

# **Application Descriptions**

# Lighting

# **Lighting Actuators**

### Summary

This document contains the Functional Blocks for actuators in the Lighting Application Domain.

Version 01.04.05 is a KNX Approved Standard.

This document is part of the KNX Specifications v2.1.

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# **Document Updates**

Version	Date	Revisions
1.0	2004.01.12	TFI Approved Version
1.1	2005.03.02	TFI Update.
		Introduction of following extensions:
		Parameter "Behaviour at unlocking" can now be set to "Value before locking"
		(value 6).
		Added the parameter "Scene Learning Mode Enable"
1.2	2006.01.06	Preparation of the Draft for Voting.
1.3	2007.03.20	Document merged with Chapter 7/20/1 "Switching Actuators" DV.
		Document title changed from Chapter 7/20/2 "Dimming Actuators" to
		Chapter 7/20/2 "Lighting Actuators".
		Publication of the Approved Standard
1.4	2007.03.28	Editorial update
		Removed footnote from previous version that excludes combined
		implementation of MF and OSV.
1.4	2009.01.19	Editorial update
		Corrected DPT_Name of Parameter Switch Off Brightness Delay Time in
		clause 3.6.28 from DPT_TimePeriod_Min to DPT_TimePeriod_Sec.
1.4	2009.06.26	Update in view of publication in the KNX Specifications v2.0.
1.4.01	2011.02.28	Several minor editorial corrections.
1.4.02	2012.03.14	Several minor editorial corrections. Adjustment of PID-value of Invert Lock
		Device in Dimming Actuator Basic.
01.04.03	2013.09.06	AN150 "FB Profiles for existing FBs" integrated.
		Editorial correct in the description of the parameter "Off delay" in 3.2.3.2.2.
01.04.05	2013.10.29	Editorial updates for the publication of KNX Specifications 2.1.

## References

[01] Chapter 6/30/1 "Runtime Profiles"

Filename: 07\_20\_02 Lighting Actuators v01.04.05 AS.docx

Version: 01.04.05

Status: Approved Standard

Savedate: 2013.10.29

Number of pages: 86

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### **Abbreviations**

#### **Datapoints**

**ADV** Actual Dimming Value (≡ IDV "Info Dimming Value"; Naming in channel Code Document) **ASC** Absolut Setvalue Control (≡ DV "Dimming Value"; Naming in channel Code Document)

FO Forced 100 Info OnOff LD Lock Device

LFD Load Failed Detection OVL Overload Detection

RSC Relativ Setvalue Control (= DC "Dimming Control"; Naming in channel Code Document)

SC Scene Control SN Scene Number Switch On Off SOO **TSS** Timed StartStop

#### **Parameters**

Brightness at Locking BL **BPD** Behaviour Bus Power Down BPU Behaviour Bus Power Up BSN Brightness for Scene Number Brightness at Unlocking BUL DDV Delta Dimming Value DMS **Dimm Mode Selection** DS Dimming Speed

DS OFF Dimming Speed for switch off

DS OSV Dimming Speed for Switch On Set Value

DST Dimming Step Time

DST OFF Dimming Step Time for switch off

Dimming Step Time for Switch On Set Value DST\_OSV

Invert Lock Device ILD IOS Invert Output State LS Lock State LSV Lock Set Value **MAXSV** Maximum Set Value MF Memory Function **MINSV** Minimum Set Value MOE Manuell Off Enable

OFFD Off Delay OND On Delay

OSV Switch On Set Value **PDS** Bus Power Down State Bus Power Down Set Value **PDSV** Bus Power Up Message Delay **PUMD** 

PUS Bus Power Up State Bus Power Up Set Value **PUSV PWD** Prewarning Duration

Relativ Off Enable ROE

**SFSN** Storage Function for Scene Number Scene Learning Mode Enable SLME

SOB Switch Off Brightness

Switch Off Brightness Delay Time SOBDT

SSN State for Scene Number TCT Transmission Cycle Time

TOD **Timed On Duration** (≡ P1 Naming in channel Code Document)

**TRF** Timed On Retrigger Function

ULS **Unlock State** Unlock Set Value USV

(≡ P2 Naming in channel Code Document)

#### Internal

AV Actual Value cs Company Specific

DP Datapoint

LSAB Light Switching Actuator Basic

SV Set Value V\_R Value Reached V\_R\_ZERO Value Zero Reached

### 1 Introduction

### 1.1 S-Mode 1) compliance of a Functional Block

Such implementations shall ensure the following to claim compliance to this Functional Block:

- the <u>inputs and outputs</u> shall be implemented and encoded according the Functional Block specification; this concerns both the format and the implementation flavour (Group Object, Property).
- the <u>parameters</u> that are implemented shall follow the Functional Block specification if implemented as Interface Object Property.

If implemented as S-Mode memory mapped DP, a parameter encoding may differ from its specification in the FB definition, under the condition that at least the same functionality can be achieved.

EXAMPLE If a time period is in a FB specification specified as DPT\_TimePeriodMin with a range of 0 min to 15 min, an implementation of this same functionality through one or more memory mapped parameters shall allow setting the same values.

### 1.2 Ctrl-Mode and PB-Mode compliance of a Functional Block

Ctrl-Mode and PB-Mode implementations shall ensure the following to claim compliance with this Functional Block:

- the <u>inputs and outputs</u> shall be implemented and encoded according the Functional Block specification; this concerns both the format and the implementation flavour (Group Object, Property).
- the *parameters* that are implemented shall follow the channel specifications as laid down in the relevant supplement.

### 1.3 Combined Profiles and parameter access

It shall in all cases be possible to read out the current values of the standardised parameters, regardless of any combination of Configuration Modes in the device.

If the implementation of the parameters differs according to the used Configuration Modes, the implementation shall take care of consistency of the parameter data between all flavours, i.e. if one implementation requires a parameter to be set via property access and the channel specification of that same Functional Block uses a different parameter format, then modification of the parameter value via Easy Configuration access shall cause the property value to be updated appropriately (and vice versa).

<sup>1)</sup> Also applies to LTE standard mode interface.

### 2 FB Light Switching Actuator Basic (LSAB)

### 2.1 Aims and objectives

The Functional Block "Light Switching Actuator Basic" shall support the switching of light.

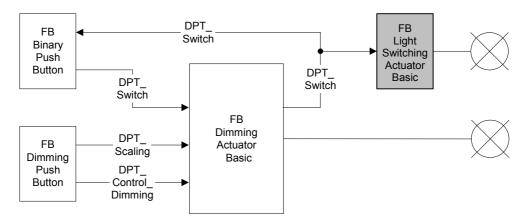


Figure 1 – FB Light Switching Actuator Basic (LSAB) in the Application Domain Lighting

### 2.2 Functional specification

#### 2.2.1 Overview

#### 2.2.1.1 Introduction

This clause gives an introduction to the functionality. Further clauses may give detailed requirements.

### **Basic functionality**

The Functional Block "Light Switching Actuator Basic" (LSAB) shall contain the mandatory Input "Switch On Off" that shall support the binary switching.

### Autonomous switching off

The optional Input "Timed StartStop" (TSS) shall be used to switch the Actuator in the On-State for the time that is specified by the parameter "Timed On Duration" (TOD). Alternatively this behaviour shall also be achievable without TSS if using the mandatory DP "Switch On Off" (SOO) in combination with the parameter TOD. Before this time elapses a manufacturer specific action may be performed. This time shall be specified by the parameter "Prewarning Duration" (PWD).

### **Delays**

Furthermore switching on and off may be delayed by setting the parameters "On Delay" (OND) and "Off Delay" (OFFD).

### **Scene support**

The optional input Datapoint "Scene Number" (SN) shall be used to recall the output state corresponding to the received scene number (Activate).

The optional Input "Scene Control" (SC) shall be used to recall the output state corresponding to the received number (Activate) and to save the current state for the recall (Learn).

Scene Number and Scene Control shall refer to the same scene numbers.

#### Priority operation and device locking

The optional Input "Forced" (FO) shall be used to set the actuator in a state with higher priority. Whether the ON- or the OFF-state is the state with the higher priority shall be determined by the value of the DP FO.

The Input "Lock Device" (LD) shall be used to freeze the value provided to the hardware. This shall also be achievable with the additional parameters

- "Behaviour at Locking" (BL),
- "Lock State" (LS),
- "Behaviour at Unlocking" (BUL), and
- "Unlock State" (ULS).

In accordance with these parameters, the desired state at the start and at the end of the actuator's lock state shall be set. With the parameter "Invert Lock Device" (ILD) it shall be possible to invert the polarity of the DP "Lock Device" (LD). The priority of the various Inputs shall be manufacturer specific.

### **State reporting**

The Output "Info On Off" (IOO) shall be used for reflecting the state of the actuator.

### **2.2.1.2 Delay Time**

The transition from state OFF to ON and from state ON to OFF may be delayed by parameters:

- "On Delay": shall delay the transition from OFF to ON
- "Off Delay": shall delay the transition from ON to OFF

The Inputs that are affected by the delay mechanism are implementation specific. It is recommended that the Delay Time is not retriggered by an additional and identical access to the relevant Inputs. It is furthermore recommended that a started Delay Time is reset by an additional but inverted access to the relevant Inputs.

### 2.2.2 Autonomous Switching Off

Autonomous Switching Off means that the actuator shall switch off without a relevant access to any Input. For this, the Parameter "Timed On Duration" (TOD) shall be used. The selection of the Inputs that cause the autonomous switching off shall be implementation specific. If the Input "Timed StartStop" (TSS) is implemented, the autonomous Switching Off Function shall be linked to this DP. An access to another DP that causes switching on, shall overwrite the Autonomous Switching Off.

Before the actuator autonomously switches off, a manufacturer specific action may be executed. The parameter "Prewarning Duration" (PWD) shall define the duration between the start of this action and the time when the switching off is actually executed.

It is implementation specific whether the two time periods "timed on duration" and "prewarning duration" will run partly parallel or one after another (in consecutive order, i.e. first "Timed On Duration" and then "Prewarning Duration").

Slight adjustments of the autonomous switching off behaviour can be realised by means of the parameters "Timed On Retrigger Function" (TRF) and "Manual Off Enable" (MOE).

The Parameter TRF shall allow to enable and to disable the retriggering of the on-duration timer. In case the Parameter is not implemented, the behaviour shall be identical to the behaviour when the parameter would be set to "Enable".

The parameter MOE shall allow to enable and to disable the switching off before the timer elapses by accessing the relevant Inputs. If the parameter is not implemented, the behaviour shall be identical to the behaviour when the parameter would be set to "Enable".

#### 2.2.3 Priority of Inputs

Inputs may be classified according priorities. If using priorities the following rule shall apply.

A higher priority Input (respectively group of Inputs) shall inhibit all lower priority Inputs when it goes in its high priority state, so that only one source shall be active for generating the output state.

Groups of Inputs with the same priority shall be processed independently from each other: the last access to an Input shall be executed.

It is recommended that the state transition from OFF to ON respectively from ON to OFF after an access to a high priority Input is executed without delay. However, if a delay function is implemented to prevent load-peaks ("*microscopic*" delay-times) by means of a manufacturer specific parameter, switching On/Off may be delayed according this parameter setting.

The 2 bit Input "Forced" shall be used to set the actuator in a high priority ON-State or OFF-State depending on the received value. Table 1 shows the behaviour after an access to FO.

Table 1 – Behaviour after access to FO

Value FO	Mandatory behaviour
00b, 01b	lower priority Inputs active
11b	high priority ON-State
10b	high priority OFF-State

If the bit Input "Lock Device" (LD) is implemented, by means of the Parameter "Invert Lock Device" (ILD) it shall be possible to select the polarity for the lock-state of the actuator. The behaviour at transition from/to the high priority state shall be determined by the Parameter "Behaviour At Locking" (BL)/ "Behaviour At Unlocking" (BUL). The Parameters "Lock State" (LS)/ "Unlock State" (ULS) shall specify the set value for the case that "Value according additional Parameter" is selected in the above parameters. Table 2 shows the behaviour after an access to LD.

Table 2 – Behaviour after access to LD

Value LD	Parameter ILD		Mandatory behaviour						
1	"no inversion"	high priority Lock-State active: behaviour according BL							
		Value of param. BL	Reaction of device on reception of LD						
		Off:	Current State = Off						
		On:	Current State = On						
		No Change:	Current State is frozen						
		State according additional Parameter:	Current State = LS						
		Memory Function Value a)	Current State = On						
0	"no inversion"	lower priority Inputs active ;behaviour according BUL							
		Value of param. BUL	Reaction of device on reception of LD						
		Off:	Current State = Off						
		On:	Current State = On						
		Updated value State according last access to Inputs during state							
		No Change:	No action						
		State according additional Parameter:	Current State = ULS						
		Memory Function Value a)	Current State = On						
		Value before locking	Currents state = state before locking						
1	"inversion"	see LD = 0; "no inversion"							
0	"inversion"	see LD = 1; "no inversion"							
<sup>a)</sup> For c	ompatibility to FB	Dimming Actuator.							

It is possible to implement the locking mechanism without parameters. In this case the value "1" on Input "Lock Device" (LD) shall lock the Actuator on its Current State. Value "0" shall unlock the Actuator: the behaviour when the lower priority Inputs become active shall be manufacturer-specific.

#### 2.2.4 Scene Control

With the optional input Datapoint "Scene Number" (SN) it shall be possible to call a maximum number of 64 different On/Off-States in the device. The maximum number of scenes that can be called can optionally be lower than 64.

With the optional Input "Scene Control" (SC) it shall be possible to call and store a maximum of 64 different On/Off-States in the device. The maximum number of scenes that can be stored and called can optionally be lower than 64.

"Scene Number" and "Scene Control" shall use the same scene numbers. Scene n called through "Scene Number" shall be the same as scene n called through "Scene Control".

The maximum number of scenes that can be called and the maximum number of scenes that can be stored may differ.

If implemented, the Datapoints Scene Number and Scene Control shall for each scene be controlled via the parameter "State for Scene Number" (SSN). Via the parameter "Storage Function for Scene Number" (SFSN), it shall be possible to determine whether storage function for scenes via the DP Scene Control is enabled or disabled. If enabled, the addressed switching actuator shall store its current state in the relevant field element of the parameter SSN at runtime.

The parameter SSN shall be an array of max. 64 elements of DPT\_Switch, where the parameter SFSN shall be an array of maximum 64 elements of DPT\_Enable. The number-field in the Inputs SN and SC shall address the element of the arrays. After receiving a scene number on the Datapoint "Scene Number" or on the DP "Scene Control" (SC) with the field 'c' (learn field) cleared, the Current State of the actuator shall change to the parameterised state.

An access to either DP SN or SC with a scene number not supported by that DP shall be ignored.

Via a parameter "Scene Learning Mode Enable" (SLME), it shall be possible to activate or deactivate the Scene Learning Mode.

### 2.2.5 Optional Output Info OnOff

This DP shall be used for reflecting the current output state of the actuator and/or for active transmission when the state changes. With the parameter "Transmission Cycle Time" (TCT) the cyclic transmission of the output state shall be controlled.

#### 2.2.6 Behaviour at bus power down and bus power up

With the optional parameter "Behaviour Bus Power Up" (BPU) and "Behaviour Bus Power Down" (BPD) the actions to be performed after bus power up and during bus power down shall be determined. If one of these parameters is not implemented, the default behaviour shall be switching off during bus power down and after bus power up. If "LAST" is selected in BPU, the relevant state shall be stored before or during bus power down in non-volatile memory. If "NO CHANGE" is selected in BPU, the relevant state shall not change when the bus power returns.

Usually the parameter BPU also defines the behaviour after initialisation by the Tool. It is recommended to directly set via a memory-mapped parameter the memory that is foreseen to store the state at Bus-Power Down (to OFF). For the case that the Tool does not set this memory, the behaviour after initialisation will be hazardous, when "LAST" (or "NO CHANGE") is selected in BPU.

If the optional parameter "Power Up Message Delay" (PUMD) is implemented, an initialisation message from IOO shall be generated. The parameter PUMD should by the installer in different channels and different device be set to different value, in order to avoid a bulk of messages after Power Up. If PUMD is not implemented, no initialization message from IOO shall be generated before changing the state caused by an access to an Input.

### 2.2.7 Behaviour at mains power down and mains power up

The behaviour of the device after mains power down/-up shall be manufacturer specific.

### 2.3 Constraints

There are no constraints found for this Functional Block.

## 2.4 Functional Block Diagram

FB Light Switching Actuator Basic (LSAB)								
Inputs			Outputs					
Switch OnOff	(SOO)	Info On Off	(IOO)					
Timed StartStop	(TSS)							
Forced	(FO)							
Lock Device	(LD)							
Scene Number	(SN)							
Scene Control	(SC)							
		_						
additional I/Os			Parameters					
None								
		On Delay	(OND)					
		Off Delay	(OFFD)					
		Timed On Duration	(TOD)					
		Prewarning Duration	(PWD)					
		Timed On Retrigger Function	(TRF)					
		Manual Off Enable	(MOE)					
			,					
		Invert Lock Device	(ILD)					
		Behaviour at Locking	(BL)					
		Behaviour at Unlocking	(BUL)					
		Lock State	(LS)					
		Unlock State	(ULS)					
		State for Scene Number	(SSN)					
		Storage Function for Scene	(SFSN)					
		Scene Learning Mode Enable	(SLME)					
		Transmission Cycle Time	(TCT)					
			, ,					
		Bus Power Up Message Delay	(PUMD)					
		Behaviour Bus Power Up	(BPU)					
		Bus Power Up State	(PUS)					
		Behaviour Bus Power Down	(BPD)					
		Bus Power Down State	(PDS)					
		Invert Output State	(IOS)					

mandatory
optional

# 2.5 **DP Description**

Datapoint	Description/Remarks	Datapoint Type
Inputs		
Switch On Off	Binary control of the set value.	1.001 DPT_Switch
Timed StartStop	Activation of an autonomous switch off function.	1.010 DPT_Start
Scene Number	Recall the output state related to the encoded scene number.	17.001 DPT_SceneNumber
Scene Control	Recall or learn the output state related to the encoded scene number.	18.001 DPT_SceneControl
Lock Device	Setting of a parameterized value in a lock state of the device.	1.003 DPT_Enable
Forced	Forces value dependent high priority on or off state.	2.001 DPT_Switch_Control
Outputs		
Info OnOff	Reflects the binary state of the actuator	1.001 DPT_Switch
Parameters		
Invert Output State	Inversion of Output.	1.012 DPT Invert
On Delay	Delay before leaving OFF-State.	7.003 DPT TimePeriod 10msec
Off Delay	Delay before enter in OFF-State.	7.003 DPT TimePeriod 10msec
Timed On Duration	Actuator Switch On Time before automatically switch off.	7.005. DPT_TimePeriodSec
Prewarning Duration	Actuator Time in state On before automatically switch off.	7.005. DPT_TimePeriodSec
Timed On Retrigger Function	Enables the retrigger function of On Duration Timer.	1.003 DPT Enable
Manual Off Enable	Enables switching off before On Duration Timer ellapses.	1.003 DPT_Enable
Invert Lock Device	Inversion of the polarity of the DP 'lock device'.	1.012 DPT_Invert
Behaviour at Locking	Behaviour when lock state becomes actif.	20.600 DPT_Behaviour_Lock_Unlock
Behaviour at Unlocking	Behaviour when lock state becomes inactif.	20.600 DPT_Behaviour_Lock_Unlock
Lock State	Actual Value at the beginning of the lock state.	1.001 DPT Switch
Unlock State	Actual Value at the end of the lock state of the actuator	1.001 DPT_Switch
State for Scene	Stored State for recalling after receiving the dedicated scene number.	1.001 DPT_Switch
Storage Function for Scene	Enabling memory storage for a received scene number with a new brightness.	1.003 DPT_Enable
Scene Learning Mode Enable	Enables or disables globally for all scene numbers the learning of new scenes, regardless of the value of SFSN.	1.003 DPT_Enable
Transmission Cycle Time	Cycle Time for sending the Current State on the bus with the optinonal DP "Actual Dimming Value (ADV)".	7.005. DPT_Timeout_Sec
Power Up Message Delay	The delay time after bus power up for sending a telegram on the bus.	7.003 DPT_Timeout_10Msec
Behaviour Bus Power Up	Behaviour of the device after bus power up.	20.601 DPT_Behaviour_Bus_Power_Up_D own
Bus Power Up State	State of the device after bus power up.	1.001 DPT_Switch
Behaviour Bus Power Down	Behaviour of the device after bus power down.	20.601 DPT_Behaviour_Bus_Power_Up_D own
Bus Power Down State	State of the device after bus power up.	1.001 DPT_Switch
		<del>-</del>

Parameters and Diagnostic Data can in principle be implemented as memory mapped DPs or Group Objects or Properties of an Interface Object using point-to-point communication.

In case of memory mapped DPs the DPT may be manufacturer specific.

