



Application Descriptions

7

Lighting

20

Lighting Actuators

2

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.

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	<ul style="list-style-type: none"> • 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”

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Contents

1	Introduction	8
1.1	S-Mode compliance of a Functional Block	8
1.2	Ctrl-Mode and PB-Mode compliance of a Functional Block	8
1.3	Combined Profiles and parameter access	8
2	FB Light Switching Actuator Basic (LSAB)	9
2.1	Aims and objectives	9
2.2	Functional specification	9
2.2.1	Overview	9
2.2.2	Autonomous Switching Off	10
2.2.3	Priority of Inputs	10
2.2.4	Scene Control	12
2.2.5	Optional Output Info OnOff	12
2.2.6	Behaviour at bus power down and bus power up	12
2.2.7	Behaviour at mains power down and mains power up	13
2.3	Constraints	13
2.4	Functional Block Diagram	13
2.5	DP Description	14
2.6	FB Profiles	15
2.7	Detailed specification of the DPs	17
2.7.1	Input Switch On Off	17
2.7.2	Input Timed StartStop	18
2.7.3	Input Forced	19
2.7.4	Input Lock Device	20
2.7.5	Input Scene Number	21
2.7.6	Input Scene Control	22
2.7.7	Output Info OnOff	23
2.7.8	Parameter On Delay	24
2.7.9	Parameter Off Delay	24
2.7.10	Parameter Timed On Duration	25
2.7.11	Parameter Prewarning Duration	25
2.7.12	Parameter Timed On Retrigger Function	26
2.7.13	Parameter Manual Off Enable	26
2.7.14	Parameter Invert Output State	27
2.7.15	Parameter Invert Lock Device	27
2.7.16	Parameter Behaviour at Locking	28
2.7.17	Parameter Lock State	28
2.7.18	Parameter Behaviour at Unlocking	29
2.7.19	Parameter Unlock State	29
2.7.20	Parameter State for Scene Number	30
2.7.21	Parameter Storage Function for Scene	30
2.7.22	Parameter Transmission Cycle Time	31
2.7.23	Parameter Bus Power Up Message Delay	31
2.7.24	Parameter Behaviour Bus Power Up	32
2.7.25	Parameter Bus Power Up State	32
2.7.26	Parameter Behaviour Bus Power Down	33
2.7.27	Parameter Bus Power Down State	33
2.7.28	Parameter Scene Learning Mode Enable	34

3	FB Dimming Actuator Basic	35
3.1	Aims and objectives.....	35
3.2	Functional specification.....	35
3.2.1	Overview.....	35
3.2.2	Behaviour concerning mandatory Datapoints.....	37
3.2.3	Optional Parameters and default behaviour.....	40
3.2.4	Optional input Datapoints and default behaviour.....	49
3.2.5	Optional Output Datapoints.....	51
3.2.6	Behaviour at Bus Power Down and Bus Power Up.....	52
3.2.7	Behaviour at mains power down and mains power up.....	52
3.3	Constraints.....	52
3.4	Functional Block Diagram.....	53
3.5	Datapoint description.....	54
3.5.1	FB Profiles.....	56
3.6	Detailed specification of Datapoints.....	59
3.6.1	Input Switch On Off.....	59
3.6.2	Input Relative Setvalue Control.....	60
3.6.3	Input Absolute Setvalue Control.....	61
3.6.4	Input Timed StartStop.....	62
3.6.5	Input Forced.....	63
3.6.6	Input Lock Device.....	64
3.6.7	Input Scene Number.....	65
3.6.8	Input Scene Control.....	66
3.6.9	Output Info OnOff.....	67
3.6.10	Output Actual Dimming Value.....	68
3.6.11	Output Overload Detection.....	69
3.6.12	Output Load Failed Detection.....	70
3.6.13	Parameter Minimum Set Value.....	70
3.6.14	Parameter Maximum Set Value.....	71
3.6.15	Parameter Switch On Set Value.....	71
3.6.16	Parameter Dimm Mode Selection.....	72
3.6.17	Parameter Relativ Off Enable.....	72
3.6.18	Parameter Memory Function.....	73
3.6.19	Parameter Dimming Speed.....	73
3.6.20	Parameter Dimming Step Time.....	74
3.6.21	Parameter On Delay.....	74
3.6.22	Parameter Off Delay.....	75
3.6.23	Parameter Dimming Speed for Switch On Set Value.....	75
3.6.24	Parameter Dimming Speed for Switch Off.....	76
3.6.25	Parameter Dimming Step Time for Switch On Set Value.....	76
3.6.26	Parameter Dimming Step Time for Switch Off.....	76
3.6.27	Parameter Switch Off Brightness.....	77
3.6.28	Parameter Switch Off Brightness Delay Time.....	77
3.6.29	Parameter Timed On Duration.....	77
3.6.30	Parameter Prewarning Duration.....	78
3.6.31	Parameter Timed On Retrigger Function.....	78
3.6.32	Parameter Manual Off Enable.....	78
3.6.33	Parameter Invert Lock Device.....	79
3.6.34	Parameter Behaviour at Locking.....	79
3.6.35	Parameter Lock Setvalue.....	79

3.6.36	Parameter Behaviour at Unlocking.....	80
3.6.37	Parameter Unlock Setvalue.....	80
3.6.38	Parameter Brightness for Scene.....	81
3.6.39	Parameter Storage Function for Scene.....	81
3.6.40	Parameter Transmission Cycle Time.....	81
3.6.41	Parameter Delta Dimming Value.....	82
3.6.42	Parameter Bus Power Up Message Delay	82
3.6.43	Parameter Behaviour Bus Power Up	83
3.6.44	Parameter Behaviour Bus Power Down	84
3.6.45	Parameter Bus Power Up Set Value	84
3.6.46	Parameter Bus Power Down Set Value	85
3.6.47	Parameter Scene Learning Mode Enable.....	85

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
IOO	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
SOO	Switch On Off
TSS	Timed StartStop

Parameters

BL	Brightness at Locking	
BPD	Behaviour Bus Power Down	
BPU	Behaviour Bus Power Up	
BSN	Brightness for Scene Number	
BUL	Brightness at Unlocking	
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	
DST_OSV	Dimming Step Time for Switch On Set Value	
ILD	Invert Lock Device	
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	
PDSV	Bus Power Down Set Value	
PUMD	Bus Power Up Message Delay	
PUS	Bus Power Up State	
PUSV	Bus Power Up Set Value	
PWD	Prewarning Duration	(≡ P2 Naming in channel Code Document)
ROE	Relativ Off Enable	
SFSN	Storage Function for Scene Number	
SLME	Scene Learning Mode Enable	
SOB	Switch Off Brightness	
SOBDT	Switch Off Brightness Delay Time	
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	
USV	Unlock Set Value	

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-Mode¹⁾ compliance of a Functional Block

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

- the inputs and outputs 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 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 inputs and outputs 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).

¹⁾ 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.

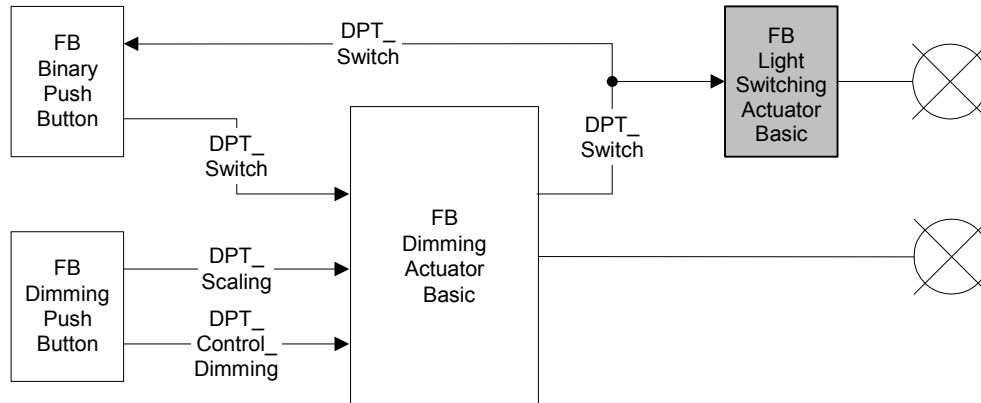


Figure 1 – FB Light Switching Actuator Basic (LSAB) in the Application Domain Lighting

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 lock 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”	

^{a)} For compatibility 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 optional 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_Down
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_Down
Bus Power Down State	State of the device after bus power up.	1.001 DPT_Switch

