

- ▲ Manufacturers
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- ▲ Lighting
- LED Controller

Application software

3-channel LED KNX controller

Electrical / Mechanical characteristics : see product information

	Order number	Product designation	Application software ref.	TP device RF devices
	TYB673A	3-channel LED KNX controller constant voltage	STYB673	
	TYB673B	3-channel LED KNX controller constant current	STYB673	

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1. General

The **KNX 3 Channel LED Dimmer** is a BUS capable 1-3 channel dimmer used to operate the KNX Bus. The actuator serves to operate the LED lighting, which controls the voltage (TYB673A) or the current (TYB673B). This device in particular is designed for the operation of RGB lighting, to achieve for example the colour lighting or the pre-programming of the colour sequences. The KNX 3 Channel LED Dimmer connects the high efficiency LED's with the installation Bus KNX. The device can be addressed over the KNX Bus for this purpose; it has its own programme key (see connection diagram).

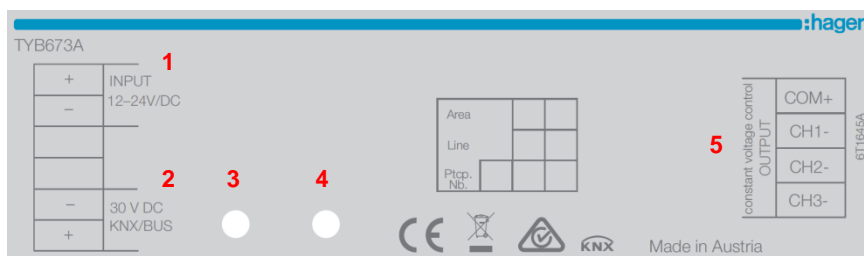
2. Device Technology

2.1 Technical data

Supply voltage	12 – 24 V DC
Maximum charge	2,2 A / Channel
Max power	12V DC 80 W 24V DC 155 W
Control mode	Direct voltage
Number of channel	1-3
Control signal	KNX
Short circuit protection	Yes
Overheating protection	Yes
Electrical surge protection	Yes
Polarity reversal protection	Yes
KNX transfer speed	9600 Bps
Consumption on the KNX Bus	Max. 12 mA
Consumption empty	< 1 WA
Operating temperature	-5 °C → + 45 °C
Storage temperature	- 20 °C → + 70 °C
Connection	KNX wire 0,75-1,5 mm, screw-on terminal block
Output signal	PWM / 600Hz
Max cable length	10 m
Protection classification	II
Protection degree	IP 20
Standards	EN55015 : 2006-12-01 + A1 : 2007-05-01+ A2 : 2009 + A3 : 2013 EN61547 : 2009-10-01 + A1 : 2000-12-01 EN50491-3 : 2009 EN50491-4-1 : 2012

2.2 Electrical plan

2.2.1 TYB673A



Indication

1. Input 12-24V/DC "-/+"
2. Input KNX/BUS "-/+"
3. LED-light
4. Programmingbutton
5. OUTPUT
 - a. COM +
 - b. CH1 - = R
 - c. CH2 - = G
 - d. CH3 - = B

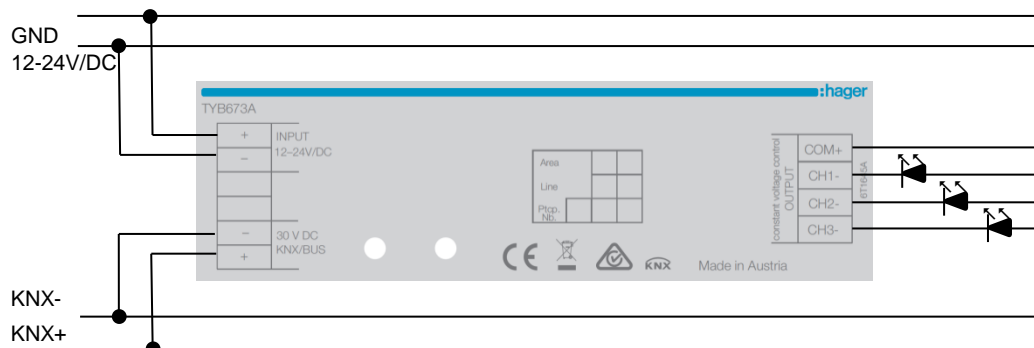
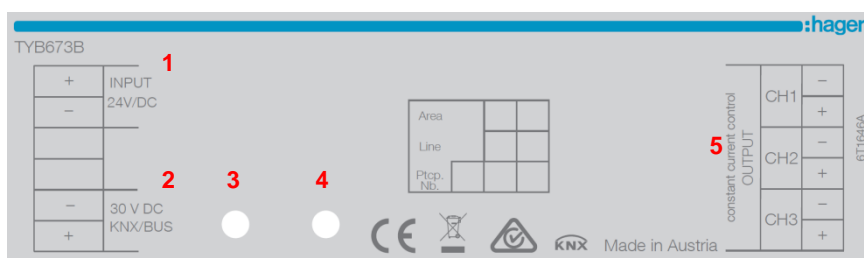


Illustration 1: Wiring plan TYB673A

2.2.2 TYB673B



Indication

1. Input 12-24V/DC "-/+"
2. Input KNX/BUS "-/+"
3. LED-light
4. Programmingbutton
5. OUTPUT
 - a. CH1 -/+ = R
 - b. CH2 -/+ = G
 - c. CH3 -/+ = B