## 2.6 FB Profiles 2)

		Stan	dard		
		Mode			
Features and options	Basic FB	FB Profile <sup>13)</sup>	FB Profile 2 (recommended)		
Input SOO	M	GO	GO		
Output IOO	O <sup>4)</sup>	(GO)			
Functionality "Autonomous Switching Off" {	0	0	0		
Parameter "Timed On Duration"	Μ	Μ	Μ		
select 1 of 2 {					
Link to SOO	Μ	М	Μ		
Link to TSS	Μ	М	М		
}					
// Retrigger					
select 1 of 2 {					
Parameter TRF	Μ	М	М		
retriggering shall be enabled	Μ	М	М		
}					
}					
Functionality "Manual Off" {	0	0	0		
select 1 of 2 {					
Parameter MOE	Μ	М	Μ		
Manual Off is enabled	Μ	М	М		
}					
}			_		
Functionality "Priority of Inputs" {	0	0	0		
priority rules	Μ	М	Μ		
Functionality "Input Lock Device" {	0	0	0		
select 1 of 2 {					
Parameter ILD	М	М	М		
Value 0 shall unlock; value 1 shall lock	М	М	М		
}					
,					
<u>}</u>					
// Bus power up					
select 1 of 2 {	A 4	1.1	A 4		
Parameter BPU	M	M	M		
Switch off	М	М	М		
// Due newer deve					
// Bus power down					
select 1 of 2 {	Λ./	1.1	Λ./		
Parameter BPD Switch off	M M	M	M M		
1 SWILCH OIL	IVI	М	IVI		
ì					

2) Please refer to [01] for the definition of the syntax and symbols used in this FB Profile definition.

<sup>3)</sup> This FB Profile 1 is mainly for the documentation of legacy implementations and is not recommended for new implementations.

<sup>&</sup>lt;sup>4)</sup> IOO is mandatory for any new implementation and any further FB Profile. It is not implemented in the legacy FB Profile 1.

		Basic FB	S-Mode
Parameters	IOS	0	0
	OND	0	0
	OFFD	0	0
	TOD	0	0
	PWD	0	0
	TRF	0	0
	MOE	0	0
	ILD	0	0
	BL	0	0
	BUL	0	0
	LSV	0	0
	USV	0	0
	SSN	0	0
	SFSN	0	0
	TCT	0	0
	PUMD	0	0
	BPU	0	0
	PUS	0	0
	BPD	0	0
	PDS	0	0
	SLME	0	0

 ${\bf Figure~2-Runtime~Interworking-Parameters}$ 

# 2.7 Detailed specification of the DPs

# 2.7.1 Input Switch On Off

**Standard Mode** 

DP Name:	Switch On Off					Abbr.:	SC	SOO Manda				datory	
FB Name:	B Name: Light Switching Actuator Basic									Can be	interna	al 🗌	
Description													
Binary Contro	l of t	he Output S	State										
DP Type													
DPT_Name:	]	OPT_Switch	1										
<b>DPT Format:</b>		3 <sub>1</sub>						DPT_ID	:	1.001			
Field	I	Description	<u>1</u>					Supp.	R	Range	Unit	Default	
									V	={0,1}			
<b>Access Type</b>	)												
♦ Input													
$N \rightarrow this$		◁	$1 \rightarrow th$	is $\square$									
Spontaneo	ous			Cyclically	<b>/</b> :		Time-out:			t: NO			
Request				Polling:			Period:						
Communicat	ion	Туре											
♦ Group Ob	ject	DP							Ma	andatory	/:		
Default Gr	oup .	Address:											
Dynamics													
Power dov	vn:	Save:											
Power up:		Value:	No in	itialisation	1:			ılt value:					
				d value:			Curre	nt value	(not	for inpu	ıt)		
Transmit on bus (only for output):							Read	from bus	s (on	ly for in	put):		
<b>Exception Ha</b>	andli	ing											
Special Feat	ures												

# 2.7.2 Input Timed StartStop

DF	Name:	Tim	ned StartSto	р			Abbr.	: T	SS		Manda	itory	
FE	8 Name:	Lig	ht Switching	Actuat	or Bas	sic					Can be	interna	al 🗌
De	escription												
Αc	tivation of a	an a	utonomous	switch o	off fund	ction with v	/alue "	1".					
DF	Р Туре												
	PT_Name:		DPT_Start										
DF	PT Format:		B <sub>1</sub>						DPT_I	ID:	1.010		
Fie	eld		Description	<u> </u>					Supp		ange	Unit	Default
										V={(	0,1}		
Ac	cess Type	)											
<b>♦</b>	Input												
	$N \rightarrow this$		$\boxtimes$	$1 \rightarrow th$	iis								
	Spontaneo	ous	$\boxtimes$		Cycli	cally:			Tir	ne-ou	t:	no	
	Request				Pollin	ıg:			Pe	riod:			
Co	mmunicat	ion	Туре										
<b>♦</b>	Group Ol	bjec	t DP							Ma	andatory	/:	
	Default Gre	oup	Address:										
Dy	namics												
	Power dow	vn:	Save:										
	Power up:		Value:	No ir	nitialisa	ation:		Defa	ıult value	e:			
				Save	ed valu	ie:		Curr	ent valu	e (not	for inpu	ıt)	
			Transmit of	on bus (	only fo	or output):		Read	d from b	us (or	nly for in	put):	
Ex	ception Ha	andl	ing										
Sp	ecial Featu	ures											

# 2.7.3 Input Forced

DP Na	ame:	Forced		Abbr.:	FC	)		Mandat	ory	
FB Na	ame:	Light Switchin	g Actuator Basic					Can be	interna	
Desci	ription									
			h priority on or off stat							
			the high priority state				Spec	ification	clause 2	2.2.3.
		hen leaving the	e high priority state is r	nanufact	urer s	pecific.				
DP Ty										
_	Name:	DPT_Switch_	Control							
	Format:	$C_1V_1$				DPT_II		2.001		
Field		Description				Supp.		ange	Unit	Default
С		Prioriy control				М	{0,1]		none	none
٧		Priority value				М	{0,1	}	none	none
Acces	ss Type									
♦ In	put									
N -	→ this	⊠  1	$\rightarrow$ this							
Sp	ontaneous		Cyclically:			Tim	e-out	t:	NO	
Re	quest		Polling:			Per	iod:			
Comr	nunication	Туре								
♦ G	roup Objec	ct DP					Man	datory:		
De	fault Group	Address: -	<b></b>							
Dyna	mics									
Po	wer down:	Save:								
Po	wer up:	Value:	No initialisation:		Defau	ılt value:				
			Saved value:		Curre	nt value	(not	for input	)	
		Transmit on	bus (only for output):		Read	from bu	s (on	ly for inp	out):	
Exce	otion Hand	ling								
Speci	al Feature	S								
									·	

# 2.7.4 Input Lock Device

DP Name:	Loc	k Device			Ab	br.:	LD	)	Mar	ndatory	,			
FB Name:	Ligl	nt Switching	Actuat	or Basic					Car	n be int	erna	ı		
Description														
				lock state of th										
				the actuator o					e "0" shall	unlock	the a	actua	ato	r;
	of t	he actuator	when u	inlocking is ma	nufact	urer-	-specif	ic.						
DP Type														
DPT_Name:		PT_Enable												
<b>DPT Format:</b>	B.							DPT_II						
Field		escription						Supp.	Range	U	nit	Def	au	lt
b			whethe	r the lock state	is ena	blec	d or	М	{0,1}	nc	ne	(	)	
		ot.												
Access Type	7.													
♦ Input														
$N \rightarrow this$														
Spontaneo	us	$\square$		Cyclically:				Tim	e-out:	no				
Request				Polling:				Per	iod:					
Communicat	ion	Туре												
♦ Group O	ojec	t DP							Mandato	ory:	$\boxtimes$			
Default Gr	oup	Address:												
<b>Dynamics</b>														
Power dov	n:	Save:												
Power up:		Value:	No ir	nitialisation:			Defau	ılt value:	1					
	Saved value:													
		Transmit of	on bus (	only for output	):		Read	from bu	s (only fo	r input)				
<b>Exception Ha</b>														
<sup>a)</sup> Usually afte	r Po	wer Up the	default	value is set to	"0". If	para	meter	ILD is s	et to "inve	ersion" i	t is			
		cific, to ente	er the lo	ck-state after p	ower i	up o	r not.							
Special Featu	pecial Features													

# 2.7.5 Input Scene Number

DP Name: Scene Number Abbr.: SN Mandatory  FB Name: Light Switching Actuator Basic Can be internal													
FB Name:	Light Sw	itching A	\ctuatc	or Basic					Can be	internal			
Description													
				ed to recall the o						e numbe	er.		
		rs (0	63) caı	n be assigned to	the a	actuato	or (se	e paramet	ers) <sup>a)</sup> .				
Datapoint Type	oe												
DPT_Name:	DPT_S	ceneNu	mber										
DPT Format:	$r_2U_6$					DPT_	ID:	17.001					
Field	Descrip	otion				Supp.		Range		Unit	Default		
r	Reserv	ed field.	Shall	be zero.		M		0		none	none		
U	Scene	number.				M		{063}		none	none		
<b>Access Type</b>													
Input													
$N \rightarrow \text{this}$ $\square$ $1 \rightarrow \text{this}$ $\square$													
Spontaneo	us 🛚			Cyclically:				Time-ou	ıt:	none			
Request													
Communicati	on Type												
Group Object	Datapoin	t						M	andatory	r: 🛛			
Default Gro	up Addre	ess: -											
Dynamics													
Power dow	n: Sav	e:											
Power up:	Valu	ıe:	No in	itialisation:		De	fault	value:					
			Save	d value:		Cı	ırrent	value (no	t for inpu	t):			
	Transmit on bus (only for output): Read from bus (only for input):												
Exception Handling													
a) An applica	tion may	support	less th	nan the maximal	enco	dable	numl	ber of 64 s	cenes. Ir	the cas	e, if a		
				er that is not s									
Special Featu	Special Features												
			•										

# 2.7.6 Input Scene Control

DP Na	ame:	Scen	e Con	itrol			Α	bbr.:	SC	)		Manda	itory		
FB Name: Light Switching Actuator Basic  Description						r Basic						Can be	e interna	al	
Desci	ription														
The Ir	nput Scer	ne Co	ontrol	shall be	use	d to recall or le	arn	the ou	ıtput s	tate rel	ated	to encod	ed scen	Э	
numb															
Up to	64 scene	e nun	nbers	(0 63	3) car	n be assigned	to th	ie acti	uator (	see pa	rame	ters) <sup>a)</sup> .			
lf non	e of the p	oaran	neters	SLME	or SF	SN is impleme	ente	d, the	n the [	DP Sce	ene C	ontrol sh	all be su	ppo	rted
in full:	it shall b	e po	ssible	to call a	and le	earn all of the	supp	orted	scene	numb	ers.				
If one	or both o	of the	parar	meters	SLME	E or SFSN is ir	nple	mente	ed, the	n the r	eque	st to lear	n a scen	e n,	this
is an a	access to	DP	Scene	e Contro	ol with	n a value of the	efiel	ld B =	1 and	the sc	ene r	number n	in the fi	eld (	J -
shall f	unction a	as fol	lows:												
							SF	SN(a	rray e	lemen	t n)				
					Not	implementes			Disab	le		Ena	ble		
	SLME				NOI	implemented			(= 0)	)		(=	1)		
	Not	impl	emen	ted		Learn			Ignor	е		Lea	arn		
	Disa	able (	(= 0)			Ignore			Ignor	е		lgn	ore		
	Ena	ble (:	= 1)			Learn			Ignor	e		Lea	arn		
DP Ty	/ne														
	Name:	D	PT So	ceneCo	ntrol										
	Format:		$\frac{1}{1}r_{1}U_{6}$							DPT	ID:	18.001			
Field			escrip	otion						Supp	. 🗆	Range	Unit	De	fault
В				r learn	the s	cene.				M	{0,		none		one
r						ll be zero.				М	0		none	ne	one
U		S	cene r	number						М	{0.	63}	none		one
Acces	ss Type														
♦ b															
N -	→ this			1 -	→ thi	s 🗌									
	ontaneo	us				Cyclically:				Tir	ne-o	ut:	NO		
	equest		同			Polling:					eriod:				
Comr	nunicati	on T	ype		<u> </u>										
	roup Ob										N	landator	y: 🛛		
	fault Gro			s:											
Dyna	mics														
Po	wer dow	n:	Save:												
Po	wer up:	,	Value:	: 1	No ini	tialisation:			Defau	ılt valu	e:				
						d value:			Curre	nt valu	e (no	t for inpu	ıt)		
			Transı	mit on b	ous (c	only for output)			Read	from b	us (c	nly for in	put):		
Exce	otion Ha														
<sup>a)</sup> An	applicat	ion n	nay su	pport le	ess th	an the maxima	al er	codal	ole nur	nber o	f 64 s	cenes. Ir	n the cas	e, if	а
sce	ne is lear	ned	or call	ed with	a sce	ene number hi	gher	than	the ma	aximun	n sup	ported, tl	he devic	e sh	all
	react.														
Speci	ial Featu	res													

#### 2.7.7 Output Info OnOff

DP Name:	Info OnOff		Abb	r.: 10	0	Mandat	tory	
FB Name:	Switchinging A	ctuator Basic				Can be	interna	al 🗌
Description								
Reflects the bina	ry state of the a	ctuator.						
DP Type								
DPT_Name:	DPT_Switch							
DPT Format:	B <sub>1</sub>				DPT_ID:	1.001		
Field	Description				Supp.	Range	Unit	Default
b	State of the ac	tuator.			М	{0,1}	none	none
Access Type								
◆ Output								
this $\rightarrow$ M	⊠ th	is $\rightarrow$ 1						
Spontaneous			alue:	Min	repetition	time:		
	Cyclic	□ <sup>a)</sup> Peri	od: n	0				
Request	$\square$							
Communication	Туре							
◆ Group Obje	ct DP					Mandatory	<b>/</b> : 🛛	
Default Group	Address:	-						
Dynamics								
Power down:	Save:							
Power up:	Value:	No initialisation:		Defau	ılt value:			
		Saved value:		Curre	nt value (r	not for input	:)	
	Transmit on b	bus (only for outpu	t):	Read	from bus	(only for inp	out):	
<b>Exception Hand</b>	lling							
<b>Special Feature</b>								
	sion conditions period for trans	may be expanded smission.	to cyclic to	ransmis	sion. In th	is case, the	Param	eter TCT

# 2.7.8 Parameter On Delay

FB:	LSAB	Property	Name ( <u>Server</u> ):	On Del	ay				Manda Option	•	
Descri	ption:							•	•		
Specific	es the del	ay time fro	om state OFF to ON.								
The se	lection of	Inputs tha	it are affected by the	delay m	echan	ism is	s manufac	turer spe	ecific.		
DPT:	Name	DPT_T	imePeriod10Msec	DPT_	ID:	7.00	Data	atype for	mat	$U_{16}$	
Field		Descript	ion		Su	p.	Range	Unit	Reso	l.:	Default
TimePe	eriod	On Delay	/ time		1 .: 1		CS	ms	10 m	IS	CS
Comm	unication	1:									
DP A	ddress:		Object Type:	417			Property I	D:	101		
(in the	e server)		Start-Index:	1			N° of elen	nents			
Prope	erty acces	s:	Read only		Rea	ad/Wi	rite [	$\boxtimes$			
Prote	ction		Read level	-			Write leve	el	-		
Except	tion Hand	lling: \	Value after Power-up:	: Store	d Valu	ıe 🛚	Act Value	e 🔲 🛚	Default V	'alue	
None.											
Specia	Special Features:										
None.											

# 2.7.9 Parameter Off Delay

FB:	LSAB	Property	Name ( <u>Server</u> ):	Off Dela	ау				Mandato Optional	-	
Descri	ption:										
Specific	es the del	ay time fro	om state ON to OFF								
The se	lection of	Inputs tha	t are affected by the	e delay me	echani	sm is	s manufac	turer s	oecific.		
DPT:         Name         DPT_TimePeriod_10Msec         DPT_ID:         7.003         Datatype format											
Field		Descript	ion		Sup	<b>)</b> .	Range	Unit	Reso	ıl.:	Default
TimePe	eriod	Off Delay	time		М		CS	ms	10 m	าร	CS
Comm	unication	<b>):</b>									
DP A	ddress:		Object Type:	417			Property I	D:	102		
(in the	e server)		Start-Index:	1			N° of elem	nents			
Prope	erty acces	s:	Read only		Rea	d/Wi	rite	$\boxtimes$			
Prote	ction		Read level	-		1	Write leve		_		
Exception Handling: Value after Power-up: Stored Value ☐ Act Value ☐ Default Value ☐											
Specia	I Feature	s:									
None.											

## 2.7.10 Parameter Timed On Duration

FB:	LSAB	Property	Name ( <u>Server</u> ):	Timed	On Duration	on		Mandatory Optional				
Descri	ption:											
			ne time after which t					off. The sele	ection of			
Inputs t	that are a	ffected by	this autonomous me	echanism	is manufac	cturer spe	cific.					
DPT:   Name   DPT_TimePeriodSec   DPT_ID   7.005   Datatype form												
Field	Field Description Sup. Range Unit								Default			
TimePe	eriod	Time for	the on duration.	М	cs	S	1 s	CS				
Comm	unication	1:										
DP A	ddress:		Object Type:		Property I	D:	103					
(in the	e server)		Start-Index:	1	17 Property ID: N° of elements							
Prope	erty acces	s:	Read only		Read/Wr	ite [	$\times$					
Prote	ction		Read level	-	,	Write leve	el .	-				
Except	Exception Handling: Value after Power-up: Stored Value 🗵 Act Value 🗌 Default Value 🗌											
Specia	Special Features:											
None.									<del></del>			

# 2.7.11 Parameter Prewarning Duration

FB:	LSAB	Property	Name ( <u>Server</u> ):	Prewarning Duration					Mandat Optiona	•		
Descri	ption:											
This pa	arameter	defines th	e time between the	optional, r	nan	ufactur	er specifi	c action	and the a	autor	nomous	
switchii	ng off. Ple	ase refer	to the Functional Sp	ecification	า.							
DPT:         Name         DPT_TimePeriodSec         DPT_ID:         7.005         Datatype for								type forr	nat U	16		
Field	ield Description Sup. Range Unit										Default	
TimePe	eriod	Time for	the prewarning dura	tion.		M	CS	S	1 s		CS	
Comm	Communication											
DP A	ddress:		Object Type:	417			Property	ID:	104			
(in the	e server)		Start-Index:	1			N° of eler	nents				
Prope	erty acces	s:	Read only		Re	ead/Wr	ite	$\boxtimes$				
Prote	ction		Read level	-		,	Write leve	el	-			
Except	xception Handling: Value after Power-up: Stored Value 🗵 Act Value 🔲 Default Value 🗌											
	<u> </u>											
Specia	ecial Features:											

# 2.7.12 Parameter Timed On Retrigger Function

FB:	LSAB	Property	y Name ( <u>Server</u> ):	Timed	On Retrigg	er Functio	n	Mandatory Optional			
Descri	iption:										
			whether the on-dura	ation time	r (see 2.7.1	10) can be	eretrigge	ered or not. F	lease		
refer to	the Fund	ctional Sp	ecification.								
DPT:     Name:     DPT_Enable     DPT_ID     1.003     Datatype format     B1       Field     Description     Sup.     Range     Unit     Resol.:     Defaut											
Field Description Sup. Range Unit Resc											
b	Enab	les retrigg	ering the on-duration	on times	M	{0,1}	none	none	CS		
Comm	nunicatio	n:									
DP A	ddress:		Object Type:	417		Property	ID:	112			
(in th	e server)		Start-Index:	1		N° of eler	nents				
Prop	erty acces	SS:	Read only		Read/W	/rite	$\boxtimes$				
Prote	ection		Read level	-		Write leve	el	-			
Excep	tion Han	dling:	Value after Power-ı	up: Store	ed Value 🛭	Act Val	ue 🗌	Default Valu	ie 🗌		
Specia	al Feature	es:									
None.											

## 2.7.13 Parameter Manual Off Enable

FB:	LSAB	Property	Name ( <u>Server</u> ):	Manua	Off Enabl	е		Mandatory Optional	y 🗌				
Descri	ption:												
Only if	this parar	neter valu	ie is "Enable", it sl	nall be pos	sible to sw	itch off the	actuato	r manually –	i.e. via				
			e on-duration time		; if its value	e is "Disab	le", this	shall not be p	ossible.				
Please	Please refer to the Functional Specification. <b>DPT:</b> Name DPT Enable DPT ID 1.003 Datatype format B <sub>1</sub>												
DPT:	at B <sub>1</sub>												
Field	Descri	Resol.:	Default										
b	Enable	s manual	switching off during	ng	М	{0,1}	none	none	cs				
	on-dura	ation time.	·										
Comm	unication	<b>า</b> :											
DP A	ddress:		Object Type:	417		Property	ID:	113					
(in the	e server)		Start-Index:	1		N° of eler	nents						
Prope	erty acces	s:	Read only [		Read/V	Vrite	$\boxtimes$						
Prote	ction		Read level	-		Write leve	el	-					
Except	tion Hand	dling:	Value after Power	-up: Stor	ed Value 🛭	Act Val	ue 🗌	Default Valu	e 🗌				
Specia	pecial Features:												
None.													