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⁾

Features and options	Basic FB	Standard Mode	
		FB Profile ^{1 3)}	FB Profile 2 (recommended)
Input SOO	M	GO	GO
Output IOO	O ⁴⁾	(GO)	GO
Functionality "Autonomous Switching Off" {	O	O	O
Parameter "Timed On Duration"	M	M	M
select 1 of 2 {			
Link to SOO	M	M	M
Link to TSS	M	M	M
}			
<i>// Retrigger</i>			
select 1 of 2 {			
Parameter TRF	M	M	M
retriggering shall be enabled	M	M	M
}			
}			
Functionality "Manual Off" {	O	O	O
select 1 of 2 {			
Parameter MOE	M	M	M
Manual Off is enabled	M	M	M
}			
}			
Functionality "Priority of Inputs" {	O	O	O
priority rules	M	M	M
Functionality "Input Lock Device" {	O	O	O
select 1 of 2 {			
Parameter ILD	M	M	M
Value 0 shall unlock; value 1 shall lock	M	M	M
}			
}			
}			
<i>// Bus power up</i>			
select 1 of 2 {			
Parameter BPU	M	M	M
Switch off	M	M	M
}			
<i>// Bus power down</i>			
select 1 of 2 {			
Parameter BPD	M	M	M
Switch off	M	M	M
}			

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

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

⁴⁾ 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	O	O
	OND	O	O
	OFFD	O	O
	TOD	O	O
	PWD	O	O
	TRF	O	O
	MOE	O	O
	ILD	O	O
	BL	O	O
	BUL	O	O
	LSV	O	O
	USV	O	O
	SSN	O	O
	SFSN	O	O
	TCT	O	O
	PUMD	O	O
	BPU	O	O
	PUS	O	O
	BPD	O	O
	PDS	O	O
	SLME	O	O

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.:	SOO	Mandatory	<input checked="" type="checkbox"/>
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Binary Control of the Output State					
DP Type					
DPT_Name:	DPT_Switch				
DPT Format:	B ₁	DPT_ID:	1.001		
Field	Description	Supp.	Range	Unit	Default
			V={0,1}		
Access Type					
◆ Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	NO
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
◆ Group Object DP				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input)	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
Special Features					

2.7.2 Input Timed StartStop

DP Name:	Timed StartStop	Abbr.:	TSS	Mandatory	<input type="checkbox"/>
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Activation of an autonomous switch off function with value "1".					
DP Type					
DPT_Name:	DPT_Start				
DPT Format:	B ₁	DPT_ID:	1.010		
Field	Description	Supp.	Range	Unit	Default
			V={0,1}		
Access Type					
♦ Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	no
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
♦ Group Object DP				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input)	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
Special Features					

2.7.3 Input Forced

DP Name:	Forced	Abbr.:	FO	Mandatory	<input type="checkbox"/>
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Shall force value dependent high priority on or off state. The behaviour when entering in the high priority state is given in Functional Specification clause 2.2.3. The behaviour when leaving the high priority state is manufacturer specific.					
DP Type					
DPT_Name:	DPT_Switch_Control				
DPT Format:	C ₁ V ₁	DPT_ID:	2.001		
Field	Description	Supp.	Range	Unit	Default
c	Priority control	M	{0,1}	none	none
v	Priority value	M	{0,1}	none	none
Access Type					
♦ Input					
<input type="checkbox"/>	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>	
<input type="checkbox"/>	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out: NO
<input type="checkbox"/>	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:
Communication Type					
♦ Group Object DP				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
<input type="checkbox"/>	Power down:	Save:	<input type="checkbox"/>		
<input type="checkbox"/>	Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:
			Saved value:	<input type="checkbox"/>	Current value (not for input)
			Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):
Exception Handling					
Special Features					

2.7.4 Input Lock Device

DP Name:	Lock Device	Abbr.:	LD	Mandatory	<input type="checkbox"/>
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Setting of a parameterised state in a lock state of the device. If no parameter for the locking mechanism is implemented, the value "1" shall lock the actuator on its Current State. Value "0" shall unlock the actuator; the behaviour of the actuator when unlocking is manufacturer-specific.					
DP Type					
DPT_Name:	DPT_Enable				
DPT Format:	B ₁	DPT_ID:	1.003		
Field	Description	Supp.	Range	Unit	Default
b	Shall specify whether the lock state is enabled or not.	M	{0,1}	none	0
Access Type					
♦ Input					
<input type="checkbox"/>	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>	
<input type="checkbox"/>	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out: no
<input type="checkbox"/>	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:
Communication Type					
♦ Group Object DP					Mandatory: <input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
<input type="checkbox"/>	Power down:	Save:	<input type="checkbox"/>		
<input type="checkbox"/>	Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:
			Saved value:	<input type="checkbox"/>	Current value (not for input)
			Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):
Exception Handling					
a) Usually after Power Up the default value is set to "0". If parameter ILD is set to "inversion" it is manufacturer specific, to enter the lock-state after power up or not.					
Special Features					

2.7.5 Input Scene Number

DP Name:	Scene Number	Abbr.:	SN	Mandatory	<input type="checkbox"/>
FB Name:	Light Switching Actuator Basic			Can be internal	<input type="checkbox"/>
Description					
The Input Scene Number shall be used to recall the output state related to encoded scene number. Up to 64 scene numbers (0 ... 63) can be assigned to the actuator (see parameters) ^{a)} .					
Datapoint Type					
DPT_Name:	DPT_SceneNumber				
DPT_Format:	r ₂ U ₆	DPT_ID:	17.001		
Field	Description	Supp.	Range	Unit	Default
r	Reserved field. Shall be zero.	M	0	none	none
U	Scene number.	M	{0...63}	none	none
Access Type					
Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	none
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
^{a)} An application may support less than the maximal encodable number of 64 scenes. In the case, if a scene is called with a scene number that is not supported, the device shall not react.					
Special Features					

2.7.6 Input Scene Control

DP Name:	Scene Control	Abbr.:	SC	Mandatory	<input type="checkbox"/>																				
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>																						
Description																									
<p>The Input Scene Control shall be used to recall or learn the output state related to encoded scene number.</p> <p>Up to 64 scene numbers (0 ... 63) can be assigned to the actuator (see parameters) ^{a)}.</p> <p>If none of 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.</p> <p>If one or both of the parameters SLME or SFSN is implemented, then the request to learn a scene n, this is an access to DP Scene Control with a value of the field B = 1 and the scene number n in the field U - shall function as follows:</p>																									
		<table border="1"> <thead> <tr> <th></th><th colspan="3">SFSN(array element n)</th></tr> <tr> <th>SLME</th><th>Not implemented</th><th>Disable (= 0)</th><th>Enable (= 1)</th></tr> </thead> <tbody> <tr> <td>Not implemented</td><td>Learn</td><td>Ignore</td><td>Learn</td></tr> <tr> <td>Disable (= 0)</td><td>Ignore</td><td>Ignore</td><td>Ignore</td></tr> <tr> <td>Enable (= 1)</td><td>Learn</td><td>Ignore</td><td>Learn</td></tr> </tbody> </table>					SFSN(array element n)			SLME	Not implemented	Disable (= 0)	Enable (= 1)	Not implemented	Learn	Ignore	Learn	Disable (= 0)	Ignore	Ignore	Ignore	Enable (= 1)	Learn	Ignore	Learn
	SFSN(array element n)																								
SLME	Not implemented	Disable (= 0)	Enable (= 1)																						
Not implemented	Learn	Ignore	Learn																						
Disable (= 0)	Ignore	Ignore	Ignore																						
Enable (= 1)	Learn	Ignore	Learn																						
DP Type																									
DPT_Name:	DPT_SceneControl																								
DPT_Format:	B ₁ r ₁ U ₆	DPT_ID:	18.001																						
Field	Description	Supp.	Range	Unit	Default																				
B	Recall or learn the scene.	M	{0,1}	none	none																				
r	Reserved field. Shall be zero.	M	0	none	none																				
U	Scene number.	M	{0...63}	none	none																				
Access Type																									
♦ b																									
N → this <input checked="" type="checkbox"/>		1 → this <input type="checkbox"/>																							
Spontaneous <input checked="" type="checkbox"/>		Cyclically: <input type="checkbox"/>		Time-out: NO																					
Request <input type="checkbox"/>		Polling: <input type="checkbox"/>		Period: <input type="text"/>																					
Communication Type																									
♦ Group Object DP				Mandatory:	<input checked="" type="checkbox"/>																				
Default Group Address:		---																							
Dynamics																									
Power down:	Save:	<input type="checkbox"/>																							
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>																				
		Saved value:	<input type="checkbox"/>	Current value (not for input)	<input type="checkbox"/>																				
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>																				
Exception Handling																									
<p>^{a)}An application may support less than the maximal encodable number of 64 scenes. In the case, if a scene is learned or called with a scene number higher than the maximum supported, the device shall not react.</p>																									
Special Features																									

2.7.7 Output Info OnOff

DP Name:	Info OnOff	Abbr.:	IOO	Mandatory	<input type="checkbox"/>
FB Name:	Switching Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Reflects the binary state of the actuator.					
DP Type					
DPT_Name:	DPT_Switch				
DPT Format:	B ₁	DPT_ID:	1.001		
Field	Description	Supp.	Range	Unit	Default
b	State of the actuator.	M	{0,1}	none	none
Access Type					
♦ Output					
this → M	<input checked="" type="checkbox"/>	this → 1	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	COV:	<input checked="" type="checkbox"/>	Δ-Value:	Min repetition time:
		Cyclic	<input type="checkbox"/> ^{a)}	Period:	no
Request	<input checked="" type="checkbox"/>				
Communication Type					
♦ Group Object DP				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input)	<input type="checkbox"/>
	Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>	
Exception Handling					
Special Features					
^{a)} The transmission conditions may be expanded to cyclic transmission. In this case, the Parameter TCT shall give the period for transmission.					