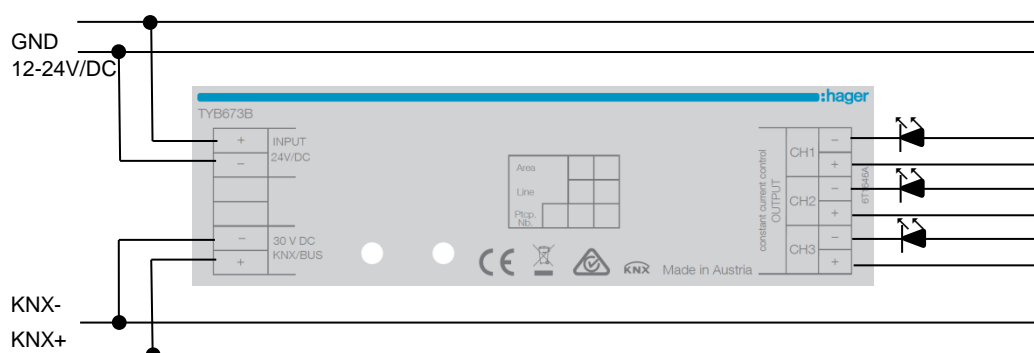


Illustration 2: Wiring plan TYB673B

2.3 Special operating conditions

2.3.1 Behaviour in case of BUS power outage

The device is inactive and cannot be steered. The last operating level is saved.

2.3.2 Behaviour in case of BUS voltage recovery

The device will be initialised, this can take some time. During the initialisation all three exits will be activated for a short time, one after the other and then switched off again. You can see which type of exit should be programmed if you go to the menu option „General“ under voltage recovery. You can choose here from the options „Last used Colour“, „All channels 0% (OFF)“ or „All channels 100% (ON)“.

2.3.3 Behaviour in case of loss of the 12 or 24V DC power

The controller and BUS communication of the KNX –Actuator remains active. The connected LEDs are out of use.

3. SOFTWARE DESCRIPTION

3.1 Overview

The application programme is the main programme used for the KNX LED Dimmers. This programme offers the basic control functions for e.g. dimming, switching, and the colour circle ... to control the respective exits.

In order to programme the device the engineering tool ETS is required.

3.1.1 Overview of the functions

Main Functions	Description
General	<ul style="list-style-type: none"> • Status Response of Switching state <ul style="list-style-type: none"> • Yes/No • Status Response of Brightness value <ul style="list-style-type: none"> • Yes/No • Enable Scene Learning <ul style="list-style-type: none"> • Via Bus + Manual (yes) • No • Bus Power Up Value Select <ul style="list-style-type: none"> • Last Used Color • All channels 0% (OFF) • All channels 100% (ON) • Go to New value via <ul style="list-style-type: none"> • Jump • Dimming • Maximum Dimming Value [51...100] in % <ul style="list-style-type: none"> • 51-100% • Minimum Dimming Value [1...50] in % <ul style="list-style-type: none"> • 1-50% • Block <ul style="list-style-type: none"> • Yes/No
Switching	<ul style="list-style-type: none"> • State Transition Type <ul style="list-style-type: none"> • Delay • Ramp • Delayed start-up <ul style="list-style-type: none"> • 0-65535 sec • Delayed shutdown <ul style="list-style-type: none"> • 0-65535 sec • Switch on with <ul style="list-style-type: none"> • Fixed Brightness value • Last Brightness value • Brightness value <ul style="list-style-type: none"> • 1-100%
Dimming	<ul style="list-style-type: none"> • Dimming speed via <ul style="list-style-type: none"> • Parameter • Bus • Dimming speed <ul style="list-style-type: none"> • 0-65535 sec • Allow start-up over the relative dimming <ul style="list-style-type: none"> • Yes/No • Allow shutdown over relative dimming <ul style="list-style-type: none"> • Yes/No

Blink	<ul style="list-style-type: none"> • Blink <ul style="list-style-type: none"> • Yes/No • Blink ON time (1...255) in 0.1 sec <ul style="list-style-type: none"> • 1-255 • Blink OFF time (1...255) in 0.1 sec <ul style="list-style-type: none"> • 1-255 • Blink counter (0=infinity) (0...255) <ul style="list-style-type: none"> • 0-255 • Blink Channel R (0...255) in 0.1 sec <ul style="list-style-type: none"> • 0-255 • Blink Channel G (0...255) in 0.1 sec <ul style="list-style-type: none"> • 0-255 • Blink Channel B (0...255) in 0.1 sec <ul style="list-style-type: none"> • 0-255 • Status post blinking <ul style="list-style-type: none"> • Last colour • Set colour • Post Blink Channel R (0...255) <ul style="list-style-type: none"> • 0-255 • Post Blink Channel G (0...255) <ul style="list-style-type: none"> • 0-255 • Post Blink Channel B (0...255) <ul style="list-style-type: none"> • 0-255
Colour sequence	<ul style="list-style-type: none"> • Colour speed <ul style="list-style-type: none"> • Parameter • Bus • Colour cycle duration <ul style="list-style-type: none"> • 30-1800sec • Cyclical status feedback <ul style="list-style-type: none"> • Yes/No • Cyclical status of channel intervals <ul style="list-style-type: none"> • 5-100 sec • Colour circle stop <ul style="list-style-type: none"> • Last colour from colour circle • Actual colour • Every channel on max. value • Choice of repeat sequence modi <ul style="list-style-type: none"> • No repetition • Repeat the sequence • Repeat all sequences
Scene groups 1-6	<ul style="list-style-type: none"> • Scene definition1-10 <ul style="list-style-type: none"> • Scene 1 R (CH1) • Scene 2 G (CH2) • Scene 3 B (CH3)
Sequence 1-4	<ul style="list-style-type: none"> • Sequence definition 1-12 <ul style="list-style-type: none"> • Scene 1 R (CH1) • Scene 2 G (CH2) • Scene 3 B (CH3) • Scene 1 time 0-255 sec

Table 1: Overview functions

3.2 General parameter definition

The parameters described herein for the respective categories always relate to all three exits. This illustration does not include for the exits.

3.2.1 General parameter window

In this window the special overriding parameters are set and the communication object is defined.