# 2.7.14 Parameter Invert Output State

FB:	LSAB	Prope	rty Name ( <u>Server</u> ):	Invert	Outp	ut St	ate				Mand Optio		
Descr	iption:												
Inversi	on of the	output c	of the device										
DPT:	Name:	DPT	Invert	DPT_II	D:	1.0	12	Dat	atype for	mat	: B <sub>1</sub>		
Field			Description				S	up.	Range		Unit		Default
									V={0,1	}			No
													Inversion
Field		iption			Su	p.	Rar	nge	Unit	Re	sol.:		Default
b	Invers	ion of th	ne output state.		N	1	{0,	1}	none	n	one	n	ot inverted
Comm	nunication	<u> 1:</u>											
DP A	ddress:		Object Type:	417					rty ID:		111		
(in th	e server)		Start-Index:	1			Ν	° of e	elements				
Prop	erty acces	ss:	Read only		F	Reac	l/Wri	te	$\boxtimes$				
Prote	ection		Read level	-			W	/rite	evel		-		
Excep	tion Hand	dling:	Value after Power-u	p: Stor	ed V	alue	$\boxtimes$	Act \	/alue □	D	efault	Va	lue 🗌
Specia	al Feature	es:											
None.	•												

# 2.7.15 Parameter Invert Lock Device

FB:	LSAB		Property	Name ( <u>Server</u> ):	Inv	ert Lo	ock	Device	!				ndatory tional	
Descri	ption:													
Inversi	on of th	ne p	polarity of	the DP 'Lock Devic	œ'.									
DPT:	Name	е	DPT_Inv	ert	DPT	_ID	1.0	012	Da	tatype f	format	t	B <sub>1</sub>	
Field		De	scription			Suj	ე.	Range	е	Unit	Reso	I.	Defau	ilt
b		Ро	larity inve	ersion value		М		{0,1}	{	none	none	е	Not inve	rted
Comm	unicat	ion	<b>า</b> :											
DP A	ddress	:		Object Type:	417			Pr	ωр	erty ID:		114		
(in the	e serve	r)		Start-Index:	1			N°	° of	f elemen	ıts			
Prope	erty acc	ces	ss:	Read only			Re	ad/Writ	e	$\boxtimes$				
Prote	ection			Read level	-			W	rite	e level		-		
Excep	tion Ha	anc	dling:	Value after Power-u	ıp: S	tored	Val	ue 🖂	Ac	t Value [		Defa	ult Value 🗌	
Specia	al Feati	ıre	s:											
None														

# 2.7.16 Parameter Behaviour at Locking

FB:	LSAB	Property	Name ( <u>Server</u> ):	Beha	viour at Lo	ocking		Mandatory Optional	′ □ ⊠
Desci	ription:								
Behav	iour at the	beginning	of the lock state of	the de	vice.				
DPT:	Name	DPT_Be	haviour_Lock_Unlo	ck	DPT_ID	20.600	Datatyp	e format	N <sub>8</sub>
	Field		Descrip	otion		Sup.	Range	e Unit	Default
Behav	/iour_Lock_	Unlock	Lock state start be	haviou	ır.	M	{0 4}	none	cs
Comr	nunication	1:							
DP /	Address:		Object Type:	417		Property	· ID:	107	
(in th	ne server)		Start-Index:	1		N° of ele	ements		
Prop	erty acces	s:	Read only		Read	d/Write	$\boxtimes$		
Prot	ection		Read level	-		Write lev	/el	-	
Exce	otion Hand	lling: V	alue after Power-up	: Sto	red Value	Act Valu	ie 🔲 D	efault Valu	ıе 🗌
Speci	al Feature	s:							

### 2.7.17 Parameter Lock State

FB:	LSAB	Property	Name ( <u>Server</u> ):	Lock S	State				Mandatory Optional	
Descri	ption:									
Curren	t State at	the beginr	ning of the lock state	of the de	vice (fro	zen v	alue).			
DPT:	Name:	DPT_S	witch	DPT_ID	1.00	1	Dataty	pe form	at B <sub>1</sub>	
Field	Descri	otion			Sup.	Ra	ange	Unit	Resol.:	Default
b	State a	t the begir	ning of the lock state	e.	М	{(	0,1}	none	none	cs
Comm	unication	1:								
DP A	ddress:		Object Type:	417		Pr	operty I	D:	115	
(in the	e server)		Start-Index:	1		N°	of elen	nents		
Prope	erty acces	s:	Read only		Read/	Write		$\leq$		
Prote	ction		Read level	-		W	rite leve	el	-	
Except	tion Hand	lling: \	/alue after Power-up	: Stored	l Value [	⊠ Ao	ct Value	: D	efault Value	<del>-</del>
Specia	I Feature	s:								
None.				•			·		•	

# 2.7.18 Parameter Behaviour at Unlocking

FB:	LSAB	Property	Name ( <u>Server</u> ):	Beha	avic	our at Unl	ocking		Mandator Optional	y □ ⊠
Descri	ption:									
Behavi	our at the	end of th	e lock state of the d	levice.						
DPT:	Name	DPT_B	ehaviour_Lock_Unl	ock	DP	T_ID	20.600	Datatyp	e format	$N_8$
Field:			Description:			Sup.:	Range:	Unit:	Resol.:	Default:
Behavi	our_Lock	Unlock	Lock state ned be	ehaviour		M	{0 6}	none	none	cs
Comm	unication	า:								
DP A	ddress:		Object Type:	417			Property I	D:	108	
(in th	e server)		Start-Index:	1			N° of elen	nents		
Prope	erty acces	ss:	Read only			Read/W	/rite	$\boxtimes$		
Prote	ction		Read level	-		,	Write leve	el	-	
Excep	tion Hand	dling:	Value after Power-u	ıp: Stoi	red	∣ Value 🗵	Act Val	ue 🔲 🏻 🗈	Default Valu	ie 🗌
Specia	l Feature	es:								
None										

## 2.7.19 Parameter Unlock State

FB:	LSAB	Property	y Name ( <u>Server</u> ):	Ur	lock State			Mandatory Optional	<b>'</b> □
Descri	ption:								
Curren	t State at	the end of	of the lock state of th	e de	evice.				
DPT:	Name	DPT_Sw	<i>i</i> itch	DP	<b>T_ID</b> 1.001	<b>Dataty</b>	pe forma	<b>t:</b> B <sub>1</sub>	
Field	Desc	ription			Sup.	Range	Unit	Resol.:	Default
b	Unloc	k state			M	{0,1}	none	none	CS
Comm	unicatio	า:							
DP A	ddress:		Object Type:	417	•	Property	ID:	116	
(in th	e server)		Start-Index:	1		N° of eler	ments		
Prope	erty acces	SS:	Read only		Read/\	Vrite	$\boxtimes$		
Prote	ection		Read level	-		Write leve	el	-	
Excep	tion Hand	dling:	Value after Power-u	p:	Stored Value	🛛 Act Val	ue 🔲 🏻 🗈	Default Valu	e 🗌
Specia	al Feature	es:							
None.	•	•						•	

## 2.7.20 Parameter State for Scene Number

FB:	LSAB	Proper	ty Name ( <u>Server</u> )		State	e for Scer	ne Number		Mandatory Optional	<b>/</b> □ ⊠		
Descri	Cription:  ed State for recalling after receiving the dedicated scene number via DP SC.  ENAMME: DPT_Switch[] DPT_ID: 1.001 Datatype format B1  Description  Sup. Range Unit Resol.: Default  Stored state.  M {0,1} none none cs  Immunication:  Address: Object Type: 417 Property ID: 117  the server) Start-Index: 1 N° of elements 64  Deperty access: Read only Read/Write Start-Index - Write level -											
Stored	State for re	ecalling	after receiving the	dedica	ted s	cene num	ber via DP	SC.				
DPT:	Name:	DPT_S	witch[]	DPT	_ID:	1.001	Dataty	pe form	nat B <sub>1</sub>			
Field	red State for recalling after receiving the dedicated scene number via DP SC.  T: Name: DPT_Switch[] DPT_ID: 1.001 Datatype format B1  Id Description Sup. Range Unit Resol.: Default Stored state.  N {0,1} none none cs  mmunication:  P Address: Object Type: 417 Property ID: 117  In the server) Start-Index: 1 N° of elements 64  roperty access: Read only Read/Write Stored state State State Start-Index											
b	Scription:  ored State for recalling after receiving the dedicated scene number via DP SC.  T: Name: DPT Switch[] DPT_ID: 1.001 Datatype format B1  eld Description Sup. Range Unit Resol.: Default Stored state.  M {0,1} none none cs  mmunication:  DP Address: Object Type: 417 Property ID: 117  n the server) Start-Index: 1 N° of elements 64  property access: Read only Read/Write Stretction Read level - Write level -											
Comm	munication: Address: Object Type: 417 Property ID: 117											
DP A	Stored state.  Default Stored state.  Default Stored state.  Default Stored state.  M {0,1} none none cs  Default Stored state.  M Property ID: 117 Start-Index: 1 N° of elements 64											
(in the	e server)		Start-Index:	1			N° of eleme	ents	64			
Prope	erty access	:	Read only			Read/W	′rite 🛚 🗀					
Prote	ction		Read level	-			Write level		-			
Excep	tion Handl	ing:	Value after Power-	-up: S	Stored	l Value ⊠	Act Value	e 🗌 – I	Default Valu	e 🗌		
Specia	I Features	:			•							
It is allo	owed to imp	olement	the array with less	than th	he giv	en numb	er of 64 ele	ments.				

# 2.7.21 Parameter Storage Function for Scene

FB:	LSAB	Prope	erty Name ( <u>Server</u>	:):	Sto	rage Fı	unction fo	r Scene	Mandator Optional	y □ ⊠
Descri	ption:									
Enablir	ng memory s	torage	for a received scen	ne numb	er w	ith a st	tate.			
DPT:	Name	DPT_	Enable	DPT_ID	):	1.003	Datat	ype forma	t: B₁[]	
Field	Description	on				Sup.	Range	Unit	Resol.:	Default
b	Memory s	torage	function enabled for	or this		M	{0,1}	none	none	CS
	scene.									
Comm	unication:									
DP A	ddress:		Object Type:	417			Property	/ ID:	118	
(in the	e server)		Start-Index:	1			N° of ele	ements	64	
Prope	erty access:		Read only			Read/	Write	$\boxtimes$		
Prote	ction		Read level	-			Write lev	/el	-	
Excep	tion Handlir	g:	Value after Power-	up: Sto	red	Value	Act Va	alue 🔲 🗆	Default Valu	ıе 🗌
Specia	I Features:									
It is allo	owed to impl	ement	the array with less	than the	give	en num	ber of 64	elements.		•

# 2.7.22 Parameter Transmission Cycle Time

FB:	LSAB		Prope	erty Name ( <u>Serve</u>	<u>:</u> ):	Transmi	ssion Cycl	e Time		Mandatory Optional	
Descrip	tion:										
See Fun	ctiona	l Spe	cificati	on.							
DPT:	Name	:	DPT_	TimePeriodSec	DP	T_ID:	7.005	<b>Dataty</b>	pe for	mat: U	6
Field		Des	criptio	on		Sup.	Range		Unit:	Resol.:	Default
TimePer	riod	Cyc	le peri	od for sending the		М	5 s 65	5535 s	S	1 s	cs
		curr	ent din	nming value on the	bus.						
Commu	nicatio	on:									
DP Ad	dress:			Object Type:	417		Pro	perty ID	<b>)</b> :	105	
(in the	server	)		Start-Index:	1		N°	of eleme	ents		
Proper	ty acce	ess:		Read only		R	ead/Write		$\leq$		
Protect	tion			Read level	-		Wri	te level		-	
Exception	on Hai	ndlin	g:	Value after Power-	up:	Stored V	alue 🛛 A	ct Value	e 🗌	Default Va	lue 🗌
Special	Featu	res:									
None.											

# 2.7.23 Parameter Bus Power Up Message Delay

FB:	LSAB		Prope	erty Name ( <u>Serve</u>	<u>er</u> ):	Bus Powe	r U <sub>l</sub>	p Messag	e Delay	Mandatory				
Descrip	tion:													
The dela	ay time	afte	r bus p	ower up for send	ing a t	elegram on	the	bus.						
DPT:	Name	:	DPT_T	imeout_10Msec		DPT_ID:		7.003	Datatype	L	J <sub>16</sub>			
									format:					
Field:		Des	scriptio	on:		Sup.:	F	Range:	Unit:	Resol.:	Default:			
TimePer	PT: Name: DPT_Timeout_10Msec DPT_ID: 7.003 Datatype format:  eld: Description: Sup.: Range: Unit: Resol.: Default: mePeriod Delay time M cs ms 10 ms cs ommunication:													
Commu	mmunication:													
DP Ad	Communication:													
(in the	server	)		Start-Index:	1			N° of ele	ements					
Proper	ty acce	ess:		Read only		Re	ad/\	Write	$\boxtimes$					
Protec	tion			Read level	-			Write le	vel	-				
Excepti	on Hai	ndlir	ng:	Value after Power	r-up:	Stored Val	ue	X Act V	alue 🔲 🏻 🗈	Default Va	lue 🗌			
Special	Featu	res:	•			_								
None.					•			•						

# 2.7.24 Parameter Behaviour Bus Power Up

FB:	LSAB	Pro	operty Name ( <u>Ser</u>	ver):	Behavio	our	Bus Po	wer	Up		Mandatory Optional	/	
Descript	tion:												
Behavio	ur of the c	levice af	fter bus power up.										
DPT:	Name:	DPT_B	ehaviour_Bus_Pov	ver Up_D	own	DF	PT_ID:	20	.601	Da	tatype forr	nat	N <sub>8</sub>
Field:			Description:		Sup.		Range	:	Unit:		Resol.:	Defa	ult:
Behavio	ur_Bus_P	ower	Power up behavi	iour	M		{0 4}	}	non	е	none	0	ff
Up_Dow	'n												
Commu	nication:												
DP Add	escription: ehaviour of the device after bus power up.  PT: Name: DPT Behaviour Bus Power Up Down DPT ID: 20.601 Datatype format N <sub>8</sub> ield: Description: Sup.: Range: Unit: Resol.: Default: ehaviour_Bus_Power Power up behaviour M {0 4} none none off  p_Down ommunication:  DP Address: Object Type: 417 Property ID: 109 (in the server) Start-Index: 1 N° of elements  Property access: Read only Read/Write Protection Read level - Write level - xception Handling: Value after Power-up: Stored Value Act Value Default Value case the actuator is not able to save its value during/before bus power down in non-volatile memory, it allowed to use this parameter with restricted range 0 to 3. this parameter is set to "last" the actuator shall go to the state before bus power down at bus power up. pecial Features:												
(in the	server)		Start-Index:	1			N° of e	elen	nents				
Proper	ty access	:	Read only		Rea	ad/\	Write		$\boxtimes$				
Protect	tion		Read level	-			Write I	eve	:I		-		
Exception	on Handli	ing: \	Value after Power-	up: Stor	ed Valu	ıe	🛛 Act '	Valu	ue 🔲		Default Valu	e 🗌	
In case t	he actuat	or is not	able to save its va	lue during	g/before	e bi	us powe	er do	own in	noi	n-volatile m	emor	y, it
is allowe	d to use t	his para	meter with restricte	ed range (	to 3.								
If this pa	rameter is	s set to "	'last" the actuator s	hall go to	the sta	ite	before b	ous	power	r do	wn at bus p	ower	up.
Special	Features	:											
None.		•	_	•									

# 2.7.25 Parameter Bus Power Up State

FB:	LSAB	Prop	erty Name ( <u>Server</u> )	):	Bus Power Up State					Mandatory Detional				
Descrip	tion:													
Value of	the device	after b	ous power up.											
DPT:	Name:	DPT_	Switch	DPT_	ID:	1.00	)1 <b>D</b> a	ataty	pe form	nat: B				
Field:	Descript	ion:				Sup.:	Range	): U	Jnit:	Resol.:	Default:			
b	Power up	o state				M	{0,1}	}	none	none	cs			
Commu	Communication:													
DP Add	dress:		Object Type:	417			Prope	erty ID	<b>)</b> :	119				
(in the	server)		Start-Index:	1			N° of e	eleme	ents					
Proper	ty access:		Read only	]		Read/	Write		$\leq$					
Protect	ion		Read level	-			Write	level		-				
Exception	Exception Handling: Value after Power-up: Stored Value Act Value Default Value													
Special	Special Features:													
None.														

## 2.7.26 Parameter Behaviour Bus Power Down

FB:	LSAB P		Property Name ( <u>Se</u>	Behaviour	Bus Powe	Mandatory ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐						
Description:												
State of the device on bus power down.												
DPT:	Name: DPT E		_Behaviour_Bus_Po	DPT_ID:	20.601	<b>Datatyp</b>	e format:	N <sub>8</sub>				
		Up_[	Down									
Field:			Description:	Sup.:	Range:	Unit:	Resol.:	Default:				
Behaviour_Bus_Power I			Bus power down b	М	{0 3}	none	none	off				
_Up_Down			selection.									
Communication:												
DP Address:			Object Type:	Property ID: N° of elements			110					
(in the server)			Start-Index:	1								
Property access:			Read only		Read/	Write	$\boxtimes$					
Protection			Read level	Read level - Write level								
Excepti	on Handli	ing:	Value after Power	Value after Power-up: Stored Value ⊠ Act Value □ Default Value □								
Special Features:												

## 2.7.27 Parameter Bus Power Down State

FB:	LSAB Pro		perty Name ( <u>Serve</u>	Behavi	Behaviour Bus Power Up			Mandatory ☐ Optional ⊠				
Description:												
Valueof the device after bus power up												
DPT:	Name:	DPT_S	Switch	DP	T_ID:	1.0	001 <b>Dat</b>		atype format:		1	
Field:			Sup.:		Range:		Unit:	Resol.:	Default:			
b Power			up state selection		M	M		}	none	none	cs	
Communication:												
DP Address:			Object Type:	417			Prope	erty	ID:	120		
(in the server)			Start-Index:	1			N° of	eler	nents			
Property access:			Read only		Rea	ad/\	Write		$\boxtimes$			
Protection			Read level	-		Write level			-			
Exception Handling: Value after Power-up: Stored Value							⊠ Act	: Val	ue 🗌	Default Val	ue 🗌	
Special Features:												
None												

# 2.7.28 Parameter Scene Learning Mode Enable

DP Name:	Scene Learning Mode Enable					.:	SLME	•					
FB Name:	Lig	ht Switching	Actuato	or Basic					Can be internal				
Description													
Via this parameter DP, it shall be possible to activate or deactivate the Scene Learning Mode (e.g. to													
prevent unauthorised modification of scenes). If the value of this DP is Enabled, it shall be only possible													
to store the scenes, for which the corresponding bit in the parameter SFSN was set to enable learning.													
This DP is optional, even if the scene functionality is implemented. This DP shall be implemented as													
Group Object.													
DP Type													
DPT_Name: DPT_Enable													
<b>DPT Format:</b>		B <sub>1</sub>	DPT_ID:							1.003			
Field:		Description:		Supp.:	p.: Rang		Unit:	Resol.:	Defa	Default:			
b		Enabling scene learning			М	{0,1}	}	none	none cs				
Access Type													
Input													
$N \rightarrow \text{this}$ $\square$ $1 \rightarrow \text{this}$ $\square$													
Spontaneo				Cyclically:				Time-out:	. N	10			
Request			Polling:				Period:			-			
Communicat	ion	Type		- <b>J</b>									
Group Object DP Mandatory:													
Default Group Address:													
Dynamics													
Power dov	vn:	Save:											
Power up:		Value: No initialisation: Default value:											
			Save	d value:							-		
						Re	ad froi	m bus:					
Exception Handling													
None													
Special Features													
None.													

## 3 FB Dimming Actuator Basic

### 3.1 Aims and objectives

The Functional Block "Dimming Actuator Basic" shall support continuous setting of light brightness. Input Datapoints shall be processed in order to generate a set value that in turn shall lead to the actual value. The actual value shall be provided to the dimmer hardware. Moreover, light switching shall be supported.

The output Datapoints shall provide information on the state of the dimmer. This information may also be used by other actuators in the Application Domain. In this way, the Functional Block can be linked to actuator Functional Blocks, which only support binary information.

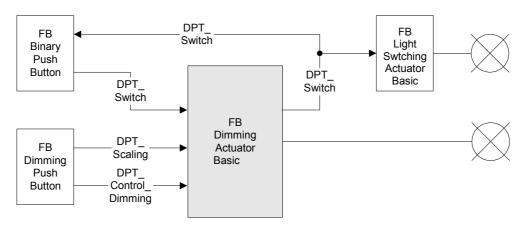


Figure 3 - FB Dimmer Actuator Basic in Application Domain Lighting

Simple Lighting controller functions shall also be supported using the FB according these specifications.

## 3.2 Functional specification

### 3.2.1 Overview

The Functional Block "Dimming Actuator Basic" shall contain the mandatory input Datapoints:

- Switch On Off (SOO) shall support the binary switching
- Absolute Setvalue Control (ASC) shall directly affect the set value (absolute dimming) switch off (value = 0); switch on (value  $\neq$  0)
- Relative Setvalue Control (RSC) shall increase or decreases the set value in respect to the previous set value (relative dimming) and shall stop the dimming process

The rules how the set value is determined dependant on these inputs, as laid down in a state machine, are also mandatory. The behaviour of the Functional Block shall be mainly characterised by the states

- OFF actuator is switched off; actual value =0
- ON actuator switched on; actual value = constant  $\neq 0$
- DIMMING actuator switched on; actual value is lead in direction of the set value (≠ constant) by an internal timing function.