2.7.8 Parameter On Delay

FB:	LSAB	Property Name (Server):	On Delay	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Specifies the delay time from state OFF to ON. The selection of Inputs that are affected by the delay mechanism is manufacturer specific.							
DPT:	Name	DPT_TimePeriod10Msec	DPT_ID:	7.003	Datatype format	U ₁₆	
Field	Description	Sup.	Range	Unit	Resol.:	Default	
TimePeriod	On Delay time	M	cs	ms	10 ms	cs	
Communication:							
DP Address: (in the server)		Object Type: Start-Index:	417 1	Property ID: N° of elements		101	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>							
None.							
Special Features:							
None.							

2.7.9 Parameter Off Delay

FB:	LSAB	Property Name (Server):	Off Delay	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Specifies the delay time from state ON to OFF. The selection of Inputs that are affected by the delay mechanism is manufacturer specific.							
DPT:	Name	DPT_TimePeriod_10Msec	DPT_ID:	7.003	Datatype format	U ₁₆	
Field	Description	Sup.	Range	Unit	Resol.:	Default	
TimePeriod	Off Delay time	M	cs	ms	10 ms	cs	
Communication:							
DP Address: (in the server)		Object Type: Start-Index:	417 1	Property ID: N° of elements		102	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>							
Special Features:							
None.							

2.7.10 Parameter Timed On Duration

FB:	LSAB	Property Name (Server):	Timed On Duration				Mandatory	<input type="checkbox"/>
							Optional	<input checked="" type="checkbox"/>
Description:								
This parameter specifies the time after which the actuator shall autonomously switch off. The selection of Inputs that are affected by this autonomous mechanism is manufacturer specific.								
DPT:	Name	DPT_TimePeriodSec	DPT_ID	7.005	Datatype format:		U ₁₆	
Field	Description		Sup.	Range	Unit	Resol.:	Default	
TimePeriod	Time for the on duration.		M	cs	s	1 s	cs	
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		103		
		Start-Index:	1	N° of elements				
Property access:		Read only	<input type="checkbox"/>	Read/Write		<input checked="" type="checkbox"/>		
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None.								

2.7.11 Parameter Prewarning Duration

FB:	LSAB	Property Name (Server):	Prewarning Duration				Mandatory	<input type="checkbox"/>
							Optional	<input checked="" type="checkbox"/>
Description:								
This parameter defines the time between the optional, manufacturer specific action and the autonomous switching off. Please refer to the Functional Specification.								
DPT:	Name	DPT_TimePeriodSec	DPT_ID:	7.005	Datatype format		U ₁₆	
Field	Description		Sup.	Range	Unit	Resol.:	Default	
TimePeriod	Time for the prewarning duration.		M	cs	s	1 s	cs	
Communication								
DP Address: (in the server)		Object Type:	417	Property ID:		104		
		Start-Index:	1	N° of elements				
Property access:		Read only	<input type="checkbox"/>	Read/Write		<input checked="" type="checkbox"/>		
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								

2.7.12 Parameter Timed On Retrigger Function

FB:	LSAB	Property Name (Server):	Timed On Retrigger Function				Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:										
This parameter specifies whether the on-duration timer (see 2.7.10) can be retriggered or not. Please refer to the Functional Specification.										
DPT:	Name:	DPT_Enable	DPT_ID	1.003	Datatype format		B ₁			
Field	Description		Sup.	Range	Unit	Resol.:	Default			
b	Enables retriggering the on-duration times		M	{0,1}	none	none	cs			
Communication:										
DP Address: (in the server)		Object Type: Start-Index:		417 1	Property ID: N° of elements		112			
Property access:		Read only <input type="checkbox"/>		Read/Write <input checked="" type="checkbox"/>						
Protection		Read level		-	Write level		-			
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>										
Special Features:										
None.										

2.7.13 Parameter Manual Off Enable

FB:	LSAB	Property Name (Server):	Manual Off Enable				Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:										
Only if this parameter value is "Enable", it shall be possible to switch off the actuator manually – i.e. via any of the Input - while the on-duration time is running; if its value is "Disable", this shall not be possible. Please refer to the Functional Specification.										
DPT:	Name:	DPT_Enable	DPT_ID	1.003	Datatype format		B ₁			
Field	Description		Sup.	Range	Unit	Resol.:	Default			
b	Enables manual switching off during on-duration time.		M	{0,1}	none	none	cs			
Communication:										
DP Address: (in the server)		Object Type: Start-Index:		417 1	Property ID: N° of elements		113			
Property access:		Read only <input type="checkbox"/>		Read/Write <input checked="" type="checkbox"/>						
Protection		Read level		-	Write level		-			
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>										
Special Features:										
None.										

2.7.14 Parameter Invert Output State

FB:	LSAB	Property Name (Server):	Invert Output State	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Inversion of the output of the device							
DPT:	Name:	DPT_Invert	DPT_ID:	1.012	Datatype format	B ₁	
Field	Description		Sup.	Range	Unit	Default	
				V={0,1}		No Inversion	
Field	Description		Sup.	Range	Unit	Resol.:	Default
b	Inversion of the output state.		M	{0,1}	none	none	not inverted
Communication:							
DP Address: (in the server)		Object Type: Start-Index:	417 1	Property ID: N° of elements		111	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>							
Special Features:							
None.							

2.7.15 Parameter Invert Lock Device

FB:	LSAB	Property Name (Server):	Invert Lock Device	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Inversion of the polarity of the DP 'Lock Device'.							
DPT:	Name:	DPT_Invert	DPT_ID:	1.012	Datatype format	B ₁	
Field	Description		Sup.	Range	Unit	Resol.	Default
b	Polarity inversion value		M	{0,1}	none	none	Not inverted
Communication:							
DP Address: (in the server)		Object Type: Start-Index:	417 1	Property ID: N° of elements		114	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>							
Special Features:							
None							

2.7.16 Parameter Behaviour at Locking

FB:	LSAB	Property Name (Server):	Behaviour at Locking		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
Behaviour at the beginning of the lock state of the device.								
DPT:	Name	DPT_Behaviour_Lock_Unlock	DPT_ID	20.600	Datatype format	N ₈		
Field	Description		Sup.	Range	Unit	Default		
Behaviour_Lock_Unlock	Lock state start behaviour.		M	{0 ... 4}	none	cs		
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		107		
		Start-Index:	1	N° of elements				
Property access:		Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection		Read level	-	Write level	-			
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								

2.7.17 Parameter Lock State

FB:	LSAB	Property Name (Server):	Lock State		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
Current State at the beginning of the lock state of the device (frozen value).								
DPT:	Name:	DPT_Switch	DPT_ID	1.001	Datatype format	B ₁		
Field	Description		Sup.	Range	Unit	Resol.:	Default	
b	State at the beginning of the lock state.		M	{0,1}	none	none	cs	
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		115		
		Start-Index:	1	N° of elements				
Property access:		Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection		Read level	-	Write level	-			
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None.								

2.7.18 Parameter Behaviour at Unlocking

FB:	LSAB	Property Name (Server):	Behaviour at Unlocking	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Behaviour at the end of the lock state of the device.					
DPT:	Name	DPT_Behaviour_Lock_Unlock	DPT_ID	20.600	Datatype format N ₈
Field:	Description:	Sup.:	Range:	Unit:	Resol.: Default:
Behaviour_Lock_Unlock	Lock state ned behaviour.	M	{0 ... 6}	none	none cs
Communication:					
DP Address: (in the server)	Object Type:	417	Property ID:	108	
	Start-Index:	1	N° of elements		
Property access:	Read only <input type="checkbox"/>		Read/Write <input checked="" type="checkbox"/>		
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					
None					

2.7.19 Parameter Unlock State

FB:	LSAB	Property Name (Server):	Unlock State	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Current State at the end of the lock state of the device.					
DPT:	Name	DPT_Switch	DPT_ID	1.001	Datatype format: B ₁
Field	Description	Sup.	Range	Unit	Resol.: Default
b	Unlock state	M	{0,1}	none	none cs
Communication:					
DP Address: (in the server)	Object Type:	417	Property ID:	116	
	Start-Index:	1	N° of elements		
Property access:	Read only <input type="checkbox"/>		Read/Write <input checked="" type="checkbox"/>		
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					
None.					