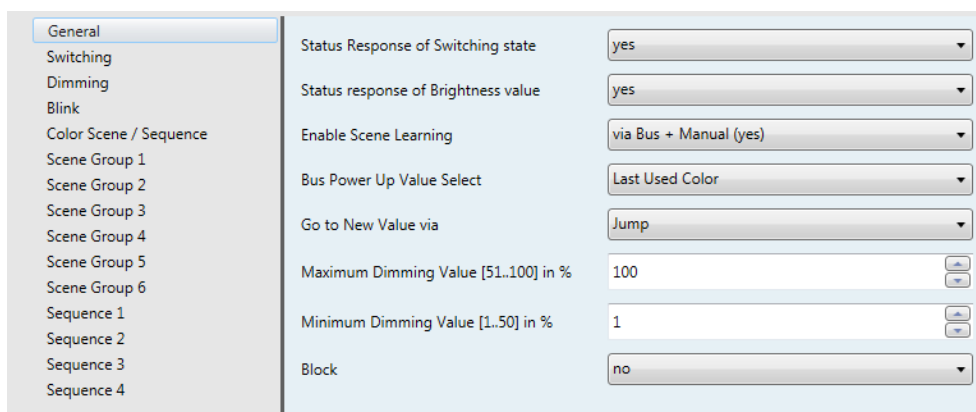


Illustration 3: Overview General

3.2.1.1 Status report to the switching conditions:

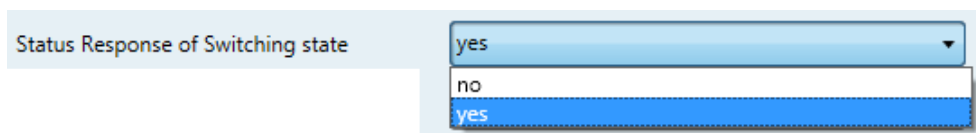


Illustration 4: Status report to the switching conditions

Here you can determine whether the additional device should be activated to report on the condition of the switches for all exits (the exits are shown individually). This can be used specifically if you have an external display attached on which this switch should be displayed.

3.2.1.2 Status report brightness values:

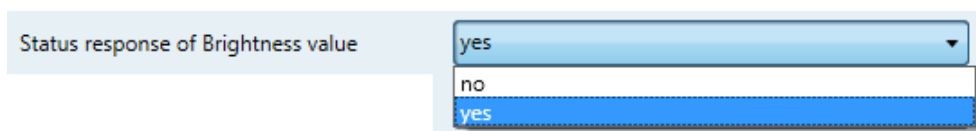


Illustration 5: Status report brightness values

Here you can determine whether the additional device should be activated to report on the brightness levels. This method can be used if you have an external display attached on which the brightness value should be displayed. The exits are then shown individually.

3.2.1.3 Saving release scenes:

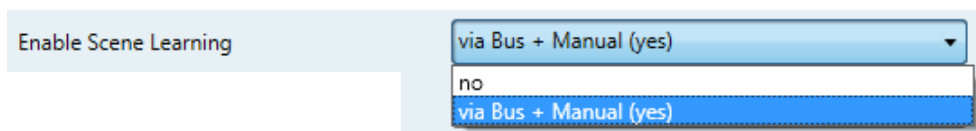


Illustration 6: Saving release scenes

If the **Option „Bus + Manual (yes)“** is activated then the scene parameters can be set, these can then be saved and recalled over the Bus.

If the **Option „No“** is activated then the scene controller is off. If you do not require the Scene Controller then choose the option „No“, to minimise loading time of the application programme.

3.2.1.4 Voltage recovery option:

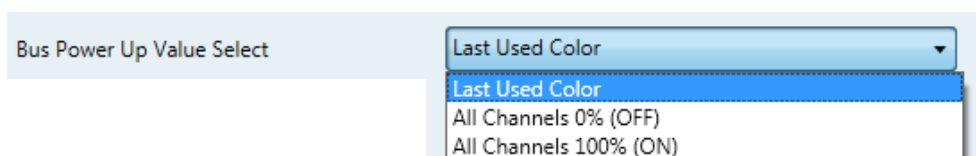


Illustration 7: Voltage recovery option

Here you can determine which settings the exits should adopt, when it comes to a voltage recovery situation. To this end the following options are available.

- Last colour used: the last value is saved to the exit.
- All channels 0% (OFF): all exits are set to 0%, if so desired so that your connected lighting is not in use when it comes to a voltage recovery situation, then please use this option.
- All channels 100% (ON): all exits are set to 100%, if so desired, so that your connected lighting is in use when it comes to a voltage recovery situation, then please use this option.

3.2.1.5 New values:



Illustration 8: New values

Here you can determine whether the new values for either dimming or start-up are selected.

Note: If the start-up option is chosen, then the option for „scene overlap times“ is no longer available as an option within the menu for colour sequence/colour transitions.

3.2.1.6 Upper/lower dimming ranges:

Maximum Dimming Value [51..100] in %	100	<input type="button" value="↑"/> <input type="button" value="↓"/>
Minimum Dimming Value [1..50] in %	1	<input type="button" value="↑"/> <input type="button" value="↓"/>

Illustration 9: Upper/lower dimming ranges

- **Upper Dimming Range:** The upper dimming range is from 51-100% and can be inputted here.
- **Lower Dimming Range:** The lower dimming range is from 1-50% and can be inputted here.

3.2.1.7 Block

Block	no	<input type="button" value="↓"/>
	no	
	yes	<input type="button" value="↑"/>

Illustration 10: Block

Yes: The “No. 26 Block” is available with this communication object you can block, or not block, the KNX protocol.

No: The communication object “No. 26 Block” will not be made available.

3.2.2 Parameter window settings

The parameters for switches such as the types of transitions, delayed-on and off functions are set here.