The dimming speed may be adjusted by the parameter "Dimming Speed". If this optional parameter is not implemented, a sweep over the whole range in about four seconds shall be possible. The state DIMMING shall be entered after an access to the input Datapoint "Relative Setvalue Control" (RSC).

However, when the input Datapoints "Absolute Setvalue Control" (ASC) or "Switch On Off" (SOO) are accessed, the actual value shall jump to the set value. Due to internal delays it may be possible that the output does not directly follow the set value. The default behaviour may be changed by adjustment of optional parameters.

The mandatory behaviour also includes binary and 8 bit feedback. For this purpose the output Datapoints "Info On Off" (IOO) and the "Actual Dimming Value" (ADV) are foreseen. IOO shall actively transmit the state of the actuator; ADV shall reflect the actual value provided to the hardware (mainly intended for read access).

Should the output Datapoints IOO and ADV not be implemented, the input Datapoints SOO and ASC shall be implemented bi-directionally.

Additionally to the above, for reporting errors caused by the connected load, two additional Output Datapoints may be implemented, i.e. "Overload Detection" (OVL) and "Load Failed Detection" (LFD).

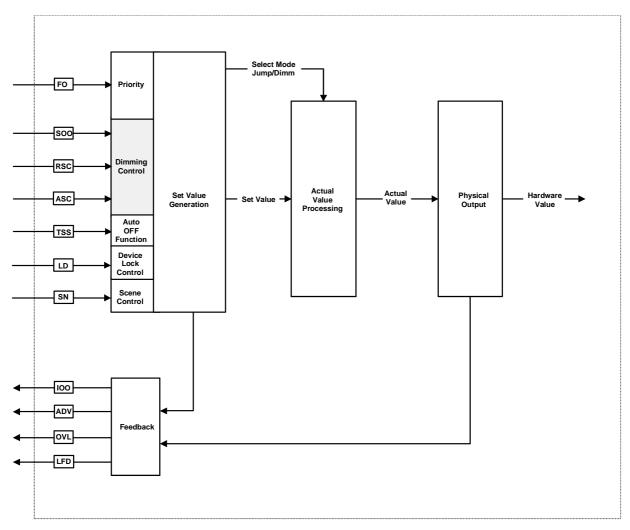


Figure 4 – Input and output Datapoints of FB Dimmer Actuator Basic

The optional input Datapoint "Timed StartStop" (TSS) shall be used to switch the Actuator in the On-State for the time specified by the parameter "Timed On Duration" (TOD). Alternatively this behaviour shall also be achievable without TSS, if using the mandatory DP "Switch On Off" (SOO) in combination with the parameter TOD. Before this time elapses a manufacturer specific action may be performed. This time shall be specified by the parameter "Prewarning Duration" (PWD).

Furthermore switching on and off shall also be delayed by the setting of the optional parameters:

- "On Delay" (OND),
- "Off Delay" (OFFD),
- "Dimming Speed for switching on Set Value/off" (DS\_OSV / DS\_OFF), and
- "Dimming Step Time for switching on Set Value/off" (DST\_OSV / DST\_OFF).

The optional input Datapoint "Scene Number" (SN) shall be used to recall the set value corresponding to the received number (Activate).

The optional input Datapoint "Scene Control" (SC) shall be used to recall the set value corresponding to the received number (Activate) or to save the "Actual Dimming Value" as set value for the recall (Learn).

Scene Number and Scene Control shall refer to the same scene numbers.

The optional input Datapoint "Forced" (FO) shall be used to set the actuator in a high priority state. Whether the ON- or the OFF-state is the high priority state shall be determined by the value of the Datapoint. The input Datapoint "Lock Device" (LD) shall be used to freeze the value provided to the hardware. This shall also be achievable with the additional parameters:

- "Behaviour at Locking" (BL); "Lock Setvalue" (LSV), and
- "Behaviour at Unlocking" (BUL); "Unlock Setvalue" (USV).

In accordance with these parameters, the desired brightness at the start and the end of the actuator's lock state shall be set. With the parameter "Invert Lock Device" (ILD) it shall be possible to invert the polarity of the Datapoint "Lock Device" (LD). The priority of the various input Datapoints is manufacturer specific.

#### 3.2.2 Behaviour concerning mandatory Datapoints

Events shall be generated when the input Datapoints SOO, RSC and ASC are accessed and when the internal actual value reaches the set value (V\_R). The last access to a Datapoint shall be executed. The state-transitions resulting from these events are depicted in Figure 5.

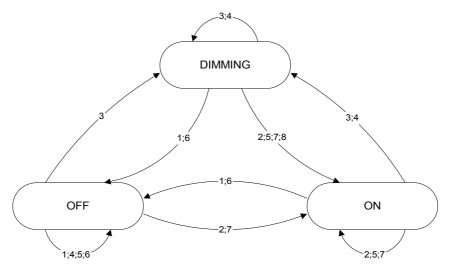


Figure 5 - State transition diagram

Table 3 – list of events

Event	Explanation	Nr in Diagram
SOO = 0	switch off	1
SOO = 1	switch on	2
RSC = up dX	increase dimming set-value by dX	3
RSC = down dX	decrease dimming set-value by dX	4
RSC = stop	stop dimming	5
ASC = 0	dimming value = off	6
ASC = X	dimming value = x % (not zero)	7
V_R	actual value reached set value	8

The size dX, by which an internal value shall be recalculated after an access to the input Datapoint RSC, shall be determined by the 3 bit step-field s (range 001b - 111b) in the following way:

```
new_value = old_value +/- dX
dX = FFh / step_size
step_size = 2 s-1
```

The behaviour is defined in more detail by the following State-Transition-Tables (Table 4 to Figure 4). If the optional parameters "Minimum Set Value" (MINSV) and "Maximum Set Value" (MAXSV) mentioned in the table are not implemented, the default values 01h and FFh shall be used.

Table 4 - state transition table - initial state OFF

State : OFF		
Event	Action	Following state
SOO = 0	send-request IOO = 0;	OFF
SOO = 1	switch on; send-request IOO = 1; set value = MAXSV; actual value = set value; ADV = actual value	ON
RSC = up dX	switch on; send-request IOO = 1; actual value = MINSV; ADV = actual value; set value = min(actual value + dX, MAXSV)	DIMMING
RSC = down dX	None	OFF
RSC = stop	None	OFF
ASC = 0	None	OFF
ASC = X	switch on; send-request IOO = 1; X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X; actual value = set value; ADV = actual value;	ON
V_R	not possible	OFF

Table 5 - state transition table – initial state ON

State : ON			
Event	Action	Following state	
SOO = 0	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF	
SOO = 1	send-request IOO = 1; set value = MAXSV; actual value = set value; ADV = actual value;	ON	
RSC = up dX	set value = min(actual value + dX, MAXSV)	DIMMING	
RSC = down dX	set value = max(actual value - dX, MINSV)	DIMMING	
RSC = stop	set value = actual value; ADV = actual value;	ON	
ASC = 0	switch off; send-request IOO = 0; set value = 0 ;actual value = set value ; ADV = actual value;	OFF	
ASC = X	X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X actual value = set value; ADV = actual value;	ON	
V_R	not possible	ON	

Table 6 - state transition table - initial state DIMMING

State : DIMMING		
Event	Action	Following state
SOO = 0	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
SOO = 1	send-request IOO = 1; set value = MAXSV ;actual value = set value ; ADV = actual value;	ON
RSC = up dX	set value = min(set value + dX, MAXSV)	DIMMING
RSC = down dX	set value = max(set value - dX, MINSV)	DIMMING
RSC = stop	set value = actual value	ON
ASC = 0	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
ASC = X	X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X actual value = set value; ADV = actual value;	ON
V_R	ADV = actual value;	ON

### 3.2.3 Optional Parameters and default behaviour

### 3.2.3.1 Parameters relating to input Datapoints

By the parameter "Memory Function" (MF) it shall be possible to activate the Memory-Function of the actuator. The set value shall be set to the last actual value in the ON-State instead of the maximum set value MAXSV, when the input Datapoint SOO is accessed with value 1.

The Parameter "Switch On Set Value" (OSV) shall define the target value when the input Datapoint SOO is accessed with value 1. (mutual exclusion).

The parameter "Relative Off Enable" (ROE) shall be related to the input Datapoint RSC. By activating the parameter, one shall be able to switch the dimming actuator off via RSC, when the new calculated value is below the "Minimum Set Value".

The Parameter "Dimming Mode Selection" (DMS) shall be related to the input Datapoint ASC. If this parameter is set to "Dimming", the state DIMMING shall be entered, when ASC is accessed. Default setting of this parameter is "Jumping".

The state-transitions with the different parameter settings are shown in Figure 6.

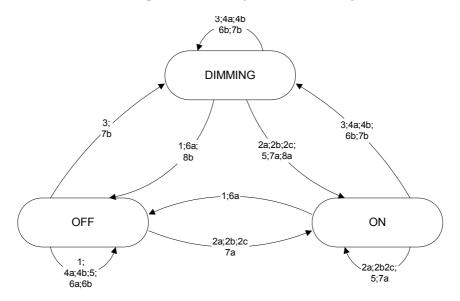


Figure 6 - State transition diagram with parameters MF/OSV ROE, DMS

Table 7 - List of Events with Parameters MF/OSV,ROE, DMS

Event	Explanation	Nr in Diagram
SOO = 0	switch off	1
SOO = 1;	switch on	2a
OSV not implemented	Set Value = Maximum Set Value	
SOO = 1;	switch on	2b
OSV ≠ 0	Set Value = OSV	
SOO = 1;	switch on	2c
MF enabled	Set Value = last Actual Value in State ON/DIMMING	
RSC = up dX	increase dimming set-value by dX	3
RSC = down dX	decrease dimming set-value by dX	4a
ROE: disabled	Set Value = 0 not possible	
RSC = down dX	decrease dimming set-value by dX	4b
ROE: enabled	Set Value = 0 possible	
RSC = stop	stop dimming	5
ASC = 0	dimming value = off	6a
DMS: Jumping		
ASC = 0	dimming value = off	6b
DMS: Dimming		
ASC = X	dimming value = x % (not zero)	7a
DMS: Jumping		
ASC = X	dimming value = x % (not zero)	7b
DMS: Dimming		
V_R	actual value reaches set value (not zero)	8a
V_R_ZERO	actual value reaches MINSV, Set Value = 0	8b

The behaviour is defined in detail by the following state transition tables (Table 8 to Table 9). The transition from DIMMING to OFF shall be performed when the actual value reaches MINSV and the setvalue was set to zero. As shown in the tables, the parameter DMS shall only be related to input Datapoint ASC (not to input Datapoint SOO): after an access to the input SOO, the actuator always jumps (never dims) to the value.

"mutual exclusion of Parameter OSV and MF"

Table 8 – State transition table with parameters MF, OSV, ROE – initial state OFF

OFF			
Event	Action	Following state	
SOO = 0	send-request IOO = 0;	OFF	
SOO = 1;	switch on: send-request IOO = 1;	ON	
OSV not	set value = MAXSV; actual value = set value;		
implemented	ADV = Actual Value		
SOO = 1;	switch on: send-request IOO = 1;	ON	
OSV ≠ 0	set value = OSV; actual value = set value;		
	ADV = actual value		
SOO = 1;	switch on: send-request IOO = 1;	ON	
MF enabled	set value = last on value; actual value = set value;		
	ADV = actual value		
RSC = up dX	switch on: send-request IOO = 1;	DIMMING	
	actual value = MINSV; ADV = actual value;		
	set value = min(actual value + dX, MAXSV)		
RSC = down dX	None	OFF	
ROE: disabled			
RSC = down dX	None	OFF	
ROE: enabled			
RSC = stop	None	OFF	
ASC = 0	None	OFF	
DMS: Jumping			
ASC = 0	None	OFF	
DMS: Dimming			
ASC = X	switch on: send-request IOO = 1;	ON	
DMS: Jumping	X < MINSV: set value = MINSV;		
	X > MAXSV: set value = MAXSV;		
	$MINSV \le X \le MAXSV$ : set value = X;		
	actual value = set value ; ADV = actual value;		
ASC = X	switch on: send-request IOO = 1;	DIMMING	
DMS: Dimming	X < MINSV: set value = MINSV;		
	X > MAXSV: set value = MAXSV;		
	$MINSV \le X \le MAXSV$ : set value = X;		
	actual value = MINSV ; ADV = actual value;		
V_R	not possible	OFF	
V_R_ZERO	not possible	OFF	

Table 9 – State transition table with parameters MF, OSV, ROE – initial state ON

ON		
Event	Action	Following state
SOO = 0	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
SOO = 1; OSV not implemented	send-request IOO = 1; set value = MAXSV; actual value = set value; ADV = actual value;	ON
SOO = 1; OSV ≠ 0	send-request IOO = 1; set value = OSV; actual value = set value; ADV = actual value;	ON
SOO = 1; MF enabled	send-request IOO = 1;	ON
RSC = up dX RSC = down dX ROE: disabled	RSC = up dX set value = min(actual value + dX, MAXSV) RSC = down dX set value = max(actual value - dX, MINSV)	
RSC = down dX ROE: enabled	actual value – dX < MINSV: set value = 0 actual value – dX ≥ MINSV: set value = actual value – dX	DIMMING
RSC = stop	set value = actual value;	ON
ASC = 0 DMS: Jumping	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
ASC = 0 DMS: Dimming	set value = 0;	DIMMING
ASC = X  DMS: Jumping  X < MINSV: set value = MINSV;  X > MAXSV: set value = MAXSV;  MINSV ≤ X ≤ MAXSV: set value = X;  actual value = set value; ADV = actual value;		ON
ASC = X DMS: Dimming	X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X;	DIMMING
V_R	not possible	OFF
V_R_ZERO	not possible	OFF

 $Table\ 10-State\ transition\ table\ with\ parameters\ MF,\ OSV,\ ROE-initial\ state\ DIMMING$ 

DIMMING		
Event	Action	Following state
SOO = 0	switch off: send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
SOO = 1; OSV not implemented	send-request IOO = 1; set value = MAXSV; actual value = set value; ADV = actual value;	ON
SOO = 1; OSV ≠ 0	send-request IOO = 1; set value = OSV; actual value = set value; ADV = actual value;	ON
SOO = 1; MF enabled	send-request IOO = 1; set value = last on value; actual value = set value; ADV = actual value;	ON
RSC = up dX	set value = min(set value + dX, MAXSV)	DIMMING
RSC = down dX ROE: disabled	set value = max(set value - dX, MINSV)	DIMMING
RSC = down dX ROE: enabled	set value – dX < MINSV: set value = 0 set value – dX ≥ MINSV: set value = set value – dX	DIMMING
RSC = stop	ADV = actual value;	ON
ASC = 0 DMS: Jumping	switch off; send-request IOO = 0; set value = 0; actual value = set value; ADV = actual value;	OFF
ASC = 0 DMS: Dimming	ASC = 0 set value = 0;	
ASC = X DMS: Jumping	C = X X < MINSV: set value = MINSV;	
ASC = X DMS: Dimming	X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X;	DIMMING
V_R	ADV = actual value;	ON
V_R_ZERO	switch off; send-request IOO = 0; actual value = 0; ADV = actual value;	OFF

#### 3.2.3.2 Parameters relating to timing

#### 3.2.3.2.1 Timing function for dimming

The Timing function for dimming shall be determined by the optional parameter "Dimming Speed" (DS). It is defined as array of maximum eight elements, which shall divide the entire dimming range in subranges. The elements shall be structured datatypes, consisting of the limit of the dimming subrange (thereby taking into account the limit of the previous subrange) and the time that shall be taken for dimming through the subrange. The array shall be implemented in ascending order as regards the various subranges. In other words, the first subrange shall lie between MINSV and Limit0. The limit for the last subrange shall represent MAXSV. The array may consist of one element (Limit $_0$  = Limit $_{Last}$  = MAXSV). In this case the dimming speed shall be constant over the whole dimming range.

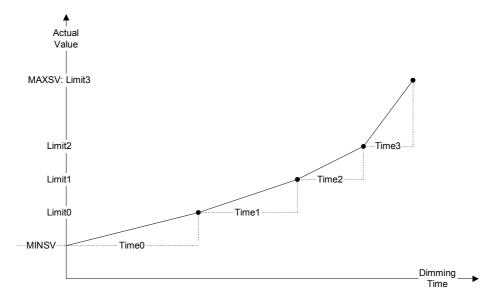


Figure 7 - example of different dimming speeds in subranges

The dimming speed in a subrange R shall be given as:

#### 

Figure 8 - Structure of Datapoint Type 225.001 for dimming speed parameter (recommended for future use)

In order to continuously update the actual value, the dimmer application shall calculate the time needed for one incremental step. Either the above approach is used, where the application shall calculate this time itself, or alternatively the additional parameter ("Dimming Step Time", DST) can be used that contains this incremental dimming step time. This parameter shall have the same structure as the array for the parameter "Dimming Speed".

DPT_Scaling	Limit <sub>0</sub>	Limit₁	• • • • • • • • • • • • • • • • • • • •		Limit <sub>Last</sub>
DPT_TimePeriodMSec	StepTime <sub>0</sub>	StepTime <sub>1</sub>			StepTime <sub>Last</sub>

Figure 9 - Structure of Datapoint type 225.002 for Dimming step time parameter

As for the parameter "dimming speed" (DS), the array of the parameter "dimming step time" (DST) may consist of only one element (Limit<sub>0</sub> = Limit<sub>Last</sub> = MAXSV). In this case the dimming step time shall be constant over the whole dimming range.

#### 3.2.3.2.2 Delay Time

The transition from state OFF to ON or DIMMING and from state ON or DIMMING to OFF shall be delayed by the following optional parameters.

- "On Delay" (OND): shall delay transition from OFF to ON or from OFF to DIMMING by the specified time (Figure 10 shows transition from OFF to ON).
- "Dimming Speed for switching on set value" (DS\_OSV): shall determine the time that shall be taken for a sweep between the state OFF to ON by dimming to the on set value (see Figure 11). This shall apply also for the parameter "Dimming Step Time for switching on set value" (DST\_OSV).
- "Off Delay" (OFFD): shall delay transition from ON to OFF or from DIMMING to OFF by the specified time.
- "Dimming Speed (DS\_OFF) for switching off" (DS\_OFF): shall determine the time that shall be taken for a sweep between the state ON to OFF by dimming to the off value. This shall apply also for the parameter "Dimming Step Time for switching off" (DST\_OFF).

The parameters DS\_OSV, DST\_OSV, DS\_OFF and DST\_OFF shall be of the same structure as the parameters in clause 3.2.3.2.1 "Timing function for dimming".

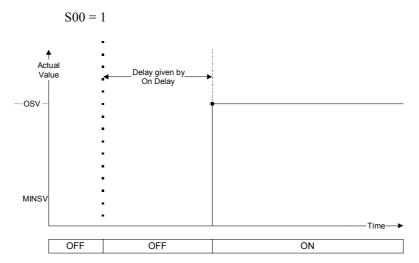


Figure 10 - Timing with parameter OND

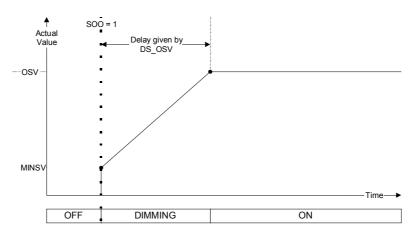


Figure 11 - Timing with parameter DS OSV

What input Datapoints are affected by the delay mechanism is manufacturer specific. It is recommended that the Delay-Time is not retriggered by an additional and identical access to the relevant input Datapoints. It is furthermore recommended that a started Delay-Time is reset by an additional but inverted access to the relevant input Datapoints.

#### 3.2.3.2.3 Autonomous Switching Off

Autonomous Switching Off shall signify that the Dimming Actuator shall switch off without a relevant access to any input Datapoint. For this, the Parameter "Timed On Duration" (TOD) shall be used. The selection of the input Datapoints that cause the autonomous switching off is manufacturer specific. For example an actuator may enter in this mode after an access to SOO or RSC, but an access to ASC with value  $\neq 0$  leads to the "normal" ON-State. If the input Datapoint "Timed StartStop" (TSS) is implemented, the autonomous Switching Off-Function shall be linked to this Datapoint. An access to another Datapoint that causes switching on, shall overwrite the autonomously switching off.

Before the actuator autonomously switches off, a manufacturer specific action may be executed. The parameter "Prewarning Duration" (PWD) shall define the duration between the start of this action and the time when the switching off is actually executed. Figure 12 shows an example of the behaviour of an actuator with an Autonomous Switch Off-Function.

