SIEMENS

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Use of the application program

Product family: Product type: Manufacturer:	Lighting Dimmer Siemens
Name:	Universal dimmer, 1 x 250VA, AC 230V, with mounting bracket UP 525/03
Order no:	5WG1 525-2AB03
Name:	Universal dimmer, 1 x 250VA, AC 230V, without mounting bracket UP 525/13
Order no.:	5WG1 525-2AB13
Product family: Product type: Manufacturer:	Room controller Lighting Siemens
Name:	Universal dimmer (module), 1 x 250VA, AC 230V RS 525/23
Order no.:	5WG1 525-2AB23

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1. Functional description

The application program "07 B0 A1 Universal dimmer 982C01" can be used for the KNX devices listed above. These devices are briefly described in the next sections.

The UP 525/03 Universal Dimmer with mounting frame is a KNX device with one dimmer output and a Bus Transceiver Interface (BTI). The device is installed in a flushmount wall box (60 mm \emptyset , depth 60 mm). The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

DELTA bus wall switches or other application units (bus device) with BTI interface are plugged onto the BTI interface of the actuator. Any bus device, which can be slipped onto a bus coupling unit (BTM) UP 117, may be slipped onto this actuator.

The UP 525/13 Universal Dimmer is a KNX device with one dimmer output. The device is installed in a flush-mount wall box (60 mm Ø, depth 60 mm) or an installation box. The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

The RS 525/23 Universal Dimmer is a KNX device with one dimmer output. The device is installed in an AP 118 Control Module Box or an AP 641 Room Control Box. The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

These devices share the following features.

The device can switch and dim resistive loads (e.g. incandescent lamps, high voltage halogen lamps), capacitive loads (e.g. low voltage halogen lamps with intermediate electronic transformers), or inductive loads (e.g. low voltage halogen lamps with intermediate conventional transformers).

The actuator output may be set to one of the following operating modes:

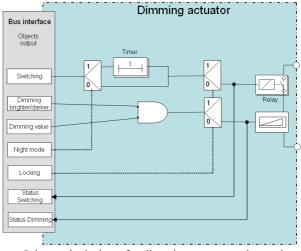
- Normal mode
- 1-level time switch mode
- 2-level time switch mode
- Flashing

Dependent on the selected operating mode, objects for the functions switching, dimming brighter / darker and dimming value are available for the actuator output.

Furthermore, if required, time-limited switching instead of permanent switching on can be enabled for each channel via an optional "Night mode" object (e.g. for lighting while cleaning), if need be with a warning before switching off by multiple switching the output on and off (flashing).

Dependent on the configuration, additional objects are available for the output channel for the functions locking and status request.

The following schema shows the named features in a logical overview.



Schematic design of a dimming actuator channel

The application program includes optional a switching cycle and operating hours count with threshold monitoring for each output and an integrated 8-bit scene control, in which each output can be incorporated into up to 8 scenes.

Switching on / off

When a switching "ON" telegram is received, a parameter determines if the output channel is set to a preset dimming value, the dimming value on switching off or the last received dimming value. Switching "OFF" telegrams always result in switching the channel off. A parameter determines whether the output channel jumps to the preset switching on value respectively to the off value 0% or in what time it will be dimmed to the relevant value.

Dimming brighter / darker

The dimming time from 0% to 100% is set via a parameter. On receiving a start dimming command the actuator channel changes the brightness in the desired direction with the speed configured for dimming brighter/darker. If a stop command is received before the dimming action is completed, then dimming is stopped and the dimming value reached is maintained. Another parameter determines if the output can be switched on or off via dimming brighter / darker.

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Dimming value (8 bit)

Via the object "A, Dimming value" the channel output can be set to the received dimming value. It is configurable, whether the channel output jumps to the dimming value respectively in what time it will be dimmed to the relevant value. Another parameter determines if and under which conditions the output can be switched on or off via dimming value.

Status Switching (1 bit)

A parameter in the parameter window "Functions, Objects" determines if an object is available for the channel to read the current switching status of the channel and/or automatically send the status on change of value.

Status dimming value (8 bit)

A parameter in the parameter window "Functions, Objects" determines if an object is available for the channel to read the current dimming value of the channel and/or automatically send the dimming value on change of value. To limit the number of telegrams generated by dimming brighter/darker, the period between two dimming value status telegrams can be set via the parameter "Delay status objects".

Minimum dimming value

A minimum dimming value can be configured. When dimming darker the channel can only be dimmed to the configured minimum value. Further dimming darker only results in turning the channel off if this is enabled via the configuration.

If a dimming value lower than the minimum dimming value is received, the channel is only dimmed darker to the minimum dimming value. If the value "0" is received, the lighting is turned off, if this is enabled by the configuration.

Maximum dimming value

The configurable maximum dimming value for the channel can be used to limit the dimming range, The maximum dimming value cannot be exceeded by dimming brighter or by a received dimming value that is higher than the maximum value.

Night mode (time-limited lighting for cleaning)

Night mode can be enabled respectively disabled via an optionally selectable object (1 bit). If night mode is enabled for the channel then the channel can only be switched on for a limited time (time-limited lighting for cleaning). If night mode is enabled while the channel is on, then the dimming value of the channel is set to the maximum dimming value. If night mode is disabled while the channel is on, then the dimming value of the channel is left unchanged. The timer period for night mode is configured via a parameter.

Warning before switch-off

The parameter with the same name in the parameter window "Functions, Objects" determines whether the channel, when operating in night mode or 1-level time switch mode, shall signal an imminent automatic switching off about 30 seconds before timeout of the configured "on" period by reducing the brightness (dimming to 50% of the current value). This is to warn the room user and allow him to operate the light switch and thus extend the "on" period by the configured value before the lighting is turned off and leaves him in the dark.

8-bit scene control

The parameter with the same name in the parameter window "Functions, Objects" determines whether the 8bit scene control in the actuator is enabled for the channel. If it is enabled, a communication object "8-bit scene" and a parameter window "8-bit scenes" are added. Via the parameter window "8-bit scenes" the channel can be incorporated individually in up to 8 scenes.

Protection against over-load / short-circuit

After about 5 seconds in an over-load condition the universal dimmer turns itself off permanently. At the earliest 2 minutes after an over-load or short-circuit tripping the dimmer may be turned on again. First send an "off" or a "dimming value =0" command to turn the device off and then turn it on again by sending an "on" or a "dimming value > 0" command.

In a short-circuit condition the dimmer turns the load off for 3 seconds and automatically tries to switch the output on to the currently set dimming value once within 1 minute. If the short-circuit condition still persists the output is turned off permanently.

Turn the output on again by following the instructions for a permanently turned off output in an over-load condition.

Protection against over-temperature

In case the maximum permissible temperature is exceeded the dimmer dims down to the minimal dimming value. If after 2 minutes the dimmer has cooled down sufficiently, it automatically dims back to the currently set dimming value. If after 2 minutes the maximum permissible over-temperature is still exceeded, the output is turned off permanently.

Turn the output on again by following the instructions for a permanently turned off output in an over-load condition.

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Immunity to ripple control signals and electrical grid frequency fluctuations

In the ex-factory settings the influence of ripple control signals is compensated to reduce flickering of the lamp. This measure increases the influence of electrical grid frequency fluctuations on the brightness of the lamp. A mostly undisturbed operation for an electrical system without a synchronous connection to the electrical grid can be achieved when the ripple control compensation is disabled via the associated parameter. The dimmer becomes less sensible to frequency fluctuations in the electrical system. Yet, ripple control signals will lead to an in-

Behavior on bus voltage failure / recovery

On bus voltage failure the current switching status and dimming values are saved for restoration on bus voltage recovery.

On bus voltage recovery the configured actions are executed and, if applicable, new status values are reported.

Building site function

creased flickering of the load.

The building site function provided ex-factory enables switching the building site lighting on and off via bus wall switches and actuators, even if these devices have not yet been commissioned with ETS.

Behavior on unloading the application program

When the application program is unloaded with ETS the device does not function.

Resetting the device to ex-factory settings

When the programming button is pressed for more than 20 seconds the device is reset to the ex-factory settings. All configuration settings are lost. The building site function is re-activated.

2. Communication objects

Maximum number of group addresses:120Maximum number of assignments:120

Note

The number and names of communication objects visible can vary depending on the parameter settings.

The application program already has been loaded in the factory.

The device is configured and commissioned with Engineering Tool Software (ETS) version ETS v3.0f or higher. With the ETS (Engineering Tool Software) the specific parameters and addresses are assigned appropriately, and downloaded into the device.

The following list shows all objects of the device. Which objects are visible and linkable to group addresses is defined via the functions assigned to the inputs. The objects and associated parameter settings are described with the functions.

Nr.	Object name	Function	Number of bits	Flags
1	A, 8-bit scene	recall / safe	1 byte	CW
2	A, Locking	On / Off	1 bit	CW
3	A, Night mode	On / Off	1 bit	CW
4	A, Switching	On / Off	1 bit	CW
5	A, Dimming	brighter / darker	4 bit	CW
6	A, Dimming value	8-bit value	1 byte	CW
8	A, Status switching	On / Off	1 bit	CRT
9	A, Status dimming value	8-bit value	1 byte	CRT
10	A, Switching cycle counter	4-byte value	4 byte	CR
11	A, Switching cycle threshold	4-byte value	4 byte	CRW
12	A, Switching cycle threshold overrun	1 = Yes / 0 = No	1 bit	CRT
13	A, Operating hours counter	4-byte value	4 byte	CR
14	A, Operating hours threshold	4-byte value	4 byte	CRW
15	A, Operating hours threshold overrun	1 = Yes / 0 = No	1 bit	CRT

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3. Functions (Objects, Parameters)

The actuator output can be configured individually with the following partial functions:

- Operating mode Normal mode
- Operating mode 1-level time switch mode
- Operating mode 2-level time switch mode
- Operating mode Flashing
- Night mode
- Locking
- Status messaging
- Number of switching cycles with or without threshold monitoring
- Number of operating hours with or without threshold monitoring
- 8-bit scene control

The following sections describe the functions, which can be configured for each channel, including the associated objects and parameter settings.

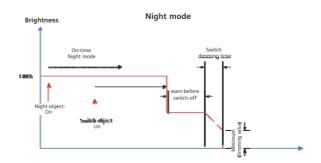
Note

The number and names of the parameter windows in the ETS menues may vary as they are controlled via parameter settings.

Another parameter window may appear if due to dynamically added parameters the space in the first parameter window is exhausted.

Operating mode: Normal Mode

In the operating mode "Normal mode" an additional night mode object can be added. When night mode is set via the night mode object then the behavior of the channel is similar to the 1-level time switch mode. The "on" period can be retriggered via the objects scene, switching, dimming brighter/darker or dimming value. When the "on" period has expired then the channel is turned off or, in case the "warning before turning off" is enabled, the dimming value is set to 50% of the last dimming value. If this value is below the minimum dimming value then the minimum dimming value is assumed. When the night mode object value is set to OFF (=0) then the timer mode is disabled.



<u>Objects</u>

Obj	Object name	Function	Туре	Flag	
Obj	Object name	Tunction	туре	Tiay	
4	A, Switching	On / Off	1 bit	CW	
Via this object the telegrams are received to switch the load connected to the respective channel on or off.					
5	A, Dimming	brighter / darker	4 bit	CW	
	Via this object the dimming telegrams for the relevant channel are received.				
6	A, Dimming value	8-bit value	1 byte	CW	
Via this object telegrams with a dimming value for the channel are received.					
If the received dimming value is below the minimum dimming value the behavior of the channel is determined by the parameter "switching via dimming value".					
The c	limming time for dimming	to the dimmi	ng value d	epends	

The dimming time for dimming to the dimming value depends on the parameter "dimming time for setting dimming value from 0% to 100%".

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Parameter "A Functions, Objects"

Operating mode	Normal Mode	_
8-bit scene control	No	
Night mode	No	-
Counting of switching cycles	No	<u>•</u>
Counting of operating hours	No	<u> </u>
Behaviour on KNX power voltage failure	no change	
Behaviour on KNX power voltage recovery	as before voltage failure	•
Status object switching	No	<u>•</u>
Status object dimming	No	<u> </u>
Blocking object	No	•

This parameter window offers selection of the base function (normal mode, 1-level timer mode, 2-level timer mode, flashing) and of further functions of this actuator output channel. This includes,

-whether an 8-bit scene control shall be added,

- -whether a night mode object shall be added for this output channel,
- whether the switching cycles of this output channel shall be counted with or without an upper threshold,
- whether the operating hours for this output channel shall be counted with or without an upper threshold.
- whether a status object for switching or dimming value shall be added for this output channel,
- whether a locking object shall be added for this output channel,
- how the output channel shall behave on bus voltage failure and bus voltage recovery.