General	State Transition Type	Delay	<input type="button" value="↓"/>
Switching	Switch ON Delay[0..65535] in s	0	<input type="button" value="↑"/> <input type="button" value="↓"/>
Dimming	Switch OFF Delay[0..65535] in s	0	<input type="button" value="↑"/> <input type="button" value="↓"/>
Blink	Switch ON With:	Defined Brightness	<input type="button" value="↓"/>
Color Scene / Sequence	Brightness Value[1..100] in %	20	<input type="button" value="↑"/> <input type="button" value="↓"/>
Scene Group 1			
Scene Group 2			
Scene Group 3			
Scene Group 4			
Scene Group 5			
Scene Group 6			

Illustration 11: Overview Switching

3.2.2.1 Type of switching transitions:

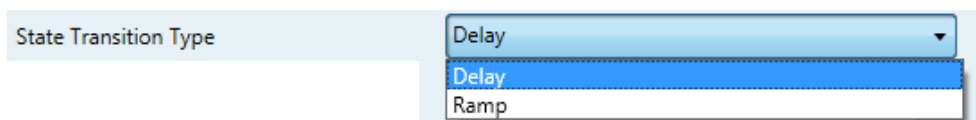


Illustration 12: Type of switching transitions

- **Time delay:** means that you can either activate a delayed On and/or Off, or not. Even the length of the time delay can be set here.
- **Dimming on:** shows the length of time the dimming takes during the On and/or Off phase.
- **Uses/examples:**
 - **Time delay:** you have a lengthy corridor with several lamps and wish that the individual lights come on one after the other; this can be achieved with the delay function.
 - **Stairway function:** if a solution is required for a building with several stories, these can be programmed individually over the delay function. If a person enters a building and activates the lights, only those on the ground floor will be activated first and thereafter the other stories at set intervals. At the same time the other floors will be deactivated accordingly. You can of course choose the option to only delay the time it takes for the lights to go off, in this way you can choose the time frame (to a max. 65535 sec).
 - **Dimming on:** you wish for example that the lights are switched on or off over dimming function from an external switch. This can be achieved here. If you have a delayed start of 240 seconds and a fixed brightness of 80%, then the lights require after initialisation 4 minutes reaching a brightness of 80%.

3.2.2.2 Time delayed forms of switching:

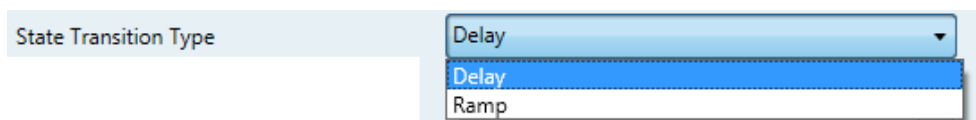


Illustration 13: Time delayed forms of switching

3.2.2.2.1 Time delays switches On and/or Off:

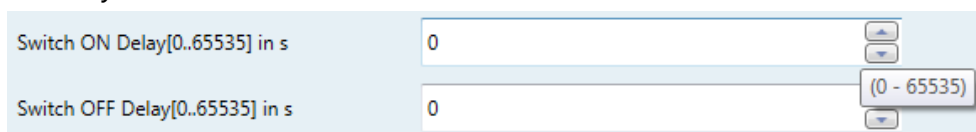


Illustration 14: Time delays switches On and/or Off

These indicate the time delay with which the exits are switched on or off. This parameter is only active, when the switch is set to delay.

0 represents an immediate ON to the max. value. Alternatively, the length of time it takes to switch on can be chosen. The following table should be used for easier identification of the menu options.

Seconds	Minutes	Hours
30	½	
60	1	
120	2	
300	5	
600	10	
900	15	
1800	30	½
2700	45	¾
3600	60	1
4800	90	1 ½
7200	120	2
10800	180	3
14400	240	4
18000	300	5
...
64800	1080	18

Table 2: Timetable

3.2.2.2.2 Switching on:

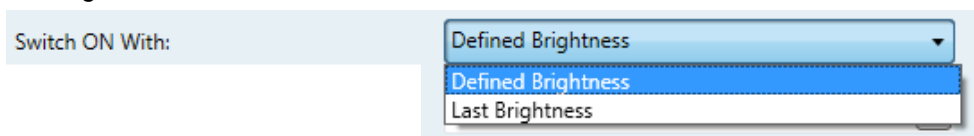


Illustration 15: Switching on

There is the option to start-up with the last brightness value used on exiting, or, start up with a fixed brightness value. This means should switch 1 be activated then the lights will be switched on in this format.

Brightness value when switching on with a fixed brightness value:

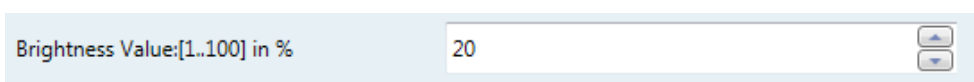


Illustration 16: Brightness values

This value is only possible when using the option „Fix Brightness Switching“. This setting can be used on the relevant device. The options here range from 0-100%.

3.2.2.3 Switching on using Dimming:

The parameters for switches such as the types of transitions, dimming speed are set here.

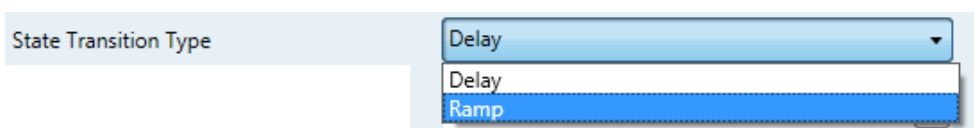


Illustration 17: Switching on using Dimming

3.2.2.3.1 Dimming speed when switching On/Off:

This parameter is only active when the transition switch „Dimming-On“ is activated. The value indicates the speed at which the Start and End values operate after the item is turned on or off.

0 represents a full start-up of the last value; otherwise the system requires an inputted value in second units to achieve the end value of 255 sec.