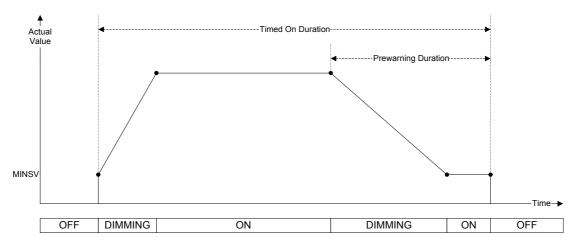


Figure 12 - Example of an Autonomous Switch Off-Function

It is manufacturer specific whether the two time periods "Timed On Duration" and "Prewarning Duration" run in parallel (as depicted in Figure 12) or one after the other (in consecutive order, i.e. first "Timed On Duration" and then "Prewarning Duration").

Moreover, the "Prewarning Duration" may be implemented by using the parameter "Dimming Speed for Switch Off" (DS\_OFF) or the parameter "Dimming Step Time for Switch Off" (DST\_OFF) (as depicted in Figure 13). The autonomous switching off with a time-period may be combined with an On-Delay, for example realised by using the parameter "Dimming Speed for Switching On Set Value" (DS\_OSV) or parameter "Dimming Step Time for Switching On Set Value" (DST\_OSV) (as also depicted in Figure 13).

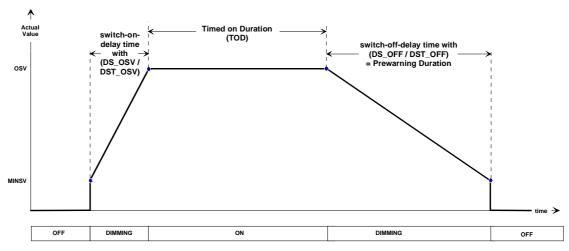


Figure 13 - Example of combining an Autonomous Switch Off-Function with Parameter DS OSV, DS OFF

Slight adjustments of the autonomous switching off behaviour can be realised by means of the parameters "Timed On Retrigger Function" (TRF) and "Manual Off Enable" (MOE).

The parameter TRF shall allow to enable/disable the retriggering of the ON-Duration timer. In case where the parameter is not implemented, the behaviour shall be identical to the behaviour when the parameter is set to enable.

The parameter MOE shall allow to enable/disable the switching off before the timer elapses by accessing the relevant input Datapoints. If the parameter is not implemented, the behaviour shall be identical to the behaviour when the parameter is set to enabled.

Next to the Timed On Duration-Mechanism, another algorithm for the autonomous switching off may be implemented. The switching off in this case shall not be time-dependent, but depending on the actual value of the actuator. By setting the optional parameter "Switch Off Brightness" (SOB), the dimming actuator shall switch off after the actual value of the device reaches or falls below the parameterised brightness value and the state machine shall transit from DIMMING to ON. Optionally the actuator may delay switching off for the time given by parameter "Switch Off Brightness Delay Time" (SOBDT).

NOTE It is manufacturer specific whether the time SOBDT starts at  $t_1$  where the brightness falls at first below the value SOB, or only at  $t_2$  where the dimming value becomes constant.

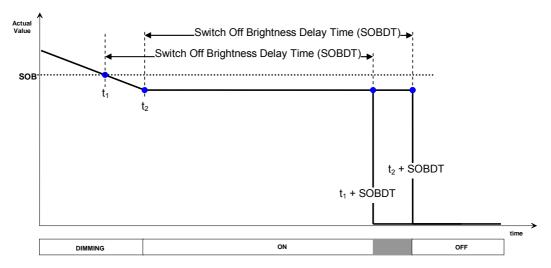


Figure 14 - Switching off according parameter SOB and SOBDT

It is manufacturer specific to retrigger the "Switch Off Brightness Delay Time (SOBDT) if during the delay time the actual brightness value only briefly (i.e. shorter than the delay time) rises above the parameterised switch off brightness value.

### 3.2.4 Optional input Datapoints and default behaviour

Input Datapoints may be classified according to priorities. When using priorities the following rule shall apply.

- A higher priority input (respectively group of Inputs) shall inhibit all lower priority inputs, when it goes in its high priority state, so that only one source is active for generating the set value.
- Implementation of dedicated output Datapoints IOO and ADV becomes mandatory (due to the higher priority of input Datapoints it may become impossible for SOO and ASC to reflect the real state and value of the actuator).

It is recommended that the state transition from OFF to ON respectively from ON/DIMMING to OFF after an access to a high priority input Datapoint is executed without delay. However, when the delay function is implemented to prevent load-peaks ("*microscopic*" delay-times) by means of a manufacturer specific parameter, switching On/Off may be delayed according this parameter setting.

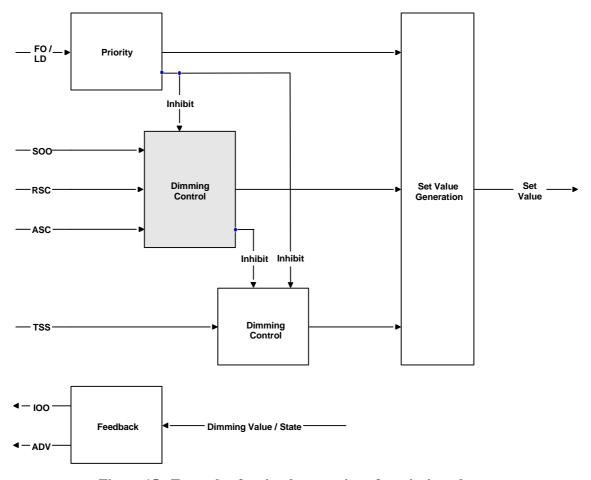


Figure 15 - Example of an implementation of a priority scheme

Groups of input Datapoints with the same priority shall be processed independently from each other: the last access to an input Datapoint shall be executed. For example, while dimming up after an access to RSC an access to "Scene Control" may cause dimming down.

#### 3.2.4.1 Priority input Datapoints

The 2 bit input Datapoint "Forced" shall be used to set the actuator in a high priority ON-State or OFF-State depending on the received value. Table 11 shows the behaviour after an access to FO.

Table 11 - Behaviour after access to FO

Value	Required behaviour
FO	
00b, 01b	lower priority input Datapoints shall be active. In the case that the high priority state becomes inactive, the behaviour of the actuator is manufacturer-specific.
11b	high priority ON-State: set value == MAXSV; actual value = set value (jumping)
10b	high priority OFF-State: set value == 00h; actual value = set value (jumping)

If the 1 bit input Datapoint "Lock Device" (LD) is implemented, by means of the Parameter "Invert Lock Device" (ILD) it shall be possible to select the polarity for the lock-state of the actuator. The behaviour at transition from/to the high priority state shall be determined by the parameter "Behaviour At Locking" (BL)/ "Behaviour At Unlocking" (BUL). The parameters "Lock Set Value" (LSV) / "Unlock Set Value" (USV) shall specify the set value for the case that "Value according additional Parameter" is selected in the above parameters. Table 12 shows the behaviour after an access to LD.

Table 12 - Behaviour after access to LD

Value LD	Parameter ILD	Required behaviour		
1	"no inversion"	high priority Lock-State active: behaviour according BL		
		Off:	set value = 00h; actual value = set value (jumping)	
		On:	set value = MAXSV; actual value = set value (jumping)	
		No Change:	actual value is frozen	
		Memory Function Value:	set value = Last On Value; actual value = set value (jumping)	
		Value according additional Parameter:	set value = LSV; actual value = set value (jumping)	
0	"no inversion"	lower priority input	Datapoints active ;behaviour according BUL	
		Off:	set value = 00h; actual value = set value (jumping)	
		On:	set value = MAXSV; actual value = set value (jumping)	
		Updated value:	set value = unchanged	
			actual value = set value (jumping)	
			( <u>During</u> the lock state, the set value shall be changed as	
			normal, according to the value of the inputs; actual value	
			shall however only be set to set value when the lock state becomes inactive.)	
		No Change:	no action	
		Memory Function	set value = Last On Value; actual value = set value	
		Value:	(jumping)	
		Value according	set value = LSV;	
		additional	actual value = set value (jumping)	
		Parameter:		
		Value before	set value = value before locking;	
		locking	actual value = set value (jumping)	
1	"inversion"	see LD = 0; "no inversion"		
0	"inversion"	see LD = 1; "no inversion"		

It is also possible to implement the locking mechanism without parameters. In this case, the value "1" on input Datapoint "Lock Device" (LD) shall lock the actuator on its actual value. Value "0" shall unlock the actuator: The behaviour of the actuator when unlocking is manufacturer-specific.

#### 3.2.4.2 Scene Control

With the optional input Datapoint "Scene Number" (SB) it shall be possible to call a maximum number of 64 different brightness values in the device. The maximum number of scenes that can be called can optionally be lower than 64.

With the optional input Datapoint "Scene Control" (SC) it shall be possible, to call and store a maximum of 64 different brightness values in the device. The maximum number of scenes that can be stored and called can optionally be lower than 64.

"Scene Number" and "Scene Control" shall use the same scene numbers. Scene n called through "Scene Number" shall be the same as scene n called through "Scene Control".

The maximum number of scenes that can be called and the maximum number of scenes that can be stored may differ.

If implemented, the Datapoints Scene Number and Scene Control shall for each scene be controlled via the parameter "Brightness for scene number (BSN)". Via the parameter "Storage Function for scene number" (SFSN), it shall be possible to determine whether storage function for scenes via the DP Scene Control is enabled or disabled. If enabled, the addressed dimming actuator shall store its current value in the relevant field element of the parameter BSN at runtime.

The parameter BSN is defined as array of max. 64 elements of DPT\_Scaling, where the parameter SFSN shall be an array of maximum 64 elements of DPT\_Enable. The number field in the input Datapoints SN and SC shall address the element of the arrays. After receiving a scene number on the Datapoint "Scene Number" (SN) or on the Datapoint "Scene Control" (SC) with the field 'c' (learn field) cleared the actual value of the actuator shall change to the parameterised brightness.

An access to either DP SN or SC with a scene number not supported by that DP shall be ignored.

Via a parameter "Scene Learning Mode Enable" (SLME), it shall be possible to activate or deactivate the Scene Learning Mode.

#### 3.2.5 Optional Output Datapoints

#### 3.2.5.1 Status and default behaviour

If the optional output Datapoints "Info OnOff" (IOO) and "Actual Dimming Value" (ADV) are implemented, their behaviour shall comply with the output characteristics as laid down in clause 3.2.2.and 3.2.3. If an optional input Datapoint, a Delay- or an Autonomous Switch-Off-Function is implemented, the implementation of IOO and ADV becomes mandatory. If the optional output Datapoints "Info OnOff" (IOO) and "Actual Dimming Value" (ADV) are not implemented, the input Datapoints "Switch OnOff" (SOO) and "Absolute Setvalue Control" (ASC) shall be implemented bidirectionally.

In the normal state of the actuator (no high priority input active, no delay) the transmission conditions for IOO shall be the same as for SOO. However, when the actuator is in a high priority state or a delay time is running, a send request for IOO shall only be given, when the actuator actually switches off or on. IOO shall reflect the real binary state of the actuator. Consequently a (e.g.) binary actuator linked to IOO of the dimming actuator will show the same behaviour concerning priorities and timing.

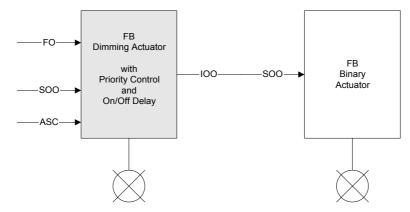


Figure 16 - Example for shifting functionality by linking to IOO

It is also allowed to extend the normal behaviour of ADV to actively transmitting its current value (instead of normally only providing its value via read request). By means of the parameter "Transmission Cycle Time" (TCT), the transmission cycle of this value shall be started when the actuator reaches its ON or OFF state. By means of the parameter "Delta Dimming Value" (DDV), the change-on-value condition shall be given for a transmission of the value during dimming. Other transmission conditions when the state ON/OFF/DIMMING changes may also be implemented.

#### 3.2.5.2 Load mismatch

The binary output Datapoint "Overload Detection" (OVL) shall indicate whether the connected load is within the range of the dimmer's hardware specifications. The optional binary output Datapoint "Load Failed Detection" (LF) shall be used to indicate a failed situation of a connected load.

A more detailed description in case of mismatch may be provided via company specific diagnostic data. The behaviour of the dimmer on a detected 'load mismatch' state is manufacturer specific.

### 3.2.6 Behaviour at Bus Power Down and Bus Power Up

With the optional parameter "Behaviour Bus Power Up" (BPU) and "Behaviour Bus Power Down" (BPD) the actions to be performed after Bus-Power Up and during Bus-Power Down shall be determined. If one of these parameter is not implemented, the default behaviour shall be switching off during Bus-Power Down and after Bus-Power Up. If "LAST" (or "NO CHANGE") is selected in BPU, the relevant value shall be stored during or before Bus-Power Down in non-volatile memory.

Usually the parameter BPU also defines the behaviour after initialisation by the Tool. It is recommended to directly set via memory mapped parameter the memory that is foreseen to store the value at Bus-Power Down (to OFF). For the case that the Tool does not set this memory, the behaviour after initialisation will be hazardous, if "LAST" (or "NO CHANGE") is selected in BPU.

If the optional parameter "Power Up Message Delay" (PUMD) is implemented, an initialisation message from IOO or optionally ADV shall be generated. Different settings in PUMD shall avoid a bulk of messages after Power Up. If PUMD is not implemented, no initialization-message from IOO or optional ADV shall be generated before changing the state caused by an access to an input Datapoint.

#### 3.2.7 Behaviour at mains power down and mains power up

The behaviour of the device after mains Power down/up is manufacturer specific.

### 3.3 Constraints

No constraints.

## 3.4 Functional Block Diagram

Dimming Actuator Basic			
Inputs	Outputs		
Switch OnOff	·		
Relativ Setvalue Control	Info On Off		
Absolute Setvalue Control	Actual Dimming Value		
Timed StartStop	Overload Detection		
Forced	Load Failed Detection		
Lock Device			
Scene Number			
Scene Control			
additional I/Os	Parameters		
None MIN_SV	Minimum Set Value		
MAX_SV	Maximum Set Value		
	Switch On Set Value		
	Dimm Mode Selection		
	Relativ Off Enable		
MF	Memory Function		
	Dimming Speed		
	Dimming Step Time		
	On Delay		
	Off Delay		
	Dimming Speed for Switch On Set value		
DS_OFF	Dimming Speed for Switch Off Dimming Step Time for Switch On Set value		
	Dimming Step Time for Switch Off Set Value		
	Timed On Duration		
	Prewarning Duration		
	Timed On Retrigger Function		
	Manual Off Enable		
	Switch Off Brightness		
	Switch Off Brightness Delay Time		
ILD	Invert Lock Device		
	Behaviour at Locking		
	Behaviour at Unlocking		
_	Lock Setvalue		
USV	Unlock Setvalue		
DCN	Driving to a Coope		
	Brightness for Scene		
SFSN SLME	Storage Function for Scene Scene Learning Mode Enable		
OLIVIE	Occine Ecarriing Wode Enable		
TCT	Transmission Cycle Time		
DDV	Delta Dimming Value		
PUMD	Bus Power Up Message Delay		
BPU			
PUSV			
BPD			
PDSV	Bus Power Down Set Value		
mandatory	optional		

# 3.5 Datapoint description

Datapoint	Description/Remarks	Datapoint Type
Inputs		
Switch On Off	Binary control of the set value	1.001 DPT_Switch
Relativ Setvalue Control	Relative control of the set value	3.007 DPT_Control_Dimming
Absolut Setvalue Control	Absolut control of the set value	5.001 DPT_Scaling
Timed StartStop	Activation of an autonomous switch off function	1.010 DPT_Start
Scene Number	Recall the set value related to the encoded scene number.	17.001 DPT_SceneNumber
Scene Control	Recall or learn the set value related to encoded scene number	18.001 DPT_SceneControl
Lock Device	Setting of a parameterized value in a lock state of the device	1.003 DPT_Enable
Forced	Forces value dependent high priority on or off state	2.001 DPT_Switch_Control

Datapoint	Description/Remarks	Datapoint Type
Outputs		
Info OnOff	reflects the binary state of the actuator	1.001 DPT_Switch
Actual Dimming Value	reflects the binary state of the actuator	5.001 DPT_Scaling
Overload Detection	indicates load mismatch	1.005 DPT_Alarm
Load Failed Dectection	indicates a failed load	1.005 DPT_Alarm

Datapoint	Description/Remarks	<b>Datapoint Type</b>
Parameters		
Minimum Set Value	Lowest possible Setvalue	5.001 DPT_Scaling
Maximum Set Value	Highest possible Setvalue	5.001 DPT_Scaling
Switch On Set Value	Setvalue after reception of Switch On Off = On	5.001 DPT_Scaling
Dimm Mode Selection	Selects behaviour dimming/jumping after reception of Absolut Setvalue Control	1.004 DPT_Ramp (no ramp == jumping)
Relativ Off Enable	switch off by Relativ Setvalue Control enabled	1.003 DPT_Enable
Memory Function	Enable the behaviour: Reception of SOO=On ⇒ set value = actual value last on-state	1.003 DPT_Enable
Dimming Speed	specifies dimming speed in in specified dimming ranges	225.001 DPT_ScalingSpeed
Dimming Step Time	specifies time for dimming step time in specified dimming ranges	225.002 DPT_Scaling_Step_Time
On Delay	Delay before leaving OFF-State	7.003 DPT_TimePeriod_10msec
Off Delay	Delay before enter in OFF-State	7.003 DPT_TimePeriod_10msec
Dimming Speed for Switch On Set Value	Specifies dimming speed for switch on with a delay	225.001 DPT_ScalingSpeed
Dimming Speed for Switch Off	Specifies dimming speed for switch off with a delay	225.001 DPT_ScalingSpeed
Dimming Step Time for Switch On	specifies time for dimming step time for switch on	225.002
Set Value	with delay	DPT_Scaling_Step_Time
Dimming Step Time for Switch Off	specifies time for dimming step time for switch off with delay	225.002 DPT_Scaling_Step_Time
Switch Off Brightness	Barrier of Brightness for an automatically switching off	5.001 DPT_Scaling
Switch Off Brightness Delay	Delay Time for an automatically switching off after reaching the switch off brightness	7.005 DPT_TimePeriodSec
Timed On Duration	Actuator Switch On Time before automatically switch off	7.005. DPT_TimePeriodSec
Prewarning Duration	Actuator Time in state dimming before automatically switch off	7.005. DPT_TimePeriodSec
Timed On Retrigger Function	Enables the retrigger function of On Duration Timer	1.003 DPT_Enable
Manual Off Enable	Enables switching off before On Duration Timer ellapses	1.003 DPT_Enable

Datapoint	Description/Remarks	Datapoint Type
Parameters		
Invert Lock Device	Inversion of the polarity of the datapoint 'lock device'	1.012 DPT_Invert
Behaviour at Locking	Behaviour when lock state becomes actif	20.600 DPT_Behaviour_Lock_Unlock
Behaviour at Unlocking	Behaviour when lock state becomes inactif	20.600 DPT_Behaviour_Lock_Unlock
Lock Setvalue	Actual Value at the beginning of the lock state	5.001 DPT_Scaling
Unlock Setvalue	Actual Value at the end of the lock state of the actuator	5.001 DPT_Scaling
Brightness for Scene	Stored Brightness for recalling after receiving the dedicated scene number	5.001 DPT_Scaling
Storage Function for Scene	Enabling memory storage for a received scene number with a new brightness	1.003 DPT_Enable
Transmission Cycle Time	Cycle Time for sending the actual dimming value on the bus with the optional Datapoint "Actual Dimming Value (ADV)"	7.005 DPT_Timeout_Sec
Delta Dimming Value	Minimal Changing of the actual dimming value in the state 'dimming' to send on the bus with the optional Datapoint "Actual Dimming Value (ADV)"	5.001 DPT_Scaling
Power Up Message Delay	The delay time after bus power up for sending a telegram on the bus	7.003 DPT_Timeout_10Msec
Behaviour Bus Power Up	Behaviour of the device after bus power up	20.601 DPT_Behaviour_Bus_Power_U p_Down
Bus Power Up Set Value	Value of the device after bus power up	5.001 DPT_Scaling
Behaviour Bus Power Down	Behaviour of the device after bus power down	20.601 DPT_Behaviour_Bus_Power_U p_Down
Bus Power Down Set Value	Value of the device after bus power up	5.001 DPT_Scaling
Scene Learning Mode Enable	Enables or disables globally for all scene numbers the learning of new scenes, regardless of the value of SFSN.	1.003 DPT_Enable

Parameters and Diagnostic Data can in principle be implemented as memory mapped Datapoints or Group Objects or Properties of an Interface Object using Individual Adress.

In case of memory mapped datapoints the DPT may be manufacturer specific.