2.7.20 Parameter State for Scene Number

FB:	LSAB	Property Name (Server):	State for Scene Number				Mandatory	<input type="checkbox"/>	
Optional									<input checked="" type="checkbox"/>
Description:									
Stored State for recalling after receiving the dedicated scene number via DP SC.									
DPT:	Name:	DPT_Switch[]	DPT_ID:	1.001	Datatype format	B ₁			
Field	Description			Sup.	Range	Unit	Resol.:	Default	
b	Stored state.			M	{0,1}	none	none	cs	
Communication:									
DP Address: (in the server)		Object Type:	417	Property ID:		117			
		Start-Index:	1	N° of elements		64			
Property access:		Read only	<input type="checkbox"/>	Read/Write		<input checked="" type="checkbox"/>			
Protection		Read level	-	Write level		-			
Exception Handling:		Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value		<input type="checkbox"/>
Special Features:									
It is allowed to implement the array with less than the given number of 64 elements.									

2.7.21 Parameter Storage Function for Scene

FB:	LSAB	Property Name (Server):	Storage Function for Scene			Mandatory	<input type="checkbox"/>	
Optional								<input checked="" type="checkbox"/>
Description:								
Enabling memory storage for a received scene number with a state.								
DPT:	Name	DPT_Enable	DPT_ID:	1.003	Datatype format:	B ₁		
Field	Description			Sup.	Range	Unit	Resol.:	Default
b	Memory storage function enabled for this scene.			M	{0,1}	none	none	cs
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:	118			
		Start-Index:	1	N° of elements	64			
Property access:		Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection		Read level	-	Write level	-			
Exception Handling:		Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:								
It is allowed to implement the array with less than the given number of 64 elements.								

2.7.22 Parameter Transmission Cycle Time

FB:	LSAB	Property Name (Server):	Transmission Cycle Time		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
See Functional Specification.								
DPT:	Name:	DPT_TimePeriodSec	DPT_ID:	7.005	Datatype format:	U ₁₆		
Field	Description		Sup.	Range	Unit:	Resol.:	Default	
TimePeriod	Cycle period for sending the current dimming value on the bus.		M	5 s... 65535 s	s	1 s	cs	
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		105		
		Start-Index:	1	N° of elements				
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None.								

2.7.23 Parameter Bus Power Up Message Delay

FB:	LSAB	Property Name (Server):	Bus Power Up Message Delay		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
The delay time after bus power up for sending a telegram on the bus.								
DPT:	Name:	DPT_Timeout_10Msec	DPT_ID:	7.003	Datatype format:	U ₁₆		
Field:	Description:		Sup.:	Range:	Unit:	Resol.:	Default:	
TimePeriod	Delay time		M	cs	ms	10 ms	cs	
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		106		
		Start-Index:	1	N° of elements				
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None.								

2.7.24 Parameter Behaviour Bus Power Up

FB:	LSAB	Property Name (Server):	Behaviour Bus Power Up		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
Behaviour of the device after bus power up.								
DPT:	Name:	DPT_Behaviour_Bus_Power_Up_Down	DPT_ID:	20.601	Datatype format	N ₈		
Field:	Description:	Sup.:	Range:	Unit:	Resol.:	Default:		
Behaviour_Bus_Power_Up_Down	Power up behaviour	M	{0 ... 4}	none	none	off		
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		109		
		Start-Index:	1	N° of elements				
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
In case the actuator is not able to save its value during/before bus power down in non-volatile memory, it is allowed to use this parameter with restricted range 0 to 3.								
If this parameter is set to "last" the actuator shall go to the state before bus power down at bus power up.								
Special Features:								
None.								

2.7.25 Parameter Bus Power Up State

FB:	LSAB	Property Name (Server):	Bus Power Up State		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
Value of the device after bus power up.								
DPT:	Name:	DPT_Switch	DPT_ID:	1.001	Datatype format:	B ₁		
Field:	Description:	Sup.:	Range:	Unit:	Resol.:	Default:		
b	Power up state.	M	{0,1}	none	none	cs		
Communication:								
DP Address: (in the server)		Object Type:	417	Property ID:		119		
		Start-Index:	1	N° of elements				
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level	-	Write level		-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None.								

2.7.26 Parameter Behaviour Bus Power Down

FB:	LSAB	Property Name (Server):	Behaviour Bus Power Down		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
State of the device on bus power down.								
DPT:	Name:	DPT_Behaviour_Bus_Power Up_Down	DPT_ID:	20.601	Datatype format:	N ₈		
Field:	Description:	Sup.:	Range:	Unit:	Resol.:	Default:		
Behaviour_Bus_Power Up_Down	Bus power down behaviour selection.	M	{0 ... 3}	none	none	off		
Communication:								
DP Address: (in the server)		Object Type: 417	Property ID: 110		N° of elements			
Start-Index: 1								
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level -	Write level -					
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								

2.7.27 Parameter Bus Power Down State

FB:	LSAB	Property Name (Server):	Behaviour Bus Power Up		Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:								
Value of the device after bus power up								
DPT:	Name:	DPT_Switch	DPT_ID:	1.001	Datatype format:	B ₁		
Field:	Description:	Sup.:	Range:	Unit:	Resol.:	Default:		
b	Power up state selection	M	{0,1}	none	none	cs		
Communication:								
DP Address: (in the server)		Object Type: 417	Property ID: 120		N° of elements			
Start-Index: 1								
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>					
Protection		Read level -	Write level -					
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>								
Special Features:								
None								

2.7.28 Parameter Scene Learning Mode Enable

DP Name:	Scene Learning Mode Enable	Abbr.:	SLME	Mandatory	<input type="checkbox"/>	
FB Name:	Light Switching Actuator Basic	Can be internal	<input type="checkbox"/>			
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					
DPT Format:	B ₁	DPT_ID:	1.003			
Field:	Description:	Supp.:	Range:	Unit:	Resol.:	Default:
b	Enabling scene learning	M	{0,1}	none	none	cs
Access Type						
Input						
<input type="checkbox"/>	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
<input type="checkbox"/>	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	NO
<input type="checkbox"/>	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type						
Group Object DP					Mandatory:	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Default Group Address:		---			
Dynamics						
<input type="checkbox"/>	Power down:	Save:	<input type="checkbox"/>			
<input type="checkbox"/>	Power up:	Value:	No initialisation:	<input type="checkbox"/> ^{a)}	Default value:	<input type="checkbox"/>
<input type="checkbox"/>		Saved value:	<input type="checkbox"/>			<input type="checkbox"/>
<input type="checkbox"/>			<input type="checkbox"/>	Read from bus:	<input type="checkbox"/>	
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.

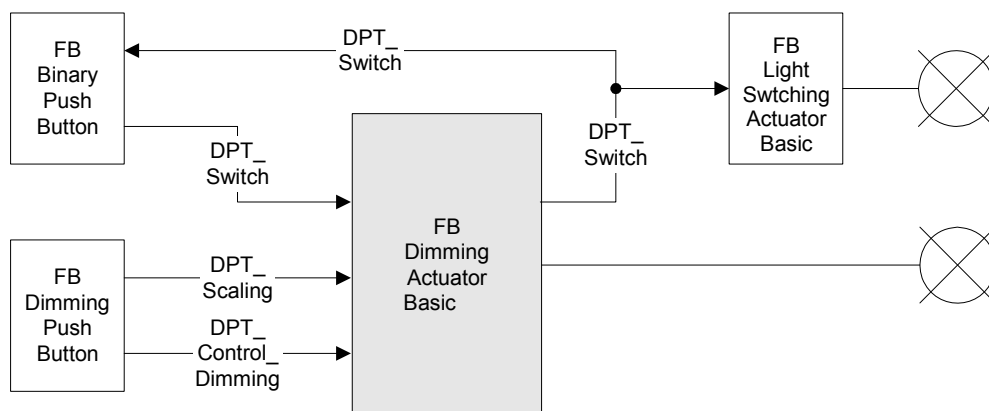


Figure 3 - FB Dimmer Actuator Basic in Application Domain Lighting

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 ≠ 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 ≠ 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).