Illustration 18: Dimming speed when switching On/Off

Seconds	Minutes
30	½
60	1
90	1 ½
120	2
150	2 ½
180	3
210	3 ½
240	4
255	

Table 3: Timetable

3.2.2.3.2 Switching on with:

Illustration 19: Switching on with

The option is available to Switch-On with the last used brightness value, or, with a pre-set brightness value. This means should the option Device Switch 1 be selected then it will be switch-on appropriately.

Brightness value when switching on with a pre-set value.

Illustration 20: Switching on with

This value is only possible together with the option „**Switch On with a fixed Brightness Value**“. The brightness value can be programmed to a certain device. The option of 0-100% is available.

3.2.3 Parameter window dimming

The parameters for the dimming speed or relative dimming „Switching On / Off“ can be set here.

Illustration 21: Overview Dimming

3.2.3.1 Dimming speed via:

Illustration 22: Dimming speed via

- **Parameter:** The dimming speed will be set by parameter (see chapter below)
- **Bus:** The dimming speed will be set with an object (No. 24 dimming speed)

3.2.3.2 Dimming speed:

Here you can set the speed of the dimming function, meaning the length of time that is required to achieve the min/max values.

Illustration 23: Dimming speed

Seconds	Minutes	Hours
30	½	
60	1	
120	2	
300	5	
600	10	
900	15	
1800	30	½
2700	45	¾
3600	60	1
4800	90	1 ½
7200	120	2
10800	180	3
14400	240	4
18000	300	5
...
64800	1080	18

Table 4: Timetable

3.2.3.3 Allowing the On/Off function over relative dimming:

When the option „Yes“ is selected, you can achieve 0% over the Dimm Communication Object and this can start with 0%.

Allow Switching ON via Dimming	yes
Allow Switching OFF via Dimming	no

Illustration 24: Allowing the On/Off Function over Relative Dimming

Allow switching on over Dimming

- Yes = start up permitted over dimming.

Allow switch off over Dimming

- Yes = shut down is permitted over dimming.

3.2.4 Blink Parameter window

Here you can set and release the parameters of the blink function. The control of this blink function will be taken over by the communications object “27 Blink”.

General	Blink	yes
Switching	Blink ON duration [1..255] in 0.1s	10
Dimming	Blink OFF duration [1..255] in 0.1s	10
Blink	Blinks count (0 = infinite) [0..255]	10
Color Scene / Sequence	Blink Color R: [0..255]	255
Scene Group 1	Blink Color G: [0..255]	0
Scene Group 2	Blink Color B: [0..255]	0
Scene Group 3	Post Blink Color	Prefered Color
Scene Group 4	Blink Post Color R: [0..255]	255
Scene Group 5	Blink Post Color G: [0..255]	255
Scene Group 6	Blink Post Color B: [0..255]	255
Sequence 1		
Sequence 2		
Sequence 3		
Sequence 4		

Illustration 25: Blink Parameter window

3.2.4.1 Blink

Blink	no
-------	----

Illustration 26: Blink

- Yes: releases the appropriate communications object
- No: the respective communications object is not shown.

3.2.4.2 Blink ON Time

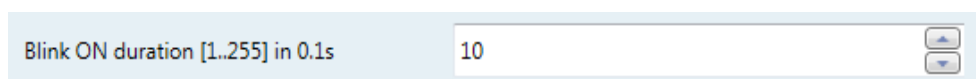


Illustration 27: Blink ON Time

- This is where the length of time the blinking is operational is defined.

3.2.4.3 Blink OFF Time

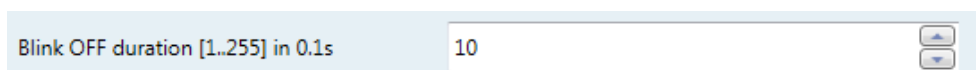


Illustration 28: Blink OFF Time

- This is where the length of time the blinking is switched off is defined.

3.2.4.4 Blink Counter

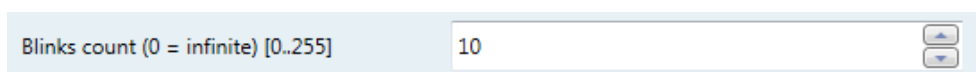


Illustration 29: Blink Counter

- This is where the frequency of the blinking can be defined.
- If 0 is set on the counter then the blinking can only be switched off on the communications object No.27 with the command "OFF-command".

3.2.4.5 Blink Channel R

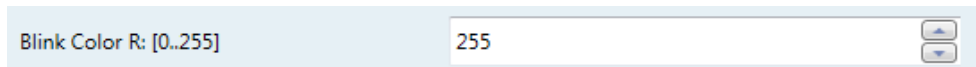


Illustration 30: Blink Channel R

- Which brightness value the channel R has whilst blinking can be set here.

3.2.4.6 Blink Channel G

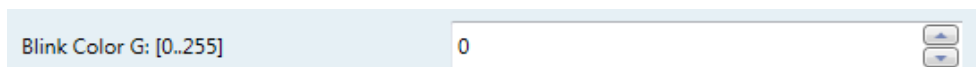


Illustration 31: Blink Channel G

- Which brightness value the channel G has whilst blinking can be set here.

3.2.4.7 Blink Channel B

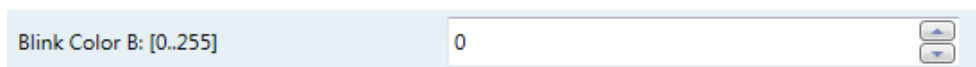


Illustration 32: Blink Channel B

- Which brightness value the channel B has whilst blinking can be set here.