The parameter "Operating mode" is set to "Normal mode".

Parameter	Settings
Operating mode	Normal mode 1-level time switch mode 2-level time switch mode
	Flashing

This parameter sets whether the channel is to work as a "normal" dimming channel or in 1-level timer mode, which can be switched on only via a switching, dimming, dimming value or scene recall command and is switched off automatically after the end of the configured on-time or whether it is to work in 2-level timer mode or whether it is to "flash".

A 2-level timer mode is to be set for corridor and stairwell lighting if complete switching off of the lighting after the ontime 1 has elapsed is to be avoided. A 2-level timer mode is also set for control of colored lighting effects.

If "1-level timer mode" is selected, then the parameter "ON period 1 $\,$

(in minutes)" is also displayed. If a switching, dimming, dimming value or scene recall command is received again while 1-

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Parameter Settings

level timer mode and on period 1 are running, then the timer is reset to its initial value and the on-time extended accordingly.

After the configured "on" period has expired, the output channel, if the warning function is enabled (via the parameter "warning before switching off"), is dimmed to 50% of the current value. This is to warn the room user and allow him to operate the light switch and thus extend the "on" period by the configured value before the lighting is turned off. If 50% of the current dimming value are below the minimum dimming value then the minimum dimming value is assumed.

If "2-level timer mode" is selected, then the three parameters "ON period 1 (in minutes)", "ON period 2 (in minutes)" and "Dimming value during ON period 2 (in percent)" are also shown. Whereas dimming reverts to 0% at the end of a 1-level timer mode, in 2-level timer mode it will be dimmed at the end of the first ON period to the "dimming value during ON period 2" which can be above or below the previous dimming value. Dimming reverts to 0% at the end of the 2-level timer mode.

There is no warning before switching off In 2-level time switch mode.

If "Flashing" is selected, then the two parameters "ON period Flashing (1...255 seconds)" and "OFF period Flashing (1...255 seconds)" are shown additionally, which define the blinking behavior. The switching object of the channel is used to start and end blinking.

The dimming value during the "on" period is determined by the parameter "maximum dimming value". The objects scene, dimming, and dimming value and the associated parameters are not visible in the operating mode "flashing"

Behavior on bus voltage	switch off;
failure	switch on to maximum dim-
	ming value;
	no change
This parameter determines the	

nel (dimmer output) on bus voltage failure:

"no change" = On bus voltage failure the dimming value of the channel does not change.

"switch on to maximum dimming value" = On bus voltage failure the channel is switched on to the maximum dimming value.

"switch off" = On bus voltage failure the channel is switched off.

Behavior on bus voltage re-	switch off;
covery	switch on;
	switch on to "dimming value
	on bus voltage recovery";
	as before voltage failure

On bus voltage failure the current switching states and dimming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery.

This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage recovery:

"switch off": On bus voltage recovery the channel is switched off permanently (off state, 0%).

"switch on": On bus voltage recovery the channel is switched on permanently (to the switching on value).

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irameter	Settings	
5	on bus voltage recovery": a	
•	n bus voltage recovery" app	
•	the value set by that param	
annel does not change.	failure the dimming value o	i the
	he state at bus voltage failu	ire is
stored.		
alue on bus voltage recov-	100	
y [0100%]	(0100)	
	the parameter "behavior on	
	switch on to "dimming valu	e on
s voltage recover" ". is parameter determines t	he dimming value to be se	t on
•	alue is limited by the minir	
d maximum dimming value		num
<u>_</u>		
other parameters are co	overed in the sections	
Night mode		
Locking		
Lociting		
Status messaging		
Switching cycle counter		
Switching cycle counter		
Switching cycle counter Operating hours counter		
Switching cycle counter Operating hours counte Scene control		
Switching cycle counter Operating hours counte Scene control		
Switching cycle counter Operating hours counte Scene control rameter "A, Dimming"		×
Switching cycle counter Operating hours counter Scene control rameter "A, Dimming"	ir	•
Switching cycle counter Operating hours counter Scene control Cameter "A, Dimming" ad adaptation: Dimmer operation according to appensation ripple control	Automatic detection of load type	
Switching cycle counter Operating hours counter Scene control cameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control minum dimming value [150%]	Automatic detection of load type Yes	Ţ
Switching cycle counter Operating hours counter Scene control rameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control minum dimming value [150%] winum dimming value [10100%]	IT Automatic detection of load type Yes 1	•
Switching cycle counter Operating hours counter Scene control cameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control mum dimming value [150%] winum dimming value [1100%] ming time for switching On/Off [0255 seconds]	Pres	•
Switching cycle counter Operating hours counter Scene control cameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control mum dimming value [150%] winum dimming value [1100%] anning time for switching On/Off [0255 seconds] anning time for diming darker / bighter No % to 100% [0255 seconds]	IT Automatic detection of load type Yes 1 1 100 0	•
Switching cycle counter Operating hours counter Scene control cameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control nimum dimming value [150%] ximum dimming value [1100%] nming time for switching On/Off [0255 seconds] nming time for switching On/Off [0255 seconds] noing time for switching On/Off [0255 seconds] noing time for setting dimming value n 0% to 100% [0255 seconds]	Yes 1 100 0 5	•
Switching cycle counter Operating hours counter Scene control cameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control minum dimming value [150%] winum dimming value [10100%] mining time for switching Dn/Dff [0255 seconds] mining time for switching Dn/Dff [0255 seconds] mining time for switching Dn/Dff [0255 seconds] mining time for setting dimming value n0% to 100% [0255 seconds] mining time for setting dimming value n0% to 100% [0255 seconds]	IT Automatic detection of load type Yes 1 1 100 0 5 0 0	•
Switching cycle counter Operating hours counter Scene control ameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control mum dimming value [150%] winum dimming value [10100%] winum dimming value [10100%] ming time for switching On/Off [0255 seconds] aming time for switching On/Off [0255 seconds] aming time for setting dimming value no% to 100% [0255 seconds] ming value itch On value [1100%]	IT Automatic detection of load type Yes 1 1 100 0 5 0 switch On value according to parameter	• • • • •
Switching cycle counter Operating hours counter Scene control rameter "A, Dimming" ad adaptation: Dinner operation according to mpensation ripple control minum dimming value [150%] sxinum dimming value [1100%] ming time for switching 0n/0ff [0255 seconds] ming time for switching 0n/0ff [0255 seconds] atting value ming value [1100%] atting value witch 0n value [1100%]	Automatic detection of load type Yes 1 100 5 0 5 0 switch On value according to parameter 100	
Status messaging Switching cycle counter Operating hours counter Scene control rameter "A, Dimming" ad adaptation: Dimmer operation according to mpensation ripple control nimum dimming value [150%] aximum dimming value [150%] aximum dimming value [1100%] mining time for switching 0n/0ff [0255 seconds] mining time for switching 0n/0ff [0255 seconds] atting value witch 0n value [1100%] witching off via dimming darker witching on via dimming bighter witching via dimming value	Automatic detection of load type Yes 1 100 5 0 switch On value according to parameter 100 100 ves	
Switching cycle counter Operating hours counter Scene control mathematical according to mathematical according to meneration ripple control ninum dimming value [150%] assimum dimming value [1100%] mining time for switching 0n/0ff [0255 seconds] mining time for switching 0n/0ff [0255 seconds] mining time for switching don/0ff [0255 seconds] arting value witch On value [1100%] witching off via dimming darker witching on via dimming bighter	Automatic detection of load type Yes 1 100 0 5 0 switch On value according to parameter 100 Yes 100 Yes Yes Yes Yes	

This parameter window is used to set the behavior of the corresponding actuator output channel in "Normal mode".

Parameter	Settings		
Load adaptation: Dimmer Op-	Automatic detection of load		
erating according to	type;		
	Leading edge principle;		
	Trailing edge principle		
This parameter sets the type of lo	ad matching.		
With automatic load adaptation,	the device checks the type of		
load when the mains voltage			
whether to select leading or trailing	ng edge control.		
If the load type cannot be un			
automatic load adaptation can be			
mode manually fixed by setting t ciple" or "trailing edge principle"			
the operation of dimmable energy			
Note: With energy-saving lamps,			
that you do not set this mode to "	Automatic load adaptation",		
but to "leading edge control" or "t	railing edge control as rec-		
ommended by the manufacturer			
Compensation ripple control	No;		
	Yes		
This parameter determines if ripp			
the device shall automatically be compensated ripple control signa			
cause flickering of the lamp.	is on the mains power may		
Minimum dimming value	1		
[150%]	(150)		
This parameter sets the minimum			
be under-run when "dimming dar			
down to the minimum dimming v	•		
If the parameter "Switching off			
"Yes", then a "Dimming darker" v ming value means that the chan			
5			
If the parameter "Switching via o dimming value < min. dimming			
below the minimum dimming val			
be switched off.	ac means that the channel will		
If the parameter "Switching via di	mming value" is set to "Switch-		
ing On and switching Off possible	e", then a dimming value below		
the minimum dimming value mea	ans that the channel will be		
switched off.	100		
Maximum dimming value [10100%]	100 (10100)		
This parameter sets the maximum			
be exceeded (i.e. in any case dim			
maximum dimming value).			
When dimming brighter this is on	ly possible up to the maximum		
dimming value.	dinauna dinamaina usulus is sa		
If a dimming value above the maximum dimming value is re- ceived then the output channel is only dimmed to the maximum			
dimming value.	only unified to the maximum		
Dimming time for switching	0		
On/Off [0255 seconds]	(0255)		
This parameter determines if the			
tively the OFF value 0% are "jumped" to (dimming time = 0) or in what time it will be dimmed to the relevant value.			
what time it will be dimmed to the relevant value. If the channel is not switched off from 100% to 0% respectively			
switched on from 0% to 100% then the dimming time is propor-			
tionally adjusted to the difference of the old and new dimming			
values.	5		

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Parameter	Settings	Parameter
Dimming time for dimming	5	Switching or
darker / brighter from	(1255)	brighter
0%-100% [1255 seconds]		
This parameter determines the ti		If switching
formed from 0% to 100% (or from	n 100% to 0%) with manual	relative dimn
(relative) dimming.		"Yes". In this
If the channel is not dimmed from		jumped to t
100% to 0% then the dimming ti		brighter to t
the difference of the old and new	5 1 5	figured dimm
on the difference the time for rea		Switching vi
Dimming time for setting	0	
dimming value from 0100% [0255 seconds]	(0255)	
This parameter determines whet	har a now dimming value, is to	
be jumped to (dimming time = 0		
dimmed from 0% to 100% (or fro		
If the channel is not dimmed from		
100% to 0% then the dimming ti	1	
the difference of the old and new		If switching
on the difference the time for rea	5 1 5	dimming val
	Dimming value at switching off;	mum dimmir
	switch on value according to	dimming val
	parameter;	switched on
	last received dimming value	value with th
This parameter defines to which	ch value this channel is to be	ting. If the re
"jumped" or dimmed on receiv	/ing a telegram with an "ON"	ming value,
switching command.		dimming valu
If the setting "dimming value at	switching OFF" is selected, then	If the channe
it switches to the last dimming v	alue before switching off. If the	dimming val gram with a
channel is switched off by a dim	5	leads to dim
dimming value or by a dimmin		ming value s
dimming value or by a limited of		then to swit
for cleaning in night mode), the	5 5 5	ming value s
at that last dimming value in ea		If this param
value at switching OFF" is bene room, where pressing the switc		sible", then t
switches to the dimming value a		value is \geq the
switch briefly a second time dim		the received
value.	s of jumps to the max anning	If the param
The setting "last received dimmir	ng value" is for example needed	dimming val
for constant brightness contro	5 , 1	the channel of
switched off by dimming values		value, the ch
controller which are below the m		is switched o
on by a dimming value above it	t. The parameter "Switching via	ON delay [0.
dimming value n" must also be s	et to "not possible" for this.	
Switch On value [1100%]	100	
	(1100)	This paramet
This parameter is only visible if t		acts only on t The default s
set to "switch on value according		immediately.
This parameter determines the d		
when an "on" switching commar		OFF delay [0600 seco
Switching off via dimming	No	[0000 seco
darker	Yes	This paramet
If the channel is to be switched	I off in the switched on status by	acts only on t
dimming to a value below the		The default s
this parameter must be set to "Ye	se"	immediately.
this parameter must be set to Te	· •	