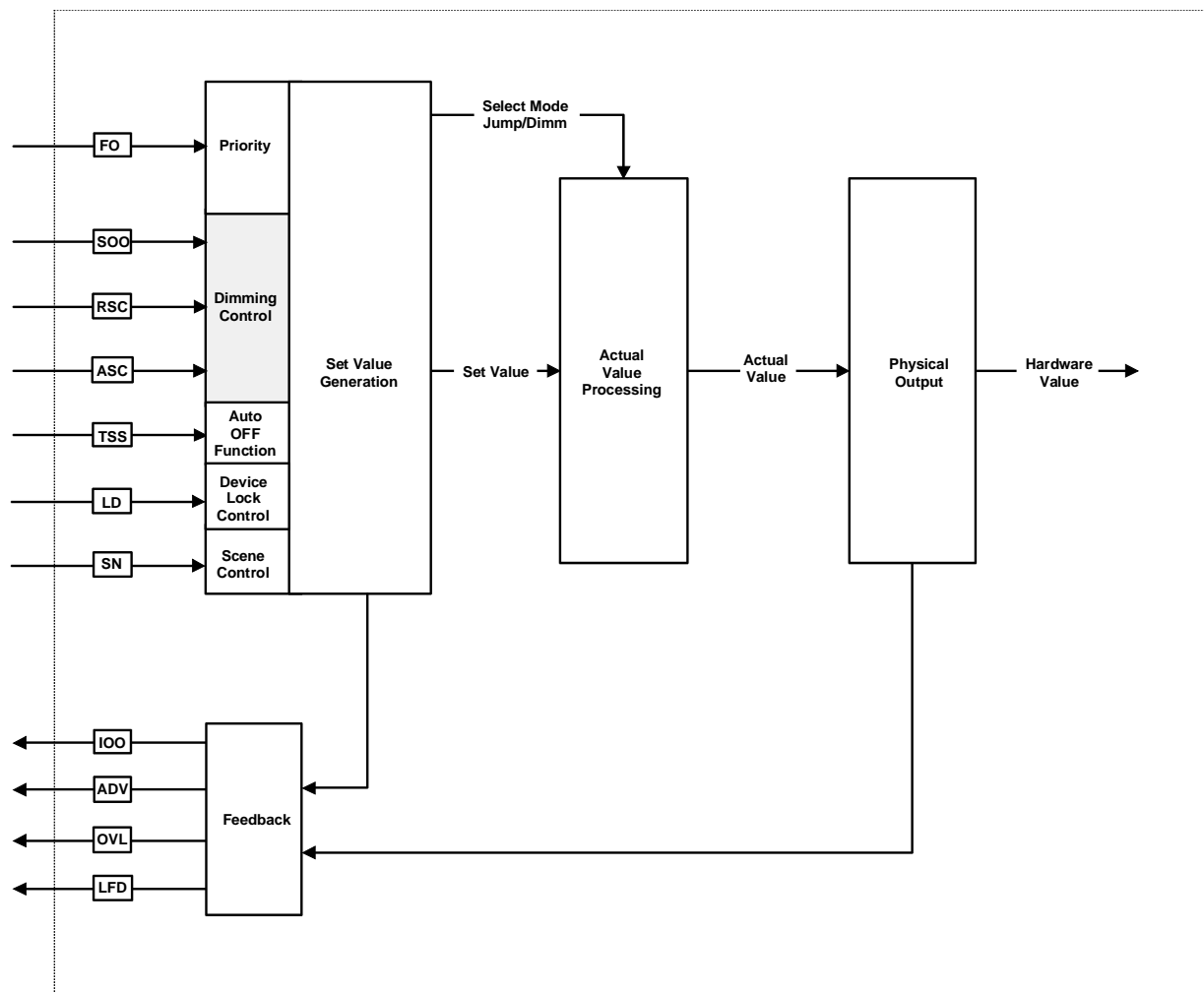


Figure 4 – Input and output Datapoints of FB Dimmer Actuator Basic

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.

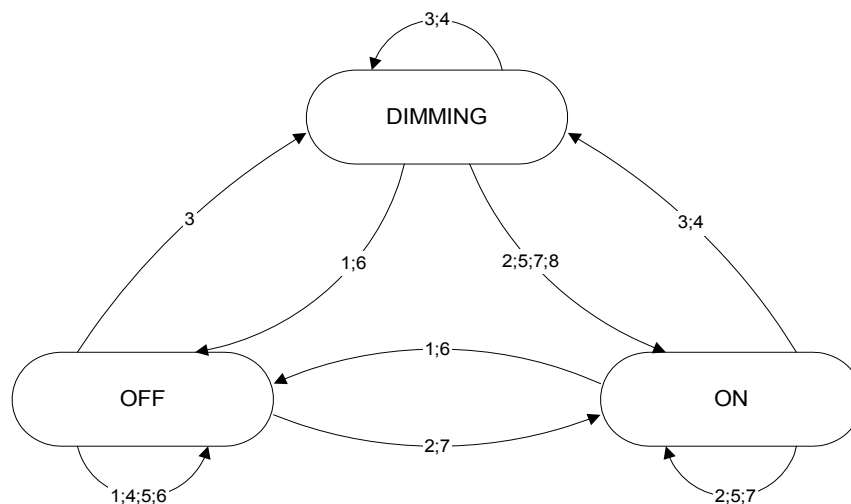


Figure 5 - State transition diagram

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:

$$\text{new_value} = \text{old_value} \pm dX$$

$$dX = FFh / \text{step_size}$$

$$\text{step_size} = 2^{s-1}$$

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.

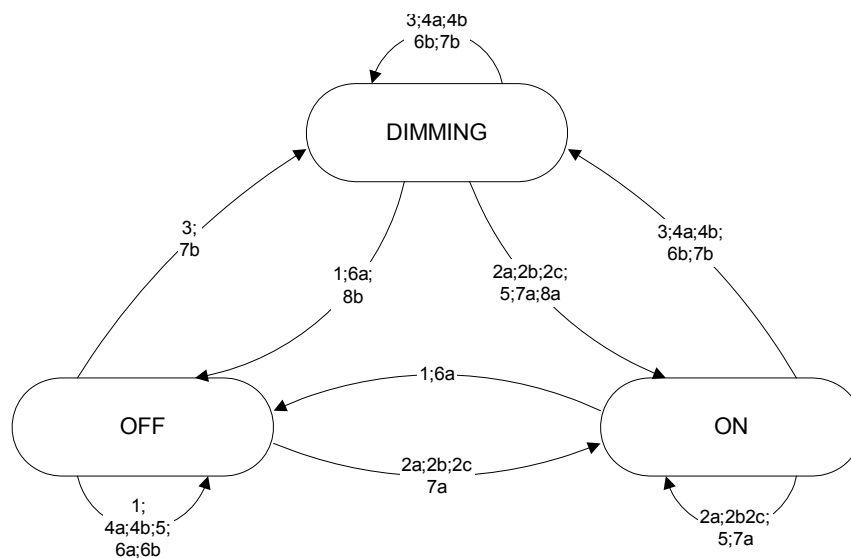


Figure 6 - State transition diagram with parameters MF/OSV ROE, DMS

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

Event	Explanation	Nr in Diagram
SOO = 0	switch off	1
SOO = 1; OSV not implemented	switch on Set Value = Maximum Set Value	2a
SOO = 1; OSV ≠ 0	switch on Set Value = OSV	2b
SOO = 1; MF enabled	switch on Set Value = last Actual Value in State ON/DIMMING	2c
RSC = up dX	increase dimming set-value by dX	3
RSC = down dX ROE: disabled	decrease dimming set-value by dX Set Value = 0 not possible	4a
RSC = down dX ROE: enabled	decrease dimming set-value by dX Set Value = 0 possible	4b
RSC = stop	stop dimming	5
ASC = 0 DMS: Jumping	dimming value = off	6a
ASC = 0 DMS: Dimming	dimming value = off	6b
ASC = X DMS: Jumping	dimming value = x % (not zero)	7a
ASC = X DMS: Dimming	dimming value = x % (not zero)	7b
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; OSV not implemented	switch on: send-request IOO = 1; set value = MAXSV; actual value = set value; ADV = Actual Value	ON
SOO = 1; OSV ≠ 0	switch on: send-request IOO = 1; set value = OSV; actual value = set value ; ADV = actual value	ON
SOO = 1; MF enabled	switch on: send-request IOO = 1; set value = last on value; 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 ROE: disabled	None	OFF
RSC = down dX ROE: enabled	None	OFF
RSC = stop	None	OFF
ASC = 0 DMS: Jumping	None	OFF
ASC = 0 DMS: Dimming	None	OFF
ASC = X DMS: Jumping	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
ASC = X DMS: Dimming	switch on: send-request IOO = 1; X < MINSV: set value = MINSV; X > MAXSV: set value = MAXSV; MINSV ≤ X ≤ MAXSV: set value = X; actual value = MINSV ; ADV = actual value;	DIMMING
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	set value = min(actual value + dX, MAXSV)	DIMMING
RSC = down dX ROE: disabled	set value = max(actual value - dX, MINSV)	DIMMING
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	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 ;	ON
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 (Limit₀ = Limit_{Last} = MAXSV). In this case the dimming speed shall be constant over the whole dimming range.