3.2.4.8 Status post Blinking

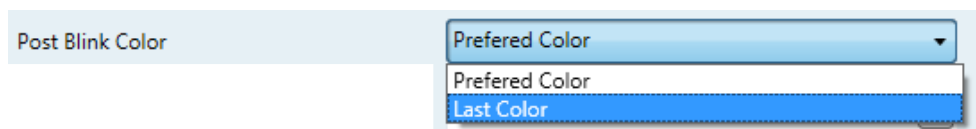


Illustration 33: Status post Blinking

- Last Colour: once the blinking has been switched off, the colour that was in use prior will be reactivated.
- Set Colour: This option is available from the menu under point 3.2.4.9.

3.2.4.9 Post Blink Channel X

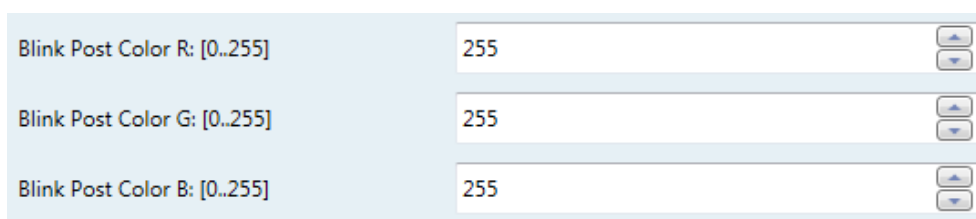


Illustration 34: Post Blink Channel X

- The colour which should follow the blinking sequence when deactivated is set here.

3.2.5 Colour sequence/colour cycle

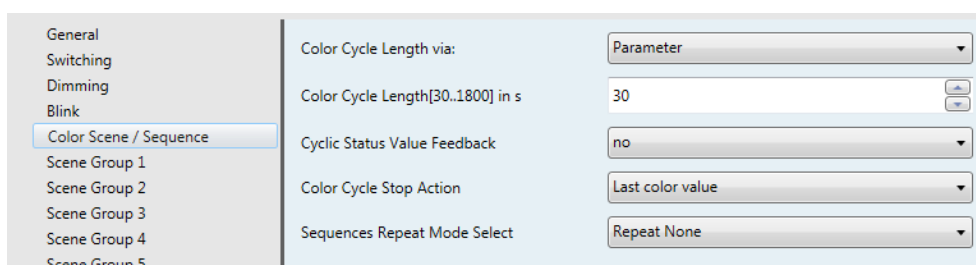


Illustration 35: Overview Colour Sequence/Colour Cycle

The parameters for the Colour Circle can be predefined here, for colour circle speeds, colour circle duration, and repeat sequence options.

	Red	Orange	Yellow	White	Green	Cyan	Blue	Magenta
R	255	255	255	255	0	0	0	255
G	0	165	255	255	255	255	0	0
B	0	0	0	255	255	255	255	255

Table 5: Predefined Colour Transitions

3.2.5.1 Colour circle speed:

If the colour circle is started by means of the communications device, then it will follow the pattern pre-set by us. The speed with which the colour circle should run is programmable by means of the fixed parameters or over the BUS.

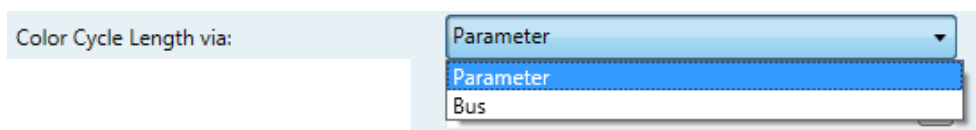


Illustration 36: Colour circle speeds over the Parameters

If the function „Parameter“ is chosen, then the duration of the colour circle can be determined in units of seconds.

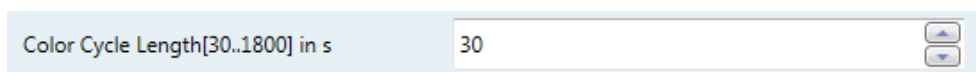


Illustration 37: Duration of Colour Circle

A programme of less than 30 seconds is not possible, as the run through of the colour circle cannot be guaranteed. The following table should assist in inputting a time:

Seconds	Minutes
30	½
60	1
120	2
300	5
600	10
900	15
1800	30

Table 6: Timetable

If the function „BUS“ is selected, the duration of the colour circle is as follows:

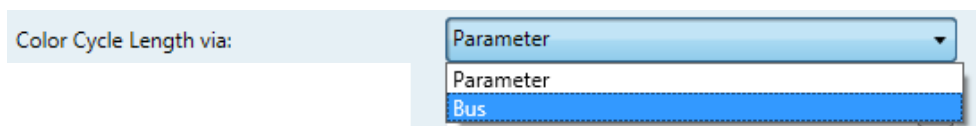


Illustration 38: Colour circle speed over the BUS

If the speed of the colour circle is selected over the BUS, then a 1byte memory will be allocated to this function, over which the speed of the circle can be regulated by means of the BUS.

It is possible to add a value of 30-1750 to the device via the BUS. The colour circle will immediately adjust its speed.

0-3 seconds are in reality 30 seconds, and for any other given time value, a factor of 10 must be calculated, e.g. 7 seconds correlates to 70 seconds.

Decimal Value (as converted from a byte)	Actual Time in Seconds
0	30
1	30
2	30
3	30
4	40
5	50
.	.
255	2550

3.2.5.2 Cyclical status feedback for the display of the devices:

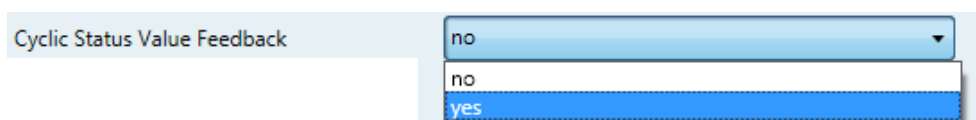


Illustration 39: Cyclical Status Feedback

Whilst the colour circle is active the condition of the exits is constantly changing. It is possible to programme the Bus with the cyclical values.