Settings n via dimming No Yes on is to be possible in the off state by receiving a ning value "brighter", this parameter must be set to s case, the channel is always switched on first, the minimum dimming value and then dimmed he received relative dimming value using the conning time for dimming brighter / darker. a dimming value not possible; On if dimming value >= min. dimming value; Off if dimming value < min. dimming value; Switching On and switching Off possible; On if dimming value > 0% / Off if dimming value = 0% on in the off state shall be possible by receiving a ue, which is the same as or greater than the mining value, then this parameter must be set to "ON if lue \geq min. dimming value". The channel is then and either jumped or dimmed to the dimming ne configured dimming time for dimming value seteceived dimming value is below the minimum dimthen the channel remains off. Switching off via ue setting is impossible with this setting. el is switched on and this parameter is set to "OFF if ue < min. dimming value", then receiving a teledimming value < the minimum dimming value ming (with the configured dimming time for dimsetting) down to the minimum dimming value and ching off of the channel. Switching on with dimetting is impossible with this setting. eter is set to "switching ON and switching OFF poshe channel is switched on if the received dimming e minimum dimming value and it is switched off if dimming value is < min. dimming value. eter is set to "ON if dimming value > 0% / OFF if ue = 0%", then any dimming value > 0% switches on. If the dimming value is below the min. dimming annel is set to the min. dimming value. The channel ff only after receipt of a dimming value 0%. ..600 seconds] 0 (0...600) ter sets the wanted ON delay time. A set ON delay the object "Switching". setting "0" means that ON commands are executed 0 onds] (0...600)er sets the wanted OFF delay time. A set OFF delay the object "Switching".

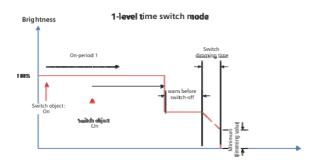
he default setting "0" means that OFF commands are executed mmediately.

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Operating mode: 1-level time switch mode

The "on" period can be triggered and retriggered via the objects scene, switching, dimming brighter/darker or dimming value. When the "on" period has expired then the channel is turned off or, in case the "warning before turning off" is enabled, the dimming value is set to 50% of the last dimming value. If this value is below the minimum dimming value then the minimum dimming value is assumed.



Objects

		:	-	-
Obj	Object name	Function	Туре	Flag
4	A, Switching	On / Off	1 bit	CW
Via this object the telegrams are received to switch the load connected to the respective channel on or off.				
5	A, Dimming	brighter / darker	4 bit	CW
Via this object the dimming telegrams for the relevant channel are received.				
6	A, dimming value	8-bit value	1 byte	CW
Via this object telegrams with a dimming value for the channel are received.				
If the received dimming value is below the minimum dimming value the behavior of the channel is determined by the parameter "switching via dimming value".				
The dimming time for dimming to the dimming value depends on the parameter "dimming time for setting dimming value from 0% to 100%".				

Parameter "A Functions, Objects"

Operating mode	1-level time switch mode	•
8-bit scene control	No	<u>•</u>
Warning before switching Off [0255 seconds]	30	÷
Counting of switching cycles	No	<u>·</u>
Counting of operating hours	No	
Behaviour on KNX power voltage failure	no change	<u>.</u>
Behaviour on KNX power voltage recovery	as before voltage failure	<u>.</u>
Status object switching	No	<u>-</u>
Status object dimming	No	_
Blocking object	No	•

This parameter window offers selection of the base function (normal mode, 1-level timer mode, 2-level timer mode, flashing) and of further functions of this actuator output channel. This includes,

- -whether an 8-bit scene control shall be added,
- whether the switching cycles of this output channel shall be counted with or without an upper threshold,
- whether the operating hours for this output channel shall be counted with or without an upper threshold.
- whether a status object for switching or dimming value shall be added for this output channel,
- whether a locking object shall be added for this output channel,
- how the output channel shall behave on bus voltage failure and bus voltage recovery.

The parameter "Operating mode" is set to "1-level time switch mode".

Parameter	Settings	
Operating mode	Normal mode 1-level time switch mode 2-level time switch mode Flashing	
This parameter sets whether the channel is to work as a "nor- mal" dimming channel or in 1-level timer mode, which can be switched on only via a switching, dimming, dimming value or scene recall command and is switched off automatically after the end of the configured on-time or whether it is to work in 2-level timer mode or whether it is to "flash".		
A 2-level timer mode is to be s lighting if complete switching of time 1 has elapsed is to be avoi also set for control of colored ligh If "1-level timer mode" is selected riod 1 (in minutes)" is also displa dimming value or scene recall while 1-level timer mode and on the timer is reset to its initial valu accordingly.	f of the lighting after the on- ded. A 2-level timer mode is ting effects. I, then the parameter "ON pe- yed. If a switching, dimming, command is received again n period 1 are running, then	

After the configured "on" period has expired, the output chan-

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Parameter	Sattings	Parameter	Sattings	
	Settings	Parameter	Settings	
"warning before switching or rent value. This is to warn the erate the light switch and the configured value before the the current dimming value as value then the minimum dim If "2-level timer mode" is sel "ON period 1 (in minutes)", "Dimming value during ON shown. Whereas dimming re- timer mode, in 2-level time end of the first ON period t period 2" which can be abov value. Dimming reverts to 0 mode. There is no warning before st mode. If "Flashing" is selected, there Flashing (1255 seconds)" as seconds)" are shown addition behavior. The switching object and end blinking. The dimming value during the parameter "maximum di dimming, and dimming value are not visible in the operating Warning before switching of [0255 seconds] This parameter determines f 1-level time switch mode, the	n is enabled (via the parameter ff"), is dimmed to 50% of the cur- te room user and allow him to op- hus extend the "on" period by the elighting is turned off. If 50% of are below the minimum dimming ming value is assumed. lected, then the three parameters "ON period 2 (in minutes)" and period 2 (in percent)" are also werts to 0% at the end of a 1-level r mode it will be dimmed at the to the "dimming value during ON we or below the previous dimming % at the end of the 2-level timer witching off In 2-level time switch n the two parameters "ON period and "OFF period Flashing (1255 onally, which define the blinking ect of the channel is used to start the "on" period is determined by mming value". The objects scene, ue and the associated parameters ing mode "flashing"	 nel (dimmer output) on bus voltage re off permanently (off state, 0% "switch on": On bus voltage r on permanently (to the switch switch on to "dimming value or The output is switched on to "no change" = On bus voltage channel does not change. "as before voltage failure": Th restored. Value on bus voltage recovery" is set to "sbus voltage recovery" is set to a sbus voltage recovery". This parameter is visible, if t voltage recovery" is set to and maximum dimming value The other parameters are constrained to the other parameter set of the other parameter other set of the other parameter set of the other parameter set of the other parameter set of the other parameters are constrained to the other set of the other set of	bltage recovery: recovery the channel is sw). ecovery the channel is sw ing on value). on bus voltage recovery" ap the value set by that para failure the dimming value the state at bus voltage fail (0100) the parameter "behavior of switch on to "dimming va he dimming value to be alue is limited by the mir s.	itched a new pears. meter. of the lure is on bus lue on set on
the brightness (50% of the cu		<u> </u>		
When the room user operate	es the light switch then the light-	Load adaptation: Dimmer operation according to	Automatic detection of load type	
When the room user operate ing is turned on for the perio		Load adaptation: Dimmer operation according to compensation ripple control	Automatic detection of load type	•
When the room user operate	es the light switch then the light-	compensation ripple control		
When the room user operate ing is turned on for the perio level switch time mode.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim-	compensation ripple control Minimum dimming value [150%]	Yes	•
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value;	compensation ripple control. Minimum dimming value [150%] Maximum dimming value [10100%]	Yes 1 100	•
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change	compensation ripple control. Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching Dr/Off [0255 seconds]	 Yes 1 100 0	• •
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan-	compensation ripple control Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching On/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds]	Yes 1 100 0 5	•
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan-	compensation ripple control Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching On/Otf [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds]	Yes 1 100 0 5 0	• • •
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the	compensation ripple control Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching On/Off [0255 seconds] Dimming time for switching On/Off [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value	Yes 1 100 0 5 0 switch On value according to parameter	• 47 49 49 49 49 49
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dime	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail-	compensation ripple control Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching On/Otf [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds]	Yes 1 100 0 5 0 switch On value according to parameter 100	• 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dime	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the	compensation ripple control Minimum dimming value [150%] Maximum dimming value [10100%] Dimming time for switching On/Off [0255 seconds] Dimming time for switching On/Off [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value	Yes 1 100 0 5 0 switch On value according to parameter	• 47 49 49 49 49 49
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switched value.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail-	compensation ripple control Minimum dimming value [150%] Maximum dimming value [150%] Dimming time for switching Drv/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value Switch On value [1100%]	Yes 1 100 0 5 0 switch On value according to parameter 100	• 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switched value.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail- d on to the maximum dimming	compensation ripple control Minimum dimming value [150%] Maximum dimming value [150%] Dimming time for switching Dr/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value Switch On value [1100%] Switching off via dimming darker	Yes 1 100 0 5 0 switch On value according to parameter 100 Yes	
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switched value. "switch off" = On bus voltage	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail- d on to the maximum dimming ge failure the channel is switched	compensation ripple control Minimum dimming value [150%] Maximum dimming value [150%] Dimming time for switching On/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value Switch On value [1100%] Switching off via dimming darker Switching on via dimming bighter	Yes 1 100 0 5 0 switch On value according to parameter 100 Yes Yes	• 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switcher value. "switch off" = On bus voltage off.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail- d on to the maximum dimming ge failure the channel is switched - switch off; switch on;	compensation ripple control Minimum dimming value [150%] Maximum dimming value [150%] Dimming time for switching On/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value Switch On value [1100%] Switching off via dimming brighter Switching on via dimming brighter Switching via dimming value	Yes Yes 1 100 0 5 0 switch On value according to parameter 100 Yes Yes On if dimming value >= min. dimming value	• 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switcher value. "switch off" = On bus voltage off. Behavior on bus voltage re- covery On bus voltage failure the c ming values of all channels a This allows restoring the sta	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail- d on to the maximum dimming ge failure the channel is switched	compensation ripple control Minimum dimming value [150%] Maximum dimming value [150%] Dimming time for switching Dn/Off [0255 seconds] Dimming time for dimming darker / brighter from 0% to 100% [0255 seconds] Dimming time for setting dimming value from 0% to 100% [0255 seconds] Starting value Switch On value [1100%] Switching off via dimming darker Switching off via dimming value ON delay [0600 seconds]	Yes 1 100 0 5 0 switch On value according to parameter 100 Yes Yes On if dimming value >= min. dimming value 0 0 0 0 0 0 0 0	• • • • • • • • • • • • • • • • • • •
When the room user operate ing is turned on for the perio level switch time mode. Behavior on bus voltage failure This parameter determines t nel (dimmer output) on bus v "no change" = On bus voltage channel does not change. "switch on to maximum dimu ure the channel is switcher value. "switch off" = On bus voltage off. Behavior on bus voltage re- covery On bus voltage failure the c ming values of all channels a This allows restoring the sta voltage recovery.	es the light switch then the light- d configured for night mode or 1- switch off; switch on to maximum dim- ming value; no change he behavior of the actuator chan- voltage failure: e failure the dimming value of the ming value" = On bus voltage fail- d on to the maximum dimming ge failure the channel is switched - switch off; switch on; switch on to "dimming value on bus voltage recovery"; as before voltage failure current switching states and dim- are saved in non-volatile memory.	compensation ripple control Minimum dimming value [1502] Maximum dimming value [1502] Maximum dimming value [1502] Dimming time for switching Dr/Off [0255 seconds] Dimming time for switching Dr/Off [0255 seconds] Dimming time for switching value from 02 to 1002 [0255 seconds] Starting value Switch On value [11002] Svitching off via dimming darker Switching on via dimming value ON delay [0600 seconds] OFF-delay [0600 seconds] This parameter window is u corresponding actuator ou	Yes 1 100 0 5 0 switch On value according to parameter 100 Yes Yes On if dimming value >= min. dimming value 0 0 0 0 0 0 0 0	• • • • • • • • • • • • • • • • • • •