### **3.5.1 FB Profiles 5**)

	IVIC	ode
Features and options	FB Profile 1	Profile 2 (recommended) Standard Mode Interface
// Inputs		60
Input SOO M Input RSC M	GO GO	GO GO
Input ASC M	GO	GO
State machine + mandatory behaviour M	M	M
// Minimal Setvalue	101	171
select 1 of 2 {		
P MINSV is implemented M	М	М
the minimal setvalue shall be 01h M	М	M
}		
// Maximal Setvalue		
select 1 of 2 {		
P MAXSV is implemented 0	М	М
the maximal setvalue shall be FFh		
}		
}	1.1	
Dimming speed full range {  M	М	М
select 1 of 2 { P DS3T3	Λ./	Λ.4
	M M	M M
P DS not implemented: fixed duration $\leq 4$ s	IVI	IVI
}		
// Binary output state		
select 1 of 2 {		
IOO is implemented; SOO is not bidirectional M	М	М
IOO is not implemented; SOO shall be used M	М	X
bidirectional		
// Absolute output state		
// Absolute output state		
select 1 of 2 {	) M	М
ADV is implemented; ASC is not bidirectional M6.		
ADV is not implemented; ASC shall be used M	M	X
bidirectional		
Functionality "Autonomous Switching Off" { O	0	0
Parameter "Timed On Duration"	M	M

5) Please refer to [01] for the definition of the syntax and symbols used in this FB Profile definition.

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Lighting

<sup>6)</sup> This is the recommended solution: implement ADV and do not use ASC bidirectional.

// Optional Output Datapoints
IF IOO or ADV is implemented {

behaviour according clauses 3.2.2 and 3.2.3

Μ

Μ

Μ

		Basic FB	
Parameters	MINSV	0	0
	MAXSV	0	0
	OSV	0	0
	DMS	0	0
	ROE	0	0
	MF	0	0
	DS	0	0
	DST	0	0
	OND	0	0
	OFFD	0	0
	DS_OSV	0	0
	DS_OFF	0	0
	DST_OSV	0	0
	DST_OFF	0	0
	SOB	0	0
	SOBDT	0	0 0 0
	TOD	0	0
	PWD	0	0
	TRF	0	0
	MOE	0	0
	ILD	0	0
	BL	0	0
	BUL	0	0
	LSV	0	0
	USV	0	0
	BSN	0	0 0 0
	SFSN	0	0
	SLME	0	0
	TCT	0	0
	DDV	0	0
	PUMD	0	0
	BPU	0	0
	PUSV	0	0
	BPD	0	0
	PDSV	0	0
	SLME	0	0

## 3.6 Detailed specification of Datapoints

### 3.6.1 Input Switch On Off

DP Name:   Switch On Off	Abbr.:	SC	00	Manda						
FB Name: Dimming Actuator Basic				Can be	internal					
Description										
Binary Control of the set value.										
An access with the value "1" shall cause switching on	. Optiona	ıl para	meters as	MAXSV, (	OSV, MF	define				
the set value in the ON-state. If no parameters are implemented the set-value shall be set to FFh.										
An access with the value "0" shall cause switching off (set value = 0).										
For the case that no delay mechanism is implemented, the actuator shall jump to the set value.										
Datapoint Type										
DPT_Name: DPT_Switch										
DPT Format: B <sub>1</sub>			DPT_ID:	1.001						
Field Description			Supp.	Range	Unit	Default				
				V={0,1}						
Access Type										
Input										
$N \rightarrow this$ $\square$ $1 \rightarrow this$ $\square$										
Spontaneous			Time-	-out:	NO					
Request Polling:			Perio	d:						
Communication Type										
Group Object Datapoint				Mandatory	<i>/</i> : 🛛					
Default Group Address:										
Dynamics										
Power down: Save:										
Power up: Value: No initialisation:		Defau	It value:							
Saved value:		Curre	nt value (ı	not for in in	put):					
Transmit on bus (only for output):		Read	from bus	(only for in	put):					
Exception Handling					•	<u> </u>				
For the case that the output Datapoint "Info On OFF"	is not im	olemei	nted, the	output char	acteristic	cs				
concerning spontaneous- and COV transmission sha	all be imp	lemen	ted in this	Datapoint.	·					
Special Features										
In a group of dimming actuators only one of them ma	y send ba	ack its	status on	the same	Group A	ddress.				

### 3.6.2 Input Relative Setvalue Control

- · · · · ·													
DP Name:	Rela	ative Setval	ue Con	trol		F	Abbr.:	F	RSC		Mandat	ory	
FB Name:	Dim	ming Actua	itor Bas	ic							Can be	interna	
Description													
This Input sha	all se	rve for relat	ive con	trol of th	e set	value	e.						
This Datapoir													
step-field of the Datapoint is set to a value ≠ 0. If set to 1, the direction-field of the Datapoint shall cause													
dimming up; if set to 0, it shall cause dimming down. After an access, the new set-value shall be													
calculated in	respe	ect to the la	st set-va	alue (the	erefor	e Re	lative (	Contro	ol).				
An access wi	th the	e step-field	set to ze	ero shall	l stop	the o	dimmir	ig pro	cess a	t its curr	ent valu	ıe,	
independently	/ fror	n the value	of the d	lirection-	-field.								
<b>Datapoint Ty</b>	ре												
DPT_Name:	DI	PT_Control	_Dimmi	ng									
DPT Format:	B <sub>1</sub>	U <sub>3</sub>			DI	PT_I	D:	3.00	)7				
Field	De	escription			Sı	upp.		Ran	ge			Unit	Default
								B : {	0,1}			-	-
								U : {	000b to	o 111b}			
Access Type	<del>)</del>												
Input													
$N \rightarrow this$			$1 \rightarrow th$	is									
Spontaneo	ous			Cyclica	lly:				Τ	ime-out:		NO	
Request				Polling:					Р	eriod:			
Communicat	ion	Гуре											
Group Object										Ma	ndatory	: 🛛	
Default Gr	oup /	Address:									•		
Dynamics													
Power dov	vn:	Save:											
Power up:		Value:	No in	itialisatio	on:			Defa	ault valu	ue:			
•			Save	d value:				Curr	ent val	ue (not f	or input	:):	
		Transmit of	n bus (	only for	outpu	ut):				bus (onl		,	
<b>Exception Ha</b>	andli		,				. <u> </u>				,		
•													
<b>Special Feat</b>	ures												
Without any additional parameters (e.g. ROE), it is not possible to switch off the actuator by an access to													
this Datapoin		•	`	-	•							•	

# **3.6.3** Input Absolute Setvalue Control

DP Name:	Abs	solute Setvalu	e Control	Ab	br.:	ASC		Mandat	ory		$\triangleright$	1
FB Name:	Din	nming Actuato	or Basic					Can be	internal			
Description	)											
		of the set valu	-									
			all directly set the se									
	ump t	o this set-valu	ie. If parameter DMS	S is se	et to "ra	amp", th	ne actuator	shall en	ter in th	e sta	ate	
DIMMING.												
Datapoint Type												
DPT_Name: DPT_Scaling												
DPT Format		0			DPT_		5.001					
Field	Description				Supp	١.	Range		Unit	Defa	aul	t
							0 % to 100	%	%	-		
Access Type												
Input												
$N \rightarrow this$		☑ 1	$\rightarrow$ this									
Spontaneous Cyclically: Time-out: NO												
Request			Polling:				Period:					
Communica												
Group Object	ct Dat	apoint					Ma	indatory	: 🛛			
	Group	Address: -										
<b>Dynamics</b>												
Power do	own:	Save:										
Power up	<b>)</b> :	Value:	No initialisation:		[	Default	value:					
			Saved value:		(	Current	value (not	for input	):			
		Transmit on	bus (only for output	t): [	F	Read fro	om bus (on	ly for inp	out):			
<b>Exception H</b>												
			tapoint "Actual Dimi									
			d access. Output ch	naracte	eristics	s conce	rning cyclic	- and CO	OV-trans	smis:	sio	n
shall not be implemented in this Datapoint.												
Special Features												

# 3.6.4 Input Timed StartStop

DF	Name:	Time	d StartSto	р		Ab	br.:	TSS			Manda	tory			
FB	Name:	Dimn	ning Actua	tor Bas	ic						Can be	intern	al		
De	scription														
Ac	tivation of a	n aut	onomous	switch c	off function with	value	e "1".								
	tapoint Typ	эе													
	PT_Name:	DP.	T_Start												
	PT Format:	B <sub>1</sub>						DPT_I		1.01	0				
Fie	eld	Des	scription					Supp.		Ran	ge	Unit	Def	au	lt
										V: {(	),1}	-	-		
	cess Type														
Inp	out														
	$N \to this \\$			$1 \rightarrow th$	is 🔲										
	Spontaneous								Tim	e-out	:	none			
	Request			Polling:				Peri	iod:						
	mmunicati														
Gr	oup Object									Ma	andatory	/:			
	Default Gro	oup A	ddress:												
Dy	namics														
	Power dow	n:	Save:												
	Power up:	,	Value:		itialisation:			efault va							
					d value:			urrent v							
				n bus (	only for output):		R	ead fror	n bu	s (on	ly for in	put):		Ш	
Ex	ception Ha	ndlin	ıg												
Sp	ecial Featu	res													

# 3.6.5 Input Forced

DP Name: Forced	Abbr.:	FO	Manda	itory						
FB Name: Dimming Actuator Basic			Can be	e interna						
Description										
Shall forces value dependent high priority on or										
The behaviour when entering the high priority s			"Priority inp	out Datap	ooints".					
The behaviour when leaving the high priority state is manufacturer specific.										
Datapoint Type										
DPT_Name: DPT_Switch_Control		DPT ID:	2.001							
DPT Format: C <sub>1</sub> V <sub>1</sub>										
Field Description	Description									
c Prioriy control	d Description Prioriy control									
v Priority value	M	{0,1}	none	none						
Access Type										
Input										
$N \rightarrow \text{this}$ $\square$ $1 \rightarrow \text{this}$ $\square$										
Spontaneous	<i>'</i> :	Time	e-out:	none						
Request Polling:		Peri	od:							
Communication Type										
Group Object Datapoint			Mandator	y: 🛛						
Default Group Address:										
Dynamics										
Power down: Save:										
Power up: Value: No initialisation	ı: 🔲 De	fault value:								
Saved value:	Cu	rrent value	(not for inpu	ıt):						
Transmit on bus (only for ou	ıtput): 🔲 Re	ad from bus	s (only for in	put):						
Exception Handling										
Special Features										

# 3.6.6 Input Lock Device

DP Name:	Loc	ck Device		Abbr.:	L	.D		Mandatory			
FB Name:	Dir	nming Actuato	or Basic				0	Can be	internal		
Description											
			value in a lock state of								
			he value "1" shall lock								
		or: the behavi	our of the actuator whe	en unlock	king i	t is then n	nanufa	acturer-	specific		
Datapoint Type											
DPT_Name: DPT_Enable											
DPT Format:	_	•				DPT_ID:		1.003			
Field		escription				Supp.	Rang	je	Unit	Defa	ault
b			hether the lock state is	enabled	or	M	{0,1}		none	0	
	not.										
Access Type											
Input											
$N \rightarrow this$			$1 \rightarrow \text{this}$			1					
Spontane	ous		Cyclically:	44		Time-out: none					
Request			Polling:			Peri	od:				
Communica							1		1 5 7		
Group Object							Mar	ndatory	:  🛛		
Default G	roup	Address:  -	· <b></b>								
Dynamics		T _									
Power do		Save:									
Power up	:	Value:	No initialisation:			ault value:					
		See a)	Saved value:			ent value			,		
			bus (only for output):		Rea	d from bu	s (only	y for inp	out):		
Exception H	and	ling									
Special Feat											
			default value is set to '				set to	"invers	ion" it is	;	
manufacturer specific, to enter the lock-state after power up or not.											

#### **Input Scene Number** 3.6.7

DF	Name:	Sce	ne Number			Abb	r.: S	SN		Mandat	ory		
FΒ	Name: I	Dim	ming Actuato	or Bas	ic					Can be	internal		
De	scription												
					ed to recall the s						umber.		
Up	to 64 scene	nu	mbers (0	63) ca	n be assigned to	the a	actuator	(see	paramete	ers) <sup>a)</sup> .			
	tapoint Typ												
	PT_Name:	DF	PT_SceneNu	mber									
	PT Format:	r <sub>2</sub> l					DPT_I	D: 1	17.001				
Fie	eld	De	escription				Supp.	F	Range		Unit	Defa	ault
r		Re	eserved field.	Shall	be zero.		M	C			none	no	ne
J		Sc	ene number				M	{	063}		none	no	ne
Ac	cess Type												
Inp	Input												
	$N \rightarrow this$ $\square$ $1 \rightarrow this$ $\square$												
	Spontaneou	ıs	$ \boxtimes$		Cyclically:				Time-out	:	none		
	Request				Polling:				Period:				
Co	mmunication	on 1	Гуре										
Gr	oup Object [	Data	apoint						Ма	indatory	ː 🛛		
	Default Gro	up /	Address: -										
Dy	namics												
	Power down	า:	Save:										
	Power up:		Value:	No in	itialisation:		Defa	ault v	/alue:				
				Save	d value:		Curi	rent \	value (not	for input	t):		
				bus (	only for output):		Rea	ıd fro	m bus (on	ly for inp	out):		
	ception Hai												
a)					han the maxima							se, if	a
			with a scene	e numl	ber <b>that is not</b> s	uppo	rted, the	devi	ice shall no	ot react.			
Sp	ecial Featu	res											

### 3.6.8 Input Scene Control

	-												
DP Na		Scene Contro			Abb	r.:	SC		Mand				
FB Na		Dimming Actu	uator Ba	sic					Can b	e intern	al		
Descri													
Up to 6 If none in full: If one 6 is an a	the Input Scene Control shall be used to recall or learn the set value related to encoded scene number. In the field of the actuator (see parameters) and the parameters SLME or SFSN is implemented, then the DP Scene Control shall be supported in full: it shall be possible to call and learn all of the supported scene numbers. One or both of the parameters SLME or SFSN is implemented, then the request to learn a scene in this is an access to DP Scene Control with a value of the field B = 1 and the scene number in the field U shall function as follows:    SFSN(array element in the field because of the field becaus												
					<u> </u>	_	_			-1.1-			
SLME Not implemented (= 0) (= 1)													
			d	Learn									
		ble (= 0)		Ignore			nore			nore			
	Ena	ble (= 1)		Learn		Ig	nore		Le	earn			
	oint Typ												
DPT_N		DPT_Scene	Control					10001					
DPT F	ormat:	B <sub>1</sub> r <sub>1</sub> U <sub>6</sub>				DPT_	_	18.001		I			
Field		Description				Supp		Range		Unit	Defa		
В		Recall or lea				I		{0,1}		none		ne	
<u>r</u>		Reserved fi		ill be zero.		I N	-	0		none		ne	
U	_	Scene num	ber.			M	1	{063]	<b>·</b>	none	no	ne	
	s Type												
Input		157	1.										
	→ this		$1 \rightarrow 1$					1					
	ontaneou	ıs 🗵		Cyclically:	Щ			Time		none			
	quest			Polling:	Ш			Perio	d:				
		on Type											
		Datapoint							Mandato	ry: 🛛			
		up Address:											
Dynan		10											
	ver dow			1141 - 11 41	1	1 15	14					$\vdash$	
Pol	wer up:	Value:		initialisation:	4			value:		4\.		lacksquare	
ŀ		T		/ed value:	╂				not for inp			<u> </u>	
Evcon	Transmit on bus (only for output): Read from bus (only for input):												
			ort less	than the maximal	enc.	ndahla	num	her of 6	1 scenes	In the c	asa if	f a	
				scene number hig									
<u>not</u>	react.												
Specia	al Featu	res											

# 3.6.9 Output Info OnOff

FB Name: Dimming Actuator Basic Can be internal Description  Reflects the binary state of the actuator. The behaviour shall at least include the output characteristics as laid down in Functional Specification, Chapter 1.2.2 and 1.2.3											
<b>Description</b> Reflects the binary state of the actuator. The behaviour shall at least include the output characteristics as											
laid down in Functional Specification, Chapter 1.2.2 and 1.2.3											
and down in randonal opositions, onaptor 1.2.2 and 1.2.0											
If an optional input Datapoint, a Delay- or an Autonomous Switch-Off-Function is implemented, the											
implementation of this Datapoint becomes mandatory.											
Datapoint Type											
DPT_Name: DPT_Switch											
DPT Format:         B₁         DPT_ID:         1.001											
Field Description Supp. Range Unit Default											
b State of the actuator. M {0,1} none none											
Access Type											
Output											
this $\rightarrow$ M $\square$ this $\rightarrow$ 1 $\square$											
Spontaneous											
Cyclic   Fellou. INO											
Request											
Communication Type											
Group Object Datapoint Mandatory:											
Default Group Address:											
Dynamics Company Compa											
Power down: Save:											
Power up: Value: No initialisation: Default value:											
Saved value: Current value (not for input):											
Transmit on bus (only for output): Read from bus (only for input):											
To dynamics If parameter "Behaviour Bus Power Up" is adjusted to "last" the actual value of											
the actuator has to be stored in non-volatile memory before Power Down.											
After Power Up IOO is initialised according parameter "Behaviour Bus Power Up". Parameter											
"Behaviour Bus Power Up Message Delay" gives the conditions for transmitting the value on bus. If											
this parameter is not implemented, the value shall not be transmitted after Power Up											
Special Features											
The transmission conditions may be expanded to cyclic transmission, for the case that output Datapoint											
ADV does not support cyclic transmission. Parameter TCT gives the period for transmission.											

### 3.6.10 Output Actual Dimming Value

DP	Name:	Actua	al Di	mming	Valu				Abbr.:	Δ	ADV	Mandat	orv	
				Actua					7 (00)		<u></u>	Can be		
	scription	<u> </u>	9	710100	ioi Da	010						- Our be	interna	'   Ш
	lects the ac	tual	valu	e of th	a actu	ato								
								omo	us Switch	h_(	Off-Function	is impleme	nted t	20
											at least includ			
	ue for read			DECOIL	103 111	anu	atory. The	Dena	vioui Siic	411 C	at icast iriciu	ae renecin	ig the a	Cluai
_				a trans	micci	nn s	ere aiven h	, the	narameti	۵re	TCT and DI	OV/ If thes	a narar	netere
											F/DIMMING		c parai	ileter3
	apoint Typ		α, ιπ	ic valu	Ciliay	50	Sent and		ate OIV	<u> </u>	17DIIVIIVIII4O	changes.		
	T Name:	_	T S	caling										
	T Format:	U <sub>8</sub>	<u></u> -	caning					DPT ID		5.001			
Fie			scrip	tion					Supp.	•	Range		Unit	Default
		100	Jonp	1011					Сирр.		0 % 100	%	%	-
Δα	cess Type										0 70 100	70	70	
	put													
	this $\rightarrow$ M		$\square$	this -	.1	7								
_	Spontaneou			COV:	·	<del>-</del>	Δ-Value:	aive	n hy nara	am	eter DDV	Min repetiti	ion time	5 s a)
	opontaneot	40		Cyclic		$\frac{\Delta}{\Delta}$	Period:				eter TCT	viiii repetiti	ion unic	<i>.</i> .   0 0
F	Request		$\overline{\boxtimes}$	Cyone			i onou.	19.10	ii by pair	<u> </u>	10101 101			
	mmunicati		_											
	up Object [			<u> </u>							1	Mandatory	: 🖂	
	Default Gro											rianiaator <u>y</u>	.   [	
	namics 2)	ир / (												
	Power dow	n: I	Save	a:	ПП									
_	Power up:		Valu		No	initi	alisation:		( b)	De	efault value:			
							value:				rrent value (	not for inp	ut):	
		Ţ.	Tran	smit o			ly for outpu	ıt):			ead from bus			
Exc	eption Ha					(	.,	-,-				(3)		
				G the	minim	um	repetition t	ime r	nav be v	iola	ated due to s	ettinas in i	parame	ter DDV.
											actual value			
	stored in no													
									er "Beha	vio	our Bus Powe	er Up". Par	ameter	"Bus
	Power Up I	Mess	age	Delay	give:	s th	e conditions	s for t	transmitti	ing	the value or	n bus. If thi	is parar	neter is
	not implem	ente	d, th	e valu	e shal	l no	t be transm	itted	after pov	ver	r up.		•	
Spe	ecial Featu	res												

## 3.6.11 Output Overload Detection

DP Name:	Ove	erload Detect	ion		Abbr.:	O'	VL	Manda	atory	
FB Name:	Din	nming Actuate	or Basic					Can b	e interna	
Description	n									
Indicates Lo	oad Mi	smatch								
Datapoint 7										
DPT_Name		PT_Alarm								
DPT Forma							DPT_ID:	1.005		
Field	D	escription					Supp.	Range	Unit	Default
								V: {0,1}	-	-
Access Ty	ре									
Output										
this $\rightarrow M$	1 [		this → 1							
Spontan	eous	⊠ Cov		Δ-Value:		Min	repetition	time:		
		Cycli	c	Period:	none					
Request		$\boxtimes$								
Communic										
Group Obje								Mandator	y: 🛛	
	Group	Address:								
Dynamics										
Power de	own:	Save:								
Power u	p:	Value:	No initialisa				ult value:			
			Saved valu				ent value (r			
			bus (only fo	or output):		Read	from bus	(only for ir	iput):	
Exception	Handl	ing								
Special Fea	atures									