3.2.5.3 Cyclical status of the channel intervals:

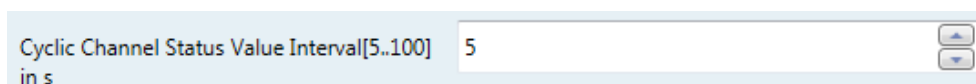


Illustration 40: Cyclical Status of the Channel Intervals

Here you can choose the interval of the cyclical feedback among 5-100 seconds.

3.2.5.4 Colour Circle STOP status:

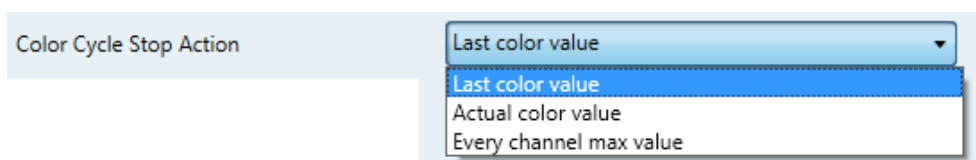


Illustration 41: Colour Circle STOP Action

With this setting the behaviour of the channels is defined, after the colour circle has been stopped.

- **Last colour value:** the same colour that was used prior to the colour circle start up.
- **Actual colour value:** The actual colour used when the colour circle was switch off will be used.
- **Every channel max value:** Every channel switches to the max value dependent on the preciously set parameters.

3.2.5.5 Selection of scene repeat modi:

It is possible to determine your own special sequence programme, either not at all, or only specific sequences, or whether all sequences should be repeated.

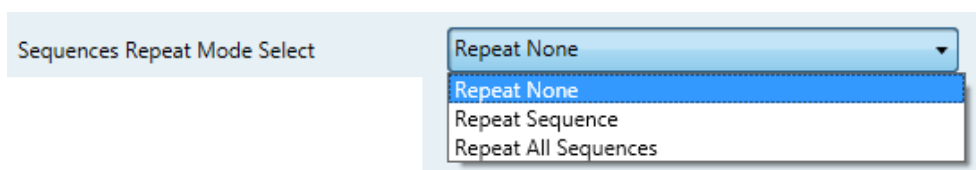


Illustration 42: Selection of Scene Repeat Modi

- If the option „No Repetition“ is selected, then the (colour circle) sequence will run through once and then stop on the last colour scene, this will be permanently shown on the exit.
- If the option „Repeat the Sequence“ is selected, then only the chosen sequence will be repeated.
- If the option „Repeat all Sequences“ is selected, then all four sequences will be repeated together with your choice. If all sequences together with all scenes are selected, this would result in a sequence (colour circle) of 48 scenes (colours).
-

3.2.6 Scene groups 1-6

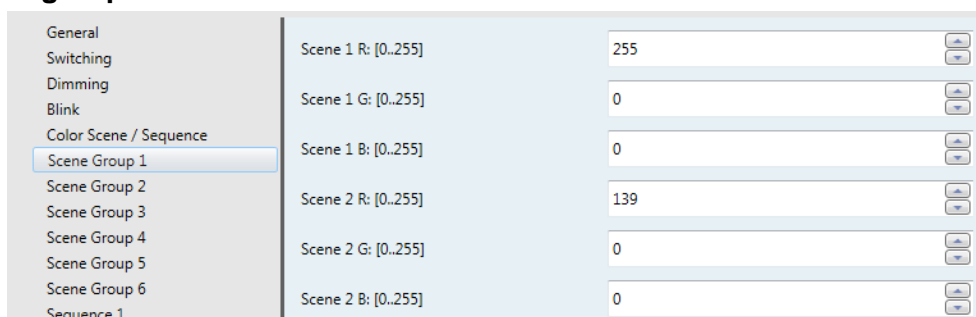


Illustration 43: Overview scene groups

In these menus it is possible to programme and save your own colour as a sequence. This is possible over the input of the RGB value in the menu window.

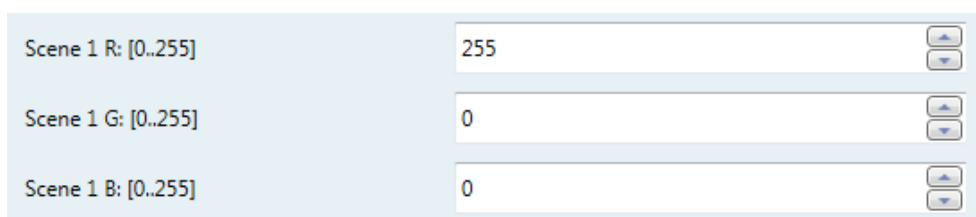


Illustration 44: Scene 1 RGB

Up to 10 scenes can be defined in each group 1-6; as a consequence it is possible to have a user defined colour palette of up to 60 scenes.

The following table is to assist in finding/inputting the chosen colours. Further colours and the appropriate RGB colour reference numbers can be found in the internet.

Color	R	G	B		Color	R	G	B		Color	R	G	B		Color	R	G	B	
Red	255	0	0		Green	0	255	0		Blue	0	0	255		White	255	255	255	
Dark Red	139	0	0		Dark Green	0	100	0		Dark Blue	0	0	139		Yellow	255	255	0	
Brick Red	178	34	34		Spring Green	0	255	127		Royal Blue	65	105	225		Orange	255	165	0	
Violet	208	32	144		Yellow Green	127	255	0		Cyan	0	255	255		Light Pink	255	182	193	
Violet2	219	112	147		Sea Green	32	178	170		Turquoise	0	197	205		Pink	255	20	147	

Table 7: Overview RGB-colour codes

WARNING: The colours and their reference numbers as shown here or those found in the internet from other sources do not need to match those issued with your respective lighting. There may be discrepancies here.