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Parameter	Settings		Parameter	Settings
Load adaptation: Dimmer Op-	Automatic detection of load		switched on from 0% to 100% the	
erating according to	type;		tionally adjusted to the difference	e of the old and new dimming
	Leading edge principle;		values.	
	Trailing edge principle		Dimming time for dimming	5
This parameter sets the type of lo	5		darker / brighter from 0%-100% [1255 seconds]	(1255)
With automatic load adaptation,			This parameter determines the tir	ne in which dimming is per-
load when the mains voltage whether to select leading or traili			formed from 0% to 100% (or from	
If the load type cannot be ur			(relative) dimming.	- /
automatic load adaptation can be			If the channel is not dimmed from	
mode manually fixed by setting t			100% to 0% then the dimming tir	
ciple" or "trailing edge principle"			the difference of the old and new	
the operation of dimmable energ			on the difference the time for rea Dimming time for setting	0
Note: With energy-saving lamps,	we recommend in principle		dimming value from 0100%	(0255)
that you do not set this mode to '			[0255 seconds]	(0233)
but to "leading edge control" or "t ommended by the manufacturer			This parameter determines wheth	her a new dimming value is to
Compensation ripple control	No;		be jumped to (dimming time = 0)	or in what time it will be
compensation upple control	Yes		dimmed from 0% to 100% (or fro	
This parameter determines if ripp		1	If the channel is not dimmed from	
the device shall automatically be	compensated. Not or falsely		100% to 0% then the dimming tir the difference of the old and new	
compensated ripple control signa	ls on the mains power may		on the difference the time for rea	
cause flickering of the lamp.	-		Starting value	Dimming value at switching
Minimum dimming value	1 (150)		5	off;
[150%]	(150)			switch on value according
This parameter sets the minimum	dimming value which cannot			to parameter;
be under-run when "dimming dar				last received dimming value
down to the minimum dimming			This parameter defines to whic "jumped" or dimmed on receiv	
If the parameter "Switching off	via dimming darker" is set to		switching command.	ing a telegram with an ON
"Yes", then a "Dimming darker" v			If the setting "dimming value at s	witching OFF" is selected ther
ming value means that the chan			it switches to the last dimming v	
If the parameter "Switching via o			channel is switched off by a dimr	
dimming value < min. dimming below the minimum dimming va			dimming value or by a dimmin	
be switched off.			dimming value or by a limited o for cleaning in night mode), ther	
If the parameter "Switching via di	mming value" is set to "Switch-		at that last dimming value in ea	
ing On and switching Off possible			value at switching OFF" is bene	
the minimum dimming value me	ans that the channel will be		room, where pressing the switch	
switched off.	I		switches to the dimming value at	
Maximum dimming value	100		switch briefly a second time dims	s or jumps to the max. dimming
[10100%]	(10100)		value. The setting "last received dimmir	a value 1 or 2" is for example
This parameter sets the maximum	n dimming value, which cannot		needed for constant brightness of	
be exceeded (i.e. in any case dim			be switched off by dimming val	
maximum dimming value).			ness controller which are below	the minimum and not to be
When dimming brighter this is or	ly possible up to the maximum		switched on by a dimming va	
dimming value.			"Switching via dimming value n"	must also be set to "not possi-
If a dimming value above the max ceived then the output channel is			ble" for this. Switch On value [1100%]	100
dimming value.	sony unimed to the maximum		Switch On value [1100%]	100 (1100)
Dimming time for switching	0			(1100)
On/Off [0255 seconds]	(0255)		This parameter is only visible if th	ne parameter "Starting value" is
			set to "switch on value according	to parameter".
This parameter determines if the			This parameter determines the di	
tively the OFF value 0% are "jump			when an "on" switching comman	d is received.
what time it will be dimmed to the lift the channel is not switched off				
in the channel is not switched Off	from 100 % to 0% respectively	1		

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Switching off via dimming darker No Yes If the channel is to be switched off in the switched on status by dimming to a value below the minimum dimming value, then this parameter must be set to "Yes". Switching on via dimming brighter No Yes If switching on is to be possible in the off state by receiving a relative dimming value "brighter", this parameter must be set to "Yes". Switching on is to be possible in the off state by receiving a relative dimming value "brighter", this parameter must be set to "Yes". Switching on is to be possible in the off state by receiving a relative dimming value and then dimmed brighter to the received relative dimming value using the configured dimming true for dimming value and then dimming value; Switching on in the off state shall be possible; On if dimming value > min. dimming value; Switching on in the off state shall be possible by receiving a dimming value, which is the same as or greater than the minimum dimming value, then this parameter must be set to "ON if dimming value, which is the same as or greater than the minimum dimming value, then the channel remains off. Switching off via dimming value, then the channel remains off. Switching off via dimming value setting is impossible with this setting. If the channel is switched on and this parameter is set to "OFF if dimming value setting is impossible with this setting. If the channel is switched on if the received dimming value is below the minimum dimming value setting is impossible with this setting. If the channel is switched on if the received dimming value is below the minimum dimming value	Parameter	Settings		
If the channel is to be switched off in the switched on status by dimming to a value below the minimum dimming value, then this parameter must be set to "Yes". Switching on via dimming brighter No Yes If switching on is to be possible in the off state by receiving a relative dimming value "brighter", this parameter must be set to "Yes". In this case, the channel is always switched on first, jumped to the minimum dimming value 1 and then dimmed brighter to the received relative dimming value using the configured dimming traine for dimming brighter / darker. Switching via dimming value not possible; On if dimming value >= min. dimming value; Switching on in the off state shall be possible y receiving a dimming value, which is the same as or greater than the minimum dimming value, then this parameter must be set to "ON if dimming value = 0%. If switching on in the off state shall be possible by receiving a dimming value, then this parameter must be set to "ON if dimming value exits in jumped or dimmed to the dimming value, which is the same as or greater than the minimum dimming value, then the channel is settor. If the received dimming value is below the minimum dimming value exits is impossible with this setting. If the channel is impossible with this setting. If the channel is switched on and this parameter is set to "OFF if dimming value exiting is impossible with this setting. If the parameter is set to "Switching OFF possible; then the channel is switched on if the received dimming value 1 and the is switched off if the received dimming value 1 and it is switched off if the received dimming value is a low switches. If this parameter is		No		
dimming to a value below the minimum dimming value, then this parameter must be set to "Yes". Switching on via dimming brighter No Yes If switching on is to be possible in the off state by receiving a relative dimming value "brighter", this parameter must be set to "Yes". In this case, the channel is always switched on first, jumped to the minimum dimming value 1 and then dimmed brighter to the received relative dimming value using the con- figured dimming time for dimming brighter / darker. Switching via dimming value not possible; On if dimming value >= min. dimming value; Switching on and switching Off possible; On if dimming value > 0% / Off if dimming value > 0% / If switching on in the off state shall be possible by receiving a dimming value, which is the same as or greater than the mini- mum dimming value, then this parameter must be set to "ON if dimming value, then the channel remains off. Switching off via dimming value, then the channel remains off. Switching off via dimming value, then the channel remains off. Switching off via dimming value setting is impossible with this setting. If the channel is switched on and this parameter is set to "OFF if dimming value setting is impossible with this setting. If the channel is impossible with this setting. If the channel is switched on and this parameter is set to "OFF if dimming value setting is impossible with this setting. If the parameter is set to "ON if dimming value 1 and then to switching off of the channel. Switching OFF pos- sible", then the channel is switched on if the received dimming value is the minimum dimming value	darker	Yes		
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Parameter	Settings	
ON delay [0600 seconds]	0 (0600)	
This parameter sets the wanted ON delay time. A set ON delay acts only on the object "Switching". The default setting "0" means that ON commands are executed immediately.		
OFF delay [0600 seconds]	0 (0600)	
This parameter sets the wanted OFF delay time. A set OFF delay acts only on the object "Switching". The default setting "0" means that OFF commands are executed immediately.		

Technical manual

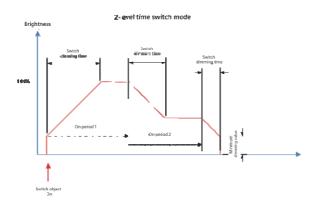
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Operating mode: 2-level time switch mode

The "on" period 1 can be triggered and retriggered via the objects scene, switching, dimming brighter/darker or dimming value. When the "on" period 1 has expired then the channel is dimmed to the dimming value for "on" period 2 in the time "dimming time switching". There is no warning before switching off In 2-level time switch mode. When the timer is retriggered during "on" period 2 then the timer is reset into the "on" period 1.



Objects

Obj	Object name	Function	Туре	Flag
4	A, Switching	On / Off	1 bit	CW
Via this object the telegrams are received to switch the load connected to the respective channel on or off.				
5	A, Dimming	brighter / darker	4 bit	CW
Via this object the dimming telegrams for the relevant channel are received.				
-			4 1 1	
6	A, Dimming value	8-bit value	1 byte	CW
Via th are re If the value	A, Dimming value his object telegrams with a eceived. e received dimming value i e the behavior of the cha eter "switching via dimming	dimming valu s below the m nnel is deterr	ie for the c	hannel mming

The dimming time for dimming to the dimming value depends on the parameter "dimming time for setting dimming value from 0% to 100%".

Parameter "A Functions, Objects"

Operating mode	2-level time switch mode	-
8-bit scene control	No	<u>.</u>
Counting of switching cycles	No	<u>.</u>
Counting of operating hours	No	•
Behaviour on KNX power voltage failure	no change	•
Behaviour on KNX power voltage recovery	as before voltage failure	
Status object switching	No	
Status object dimming	No	
Blocking object	No	-

This parameter window offers selection of the base function (normal mode, 1-level timer mode, 2-level timer mode, flashing) and of further functions of this actuator output channel. This includes,

- -whether an 8-bit scene control shall be added, - whether the switching cycles of this output channel
- shall be counted with or without an upper threshold,
- whether the operating hours for this output channel shall be counted with or without an upper threshold.
- whether a status object for switching or dimming value shall be added for this output channel,
- whether a locking object shall be added for this output channel,
- how the output channel shall behave on bus voltage failure and bus voltage recovery.

The parameter "Operating mode" is set to "2-level time switch mode".

Parameter	Settings
Operating mode	Normal mode 1-level time switch mode 2-level time switch mode Flashing

This parameter sets whether the channel is to work as a "normal" dimming channel or in 1-level timer mode, which can be switched on only via a switching, dimming, dimming value or scene recall command and is switched off automatically after the end of the configured on-time or whether it is to work in 2-level timer mode or whether it is to "flash".

A 2-level timer mode is to be set for corridor and stairwell lighting if complete switching off of the lighting after the ontime 1 has elapsed is to be avoided. A 2-level timer mode is also set for control of colored lighting effects.

If "1-level timer mode" is selected, then the parameter "ON period 1 $\,$

(in minutes)" is also displayed. If a switching, dimming, dimming value or scene recall command is received again while 1level timer mode and on period 1 are running, then the timer is reset to its initial value and the on-time extended accordingly.

