence 3	1.001 DPT_Switch
171	RGB - Colour sequence 4 synchronisation output	Send trigger synchronisation	Colour sequence 4 synchronisation command output to slave dimmer	1.017 DPT_Trigger
173	RGB - Colour sequence 4 status	On/Off	On/Off status of colour sequence 4	1.001 DPT_Switch
175	RGB - Colour sequence 5 synchronisation output	Send trigger synchronisation	Colour sequence 5 synchronisation command output to slave dimmer	1.017 DPT_Trigger
177	RGB - Colour sequence 5 status	On/Off	On/Off status of colour sequence 5	1.001 DPT_Switch
179	RGB - Colour sequence 6 synchronisation output	Send trigger synchronisation	Colour sequence 6 synchronisation command output to slave dimmer	1.017 DPT_Trigger
181	RGB - Colour sequence 6 status	On/Off	On/Off status of colour sequence 6	1.001 DPT_Switch
183	RGB - Colour sequence 7 synchronisation output	Send trigger synchronisation	Colour sequence 7 synchronisation command output to slave dimmer	1.017 DPT_Trigger
185	RGB - Colour sequence 7 status	On/Off	On/Off status of colour sequence 7	1.001 DPT_Switch
187	RGB - Colour sequence 8 synchronisation output	Send trigger synchronisation	Colour sequence 8 synchronisation command output to slave dimmer	1.017 DPT_Trigger
189	RGB - Colour sequence 8 status	On/Off	On/Off status of colour sequence 8	1.001 DPT_Switch
193	RGB - General status	On/Off	On/Off status of RGB channel	1.001 DPT_Switch
194	RGB - General lightness value	% Value	Current lightness value of RGB colour	5.001 DPT_Scaling
194	RGB - General brightness value	% Value	Current brightness value of RGB colour	5.001 DPT_Scaling
195	Overheat alarm	True/False	Device overheating feedback	1.005 DPT_Alarm
196	Auxiliary voltage alarm	True/False	Under voltage feedback	1.005 DPT_Alarm
197	Reverse auxiliary voltage alarm	True/False	Reverse auxiliary input voltage feedback	1.005 DPT_Alarm

code 7.01.6.946.1

Ai sensi dell'articolo 9 comma 2 della Direttiva Europea 2004/108/CE si informa che responsabile dell'immissione del prodotto sul mercato Comunitario è:
According to article 9 paragraph 2 of the European Directive 2004/108/EC, the responsible for placing the apparatus on the Community market is:
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