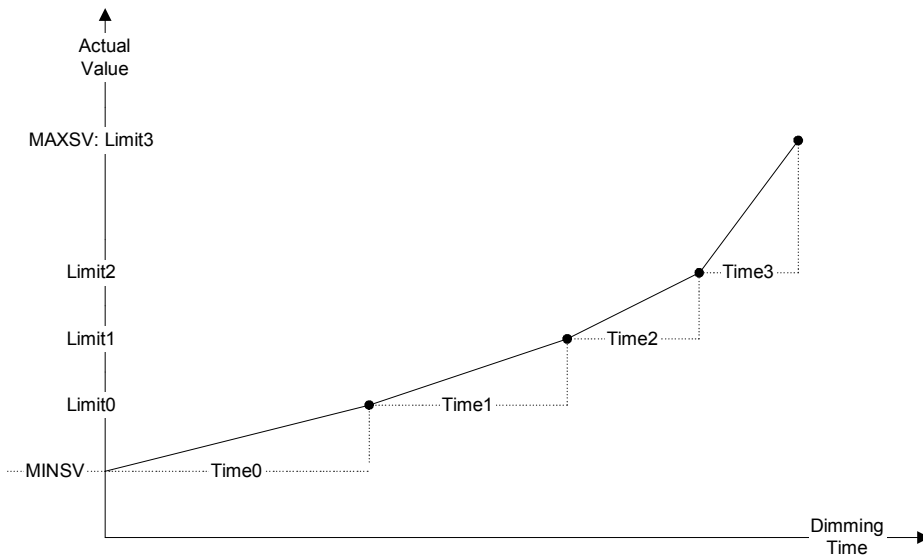


Figure 7 - example of different dimming speeds in subranges

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

$$(\text{Limit}_R - \text{Limit}_{R-1}) / \text{Time}_R$$

DPT_Scaling	Limit ₀	Limit ₁	...	...	Limit _{Last}
DPT_TimePeriod100MSec	Time ₀	Time ₁	...	...	Time _{Last}

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 ₀	Limit ₁	...	...	Limit _{Last}
DPT_TimePeriodMSec	StepTime ₀	StepTime ₁	...	...	StepTime _{Last}

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 (Limit₀ = Limit_{Last} = 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”.

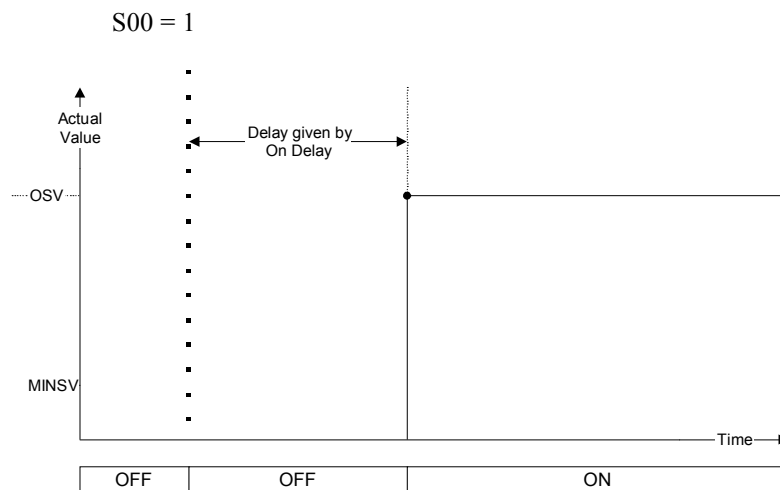


Figure 10 - Timing with parameter OND

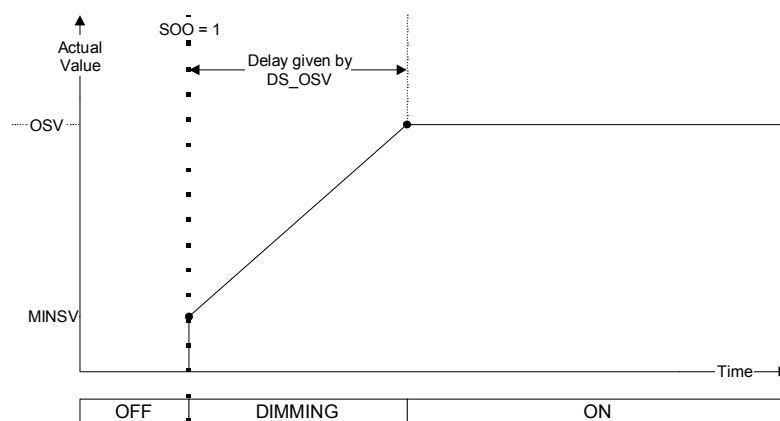


Figure 11 - Timing with parameter DS_OSV

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.

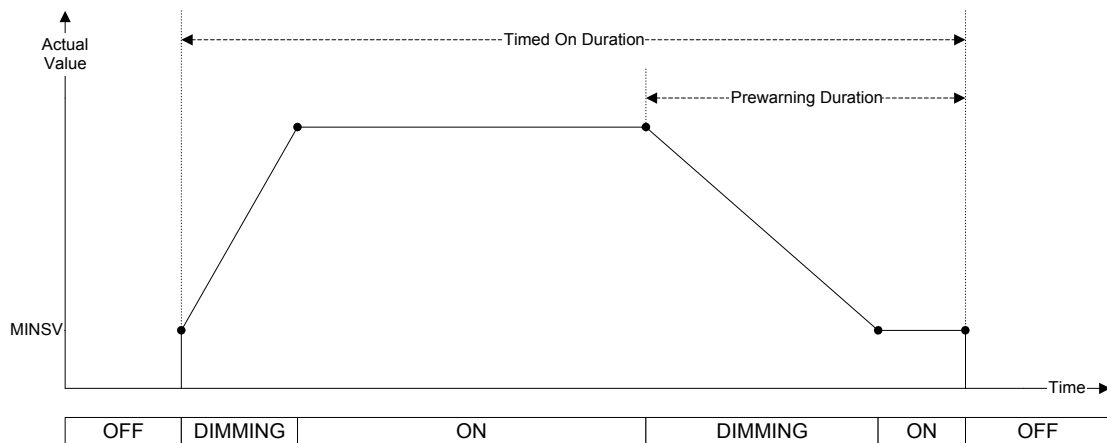


Figure 12 - Example of an Autonomous Switch Off-Function

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).

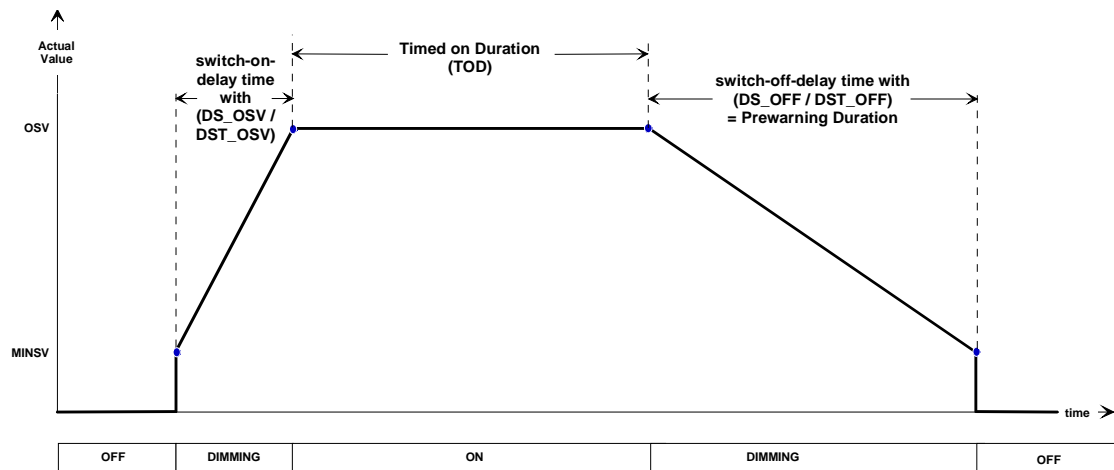


Figure 13 - Example of combining an Autonomous Switch Off-Function with Parameter DS_OSV, DS_OFF

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.

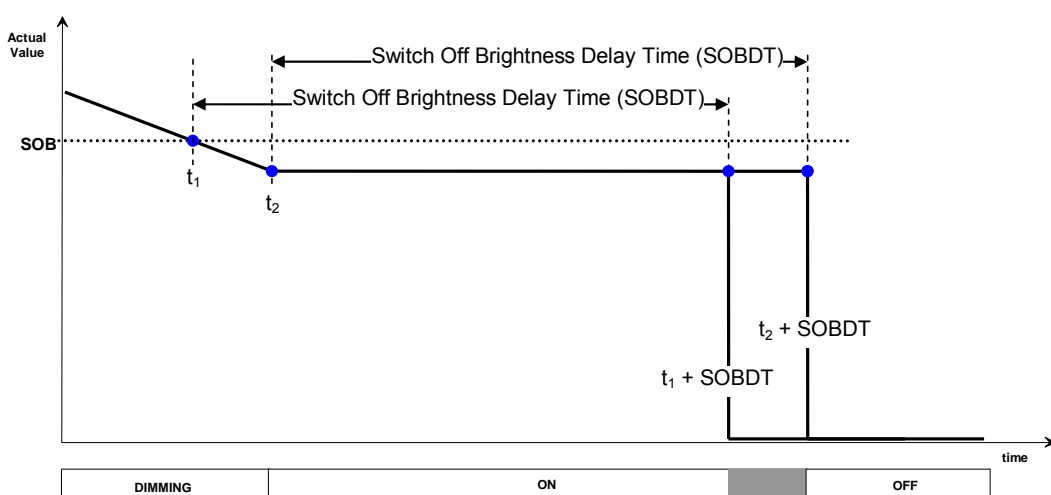


Figure 14 - Switching off according parameter SOB and SOBDT

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.