After the configured "on" period has expired, the output chan-

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Parameter	Settings	Parameter
nel, if the warning function is "warning before switching off") rent value. This is to warn the re- erate the light switch and thus configured value before the lig the current dimming value are value then the minimum dimmi If "2-level timer mode" is select "ON period 1 (in minutes)", "C "Dimming value during ON period shown. Whereas dimming revert timer mode, in 2-level timer m end of the first ON period to t period 2" which can be above of value. Dimming reverts to 0% a mode. There is no warning before switt mode. If "Flashing" is selected, then th Flashing (1255 seconds)" and	s enabled (via the parameter , is dimmed to 50% of the cur- oom user and allow him to op- extend the "on" period by the ghting is turned off. If 50% of below the minimum dimming ng value is assumed. ed, then the three parameters DN period 2 (in minutes)" and eriod 2 (in percent)" are also ts to 0% at the end of a 1-level hode it will be dimmed at the he "dimming value during ON or below the previous dimming at the end of the 2-level timer ching off In 2-level time switch he two parameters "ON period I "OFF period Flashing (1255	 channel doer "as before virestored. Value on buiction of the second of th
seconds)" are shown additiona behavior. The switching object and end blinking. The dimming value during the	Ily, which define the blinking of the channel is used to start	<u>Parameter ,</u>
the parameter "maximum dimn dimming, and dimming value a	ning value". The objects scene,	Load adaptation: Dimr
are not visible in the operating r	node "flashing"	compensation ripple co
Behavior on bus voltage failure	switch off;	Minimum dimming valu
failure	switch on to maximum dim- ming value;	Maximum dimming val
	no change	Dimming time for switc
This parameter determines the nel (dimmer output) on bus volt "no change" = On bus voltage fa channel does not change. "switch on to maximum dimmir ure the channel is switched of value. "switch off" = On bus voltage f	tage failure: hilure the dimming value of the ng value" = On bus voltage fail- n to the maximum dimming	Dimming time for dimm from 0% to 100% [0.2.2 Dimming time for a for all2 from 0% to 100% [0.2.2 Starting value Switch On value [11] Switching off via dimmi Switching on via dimmi
off.		Switching via dimming
Behavior on bus voltage re- covery On bus voltage failure the curr ming values of all channels are This allows restoring the states	saved in non-volatile memory.	ON period 1 [1255 m ON period 2 [1255 m Dimming value during ON delay (0600 seco OFF-delay (0600 seco
voltage recovery. This parameter determines the nel (dimmer output) on bus volt "switch off": On bus voltage rec off permanently (off state, 0%). "switch on": On bus voltage rec on permanently (to the switchir switch on to "dimming value or parameter "dimming value on I The output is switched on to th "no change" = On bus voltage fa	behavior of the actuator chan- tage recovery: covery the channel is switched covery the channel is switched ag on value). In bus voltage recovery": a new bus voltage recovery" appears. The value set by that parameter.	This parame correspondii switch mode

Parameter	Settings
channel does not change. "as before voltage failure": The restored.	state at bus voltage failure is
Value on bus voltage recov-	100
ery [0100%]	(0100)
This parameter is visible, if th	e parameter "behavior on bus
voltage recovery" is set to " sw	itch on to "dimming value on
bus voltage recover" ".	-
This parameter determines the	dimming value to be set on

eter determines the dimming value to be set on recovery. This value is limited by the minimum um dimming values.

parameters are covered in the sections

- node
- nessaging
- ng cycle counter
- ng hours counter
- ontrol

"A, Dimming"

Load adaptation: Dimmer operation according to	Automatic detection of load type	•
compensation ripple control	Yes	•
Minimum dimming value [150%]	1	÷
Maximum dimming value [10100%]	100	÷
Dimming time for switching On/Off [0255 seconds]	0	÷
Dimming time for dimming darker / brighter from 0% to 100% (0255 seconds)	5	÷
Dimming time for setting dimming value from 0% to 100% [0255 seconds]	0	<u>.</u>
Starting value	switch On value according to parameter	•
Switch On value [1100%]	100	<u>.</u>
Switching off via dimming darker	Yes	•
Switching on via dimming brighter	Yes	•
Switching via dimming value	On if dimming value >= min. dimming value	•
ON period 1 [1255 minutes]	15	<u>÷</u>
ON period 2 [1255 minutes]	15	-
Dimming value during ON period 2 [0100%]	50	•
ON delay [0600 seconds]	0	÷
OFF-delay [0600 seconds]	0	÷

eter window is used to set the behavior of the ing actuator output channel in "2-level time le".

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Parameter	Settings		Parameter	Settings
Load adaptation: Dimmer Op-	Automatic detection of load		switched on from 0% to 100% the	
erating according to	type;		tionally adjusted to the difference	e of the old and new dimming
	Leading edge principle;		values.	
	Trailing edge principle		Dimming time for dimming	5
This parameter sets the type of lo	5		darker / brighter from 0%-100% [1255 seconds]	(1255)
With automatic load adaptation,			This parameter determines the tir	ne in which dimming is per-
load when the mains voltage whether to select leading or traili			formed from 0% to 100% (or from	
If the load type cannot be ur			(relative) dimming.	- /
automatic load adaptation can be			If the channel is not dimmed from	
mode manually fixed by setting t			100% to 0% then the dimming tir	
ciple" or "trailing edge principle"			the difference of the old and new	
the operation of dimmable energ			on the difference the time for rea Dimming time for setting	0
Note: With energy-saving lamps,	we recommend in principle		dimming value from 0100%	(0255)
that you do not set this mode to '			[0255 seconds]	(0233)
but to "leading edge control" or "t ommended by the manufacturer			This parameter determines wheth	her a new dimming value is to
Compensation ripple control	No;		be jumped to (dimming time = 0)	or in what time it will be
compensation upple control	Yes		dimmed from 0% to 100% (or fro	
This parameter determines if ripp		1	If the channel is not dimmed from	
the device shall automatically be	compensated. Not or falsely		100% to 0% then the dimming tir the difference of the old and new	
compensated ripple control signa	ls on the mains power may		on the difference the time for rea	
cause flickering of the lamp.	-		Starting value	Dimming value at switching
Minimum dimming value	1 (150)		5	off;
[150%]	(150)			switch on value according
This parameter sets the minimum	dimming value which cannot			to parameter;
be under-run when "dimming dar				last received dimming value
down to the minimum dimming			This parameter defines to whic "jumped" or dimmed on receiv	
If the parameter "Switching off	via dimming darker" is set to		switching command.	ing a telegram with an ON
"Yes", then a "Dimming darker" v			If the setting "dimming value at s	witching OFF" is selected ther
ming value means that the chan			it switches to the last dimming v	
If the parameter "Switching via o			channel is switched off by a dimr	
dimming value < min. dimming below the minimum dimming va			dimming value or by a dimmin	
be switched off.			dimming value or by a limited o for cleaning in night mode), ther	
If the parameter "Switching via di	mming value" is set to "Switch-		at that last dimming value in ea	
ing On and switching Off possible			value at switching OFF" is bene	
the minimum dimming value me	ans that the channel will be		room, where pressing the switch	
switched off.	1		switches to the dimming value at	
Maximum dimming value	100		switch briefly a second time dims	s or jumps to the max. dimming
[10100%]	(10100)		value. The setting "last received dimmir	a value 1 or 2" is for example
This parameter sets the maximum	n dimming value, which cannot		needed for constant brightness of	
be exceeded (i.e. in any case dim			be switched off by dimming val	
maximum dimming value).			ness controller which are below	the minimum and not to be
When dimming brighter this is or	ly possible up to the maximum		switched on by a dimming va	
dimming value.			"Switching via dimming value n"	must also be set to "not possi-
If a dimming value above the max ceived then the output channel is			ble" for this. Switch On value [1100%]	100
dimming value.	sony unimed to the maximum		Switch On value [1100%]	100 (1100)
Dimming time for switching	0			(1100)
On/Off [0255 seconds]	(0255)		This parameter is only visible if th	ne parameter "Starting value" is
			set to "switch on value according	to parameter".
This parameter determines if the			This parameter determines the di	
tively the OFF value 0% are "jump			when an "on" switching comman	d is received.
what time it will be dimmed to the lift the channel is not switched off				
in the channel is not switched Off	from 100 % to 0% respectively	1		

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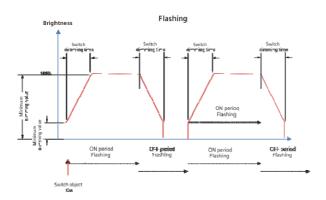
Parameter	Settings	Para
Switching off via dimming	No	ON
darker	Yes	[1
If the channel is to be switched o	off in the switched on status by	This time
dimming to a value below the r		This
this parameter must be set to "Ye		time
Switching on via dimming	No	lf du
brighter	Yes	scen
		ther
If switching on is to be possible		is re
relative dimming value "brighter" "Yes". In this case, the channe		Dim
jumped to the minimum dimmi		peri
brighter to the received relative		This
figured dimming time for dimmir		ON J The
Switching via dimming value	not possible;	2-lev
	On if dimming value >= min.	210
	dimming value;	1
	Off if dimming value < min. dimming value;	
	dimming value; Switching On and switching	2
	Off possible;	Brightness
	On if dimming value > 0% /	ght
	Off if dimming value = 0%	Bri
If switching on in the off state s		
dimming value, which is the san		
mum dimming value, then this p dimming value \geq min. dimming		
switched on and either jumped		
value with the configured dimmi		Swit
ting. If the received dimming val	ON	
ming value, then the channel	[0	
dimming value setting is impossil		
If the channel is switched on and	This	
dimming value < min. dimming gram with a dimming value <	acts	
leads to dimming (with the con-	The imm	
ming value setting) down to the minimum dimming value 1 and		OFF
then to switching off of the ch	[0	
ming value setting is impossible v	with this setting.	
If this parameter is set to "switch		This
sible", then the channel is switch		acts
value is \geq the minimum dimming	The imm	
the received dimming value is < min. dimming value 1. If the parameter is set to "ON if dimming value > 0% / OFF if		
dimming value = 0% ", then any dimming value > 0% / OFF if		
the channel on. If the dimming v		
value, the channel is set to the m		
is switched off only after receipt of	of a dimming value 0%.	
ON period 1	15	
[1255 minutes]	(1255)	
This parameter is visible if the o		
time mode" or "2-level switch tim		
This parameter determines the ON period respectively the ON period 1 in 2-level switch time mode.		
If during the "on" period a command is received via the objects		
scene, switching, dimming brighter/darker or dimming value,		
then that command is executed		
riod is retriggered.		l I

Parameter	Settings		
ON period 2	15		
[1255 minutes]	(1255)		
	operating mode "2-level switch		
time mode" is selected.	- ON paried 2 in 2 level switch		
time mode.	e ON period 2 in 2-level switch		
	nmand is received via the objects		
	ighter/darker or dimming value,		
	d, the timer for the "on" period 1		
is retriggered and the 2-level sv	vitch time is started again.		
Dimming value during ON	50		
period 2 [0100%]	(0100)		
-	dimming value to be used during		
ON period 2 in 2-level switch tir			
The diagram below shows an e	example of the dimming curve in		
2-level switch time mode.	-		
time 6	1 time		
6.0	ng time for		
Switch-or time 1 dimmi	ing value Switch-on time 2		
8 1			
the the test of te			
46	Brightness		
Time			
Switch-on telegram			
ON delay	0		
[0600 seconds]	(0600)		
	d ON delay time. A set ON delay		
acts only on the object "Switchi			
The default setting "0" means that ON commands are executed			
immediately. OFF delay OFF delay			
[0600 seconds]	OFF delay [0600 seconds]		
This parameter sets the wanted OFF delay time. A set OFF delay			
acts only on the object "Switching".			
The default setting "0" means that OFF commands are executed			
immediately.			

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Operating mode: Flashing

In operating mode "Flashing" only the switching object is enabled, via which the flashing mode can be switched on and off. Via parameter settings the objects for counting of switching cycles, counting of operating hours, switching status and locking can be enabled. The following additional parameters are available: Behavior on bus voltage failure and recovery, maximum and minimum dimming value, dimming time for switching and the on and off period when flashing.



Objects

Obj	Object name	Function	Туре	Flag
4	A, Switching	On / Off	1 bit	CW
Via this object the switching telegrams are received.				

Parameter "A Functions, Objects"

Operating mode	Flashing	-
Counting of switching cycles	No	
Counting of operating hours	No	<u>•</u>
Behaviour on KNX power voltage failure	no change	<u>·</u>
Behaviour on KNX power voltage recovery	as before voltage failure	<u>-</u>
Status object switching	No	<u> </u>
Blocking object	No	-

This parameter window offers selection of the base function (normal mode, 1-level timer mode, 2-level timer mode, flashing) and of further functions of this actuator output channel. This includes,

- whether the switching cycles of this output channel shall be counted with or without an upper threshold,
- whether the operating hours for this output channel shall be counted with or without an upper threshold.

- whether a status object for switching or dimming value shall be added for this output channel,
- whether a locking object shall be added for this output channel,
- how the output channel shall behave on bus voltage failure and bus voltage recovery.

The parameter "Operating mode" is set to "Flashing".