### 3.6.12 Output Load Failed Detection

DP Nan	ne: L	.oad	l Faile	d De	tection			Abbr.	: LF	-D	Ма	ında	tory		
FB Nan	ne: [	)imr	ning A	Actua	tor Basic						Ca	n be	interna		
Descrip	otion														
	es a faile		ad.												
	int Type														
DPT_N		DP	T_Ala	rm											
DPT Fo	rmat:	$B_1$								DPT_ID:		05			
Field		Des	scripti	on						Supp.	Range		Unit	Defa	ault
											V : {0,	1}	-	-	
Access	з Туре														
Output															
	$\rightarrow M$				this $\rightarrow 1$										
Spoi	ntaneou	S		CO		]	Δ-Value:		Min	repetition	time:				
				Сус	lic		Period:	none							
Req															
	unicatio														
	Object D										Manda	atory	/:		
	ault Grou	лр А	ddres	s:											
Dynam															
Pow	er down	1:	Save:						_						
Pow	er up:		Value	:	No initial					ult value:					
					Saved va					ent value (		_	,		
				mit o	n bus (only	y for	output):		Read	from bus	(only fo	or in	put):		
Except	ion Han	dlir	ng												
Special	I Featur	es													

### 3.6.13 Parameter Minimum Set Value

FB:	Dimming Ac	tuator	Basic	Property N	lame	Mi	nimun	า Set Valเ	Je	Mand	atorv [	
	3			(Server):			_			Optio	· · · · =	$\overline{\mathbf{x}}$
_				( <u>OCI VCI</u> ).						Optio	iiai į	<u> </u>
Desci	ription:											
Lowe	st possible se	et valu	е									-
DPT:	Name:	DPT_:	Scaling		DPT ID	D   5.001   Datatype format			pe format	U <sub>8</sub>		
Field	<u>.</u>		Descripti	on			Sup.	Range		Unit	Default	
			-					cs		%	cs	
Comr	nunication:											
DP A	ddress:		object_	type:	418			PID:		115		
(in the	e server)		start_in	dex:	1			nr_of_ele	em:			
Prope	erty access:		Read o	nly	Re	ad/W	rite	$\boxtimes$				
Prote	ction		Read le	evel	-			Write leve	el	-		
Excep	otion Handlin	g: \	/alue afte	er Power-u	o: Store	d Val	ue 🛚	Ad	ct Value 🗌	] Defai	ılt Value [	
When	this optional	l paran	neter not	is impleme	nted, the	valu	e 01h :	shall be ta	aken into a	account		
Speci	Special Features:											
			·		·							

### 3.6.14 Parameter Maximum Set Value

FB:	Dimming Actuato	r Basic	Property N (Server):	ame	Ma	aximuı	m Set Value		ndatory 🗌 ional 🖂		
Descrip	otion:										
Highes	t possible set valu	ıe									
DPT: Name DPT_Scaling DPT ID 5.001 Datatype format U <sub>8</sub>											
Field		Descripti	on			Sup.	Range	Unit	Default		
							cs	%	cs		
Comm	unication:										
DP Add	dress:	object_	type:	418			PID:	116			
(in the	server)	start_in	dex:	1			nr_of_elem:				
Proper	ty access:	Read o	nly 🔲	Read	l/W	rite	$\boxtimes$				
Protect	tion	Read le	evel	•			Write level	-			
Except	ion Handling: \	√alue afte	er Power-up	: Stored '	Val	ue 🛛	Act Value	] Defai	ult Value 🗌		
When t	When this optional parameter not is implemented, the value FFh shall be taken into account										
Specia	l Features:										

### 3.6.15 Parameter Switch On Set Value

FB:	ŭ			Basic Property Name (Server):			Switch On Set Value				Mandatory Optional		
Descr	iption:			`									
SetVa	alue after re	eception	of value :	= 1 for	data	point "Swite	ch On Of	f" (SO	O)				
DPT:	Name	DPT_S	caling			DPT ID	5.001	Da	tatype format	U <sub>8</sub>			
Field			Descripti	on	Sup.		Range			Un	it	Default	
							01h % .	FFh	%	%		cs	
Comn	nunication:												
DP A	ddress:		object_	type:		418		PID:		117	,		
(in the	e server)		start_in	dex:		1		nr_of	_elem:				
Prope	erty access:	:	Read o	nly		Read	I/Write	$\boxtimes$					
Prote	ction		Read le	evel		-		Write	level	-			
Excep	otion Handl	ing: \	Value afte	r Pow	er-up	: Stored \	Value 🛚		Act Value [		Defau	ılt Value 🗌	]
When	this param	neter is s	et lower	than M	IINSV	or higher	than MA	XSV t	he relevant m	inim	al and	l maximal	
paran	parameter values shall be taken into account.												
Speci	al Features	S:											
				•		•		•				•	

Lighting

## 3.6.16 Parameter Dimm Mode Selection

FB:	Dimming Actuator Basic			Property Name (Server):			Dimm M	lode	Selection	Mandato Optional	ry 🔲
Descr	iption:				•						
Selects behaviour dimming/jumping after reception on input "Absolute Setvalue Controparameter is set to "no ramp", after reception on ASC the actuator jumps to the new Sother case the actuator enters in the state DIMMING.											
DPT:	Name	DPT_R	lamp			DPT ID	1.004		Datatype format	B <sub>1</sub>	
Field			Descripti	on	Sup.		Range			Unit	Default
							V: {0,1}			-	No ramp
Comn	nunicatior	1:									
DP A	ddress:		object_	type		418		P	D:	118	
(in the	e server)		start_in	dex:		1		nr_	of_elem:		
Prope	rty acces	s:	Read o	nly		Read	/Write	$\times$			
Prote	ction		Read le	evel		-		Wri	ite level	-	
Excep	Exception Handling: Value after Power-up: Stored Value 🖂 Act Value 🗌 Default Value 🗌										
Speci	al Feature	es:									
	-										

### 3.6.17 Parameter Relativ Off Enable

FB: D	Dimming A	Actuato	r Basic	Property N (Server):	lame	Relativ	lativ Off Enable   Mandatory   _ Optional				
Descrip	tion:										
If this pa	arameter	is set t	enabled,	, switching	off after red	ception c	n inp	ut "Relative Se	tvalue Co	ntrol" is	
possible											
	•							MINSV, the se	et value sl	nall be set to	
zero. In	this case	e the ac	tuator swi	tches off if i	ts actual v	alue read			_		
DPT:	Name	DPT_E	nable		DPT ID	1.003		atatype format	: B <sub>1</sub>		
Field			Descripti	on			Sup.	Range	Unit	Default	
								V: {0,1}		disable	
Commu	ınication:										
DP Add	lress:		object_	type:	418		PID		119		
(in the s	server)		start_in	dex:	1		nr_c	of_elem:			
Property	y access		Read o	nly 🗌	Read	d/Write	$\boxtimes$				
Protecti	ion		Read le	evel	-		Writ	e level	-		
Exception	on Handl	ing:	Value afte	er Power-up	: Stored	Value $oxtime $		Act Value	Defa	ult Value 🗌	
Special	Features	3:									
	•										

## 3.6.18 Parameter Memory Function

FB:	(Serv				Name	Memor	y Fund	tion	Mand Optio	,	
Descr	iption:			( <u>OCIVCI</u> ).		1			TOPHO	i iui	
		r is set to	enabled	then at re	eception of S	SOO = 0	n. the	new set value	is set to t	he actua	al
	in last ON		, o		. Сорион он		,				<u> </u>
If this	paramete	r is set to	disabled	, then at re	eception of	SOO = 0	On, the	new set value	e is given	by	
parameter OSV.								J	,		
DPT:	Name	DPT_E	nable	DPT ID 1.00			Datatype form		B <sub>1</sub>		
Field			Descripti	on			Sup.	Range	Unit	Default	1
								V: {0,1}		disable	;
Comn	nunication	:									
DP A	ddress:		object_	type:	418	PID:			120		
(in the	e server)		start_in	dex:	1		nr_o	f_elem:			
Prope	rty access	3:	Read o	nly [	Read	d/Write					
Protec	ction		Read le	evel	_		Write	e level	-		
Excep	tion Hand	ling:	Value afte	er Power-u	p: Stored	Value ∑	3	Act Value [	] Defau	ılt Value	;
								. After reception			/ith
		llue, it is	manufact	urer speci	fic to select	the swit	ch on s	set-value betw	een MINS	SV and	
MAXS	SV.										
Speci	al Feature	s:									

# 3.6.19 Parameter Dimming Speed

FB: Dimming Actuator B	Basic	Property N	ame	Dimmir	g Spee	d		Mandatory	
		(Server):					(	Optional	$\boxtimes$
Description:									
Specifies the dimming spe									
This parameter is defined									
The elements are structure									
into account the limit of the									
The array shall be implement									, the
first subrange lies between									
The array may consist of o			$imit_0 = Lim$	it <sub>Last</sub> = IV	IAXSV).	In this ca	se the c	dimming spe	ed is
onstant over the whole dimming range.									
DPT: Name DPT_Se	calingSp	eed[]	DPT ID	225.00	1 Data	atype form	nat U <sub>16</sub> l	$J_8$	
Field	Description	on		225.001   Datatype format   U <sub>16</sub> U <sub>8</sub>   Sup.   Range   Unit   Defau					lt
						CS	10 %/s	cs	
Communication:									
DP Address:	object_t	ype:	418		PID:		108		
(in the server)	start_ind	dex:	1		nr_of_	elem:	8		
Property access:	nly 🔲	Read	/Write	$\boxtimes$					
Protection	vel	-		Write I	evel	-			
Exception Handling: Va	r Power-up	: Stored \	Value ⊠		Act Value		Default Valu	e 🗌	
If this parameter is not imp	olemente	ed, a sweep	from MIN	SV to M.	AXSV ir	a time of	4 s sha	all be possib	le
Special Features:									
		·							

#### 3.6.20 Parameter Dimming Step Time

FB:	FB: Dimming Actuator Basi			Property N	lame	Dimmir	ng St	tep <sup>-</sup>	Time		datory	
				(Server):						Opti	onal	$\boxtimes$
Desci	ription:											
Speci	ifies the tim	e that is	needed f	or changin	g the actua	l value b	y or	ne ir	cremental	step (i.e. :	€ 0,4 %).	
This p	oarameter i	s defined	l as array	of max. 8	elements t	hat divid	e the	e en	itire dimmin	g range ir	subran	ges.
The e	lements ar	e structui	red datat	ypes, cons	isting of the	e limit of	the	dim	ming subra	nge (there	by takin	g
into a	ccount the	limit of th	ne previo	us subranç	e) and the	time nee	eded	l for	changing th	ne actual <sup>v</sup>	value by	one
increr	mental step	in this su	ubrange.	The array	shall be im	plement	ed ir	า as	cending ord	der as rega	ards the	
				, the first s	ubrange lie	s betwe	en M	1INS	SV and Limi	$t_0$ . The lim	nit for las	ŧ
	inge repres											
					$_{limit_{0}} = Lim$	it <sub>Last</sub> = N	1AXS	SV).	In this case	e the dimr	ning step	o is
const	constant over the whole dimming range.											
DPT:	Name	DPT_Sc	aling_St	ep_Time[]	DPT ID	225.00	2   I	Data	atype forma	$t \mid U_{16}U_8$		
Field		[	Descripti	on			Sup	).	Range	Unit	Defaul	it
									CS	ms	CS	
Comr	munication:											
DP A	ddress:		object_	type:	418		PIE	D:		109		
(in the	e server)		start_in	dex:	1		nr_	of_	elem:	8		
Prope	erty access	:	Read o	nly 🗌	] Read	l/Write	$\geq$					
Prote	ction	evel	-		Wr	ite I	evel	-				
Exce	otion Hand	ling: V	'alue afte	r Power-u	o: Stored	Value $oxtime $			Act Value	Defa	ult Value	e 🗌
If this	parameter	is not im	plemente	ed, a swee	p from MIN	SV to M	AXS	V in	a time of 4	s shall be	e possibl	le
Speci	ial Features											

## 3.6.21 Parameter On Delay

FB:	Dimming	Actuator	Basic	Property N	lame	On Del	ay		Mand	· =	
				(Server):					Option	nal 🔀	
Descr	iption:										
Speci	fies the de	lay-time	from								
-	state Of	F to ON	l (usually a	after acces	s to Input S	SOO and	ASC),	and			
-	state Of	F to DI	иMING (u	sually after	access to	Input RS	SC).				
The s	election of	input Da	atapoints t	that are affe	ected by the	e delay ı	mechan	ism is manuf	acturer sp	ecific.	
DPT:	Name	DPT_T	imePerioc	I_10MSec	DPT ID	7.003 Datatype fo		atype format	U <sub>16</sub>		
Field			Description				Unit	Default			
									10 ms	cs	
Comn	nunication										
DP A	ddress:		object_	type:	418		PID:		101		
(in the	e server)		start_in	dex:	1		nr_of_	elem:			
Prope	rty access	s:	Read o	nly 🗌	Read	l/Write	$\boxtimes$				
Prote	ction		Read le	evel	-		Write I	evel	-		
Excep	tion Hand	ling:	Value afte	r Power-up	: Stored	Value 🗵	]	Act Value [	Defau	ılt Value 🗌	
Speci	al Feature	s:									

## 3.6.22 Parameter Off Delay

FB:	Dimming	Actuato	r Basic	Property N	lame	Off Del	ay		Mand	latory	
				(Server):					Optio	nal	$\boxtimes$
Descr	iption:										
Speci	fies the de	lay-time	e from								
-	state Of	N to OF	F (usually	after acces	s to Input S	SOO and	ASC)	, and			
-	state DI	MMING	to OFF (u	sually after	access to	Input RS	SC).				
The s	election of	input D	atapoints	that are affe	ected by th	e delay	mecha	nism is manut	facturer sp	oecific.	
DPT:	Name	DPT_	<b>TimePeriod</b>	riod_10MSec   DPT ID   7.003   Datatype format			U <sub>16</sub>				
Field			Descripti	on		Sup.	Range	Unit	Default		
									10 ms	cs	
Comn	nunication	:									
DP A	ddress:		object_	type:	418	PID			102		
(in the	e server)		start_in	idex:	1		nr_o	_elem:			
Prope	rty access	3:	Read o	nly	Read	l/Write	$\boxtimes$				
Prote	ction		Read le	evel	-		Write	level	-		
Excep	tion Hand	ling:	Value afte	er Power-up	: Stored	Value 🗵	]	Act Value [	Defau	ult Value	
	<u> </u>										
Speci	pecial Features:										

# 3.6.23 Parameter Dimming Speed for Switch On Set Value

FB:	FB: Dimming Actuator Basic Description:		Basic			Dimming Speed for Swite Set Value		Switch	on Mand Optio	· · · =
Descr	iption:									
see F	unctional Sp	ecifica	tion							
DPT:	Name	DPT_:	ScalingSp	peed[]	DPT ID	225.001	Datatype	format	U <sub>16</sub> U <sub>8</sub>	
Field			Descripti	on		Sup.	Range	Unit		Default
					·			10 %/s	}	cs
Comn	nunication:									
DP A	ddress:		object_	type:	418		PID:		110	
(in the	e server)		start_in	dex:	1		nr_of_elem	:	8	
Prope	erty access:		Read o	nly [	] Read	d/Write				
Prote	ction		Read le	evel	-		Write level		-	
Excep	tion Handlin	ıg: \	/alue afte	er Power-u	p: Stored	Value 🛚	Act '	Value [	] Defai	ılt Value 🗌
Speci	al Features:									
					•	•			•	

## 3.6.24 Parameter Dimming Speed for Switch Off

FB:	B: Dimming Actuator Basic escription:		Basic	Property Name Dimming S (Server):			ng Speed for Switch Off		ff Mand	· —	
Descr	ription:			, , , , , , , , , , , , , , , , , , ,							
see F	unctional S	Specifica	tion								
DPT:	Name	DPT_S	calingSpe	eed	DPT ID	225.00	1 Dat	atype format	$U_{16}U_8$		
Field			Descripti	on			Sup.	Range	Unit	Default	
								cs	10 %/s	cs	
Comn	nunication:										
DP A	ddress:		object_	type:	418		PID:		111		
(in the	e server)		start_in	dex:	1		nr_of_	elem:	8		
Prope	rty access	:	Read o	nly 🗌	Rea	ad/Write	$\boxtimes$				
Prote	ction		Read le	evel	-		Write	level	-		
Exception Handling: Value after Pow					: Stored	d Value ∑		Act Value	] Defau	ult Value 🗌	
Speci	al Features	s:									

### 3.6.25 Parameter Dimming Step Time for Switch On Set Value

	D: :	A 1 1	r Basic Property Name			Dimming Step Time for Mandatory				
FB:	Dimming	Actuator	Basic	Property Nar	me	Dimming	g Step Time	e tor	Mand	atory 🔲
	_			(Server):		Switch (	On Set Valu	e	Optio	nal 🕅
Dagar	intion			( <u>00.70.</u> ).		- William C	711 OOL V G1G		Optio	a
	iption:									
see F	unctional S	3pecifica	ition							
DPT:	Name	DPT_S	caling_S	Step_Time	DPT ID	225.002	Datatype	e format	U <sub>16</sub> U <sub>8</sub>	
Field			Descrip	otion		Sup.	Range	Unit		Default
							cs	10 %/s	3	cs
Comn	nunication									
DP A	ddress:		objec	t_type:	418		PID:		112	
(in the	e server)		start_index: 1 nr_of_elem: 8						8	
Prope	rty access	<b>:</b> :	Read	only $\square$	Read	I/Write	$\boxtimes$			
Prote	ction		Read	level	ı		Write level		-	
Excep	otion Hand	ling:	Value at	fter Power-up	: Stored	Value 🛚	Act	Value [	] Defau	ılt Value 🗌
Speci	al Feature	s:								
						•				•

## 3.6.26 Parameter Dimming Step Time for Switch Off

FB:	FB: Dimming Actuator Basic  Description:				Property Name (Server):			Time for	Mand Optio		
Descr	iption:								·		
see F	unctional S	specificat	tion								
DPT:	Name	DPT_Sc	caling_St	ep_Time	DPT ID	225.002	2 Dat	atype format	ıt U₁6U8		
Field			Descripti	on			Sup.	Range	Unit		Default
								cs	ms		cs
Comn	nunication:										
DP A	ddress:		object_	type:	418		PID:		113		
(in the	e server)		start_in	idex:	1		nr_of_	_elem:	8		
Prope	erty access:	:	Read o	nly [	] Read	l/Write	$\boxtimes$				
Prote	ction		Read le	evel	-		Write	level	-		
Excep	Exception Handling: Value after Power-					Value 🗵		Act Value [	] D	efau	It Value 🗌
	<u> </u>										
Special Features:											
									•	•	

## 3.6.27 Parameter Switch Off Brightness

FB:	B: Dimming Actuator Basic escription:			Property N (Server):	operty Name Switch Off Brightness erver):			htness	Mandatory Dominication Mandatory			] ]
Descr	iption:			- V					•			
Limit	of brightne	ess for an	automati	ic switching	off.							
DPT:	Name	DPT_S	caling		DPT ID	5.001	Dat	atype format		U <sub>8</sub>		
Field	Field Description						Sup.	Range	Uni	t	Default	
								cs	%		cs	
Comn	nunication	:										
DP A	ddress:		object_	type:	418	18 PID:			114			
(in the	e server)		start_in	dex:	1		nr_of_	elem:				
Prope	rty access	S:	Read o	nly 🗌	Read	l/Write	$\boxtimes$					
Prote	ction		Read le	evel	-		Write	level	ı			
Exception Handling: Value after Power					: Stored	Value 🗵		Act Value		Defau	ılt Value 🗌	
	<u> </u>											
Special Features:												
		•				•			•			

### 3.6.28 Parameter Switch Off Brightness Delay Time

FB:	FB: Dimming Actuator Basic Description:			Property Name Switch (Server): Time			h Off Brightness Delay			Mandatory [ Optional	
Descr	iption:										
Delay	time for a	n automa	atic switch	ning off afte	r reaching	the swite	ch off br	ightness.			
DPT:	Name	DPT_Ti	mePeriod	d_Sec	DPT ID	7.005	Dat	atype format		U <sub>16</sub>	
Field			Descripti	on			Sup. Range			it	Default
							cs				cs
Comn	nunication:										
DP A	ddress:		object_	type:	418		PID:		103	}	
(in the	e server)		start_in	idex:	c: 1		nr_of_	elem:			
Prope	rty access	:	Read o	nly	Read	I/Write	$\boxtimes$				
Prote	ction		Read le	evel	-		Write	level	-		
Excep	tion Hand	ing: \	/alue afte	er Power-up	: Stored	Value 🗵		Act Value [		Defau	ılt Value 🗌
Speci	al Features	3:									
						•				•	

## 3.6.29 Parameter Timed On Duration

FB:	J v		Basic	Property Name T ( <u>Server</u> ):		Timed	ed On Duration			Mandatory _ Optional		
Descr	iption:											
see F	unctional S	Specifica	tion									
DPT:	Name	DPT_T	mePeriod	lSec	DPT ID	7.005	Dat	atype format	J	J <sub>16</sub>		
Field	Field Description					Sup. Range			Unit		Default	
								cs	s		CS	
Comn	nunication:											
DP A	ddress:		object_	type:	e: 418 PID:				104			
(in the	e server)		start_in	dex:	1		nr_of_	elem:				
Prope	rty access	:	Read o	nly 🗌	Read	l/Write	$\boxtimes$					
Prote	ction		Read le	evel	-		Write	level	ı			
				r Power-up	: Stored	Value 🗵		Act Value [		Defau	ılt Value 🗌	
Special Features:												
										•		