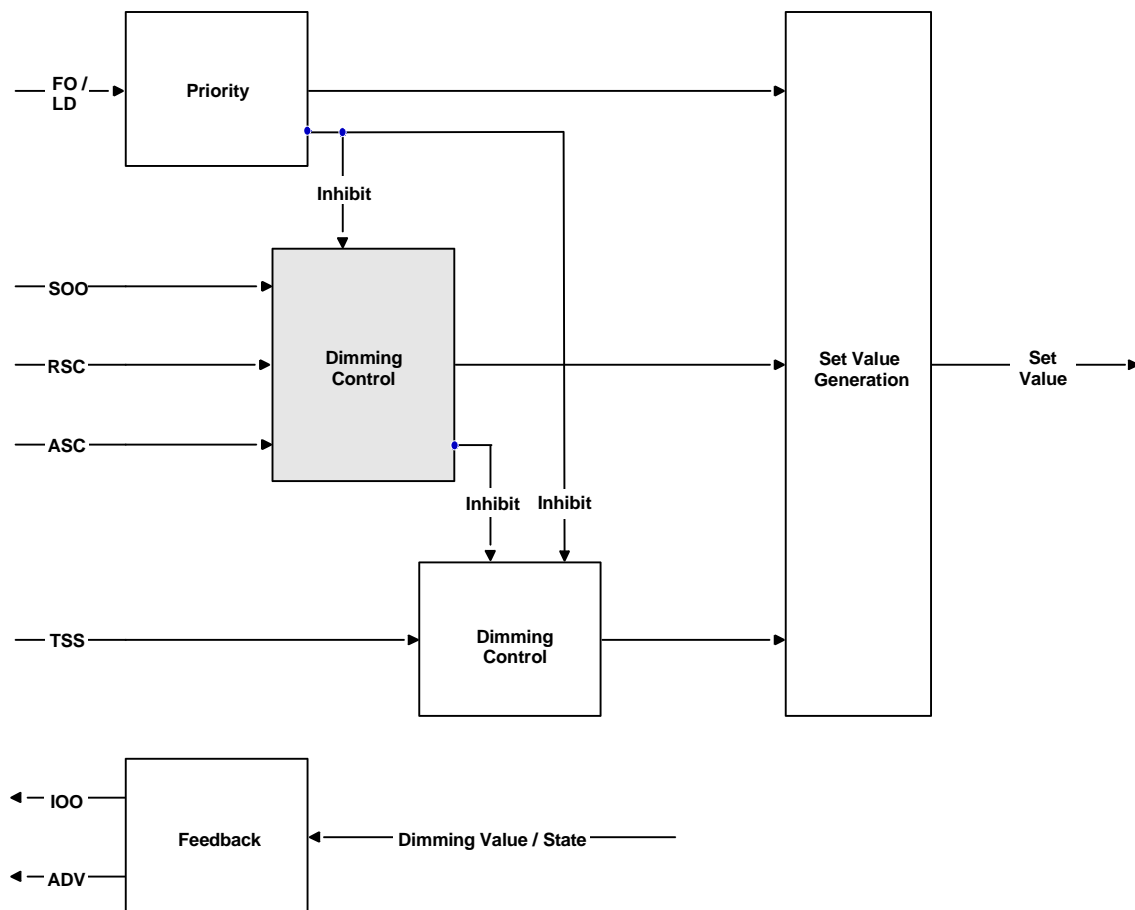


Figure 15 - Example of an implementation of a priority scheme

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 FO	Required behaviour
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) (<i>During</i> 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 Value:	set value = Last On Value; actual value = set value (jumping)
		Value according additional Parameter:	set value = LSV; actual value = set value (jumping)
		Value before locking	set value = value before 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.

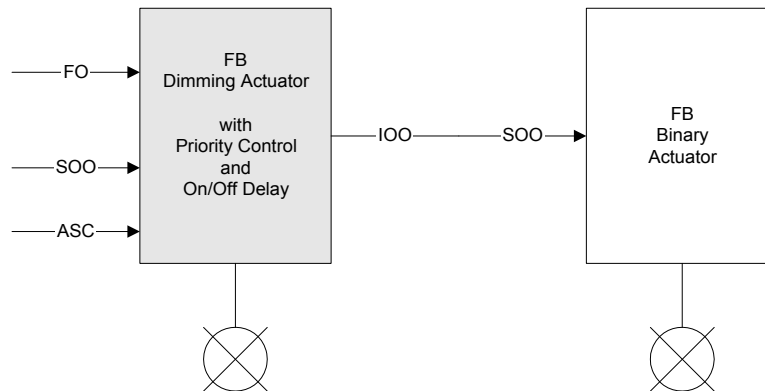


Figure 16 - Example for shifting functionality by linking to IOO

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
<div>Switch OnOff</div> <div>Relativ Setvalue Control</div> <div>Absolute Setvalue Control</div> <div>Timed StartStop</div> <div>Forced</div> <div>Lock Device</div> <div>Scene Number</div> <div>Scene Control</div>		Info On Off
		Actual Dimming Value
		Overload Detection
		Load Failed Detection
additional I/Os		Parameters
None	MIN_SV	Minimum Set Value
	MAX_SV	Maximum Set Value
	OSV	Switch On Set Value
	DMS	Dimm Mode Selection
	ROE	Relativ Off Enable
	MF	Memory Function
	DS	Dimming Speed
	DST	Dimming Step Time
	OND	On Delay
	OFFD	Off Delay
	DS_OSV	Dimming Speed for Switch On Set value
	DS_OFF	Dimming Speed for Switch Off
	DST_OSV	Dimming Step Time for Switch On Set value
	DST_OFF	Dimming Step Time for Switch Off
	TOD	Timed On Duration
	PWD	Prewarning Duration
	TRF	Timed On Retrigger Function
	MOE	Manual Off Enable
	SOB	Switch Off Brightness
	SOBDT	Switch Off Brightness Delay Time
	ILD	Invert Lock Device
	BL	Behaviour at Locking
	BUL	Behaviour at Unlocking
	LSV	Lock Setvalue
	USV	Unlock Setvalue
	BSN	Brightness for Scene
	SFSN	Storage Function for Scene
	SLME	Scene Learning Mode Enable
	TCT	Transmission Cycle Time
	DDV	Delta Dimming Value
	PUMD	Bus Power Up Message Delay
	BPU	Behaviour Bus Power Up
	PUSV	Bus Power Up Set Value
	BPD	Behaviour Bus Power Down
	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	Datapoint Type
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 \Rightarrow 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 Set Value	specifies time for dimming step time for switch on with delay	225.002 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_Up_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_Up_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 Address.

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

3.5.1 FB Profiles ⁵⁾

Features and options	Basic FB	Standard Mode	
		FB Profile 1	Profile 2 (recommended) Standard Mode Interface
// Inputs			
Input SOO	M	GO	GO
Input RSC	M	GO	GO
Input ASC	M	GO	GO
State machine + mandatory behaviour	M	M	M
// Minimal Setvalue			
select 1 of 2 {			
P MINSV is implemented	M	M	M
the minimal setvalue shall be 01h	M	M	M
}			
// Maximal Setvalue			
select 1 of 2 {			
P MAXSV is implemented	O	M	M
the maximal setvalue shall be FFh			
}			
Dimming speed full range {	M	M	M
select 1 of 2 {			
P DS3T3	M	M	M
P DS not implemented: fixed duration ≤ 4 s	M	M	M
}			
}			
// Binary output state			
select 1 of 2 {			
IOO is implemented; SOO is not bidirectional	M	M	M
IOO is not implemented; SOO shall be used bidirectional	M	M	X
}			
// Absolute output state			
select 1 of 2 {			
ADV is implemented; ASC is not bidirectional	M ⁶⁾	M	M
ADV is not implemented; ASC shall be used bidirectional	M	M	X
}			
Functionality "Autonomous Switching Off" {	O	O	O
Parameter "Timed On Duration"	M	M	M

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

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

		Standard Mode	
		FB Profile 1	Profile 2 (recommended) Standard Mode Interface
Features and options	Basic FB		
Link to SOO	O	O	O
Link to TSS (if implemented)	M	M	M
Functionality Retrigger	O	O	O
select 1 of 2 {			
retriggering shall be enabled	M	M	M
P TRF shall be implemented	M	M	M
}			
Functionality Manual off	O	O	O
select 1 of 2 {			
manual off shall be enabled	M	M	M
P MOE shall be implemented	M	M	M
}			
}			
Functionality "Priority of Inputs" {	O	O	O
Functionality "Priority rules"	M	M	M
Functionality "Lock Device" {	O	O	O
Input "Lock device"	M	M	M
Parameter ILD shall be implemented	M	M	M
Value 0 shall unlock; value 1 shall lock	M	M	M
}			
While priority is active or during a delay send IOO only when actually switching	M	M	M
}			
// Optional Output Datapoints			
IF IOO or ADV is implemented {			
behaviour according clauses 3.2.2 and 3.2.3	M	M	M
}			

		Basic FB	S-Mode
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
	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
	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.:	SOO	Mandatory	<input checked="" type="checkbox"/>
FB Name:	Dimming Actuator Basic	Can be internal	<input type="checkbox"/>		
Description					
Binary Control of the set value. An access with the value "1" shall cause switching on. Optional parameters 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 ₁	DPT_ID:	1.001		
Field	Description	Supp.	Range	Unit	Default
			V={0,1}		
Access Type					
Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	NO
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for in input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
For the case that the output Datapoint "Info On OFF" is not implemented, the output characteristics concerning spontaneous- and COV transmission shall be implemented in this Datapoint.					
Special Features					
In a group of dimming actuators only one of them may send back its status on the same Group Address.					