Parameter	Settings		
Operating mode	Normal mode 1-level time switch mode 2-level time switch mode Flashing		
This parameter sets whether the mal" dimming channel or in 1-lev switched on only via a switching, scene recall command and is swi the end of the configured on-tim 2-level timer mode or whether it i	el timer mode, which can be dimming, dimming value or tched off automatically after e or whether it is to work in		
A 2-level timer mode is to be set for corridor and stairwell lighting if complete switching off of the lighting after the on- time 1 has elapsed is to be avoided. A 2-level timer mode is also set for control of colored lighting effects. If "1-level timer mode" is selected, then the parameter "ON pe-			
riod 1 (in minutes)" is also displayed. It ming value or scene recall commu- level timer mode and on period 7 is reset to its initial value and th ingly.	and is received again while 1- I are running, then the timer ne on-time extended accord-		
After the configured "on" period I nel, if the warning function is "warning before switching off"), i rent value. This is to warn the roc erate the light switch and thus e configured value before the ligh the current dimming value are b value then the minimum dimming If "2-level timer mode" is selected "ON period 1 (in minutes)", "ON "Dimming value during ON per shown. Whereas dimming reverts	enabled (via the parameter s dimmed to 50% of the cur- om user and allow him to op- xtend the "on" period by the ting is turned off. If 50% of elow the minimum dimming g value is assumed. d, then the three parameters period 2 (in minutes)" and iod 2 (in percent)" are also		
timer mode, in 2-level timer mode end of the first ON period to the period 2" which can be above or value. Dimming reverts to 0% at mode.	de it will be dimmed at the e "dimming value during ON below the previous dimming		
There is no warning before switch mode. If "Flashing" is selected, then the Flashing (1255 seconds)" and " seconds)" are shown additionally behavior. The switching object o	e two parameters "ON period OFF period Flashing (1255 y, which define the blinking		
and end blinking. The dimming value during the " the parameter "maximum dimmi dimming, and dimming value ar are net visible in the energiating	ng value". The objects scene, id the associated parameters		

are not visible in the operating mode "flashing"

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ming value; no change no change This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage failure the dimming value of the channel os not change. "Memory and the channel is switched on to the maximum dimming value of the channel is switched on to the maximum dimming value. "switch off" = On bus voltage failure the channel is switched off. Switch off; switch or; as before voltage failure and dimming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery: "switch off": On bus voltage recovery the channel is switched off permanently (off state, 0%). "switch off": On bus voltage recovery the channel is switched on permanently (off state, 0%). This parameter determines the behavior of the actuator channel is switched on permanently (off state, 0%). "switch off": On bus voltage recovery the channel is switched on permanently (off state, 0%). This prameter is visible, if the parameter "behavior on bus voltage recover): "switch off": On bus voltage recover the channel is switched on permanently (off state, 0%). "switch off": On bus voltage recover is visible, if the parameter "behavior on bus voltage recover): "switch off". 100 This parameter determines the dimming value to be set on bus voltage recover). Note: that y but the minimum and maximum dimming values. This parameter sare covered in the sections Night mode Status messaging Switching cycle counter Scene control Scene control	Parameter	Settings	Param
ming value; no change no change This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage failure: "no change" = On bus voltage failure the dimming value of the channel does not change. "witch of the actuator channel switch of the actuator channel is switched off. Switch off" = On bus voltage failure the channel is switched off. switch off; switch off" = On bus voltage failure the channel is switched off. This pr switch off" = On bus voltage re- covery On bus voltage failure the current switching states and dim- ming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery. Parain switch off": On bus voltage recovery the channel is switched on permanently (off state, 0%). "switch off": On bus voltage recovery the channel is switched on permanently (off state, 0%). This pr witch off'' on bus voltage recovery the channel is switched on permanently (off state, 0%). "switch off": On bus voltage recovery is sestored. 100 (0100) This parameter is visible, if the parameter "behavior on bus voltage recovery". Note: the ot switch on to "dimming value on bus voltage recovery. This parameter determines the dimming value to be set on bus voltage recovery". Note: the ot comp of Locking Status messaging Switching cycle counter This p Scene control Scene control Scene control	Behavior on bus voltage	switch off;	
Ino change This parameter determines the behavior of the actuator chan- nel (dimmer output) on bus voltage failure: "no change" = On bus voltage failure the dimming value of the channel does not change. "switch on to maximum dimming value" = On bus voltage fail- ure the channel is switched on to the maximum dimming value. Image: This provide the channel is switched off. Behavior on bus voltage re- covery switch on; as before voltage failure This provide the current switching states and dim- ming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery. Parameter load mode On bus voltage failure the current switching states and dim- ming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery. Parameter load mode Switch off: On bus voltage recovery the channel is switched on permanently (toft state, 0%). "switch off: On bus voltage recovery the channel is switched on permanently (to the switching on value). "as before voltage failure": The state at bus voltage failure is restored. This pro- (0100) This parameter is visible, if the parameter "behavior on bus voltage recovery". Note: the o bus voltage recovery. This value is limited by the minimum and maximum dimming values. Note: that y The other parameters are covered in the sections D Night mode Night mode Comming causes Status messaging Switching cycle counter This p "res", ming if the dimming below	failure	switch on to maximum dim-	Load adap
This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage failure: Memory "no change" = On bus voltage failure the dimming value of the channel does not change. On bus voltage failure the dimming value of the channel is switched on to the maximum dimming value. Items "switch on to maximum dimming value" = On bus voltage failure the channel is switched ont the maximum dimming value. This procession "switch off" = On bus voltage failure the channel is switched off. Switch off; switch on; as before voltage failure On bus voltage failure the current switching states and dimming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery. Paran Load (memory). This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage recovery: "with load whet is switched on permanently (off state, 0%). "switch off": On bus voltage recovery the channel is switched on permanently (off state, 0%). (0100) This parameter determines the behavior on bus voltage failure is restored. (0100) This parameter is visible, if the parameter , behavior on bus voltage failure is restored. (0100) This parameter determines the dimming value on bus voltage recovery. This value is limited by the minimum and maximum dimming values. Nide the dimming value on bus voltage recovery. This parameter determines the dimming value to be set on bus voltage recovery. This value is limit		5	compensal
This parameter output) on bus voltage failure: "no change" = On bus voltage failure the dimming value of the channel does not change. "workton off" = On bus voltage failure the dimming value. "switch off" = On bus voltage failure the channel is switched off. Behavior on bus voltage recovery switch off" = On bus voltage recovery: Switch off: Switch off: Subsch off: <		2	
 "no change" = On bus voltage failure the dimming value of the channel does not change. "switch on to maximum dimming value" = On bus voltage failure the channel is switched on to the maximum dimming value. "switch off" = On bus voltage failure the channel is switched off. Behavior on bus voltage recovery as before voltage failure On bus voltage failure the current switching states and dimming values of all channels are saved in non-volatile memory. This allows restoring the states at bus voltage failure on bus voltage recovery. This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage recovery: "switch on": On bus voltage recovery the channel is switched on permanently (off state, 0%). "switch on": On bus voltage recovery the channel is switched on permanently (to the switching on value). "as before voltage failure": The state at bus voltage failure is restored. Value on bus voltage recover 100 (0100) This parameter determines the dimming value to be set on bus voltage recovery. This suitage recovery. This value is limited by the minimum and maximum dimming values. This parameter sare covered in the sections Night mode Locking Switching cycle counter Operating hours counter Scene control 			
channel does not change. Immediate "switch on to maximum dimming value" = On bus voltage failure Immediate "switch off" = On bus voltage failure the channel is switched off. Immediate Behavior on bus voltage recovery switch off; switch on; as before voltage failure Immediate On bus voltage failure the current switching states and dimming values of all channels are saved in non-volatile memory. Immediate Immediate On bus voltage failure the current switching states and dimming values of all channels are saved in non-volatile memory. Immediate Immediate This parameter determines the behavior of the actuator channel (dimmer output) on bus voltage recovery: "mis witch off": On bus voltage recovery the channel is switched off permanently (off state, 0%). "mis parameter is visible, if the parameter "behavior on bus voltage recover". "as before voltage failure": The state at bus voltage failure is restored. Immediate Not Value on bus voltage recover 100 (0100) If the or mode ciple* voltage recover?. is switch on to "dimming value on bus voltage recover." Not This parameter determines the dimming value to be set on bus voltage recover. Not Not Dis parameter is visible, if the parameter "behavior on bus voltage recover." Not Not This parameter determines the dimm		5	Maximum
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eter "A, Dimming"

Load adaptation: Dimmer operation according to	Automatic detection of load type	•
compensation ripple control	Yes	•
Minimum dimming value [150%]	1	<u>÷</u>
Maximum dimming value [10100%]	100	÷
Dimming time for switching On/Off [0255 seconds]	0	<u>.</u>
ON period Flashing [1255 seconds]	1	*
OFF period Flashing [1255 seconds]	1	÷

arameter window is used to set the behavior of the conding actuator output channel in "flashing

Parameter	Settings			
Load adaptation: Dimmer Op- erating according to	Automatic detection of load type; Leading edge principle; Trailing edge principle			
This parameter sets the type of lo				
With automatic load adaptation, load when the mains voltage whether to select leading or traili	With automatic load adaptation, the device checks the type of load when the mains voltage is switched on and decides whether to select leading or trailing edge control.			
If the load type cannot be un automatic load adaptation can be mode manually fixed by setting t ciple" or "trailing edge principle" the operation of dimmable energ	e deactivated and the operating he mode to "leading edge prin '. Primarily, this is required for			
<u>Note</u> : With energy-saving lamps, that you do not set this mode to	Note: With energy-saving lamps, we recommend in principle that you do not set this mode to "Automatic load adaptation", but to "leading edge control" or "trailing edge control" as rec-			
Compensation ripple control No;				
	Yes			
This parameter determines if ripp the device shall automatically be compensated ripple control signa cause flickering of the lamp.	compensated. Not or falsely			
Minimum dimming value [150%]	1 (150)			
This parameter sets the minimum dimming value , which cannot be under-run when "dimming darker" (i.e. it can only be dimmed down to the minimum dimming value).				
If the parameter "Switching off via dimming darker" is set to "Yes", then a "Dimming darker" value below the minimum dimming value means that the channel will be switched off.				
"Yes", then a "Dimming darker" v				
"Yes", then a "Dimming darker" v	nel will be switched off. dimming value" is set to "Off i value", then a dimming value			

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Parameter	Settings		
Maximum dimming value [10100%]	100 (10100)		
This parameter sets the maximum dimming value, which cannot be exceeded (i.e. in any case dimming is only possible to the maximum dimming value). When dimming brighter this is only possible up to the maximum dimming value. If a dimming value above the maximum dimming value is re- ceived then the output channel is only dimmed to the maximum dimming value.			
Dimming time for switching On/Off [0255 seconds]	0 (0255)		
This parameter determines if the configured ON value respec- tively the OFF value 0% are "jumped" to (dimming time = 0) or in what time it will be dimmed to the relevant value. If the channel is not switched off from 100% to 0% respectively switched on from 0% to 100% then the dimming time is propor- tionally adjusted to the difference of the old and new dimming values.			
ON period Flashing [1255 seconds]	1 (1255)		
This parameter determines the desired "on" flashing period. Flashing is started and stopped via the object "Switching on/off". The parameter "dimming time for switching on/off" determines if the configured ON value is "jumped" to (dimming time = 0) or in what time it will be dimmed to the relevant value. Dimming to the ON value may extend the lifetime of the lamp in flashing mode.			
OFF period Flashing [1255 seconds]	1 (1255)		
This parameter determines the desired "off" flashing period. The flashing frequency can be derived from the ON and OFF pe- riods.			

Night mode

Objects

This additional object is visible.

Obj	Object name	Function	Туре	Flag
3	A, Night mode	On / Off	1 bit	CW
This object is visible if the parameter "night mode" is set to				
"Yes"	-			

This object serves to enable or disable "Night mode" for the corresponding channel via the bus. This object can also be sent by a pushbutton, a timer or a building management system, for example. If a logical 1 is received, then the corresponding output is switched to night mode.

In "Night mode" the channel can no longer be switched on permanently, but only for a limited time (for example, lighting for cleaning for 30 minutes). If the parameter "Warning before switching OFF" (see "Functions, Objects" parameter window) is set to "Yes", then after the configured time, the dimming value of the channel is set first to 50% of the prior value for safety reasons and then within about 30 seconds it is dimmed darker and the channel switched off. This lets a user of the room know the end of the ON time, and by pressing the light switch again, the lighting will be left ON for a further 30 minutes, for example.