3.2.7 Sequence 1-4

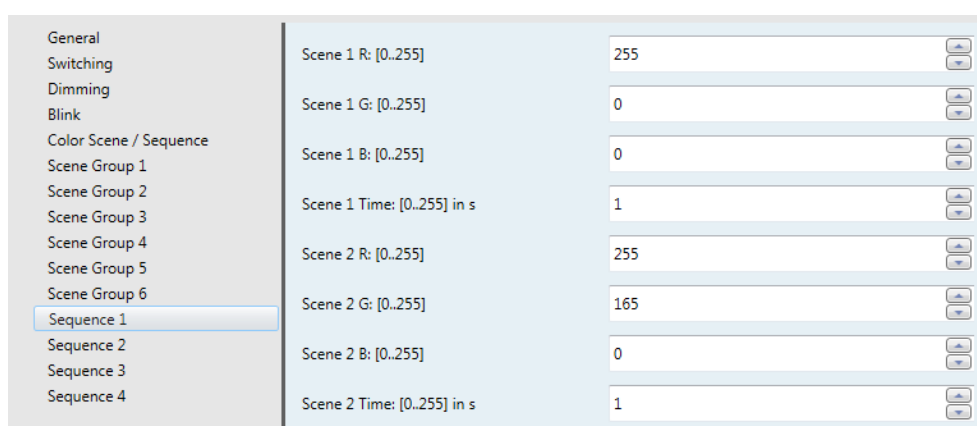


Illustration 45: Overview sequence

In these menus there is the option to create individualised colour circles (sequences 1-4 are possible). One sequence (colour circle) can comprise of up to 12 colour scenes. You have the option of setting a time limit to each scene (0..255 sec). This means, that you are able to not only create your own colour circle but also determine the sequence and timing.

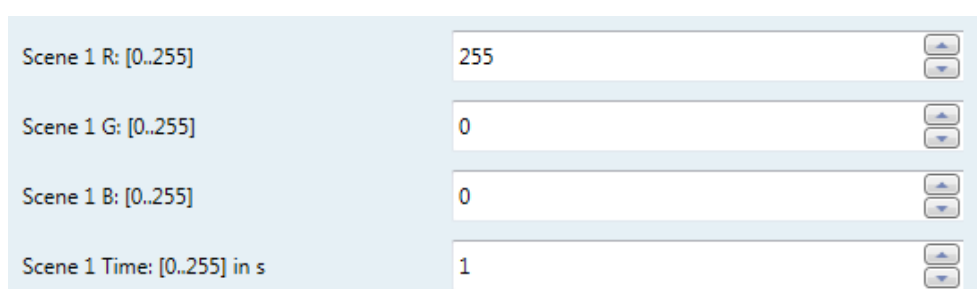


Illustration 46: Scene 1 RGB Time for Sequence 1

Note: the first scene in a sequence always needs to have a time unit (0 is not allowed = the sequence does not start/will not be loaded). Only those scenes that have a time unit will be loaded. In the menu Colour sequence/Colour Process you can select under the option „Scene Transition times“ the time it take to change from one scene to the next.

3.3 Communication object

3.3.1 General objects

Number ^A	Name	Object Function	Length	C	R	W	T	U	Data Type
0	Switch ON/OFF Ch R	Switching	1 bit	C	R	W	-	-	switch
1	Relative Setvalue Control Ch R	Dimming	4 bit	C	R	W	-	-	dimming control
2	Absolute Setvalue Control Ch R	Value	1 Byte	C	R	W	-	-	percentage (0..100%)
3	Switch ON/OFF Ch G	Switching	1 bit	C	R	W	-	-	switch
4	Relative Setvalue Control Ch G	Dimming	4 bit	C	R	W	-	-	dimming control
5	Absolute Setvalue Control Ch G	Value	1 Byte	C	R	W	-	-	percentage (0..100%)
6	Switch ON/OFF Ch B	Switching	1 bit	C	R	W	-	-	switch
7	Relative Setvalue Control Ch B	Dimming	4 bit	C	R	W	-	-	dimming control
8	Absolute Setvalue Control Ch B	Value	1 Byte	C	R	W	-	-	percentage (0..100%)
9	Info On/Off Ch R	Switch Status	1 bit	C	R	W	T	-	switch
10	Info On/Off Ch G	Switch Status	1 bit	C	R	W	T	-	switch
11	Info On/Off Ch B	Switch Status	1 bit	C	R	W	T	-	switch
12	Actual Dimming Value Ch R	Value Status	1 Byte	C	R	W	T	-	percentage (0..100%)
13	Actual Dimming Value Ch G	Value Status	1 Byte	C	R	W	T	-	percentage (0..100%)
14	Actual Dimming Value Ch B	Value Status	1 Byte	C	R	W	T	-	percentage (0..100%)
15	Scene Number	Scene Number	1 Byte	C	R	W	-	-	scene number
16	Scene Control	Scene Control	1 Byte	C	R	W	-	-	scene control
17	Start/Stop Color Cycle	Start/Stop Color Cycle	1 bit	C	R	W	-	-	enable
18	Color Cycle Length	Color Cycle Length Control	1 Byte	C	R	W	-	-	
19	Switch ON/OFF RGB	Switching RGB	1 bit	C	R	W	-	-	switch
20	Relative Setvalue Control RGB	Dimming RGB	4 bit	C	R	W	-	-	dimming control
21	Absolute Setvalue Control RGB	Value RGB	3 Byte	C	R	W	-	-	RGB value 3x(0..255)
22	Info ON/OFF RGB	Info ON/OFF RGB	1 bit	C	R	W	T	-	switch
23	Actual Dimming Value RGB	Value Status RGB	3 Byte	C	R	W	T	-	RGB value 3x(0..255)
24	Dimming Speed	Dimming Speed Control	2 Byte	C	R	W	-	-	
25	Blink	Blinking Control	1 bit	C	-	W	-	-	enable
27	Block	Blocking Control	1 bit	C	R	W	-	-	switch

Table 8: Overview Communications Object

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