## 3.6.30 Parameter Prewarning Duration

FB:	Dimming A	Actuator	Basic	Property N (Server):	lame	Prewar	ning E	Ouration		ndatory 🔲
Descr	ription:									
see F	unctional S	Specifica	tion							
DPT:	Name	DPT_Ti	mePeriod	dSec	DPT ID	7.005	Da	atatype forma	t U <sub>16</sub>	
Field			Descripti	on			Sup.	Range	Unit	Default
TimeF	Period		Time for	the prewar	ning duration	on.	М	cs	S	1 s
Comn	nunication:									
DP A	ddress:		object_	type:	418		PID:		105	
(in the	e server)		start_in	dex:	1		nr_o	f_elem:		
Prope	rty access	:	Read o	nly 🗌	Read	/Write	$\boxtimes$			
Prote	ction		Read le	evel	-		Write	e level	-	
Excep	tion Hand	ing: ۱	/alue afte	er Power-up	: Stored '	Value $oxtime $		Act Value	☐ De	fault Value 🗌
Speci	al Features	s:								
			•			•			•	

### 3.6.31 Parameter Timed On Retrigger Function

FB:	Dim	nming /	Actuator	Basic	Property N (Server):	ame	Timed C	n Retrigge	er Function	on Manda Optiona				
Descr	iptio	n:			( <u>001701</u> ).					o paiorii	<u> </u>			
Behav	/ioui	of the	device	for the op	tional prope	erty "autor	nomous sv	vitching of						
DPT:	N	lame	DPT_E	nable		DPT ID	1.003	Datatyp	oe format	: B <sub>1</sub>				
Field		Desc	ription				Sup.	Range	Unit	Resol.:	Default			
b		Enabl	les retriç	gering the	e on-duratio	n times	M	{0,1}	none	none	cs			
Comn	Enables retriggering the on-duration times   M   {0,1}   none   none   cs													
DP A	ddre	ss:		object_ty	pe:	418		PID:		121				
(in the	ser	ver)		start_inde	ex:	1		nr_of_ele	m:					
Prope	rty a	access	:	Read onl	у 🗌	Read	/Write							
Prote	ction	1		Read lev	el	-		Write leve	el	-				
Excep	tion	Handl	ling:	Value afte	er Power-up	: Stored	l Value 🛚	Ac	t Value [	Default	t Value 🗌			
Speci	al Fe	eatures	s:											
									•					

### 3.6.32 Parameter Manual Off Enable

FB:	Dimming	Actuator	Basic	Prope (Serve	,	ame	Manual	Off Enable		Mand Option	
Descr	iption:										
Behav	iour of the	device f	or the op	tional	prope	erty "autono	omous sv	vitching off"			
DPT:	Name	DPT_E	nable			DPT ID	1.003	Datatype format	B <sub>1</sub>		
Field			Descripti	on	Sup.		Range		Un	it	Default
							V: {0,1}		-		cs
Comn	nunication										
DP A	dress:		object_	type:		418		PID:	122	<u>}</u>	
(in the	server)		start_in	dex:		1		nr_of_elem:			
Prope	rty access	:	Read o	nly		Read	/Write				
Protec	ction		Read le	evel		-		Write level	-		
								Act Value [		Defau	ılt Value 🗌
Speci	al Feature	s:									
				•	•				•		

### 3.6.33 Parameter Invert Lock Device

FB:	Dimming	Actuator	Basic	Property N (Server):	ame	Inve	rt Lo	ock D	evice			Mandatory Optional	
Descr	iption:			(								-	
Invers	ion of the	polarity o	of the Dat	apoint "Loc	k Device".								
DPT:	Name	DPT_In	vert		DPT ID	1.01	2	Data	atype forr	nat	B <sub>1</sub>		
Field			Descripti	on			Sup	). F	Range	Unit	t	Default	
								/	V : {0,1}			No inversio	n
Comn	Communication:												
DP A	ddress:		object_	type:	418			PID:			123		
(in the	e server)		start_in	dex:	1			nr_o	f_elem:				
Prope	rty access	:	Read o	nly 🗌	Read	l/Writ	е	$\boxtimes$					
Prote	ction		Read le	evel	-			Write	e level		ı		
Excep	tion Hand	ling: \	/alue afte	er Power-up	: Stored '	Value	$\boxtimes$		Act Va	lue 🗌		Default Value	
Speci	al Feature	s:											
									•				•

### 3.6.34 Parameter Behaviour at Locking

FB:	Dimming	Actuator I	3asic	Property N (Server):	ame		Behav	vio	ur at	Locki	ng		Manda Option		
Descr	iption:														
Behav	viour at th	e beginnin	g of the	lock state o	f the	device	Э.								
DPT:	Name	DPT_Be	haviour_	_Lock_Unlo	ck	DPT I	D	20	0.600	) Da	atype fo	rma	at N <sub>8</sub>	3	
Field		Descript	ion							Sup.	Range	!	Unit	Defau	ılt
Behav	viour	Lock sta	te start b	oehaviour						M	{0 4	.}	none	cs	
Comn	nunicatior	1:													
DP A	ddress:		object_	type:	418				PID	:		124	4		
(in the	e server)		start_in	idex:	1				nr_c	of_eler	n:				
Prope	rty acces	s:	Read o	nly		Read	/Write		$\boxtimes$						
Prote	ction		Read le	evel	-				Writ	e leve		-			
Excep	otion Han	dling: V	alue afte	er Power-up	): S	tored \	/alue	$\boxtimes$		Act	Value [		Defaul	t Value	$\Box$
Speci	al Feature	es:													

### 3.6.35 Parameter Lock Setvalue

FB:	Dimming A	ctuator	Basic		perty Nover):	ame	Lock Se	tvalue		landa ption			
Descr	iption:			\									
Actua	Value at th	e begir	nning of th	ne lo	ck state	e of the dev	vice (froz	en value)					
DPT:	Name	DPT_	Scaling			DPT ID	5.001	Datatype format	U <sub>8</sub>				
Field			Descripti	on	Sup.		Range		Unit	[	Default		
							0 % ′	100 %	%	(	cs		
Comn	Communication:												
DP A	ddress:		object_	type:		418		PID:	126				
(in the	e server)		start_in	dex:		1		nr_of_elem:					
Prope	rty access:		Read o	nly		Read	I/Write						
Prote	ction		Read le	evel		-		Write level	_				
Excep	tion Handlir	ng: '	Value afte	er Po	wer-up	: Stored '	Value 🛚	Act Value [	_ D	efaul	t Value		
Speci	al Features:												
				•									

## 3.6.36 Parameter Behaviour at Unlocking

FB:	Dim	nmin	g Actuator E	Basic	Property N (Server):	ame	Behavi	our	at Unlo	cking		Mand Optio		
Descr	iptio	n:												
Behav	/iour	r at t	he end of th	e lock st	tate of the c	levice								
DPT:	Ν	lame	DPT_Bel	naviour_	Lock_Unlo	DPT ID	20.600		Datatyp	e format		1	<b>1</b> 8	
ck														
Field	Field Description Sup. Range											Unit	I	Default
Behav	/iour	r I	Lock state e	nd beha	viour			M		{0 6}		none	(	cs
Comn	nuni	catic	n:											
DP A	ddre	SS:		object_	type:	418		Р	ID:		125	5		
(in the	e ser	ver)		start_in	dex:	1		nı	r_of_ele	m:				
Prope	rty a	ассе	ss:	Read o	nly 🔲	Read	l/Write		$\boxtimes$					
Protec	ction	1		Read le	evel	-		W	/rite leve	el	-			
Excep	tion	Har	ndling: Va	alue afte	r Power-up	: Stored	Value 🗵	]	Ac	t Value 🗌		Defau	الر lt	Value 🗌
Speci	al Fe	eatu	res:											
							•					<u> </u>		

### 3.6.37 Parameter Unlock Setvalue

FB:	Dimming	Actuator	Basic	Prope (Serve	,	ame	Unlock S	Setvalı	ue	Man Optio	datory 🗌		
Descr	iption:												
Actua	I Value at	the end o	of the lock	state	of the	e device							
DPT:	Name	DPT_S	caling			DPT ID	5.001	Da	tatype format	U <sub>8</sub>			
Field			Descripti	on	Sup.		Range			Unit	Default		
							0 % ′	100 %		%	cs		
Comn	Communication:												
DP A	ddress:		object_	type:		418		PID:		127			
(in the	e server)		start_in	dex:		1		nr_of	_elem:				
Prope	rty access	:	Read o	nly		Read	/Write	$\boxtimes$					
Prote	ction		Read le	vel		-		Write	level	-			
Excep	tion Hand	ling: \	/alue afte	r Pow	er-up	: Stored \	Value ⊠		Act Value [	Defa	ult Value 🗌		
Speci	al Feature	s:											
				•		•		•			•		

## 3.6.38 Parameter Brightness for Scene

FB:	Dimming A	Actuator E	Basic	Property I (Server):	Name	Brig	htne	ess for Scene	Mand Optio	· · · =			
Descr	ription:		l										
Store	d Brightnes	ss for reca	alling afte	er receivin	g the dedic	cated s	scen	e number					
DPT:	Name	DPT_Sca	aling[]		DPT ID	5.00	)1	Datatype format	U <sub>8</sub>				
Field		Descripti	on		Sup.		Rai	nge	Unit	Default			
1 % 100 %										cs			
Comn	Communication:												
DP A	ddress:		object_t	type:	418			PID:	128				
(in the	e server)		start_in	dex:	1			nr_of_elem:	64				
Prope	erty access	:	Read or	nly [	Rea	d/Writ	е						
Prote	ction		Read le	vel	-			Write level	-				
Excep	otion Hand	ling: V	alue afte	r Power-u	p: Stored	l Value	$\mathbf{B}$	Act Value	] Defau	ılt Value 🗌			
Speci	al Feature:	s:											
It is al	llowed to ir	nplement	the arra	y with less	than the o	given r	numl	per of 64 elements.	•				

### 3.6.39 Parameter Storage Function for Scene

FB:	Dimming A	Actuator	Basic	Property N (Server):	lame	Storage	e Funct	on for Scene	Man Opti	datory 🗌 onal 🖂			
Descr	iption:												
Enabl	ing memor	y storag	e for a re	ceived scer	ne number	with a n	ew brig	ntness.					
DPT:	Name	DPT_E	nable[]		DPT ID	1.003	Dat	atype format	B <sub>1</sub>				
Field			Descripti	on			Sup.	Range	Unit	Default			
								$V = \{0,1\}$	-	cs			
Comn	Communication:												
DP A	ddress:		object_	type:	418		PID:		129				
(in the	e server)		start_in	dex:	1		nr_of_	_elem:	64				
Prope	rty access:		Read o	nly 🗌	Read	d/Write	$\boxtimes$						
Prote	ction		Read le	evel	-		Write	level	-				
Excep	tion Handli	ing: \	/alue afte	er Power-up	: Stored	Value 🗵		Act Value [	] Defa	ault Value 🗌			
Speci	al Features	s:											
It is al	lowed to in	nplemen	t the arra	y with less	than the gi	ven num	ber of 6	64 elements					

## 3.6.40 Parameter Transmission Cycle Time

FB:	Dimming	Actuator	Basic	Property N (Server):	Name	Transmi	ission (	Cycle Time		Mand Optio		$\boxtimes$
Descr	iption:											
See F	unctional	Specifica	tion.									
DPT:	Name	DPT_Ti	mePeriod	dSec	DPT ID	7.005	Dat	atype format	U <sub>16</sub>	;		
Field			Descripti	on		Sup.	Rar	nge	Uni	it	Default	
							5 s	to 65,536 s	s		cs	
Comr	nunication											
DP A	ddress:		object_	type:	418		PID:		106	)		
(in the	e server)		start_in	dex:	1		nr_of_	_elem:				
Prope	rty access	:	Read o	nly 🗌	Read	d/Write	$\boxtimes$					
Prote	ction		Read le	evel	-		Write	level	-			
Excep	otion Hand	ling: \	/alue afte	er Power-u	p: Stored	Value 🛚		Act Value [		Defau	ılt Value [	
Speci	al Feature	s:										

## 3.6.41 Parameter Delta Dimming Value

FB:	Dimming A	Actuator E	Basic	Property I (Server):	Nam	ne	Delt	a Di	mr	ning Value		datory 🗌 onal 🖂
Descr	ription:			\							<u> </u>	
					in t	he state	'dim	min	g' t	o send on the bu	s with th	e optional
Datap	oint "Actua	l Dimmin	g Value	(ADV)".								
DPT: Name DPT_Scaling DPT ID 5.001 Datatype format U <sub>8</sub>										U <sub>8</sub>		
Field			on				Sup	ο.	Range	Unit	Default	
										5 % to 25 %	%	cs
Comr	nunication:											
DP A	ddress:		object_	type:	41	18			ΡI	ID:	130	
(in the	e server)		start_in	dex:	1				nr	_of_elem:		
Prope	erty access:	:	Read o	nly [		Read	d/Writ	е		$\boxtimes$		
Prote	ction		Read le	evel	-				W	rite level	-	
Excep	otion Handl	ing: V	alue afte	er Power-u	p:	Stored	Value	<b>&gt;</b> 🛛		Act Value	] Defa	ault Value 🗌
Speci	al Features	S:										
			•			•						

## 3.6.42 Parameter Bus Power Up Message Delay

FB:	•							we	r Up		Mandatory ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐					
Desci	ription:			(	-		Delay					- p				
The c	The delay time after bus power up for sending a telegram on the bus.															
DPT:	Name	DPT_Ti	meout_1	0MSec		DPT ID	7.003		Datatype format			U <sub>16</sub>				
Field			on				Sι	ıp.	Range	Ur	nit Default					
Communication:																
DP A	ddress:		object_	object_type:			418			PID:						
(in the	e server)		start_in	idex:		1			nr_of_elem:							
Prope	erty access	s:	Read o	nly		Read	d/Write		$\boxtimes$							
Prote	ction		Read le	evel		-		W	/rite I	evel	-					
Exce	otion Hand	اling: ۱	/alue afte	er Power-	up	: Stored	Value 🗵	]		Act Value [	Default Value					
Speci	ial Feature	s:														

# 3.6.43 Parameter Behaviour Bus Power Up

FB:	Dimming A	Actuator E	Basic		Property Name (Server):				Behaviour Bus Power Up						
Descr	iption:														
Behav	iour of the	device at	ter bus	s powe	r up.										
DPT:	Name	DPT_Bel	navioui	r_Bus_	Pow	er_Up	_Dowi	n DPT	ID	20.601	Data	atype forn	nat	$N_8$	
Field		Descripti	on S	Sup.	o. Range								Defau	ılt	
					0 1 2 3 4 5	1 : on 2 : no change 3 : value according additional parameter							off		
Comn	nunication:		I		ı							Į.	1		
DP A	ddress:		object	ect_type:					PID:			131			
(in the	e server)		start_i	index:		1		nr_of_elem:							
Prope	rty access		Read	only			Read	/Write	$\boxtimes$						
Prote	ction		Read	level		-			Write	e level		-			
Excep	tion Handl	ing: Va	alue af	ter Pov	ver-u	p: S	tored \	/alue 🛚		Act Va	lue 🗌	] Defai	ılt Valu	ıe 🔲	
In cas	e the actua	ator is not	able to	o save	its va	alue d	uring/b	efore bu	s pov	ver down	in no	n-volatile	memo	ry, it	
memo	is allowed to use this parameter with restricted range 0 to 3. In case the actuator is not able to save dedicated values (in case of multichannel devices) in non-volatile memory, it is allowed to map the value to a binary on/off-state. If the parameter is set to "last", the actuator goes to the state before bus power down at bus power up.														
Speci	al Features	S:													

### 3.6.44 Parameter Behaviour Bus Power Down

FB:	Dimmin	g A	ctuator	Basic	asic Property Name (Server):				Beh	navio	our Bu	s Power	Mandatory				
Descr	iption:				1 \				1								
	•																
DPT:	Name		DPT_B wn	ehaviour_Bus_Power_Up_Do					DP	T ID		20.601	atype format N <sub>8</sub>				
Field				Description Sup.				Rar	nge			Unit	Defa	ult			
									0 1 2 3	55 :	value additi parar	neter	ng	-	off		
Comn	nunicatio	n:															
DP A	ddress:			object_type: 418						PID:			133				
`	e server)			start_index: 1						nr_of	f_elem:						
	rty acce	ss:		Read only Read					d/Write ⊠								
Prote				Read I			-					e level		-			
														Default Value			
MAXS Se Se	Exception Handling: Value after Power-up: Stored Value  Act Value  Default Value  In case the actuator is not able to set its hardware to a dedicated value after bus power down (e.g. only MAXSV is possible), it is allowed to use this parameter with following behaviour:  Selection 2: no change  ⇒ value before power down = 0: OFF  ⇒ value before power down ≠ 0: ON  Selection 3: value according additional parameter  ⇒ parameter value = 0: OFF  ⇒ parameter value ≠ 0: ON																
Speci	al Featu	es:															

### 3.6.45 Parameter Bus Power Up Set Value

FB:	Dimming Actuator Basi			Prope	erty N	ame	Benavio	our Bus	et	Mandatory		Ш	
				(Serv	(Server):						Optio	nal	$\boxtimes$
Desc	ription:												
State of the device after bus power up.													
DPT:	Name	DPT_S	caling			DPT ID	5.001	Da	tatype format				
Field			Descripti	on	Sup		Range			Unit		Default	
			•				0 % to 1	100 %		%		0	
Comr	munication:												
DP A	ddress:		object_	type:		418		PID:		132			
(in the	e server)		start_ir	start_index:		1		nr_of_elem:					
Prope	erty access:	:	Read o	nly		Read	d/Write	$\boxtimes$					
Prote	ction		Read le	evel		-		Write	level	-			
Exce	ption Handl	ing: \	/alue afte	er Pow	er-up	: Stored	Value 🛚		Act Value		Defau	ılt Value	
Spec	ial Features	S:	•	•			•	•					
			•	•			•	•					

### 3.6.46 Parameter Bus Power Down Set Value

FB:	•			Property Name (Server):			Bus Pov	wer Do	wn Set Value	Mandatory Optional		· · · =		
Descr	ription:					_								
Value of the device after bus power up														
DPT:	Name	DPT_S	caling			DPT ID	5.001 Datatype format				U <sub>8</sub>			
Field		Descripti	Description Sup.			Range			Un	it	Default			
							0 % to 1	00 %		%		0 %		
Communication:														
DP A	ddress:		object_	object_type:		418		PID:		134	1			
(in the	e server)		start_in	start_index:		1		nr_of_elem:						
Prope	rty access	:	Read o	Read only			l/Write	$\boxtimes$						
Prote	ction		Read le	evel		•		Write	level	-				
Excep	otion Hand	ling: \	/alue afte	r Pow	er-up	: Stored '	Value 🛚		Act Value [		Defau	ılt Value [		
Speci	al Feature	s:												
			•		•			•						

#### 3.6.47 Parameter Scene Learning Mode Enable

	Name:	Scen	e Learning	Mode	Enabl	е	-	Abbr.: SLME					Mandatory			
FB	Name:			Di	mmin	g Actuat	or E	Basic					Can	be in	iternal	
Des	scription															
	Via this parameter DP, it shall be possible to activate or deactivate the Scene Learning Mode (e.g. to															
	prevent unauthorised modification of scenes). If the value of this DP is Enabled, it shall be only possible to store the scenes, for which the corresponding bit in the parameter SFSN is set to "Enable learning".															
	to store the scenes, for which the corresponding bit in the parameter 5F5N is set to 'Enable learning'.  This DP is optional, even if the scene functionality is implemented. This DP shall be implemented as															
	up Object.		even ii uit	SCEILE	iuncu	oriality i	5 111	ibieiii	entec	ı. 11115	DF 8	oriali k	e iiipi	CITICI	ileu as	
	DP Type															
	T_Name:	DPT Enable														
DP.	T Format:				В	1				D	PT_I	D:		1.	003	
Fiel	d:		D€	escription	n:		Su	pp.:	Rai	nge:	U	nit:	Res	ol.:	Default	
b			Enabling	scene	learni	ing		M	{0	),1}	no	ne	noı	ne	noi	ne
Access Type																
<b>*</b>	Input					1										
	$N \rightarrow this$		☐ 1 → this ☐													
	Spontane	eous		Cyclically:							1	ime-	out:		no	
	Reque				P	Polling:						Perio	od:			
	nmunicatio		ре													
Gro	up Object	DP										Ма	ndatory	<b>/</b> :		
	Default G	roup /	Address:													
Dyr	namics															
	Power do	wn:	Save:													
	Power u	p:	Value:	N	o initia	alisation:					De	efault	value:			
				!	Saved	value:				Curre	ent v	alue (	not for	inpu	t):	
			Transmit	on bus	(only f	or outpu	ut):			Read	from	bus (	only fo	r inp	ut):	
Exc	eption Hai	ndling														
0	! - I															
_	Special Features None.															
INOI	IC.															