If the "Night Mode" object is not used with a channel, then this channel can be switched on permanently.

Parameter "A Functions, Objects"

Operating mode	Normal Mode	•
8-bit scene control	No	•
Night mode	Yes	•
ON period during night mode [1255 minutes]	30	*
Warning before switching Off [0255 seconds]	30	÷
Counting of switching cycles	No	•
Counting of operating hours	No	•
Behaviour on KNX power voltage failure	no change	•
Behaviour on KNX power voltage recovery	as before voltage failure	•
Status object switching	No	•
Status object dimming	No	•
Blocking object	No	•

Parameter Settings		
Night mode No;		
_	Yes	
This parameter determines if the lighting can only be switched on for a limited period at night (e.g. as lighting for cleaning) or		
if it can still be switched on permanently (night mode = No). If		
"night mode = Yes" is selected then an object "night mode		
On/Off" is added to enable or disa	ble night mode via the bus and	

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Parameter	Settings		
the following parameter appears.			
ON period during night mode [1255 minutes]	30 (1255)		
This parameter is visible if the po			
"Yes".	indificter inglit mode is set to		
This parameter determines how	v long the channel shall be		
switched on during night mode.			
If during the "on" period a comm			
scene, switching, dimming brig then that command is executed			
riod is retriggered.	and the time for the off pe-		
After the configured "on" period	has expired, the output chan-		
nel, if the warning function is ena			
ing before switching off"), is dim			
lue for 30 seconds. This is to wa			
minent switching off. By operation is immediately dimmed to the sw			
is retriggered.	intering on value and the timer		
Warning before switching Off	30		
[0255 Seconds]	(0255)		
This parameter is only visible if the parameter "night mode" is			
set to "Yes" or the parameter "Operating mode" is set to "1-level			
switch time mode".			
This parameter determines for a channel in night mode or in 1-			
level time switch mode, how long after the timer has expired an imminent switching off shall be signaled by reducing the bright-			
ness (50% of the current dimming value).			
When the room user operates th			
is turned on for the period config			

Locking

If the locking object of a channel is set then the values of the objects switching, dimming, dimming value, scene and night mode are not evaluated or transmitted. The object values are updated though.

This means:

- Scenes are not saved or recalled when locking is enabled.
- Switching or dimming commands are not executed.
- A received dimming value is saved and may be used the next time the channel is switched on (parameter setting: switching on "to the last dimming value received")
- When the locking object is reset (value 0) the previously received switching/dimming commands are not executed.
- Already started timers continue running while the locking object is enabled and result in switching / dimming actions when the timer period expires. Timers are not retriggered when locking is enabled.

Objects

This additional object is visible.

Obj	Object name	Function	Туре	Flag
2	A, Locking	On / Off	1 bit	CW
set to This of respondent object mode upda Alreat ject it the t	object is only visible if th o "Yes". object is used to lock (disa onding channel. e locking object of a chanr ets switching, dimming, di e are not evaluated or trai ted though. dy started timers continue s enabled and result in swi imer period expires. Timer is enabled.	, ble) or release nel is set then imming value, nsmitted. The e running whil itching / dimm	(enable) t the values scene an object val e the lock ing action	he cor- of the d night ues are ing ob- s when

Parameter "A Functions, Objects"

switch time mode.

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Operating mode	Normal Mode	•
8-bit scene control	No	•
Night mode	No	•
Counting of switching cycles	No	•
Counting of operating hours	No	•
Behaviour on KNX power voltage failure	no change	•
Behaviour on KNX power voltage recovery	as before voltage failure	•
Status object switching	No	•
Status object dimming	No	•
Blocking object	Yes	•

Parameter	Settings	
Blocking object	No ; Yes	
	Yes	
If this parameter is set to "Yes" then a locking object is added, which allows locking or releasing switching and dimming of the channel.		

Status messaging

The status objects for switching and dimming value contain the current output status of the actuator channel. If the current dimming value is zero (0) then the switching status is also set to zero (OFF).

In the operating mode flashing the value of the switching status object is set to 1 (ON) as long as flashing is on. If flashing is switched off the value is set to OFF.

The bus load generated by automatically sending status object values on change of state or on bus voltage recovery can be limited with the two parameters "Transmission blocking period for status objects after bus voltage recovery" and "Delay status objects". Both parameters affect all status objects of the channel. With e.g. a delayed sending of 0.2 seconds, if the switching status was transmitted, the status of the dimming value is sent the earliest after 0.2 seconds.

Only for the status object "dimming value" an additional parameter "Idle period" is visible to limit an unnecessarily high bus load due to dimming value status telegrams directly following each other during a dimming action.

<u>Objects</u>

These additional objects are visible.

Obj	Object name	Function	Туре	Flag
8	A, Status switching	On / Off	1 bit	CRT
This object is visible if the parameter "status object switching" is set to "Yes". Depending on the selected parameter setting, this object is used to query the switching status of the channel and if con- figured to send it automatically after a change. The number of dimming value status telegrams can be limited				
with	the parameter "Delay statu	us objects".		
9	A, Status dimming va- lue	8-bit value	1 byte	CRT
This object is visible if the parameter "status object dimming" is set to "Yes". Depending on the selected parameter setting, this object is used to query the current dimming state (dimming value) of the channel and if configured to send it automatically after a change of value. The number of dimming value status telegrams can be limited				
The number of dimming value status telegrams can be limited with the parameter "Transmission blocking period for status objects after bus voltage recovery". The number of dimming value status telegrams can be limited with the parameter "Delay status objects".				

Technik-Handbuch

GAMMA *instabus*

Application program description

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Parameter "Module Functions"

Transmission blocking period for status objects after supply/bus voltage recovery [160 seconds] Delay status objects [010 in 1/10 sec]	15 ** 2 **
Parameter	Settings
Transmission blocking period for status objects after bus voltage recovery [160 sec- onds]	15 (160)
covery respectively a new start of	nmediately after bus voltage re- of the device no unnecessary bus elegrams immediately following
Delay status objects [010 in 1/10 sec]	2 (010)
applied between two consecut	delay respectively which delay is ively following status telegrams due to status telegrams immedi-

Parameter "A Functions, Objects"

Operating mode	Normal Mode	-
8-bit scene control	No	<u>.</u>
Night mode	No	•
Counting of switching cycles	No	<u>•</u>
Counting of operating hours	No	•
Behaviour on KNX power voltage failure	no change	•
Behaviour on KNX power voltage recovery	as before voltage failure	•
Status object switching	send on change and on read request	•
Status object dimming	send on change and on read request	•
Idle Period (in seconds)	3	<u>.</u>
Blocking object	No	-

Parameter	Settings		
Status object switching	send on read request only; send on change and on read request; No		
This parameter determines if a communication object "status switching" shall be added and when the status object value is to be sent. If "send on change and on read request" is selected, each			
change of state is transmitted. If "send on read request only" is selected, the status is not sent automatically.			

Parameter	Settings	
Status object dimming	send on read request only; send on change and on read request; No	
This parameter determines if a communication object "status dimming value" shall be added and when the status object value is to be sent. If "send on change and on read request" is selected, each change of state is transmitted. If "send on read request only" is selected, the status is not sent automatically.		
Idle period [160 seconds]	3 (160)	
This parameter is only visible if the parameter "status object dimming value" is set to "send on change". This parameter determines the idle period between dimming value status telegrams to limit an unnecessarily high bus load due to dimming value status telegrams directly following each other during a dimming action.		

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Switching cycles counter

Switching cycle counting enables monitoring of the connected load.

The counter is incremented with each change from "Off" to "On". In case of warning before switching off, each switching (flashing) is counted. If switching is configured in case of bus power failure and if with this switching the switching cycle threshold is exceeded, then this is transmitted after bus power recovery.

The object "Exceeding switching cycles threshold" is only transmitted (once) on change of value. If a new threshold is received or the switching cycle counter is reset then the value of the object "Exceeding switching cycles threshold" is only transmitted on change of value of this object.

When the counter object has reached its maximum possible value (4 294 967 295) then its value is retained until it is reset.

The value is reset by writing a value to the object for the (current) switching cycle value.

On bus voltage failure the values of all three objects for switching cycle counting are saved in order to restore them on bus voltage recovery.

The three objects are not reset by a download.

Switching cycle counting is active even if the parameter "Counting of switching cycles" is set to "No".

Objects

These additional objects are visible.

Obj	Object name	Function	Туре	Flag	
10	A, switching cycle counter	4-byte va- lue	4 byte	CR	
This object is visible if the parameter "counting of switching cycles" is not set to "No" Via this object the number of switching cycles for the output channel (1 switching cycle = switch output on and off again) can be read at any time via the bus.					
11	A, switching cycle threshold	4-byte va- lue	4 byte	CRW	
cycle ing a Via tl the c	This object is visible if the parameter "counting of switching cycles" is set to "with limit monitoring" or "with limit monitor- ing and automatic notification". Via this object the threshold for the switching cycle count for the output can be sent as an integer value between 1 and 4,294,967,295 to the switching actuator via the bus.				
12	A, switching cycle threshold overrun	1 = Yes / 0 = No	1 bit	CRT	
This object is only available if the parameter "Counting of switching cycles" in the "A Functions, Objects" parameter window is set to "with threshold monitoring" or "with thresh- old monitoring and automatic notification". Via this object the attaining or exceeding of the relevant					

Obj	Object name	Function	Туре	Flag
	hing cycle count thresho it can be queried whe			

Parameter "A Functions, Objects"

Parameter	Settings
Counting of switching cycles	No; No limit monitoring; with limit monitoring, with limit monitoring and automatic notification

This parameter enables counting of switching cycles (i.e. how often an output has been switched on and off again) for the corresponding output.

If the parameter is set to "without threshold monitoring", then only the communication object "A Number of switching cycles" is added to this output.

If the parameter is set to "with threshold monitoring", then the communication object "A Threshold for switching cycles", which prescribes a threshold and the communication object "A Exceeding switching cycles threshold", which reports the attaining or exceeding of the prescribed threshold, are also added. If the parameter is set to "with threshold monitoring and auto-

matic notification", then the value of the object "A Exceeding switching cycles threshold" is transmitted automatically.

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Operating hours counter

Counting operating hours enables monitoring of the connected load.

The operating hours are counted while the switching status of the channel is "On". Counting is active when the relay configured as normally open is closed respectively when the relay configured as normally closed is open. Only full seconds are counted. The value of the object "Operating hours" is incremented by one when 3,600 seconds have been counted.

The object "Exceeding operating hours threshold" is only transmitted (once) on change of value. If a new threshold is received or the operating hours counter is reset then the value of the object "Exceeding operating hours threshold" is only transmitted on change of value of this object. When the counter object has reached its maximum possible value (4 294 967 295) then its value is retained until it is reset.

The value is reset by writing a value to the object for the (current) switching cycle value.

Operating hours cannot be counted on bus voltage failure.

On bus voltage failure the values of all three objects for switching cycle counting are saved in order to restore them on bus voltage recovery.

The three objects are not reset by a download.

Counting operating hours is active even if the parameter "Counting of switching cycles" is set to "No".

Objects

These additional objects are visible.

Obj	Object name	Function	Туре	Flag
13	A, Operating hours counter	4-byte va- lue	4 byte	CR
This object is visible if the parameter "counting of operating hours" is not set to "No" Via this object the current number of operating hours for the relevant output (i.e. how many hours the output was ON) can be queried via the bus at any time.				
14	A, Operating hours 4-byte va- 4 byte CRW threshold lue		CRW	
This object is visible if the parameter "counting of operating hours" is set to "with threshold monitoring" or "with threshold monitoring and automatic notification". Via these objects the threshold for the operating hours count for the relevant output is sent as an integer value between 1 and 4,294,967,295 to the switching actuator via the bus.				
15	5A, Operating hours threshold overrun1 = Yes / 0 = No1 bit		1 bit	CRT
This object is only available if the parameter "Counting of op- erating hours" in the "A Functions, Objects" parameter win- dow is set to "with threshold monitoring" or "with threshold				

Obj	Object name	Function	Туре	Flag
monitoring and automatic notification".				

This object reports attaining or exceeding the relevant operating hours count threshold or interrogate via the bus whether a threshold is being exceeded.

Parameter "A Functions, Objects"

Parameter	Settings
Counting of operating hours	No; No limit monitoring; with limit monitoring, with limit monitoring and auto- matic notification

This parameter enables operating hours counting (i.e. for how many hours the output was switched on) for the output channel.

If the parameter is set to "without threshold monitoring", then only the communication object " A Operating hours" is added to this output.

If the parameter is set to "with threshold monitoring", then the communication object "A Threshold for operating hours", which prescribes a thresh-old and the communication object "A Exceeding operating hours threshold", which reports the attaining or exceeding of the prescribed threshold, are also added.

If the parameter is set to "with threshold monitoring and automatic notification", then the value of the object "A Exceeding operating hours threshold" is transmitted automatically.

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Scene control

The "8-bit scene recall / save" function enables the user to change the characteristics of a preset scene stored in scene controllers for 8 bit scene control or in actuators with integrated 8 bit scene control, i.e. the user can change brightness levels and switching states of the groups within a scene, without changing the configuration using the ETS.

There is one communication object for transmitting the commands for saving the 8-bit scene and recalling the saved scene using the target scene number.

Before saving a scene the actuators belonging to that scene must be set to the desired light levels and switching states. When receiving a save telegram scene controllers or actuators with 8-bit scene function are commanded to interrogate the current light levels and switching states of the actuators and save these as scene settings.

The scenes refer to the object value of the switching object. When a scene is recalled then the associated value (On / Off) is internally written to the switching object as if an external telegram had been received. The actuator acts as if a switching message had been received via the bus. When a scene is saved the current value of the switching object is saved.

Note: If a scene is recalled before the corresponding values have been saved then there is no reaction to that scene recall.

Objects

This additional object is visible.

Obj	Object name	Function	Туре	Flag
1	A, 8-bit scene	call / safe	1 byte	CW
scen the r twee	object recalls (i.e. restore e with the number x. Bin number x of the wanted n 1 and 64 (in which the e binary number 0, the d	ts 05 contai scene as a de decimal num	n (in bina cimal nur Iber 1 corr	ry code) nber be- responds

the binary number 1, etc.). If bit 7 is set to logical 1, then scene x is programmed and if bit 7 is set to logical 0, then scene x is recalled. Bit 6 is currently spare and must be set to logical 0.

Parameter "A Functions, Objects"

Parameter	Settings
8-bit scene control	No;
	Yes
Use this parameter to set whether the 8-bit scene control incor-	

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Settings

porated in the switching actuator is to be enabled. If so, the corresponding communication object and the parameter window "A Scenes" are added for assignment of up to 8 scene numbers per output.

Parameter "A, Scenes"

Parameter

8-bit scenes configurable by user	Yes	•
Assignment 1 to scene [164] (0=not used)	0	÷
Assignment 2 to scene [164] (0=not used)	0	÷
Assignment 3 to scene [164] (0=not used)	0	÷
Assignment 4 to scene [164] (0=not used)	0	÷
Assignment 5 to scene [164] (0=not used)	0	÷
Assignment 6 to scene [164] (0=not used)	0	<u>.</u>
Assignment 7 to scene [164] (0=not used)	0	÷
Assignment 8 to scene [164] (0=not used)	0	÷

8-bit scenes configurable by user	Yes	•
Assignment 1 to scene [164] (0=not used)	6	<u>.</u>
Dimming time [0255 seconds])	2	÷
Delete saved scene value	No	•
Assignment 2 to scene [164] (0=not used)	10	<u>÷</u>
Dimming time (0255 seconds))	2	
Delete saved scene value	Yes	•
Predefine	No	<u> </u>
Assignment 3 to scene [164] (0=not used)	21	÷
Dimming time (0255 seconds))	2	<u>÷</u>
Delete saved scene value	Yes	<u> </u>
Predefine	Yes	•
Dimming Value [0100%]	100	÷

Parameter	Settings	
8-bit scenes configurable by user	No;	
	Yes	
This parameter determines if scenes	can be configured by the	
user (via a scene telegram) at run tim	e.	
Assignment 1 to scene [164]	0	
(0=not used)	(064)	
This parameter assigns the output of the actuator to an 8-bit scene with a number in the range of 1 to 64. "0" means that the specific assignment is not used.		
Note: If a scene is recalled before the corresponding values have		
been saved then there is no reaction to that scene recall.		
Dimming time [0255 seconds]	2	
	(0255)	

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Parameter	Settings	
This parameter determines the time after which, when the		
scene is recalled, dimming from the	e current dimming value to	
the new value shall be completed.		
Delete saved scene value	No;	
	Yes	
If this parameter is set to "No" then a device is retained even after a configu	5	
If this parameter is set to "Yes" then a		
device is deleted.	5	
If the parameter "8-bit scenes configu	arable by user" is set to "No"	
then this parameter is not visible and	I the scene already saved in	
the device is always deleted.		
Predefine	No;	
	Yes	
If this parameter is set to "No" then t be saved in the installation before the		
If this parameter is set to "Yes" then		
ing the following parameter "dimming value".		
If the parameter "8-bit scenes configurable by user" is set to "No"		
then this parameter is not visible and the scene values must al-		
ways be preset.		
Dimming value [0100%]	100	
Dimming value [0100%]	100 (0100)	

and so on until scene assignment 8.



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4. Addition

4.1 Behavior on bus voltage recovery depending on the operation mode

On bus voltage recovery the parameters for switching on delay / switching off delay are not obeyed. Locking object and night object are set to OFF.

Parameter: Behavior on bus voltage recovery Operating mode		Switching behavior
switching off	Normal mode 1-level time switch mode 2-level time switch mode Flashing	switch permanently OFF
	Normal mode	switch permanently ON
switching on	1-level time switch mode 2-level time switch mode Flashing	Start switching on and timer Start switching on and timer Switch flashing ON
	Normal mode	set permanently to last dimming value before bus volt- age failure
	1-level time switch mode	Start timer with last dimming value before bus voltage failure
as before voltage failure	2-level time switch mode	Start timer with last dimming value before bus voltage failure
	Flashing	Switch flashing ON, if ON before bus voltage failure respectively Switch flashing OFF, if OFF before bus voltage failure
	Normal mode	set permanently to parameter dimming value on bus vol- tage recovery
	1-level time switch mode	Start timer with parameter dimming value on bus volt- age recovery
Parameter dimming value at power voltage recovery	2-level time switch mode	Start timer with parameter dimming value on bus volt- age recovery
	Flashing	Switch flashing ON, if ON before bus voltage failure respectively Switch flashing OFF, if OFF before bus voltage failure

Switching speed is determined by parameter "dimming time for switching".

When switching ON the minimum dimming value is "jumped" to first and then the output is dimmed to the target value with the "dimming time for switching".

When switching OFF the output value is first dimmed to the minimum dimming value with the "dimming time for switching" and then "jumps" to the target value 0.

On bus voltage recovery and with configuration of the status objects "Sending on change of status and cyclically" the status object values are transmitted automatically.

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Application program description

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4.2 Behavior on dimming via object "Switching"

Used parameters:

- Starting value
- Dimming time for switching On/Off
- Minimum dimming value
- Maximum dimming value
- ON delay
- OFF delay

The locking object must be set to OFF. After a value was received via the switching object, the switching on delay and switching off delay have to expire first before one of the following evaluations is valid.

Event: Up- date switch object	Parameter: "Starting val- ue"	Current dimming value	Reaction/switching behavior
ON	Dimming value at switch-off	0	 jump to minimum dimming value dim to dimming value before switch-off (when dimming value before switch-off < minimum dimming value => minimum dimming value sustains)
		> 0	1. dim to maximum dimming value
ON	Dimming value at switch-on	0	1. jump to minimum dimming value 2. dim to switch-on value 1. dim to switch-on value
	Latest received 0 dimming value		 jump to minimum dimming value dim to last received dimming value (limit accordingly, if it is higher than maximum dimming value or lower than minimum dimming value)
		>0	1. dim to last received dimming value (limit accordingly, if it is higher than maximum dimming value or lower than minimum dimming value)
OFF	n.a (*)	0	stays off
	n.a. (*)	> 0	 dim to minimum dimming value switch off

(*) n.a. = not applicable

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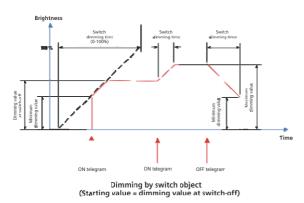
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4.3 Graphic representation of starting position at different parameterisation

4.3.1 Behaviour at "Switch-on to dimming value at switch-off"

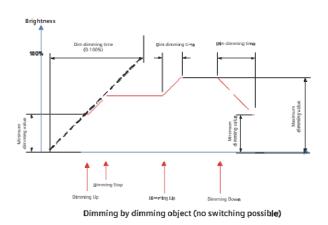


The above figure shows the dimming curves for switching on and switching off via the switching object with the configuration "switching on to dimming value at switching off".

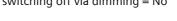
4.3.2 Verhalten beim Dimmen über Objekt "relatives Dimmen"

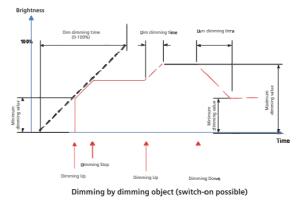
Used parameters

- Switch-on via dimming brighter
- Switch-off via dimming darker
- Dimming time for dimming brighter / darker
- Minimum dimming value
- Maximum dimming value



The above figure shows the dimming curves for switching with the configuration: switching on via dimming = No switching off via dimming = No

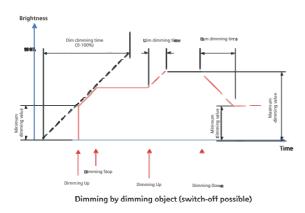




The above figure shows the dimming curves for switching with the configuration: switching on via dimming = Yes switching off via dimming = No

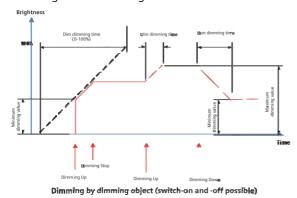
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The above figure shows the dimming curves for switching with the configuration:

switching on via dimming = No switching off via dimming = Yes

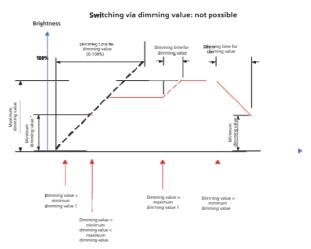


The above figure shows the dimming curves for switching with the configuration: switching on via dimming = Yes switching off via dimming = Yes

4.3.3 Behaviour at dimming via object "dimming value"

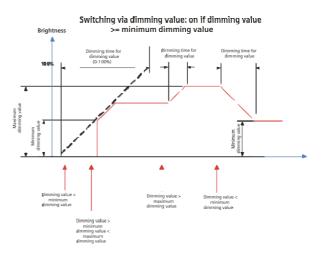
Used parameters:

- Switching via dimming value
- Dimming time for dimming value
- Minimum dimming value
- Maximum dimming value



The above figure shows the dimming curves for dimming with dimming value:

parameter "switching via dimming value" = "not possible"



The above figure shows the dimming curves for dimming with dimming value: parameter "switching via dimming value" = "On if dim-

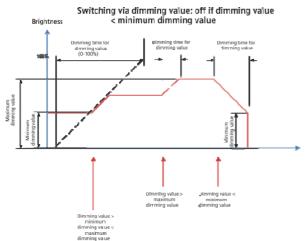
parameter "switching via dimming value" = "On if dimming value >= min. dimming value"

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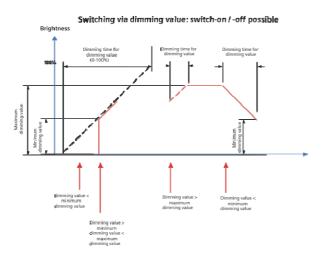
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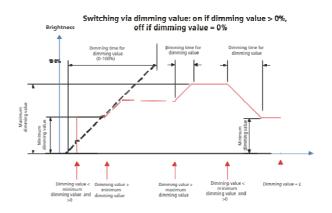
The above figure shows the dimming curves for dimming with dimming value:

parameter "switching via dimming value" = "Off if dimming value < min. dimming value"



The above figure shows the dimming curves for dimming with dimming value:

parameter "switching via dimming value" = "Switching On and switching Off possible"



The above figure shows the dimming curves for dimming with dimming value:

parameter "switching via dimming value" = "On if dimming value > 0% / Off if dimming value = 0%"

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Space for notes