3.6.2 Input Relative Setvalue Control

DP Name:	Relative Setvalue Control	Abbr.:	RSC	Mandatory	<input checked="" type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
Description					
<p>This Input shall serve for relative control of the set value.</p> <p>This Datapoint shall cause the transition from a stable state of the actuator to the state DIMMING, if the step-field of the Datapoint is set to a value $\neq 0$. 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 respect to the last set-value (therefore Relative Control).</p> <p>An access with the step-field set to zero shall stop the dimming process at its current value, independently from the value of the direction-field.</p>					
Datapoint Type					
DPT_Name:	DPT_Control_Dimming				
DPT Format:	B ₁ U ₃	DPT_ID:	3.007		
Field	Description	Supp.	Range	Unit	Default
			B : {0,1} U : {000b to 111b}	-	-
Access Type					
Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	NO
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
Special Features					
Without any additional parameters (e.g. ROE), it is not possible to switch off the actuator by an access to this Datapoint.					

3.6.3 Input Absolute Setvalue Control

DP Name:	Absolute Setvalue Control		Abbr.:	ASC		Mandatory	<input checked="" type="checkbox"/>
FB Name:	Dimming Actuator Basic				Can be internal	<input type="checkbox"/>	
Description							
Absolute Control of the set value An access to this Datapoint shall directly set the set-value. Without any optional parameter, the actual value shall jump to this set-value. If parameter DMS is set to "ramp", the actuator shall enter in the state DIMMING.							
Datapoint Type							
DPT_Name:	DPT_Scaling						
DPT Format:	U ₈		DPT_ID:	5.001			
Field	Description		Supp.	Range	Unit	Default	
				0 % to 100 %	%	-	
Access Type							
Input							
	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>			
	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	NO	
	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:		
Communication Type							
Group Object Datapoint					Mandatory:	<input checked="" type="checkbox"/>	
	Default Group Address:		---				
Dynamics							
	Power down:	Save:	<input type="checkbox"/>				
	Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>	
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>		
		Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>		
Exception Handling							
For the case that the output Datapoint "Actual Dimming Value" is not implemented, this Datapoint shall provide the actual value for read access. Output characteristics concerning cyclic- and COV-transmission shall not be implemented in this Datapoint.							
Special Features							

3.6.4 Input Timed StartStop

DP Name:	Timed StartStop		Abbr.:	TSS		Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic				Can be internal	<input type="checkbox"/>	
Description							
Activation of an autonomous switch off function with value "1".							
Datapoint Type							
DPT_Name:	DPT_Start						
DPT Format:	B ₁		DPT_ID:	1.010			
Field	Description		Supp.	Range	Unit	Default	
				V: {0,1}	-	-	
Access Type							
Input							
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>				
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	none		
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:			
Communication Type							
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>		
Default Group Address:		---					
Dynamics							
Power down:	Save:	<input type="checkbox"/>					
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>		
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>		
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>		
Exception Handling							
Special Features							

3.6.5 Input Forced

DP Name:	Forced	Abbr.:	FO	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
Description					
<p>Shall forces value dependent high priority on or off state. The behaviour when entering the high priority state is given in clause 3.2.4.1 "Priority input Datapoints". The behaviour when leaving the high priority state is manufacturer specific.</p>					
Datapoint Type					
DPT_Name:	DPT_Switch_Control				
DPT_Format:	C ₁ V ₁	DPT_ID:	2.001		
Field	Description	Supp.	Range	Unit	Default
c	Priority control	M	{0,1}	none	none
v	Priority value	M	{0,1}	none	none
Access Type					
Input					
	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>	
	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out: none
	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
	Default Group Address:	---			
Dynamics					
	Power down:	Save:	<input type="checkbox"/>		
	Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:
			Saved value:	<input type="checkbox"/>	Current value (not for input):
		Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
Special Features					

3.6.6 Input Lock Device

DP Name:	Lock Device	Abbr.:	LD	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
Description					
Setting of a parameterised set value in a lock state of the device. If no parameters for the locking mechanism are implemented, the value "1" shall lock the actuator on its current value. Value "0" shall unlock the actuator: the behaviour of the actuator when unlocking it is then manufacturer-specific.					
Datapoint Type					
DPT_Name:	DPT_Enable				
DPT Format:	B ₁	DPT_ID:	1.003		
Field	Description	Supp.	Range	Unit	Default
b	Shall specify whether the lock state is enabled or not.	M	{0,1}	none	0
Access Type					
Input					
<input type="checkbox"/>	N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>	
<input type="checkbox"/>	Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out: none
<input type="checkbox"/>	Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
<input type="checkbox"/>	Power down:	Save:	<input type="checkbox"/>		
<input type="checkbox"/>	Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:
		See ^{a)}	Saved value:	<input type="checkbox"/>	Current value (not for input):
		Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):
				<input type="checkbox"/>	
Exception Handling					
Special Features					
^{a)} Usually after Power Up the default value is set to "0". If parameter ILD is set to "inversion" it is manufacturer specific, to enter the lock-state after power up or not.					

3.6.7 Input Scene Number

DP Name:	Scene Number	Abbr.:	SN	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic	Can be internal			<input type="checkbox"/>
Description					
The Input Scene Number shall be used to recall the set value related to encoded scene number. Up to 64 scene numbers (0 ... 63) can be assigned to the actuator (see parameters) ^{a)} .					
Datapoint Type					
DPT_Name:	DPT_SceneNumber				
DPT_Format:	r ₂ U ₆	DPT_ID:	17.001		
Field	Description	Supp.	Range	Unit	Default
r	Reserved field. Shall be zero.	M	0	none	none
U	Scene number.	M	{0...63}	none	none
Access Type					
Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	none
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
^{a)} An application may support less than the maximal encodable number of 64 scenes. In the case, if a scene is called with a scene number that is not supported, the device shall not react.					
Special Features					

3.6.8 Input Scene Control

DP Name:	Scene Control	Abbr.:	SC	Mandatory	<input type="checkbox"/>																				
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>																				
Description																									
<p>The Input Scene Control shall be used to recall or learn the set value related to encoded scene number. Up to 64 scene numbers (0 ... 63) can be assigned to the actuator (see parameters)^{a)}.</p> <p>If none of 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.</p> <p>If one or both of the parameters SLME or SFSN is implemented, then the request to learn a scene n, this is an access to DP Scene Control with a value of the field B = 1 and the scene number n in the field U - shall function as follows:</p>																									
		<table border="1"> <thead> <tr> <th></th> <th colspan="3">SFSN(array element n)</th> </tr> <tr> <th>SLME</th> <th>Not implemented</th> <th>Disable (= 0)</th> <th>Enable (= 1)</th> </tr> </thead> <tbody> <tr> <td>Not implemented</td> <td>Learn</td> <td>Ignore</td> <td>Learn</td> </tr> <tr> <td>Disable (= 0)</td> <td>Ignore</td> <td>Ignore</td> <td>Ignore</td> </tr> <tr> <td>Enable (= 1)</td> <td>Learn</td> <td>Ignore</td> <td>Learn</td> </tr> </tbody> </table>					SFSN(array element n)			SLME	Not implemented	Disable (= 0)	Enable (= 1)	Not implemented	Learn	Ignore	Learn	Disable (= 0)	Ignore	Ignore	Ignore	Enable (= 1)	Learn	Ignore	Learn
	SFSN(array element n)																								
SLME	Not implemented	Disable (= 0)	Enable (= 1)																						
Not implemented	Learn	Ignore	Learn																						
Disable (= 0)	Ignore	Ignore	Ignore																						
Enable (= 1)	Learn	Ignore	Learn																						
Datapoint Type																									
DPT_Name:	DPT_SceneControl																								
DPT_Format:	B ₁ r ₁ U ₆	DPT_ID:	18.001																						
Field	Description	Supp.	Range	Unit	Default																				
B	Recall or learn the scene.	M	{0,1}	none	none																				
r	Reserved field. Shall be zero.	M	0	none	none																				
U	Scene number.	M	{0...63}	none	none																				
Access Type																									
Input																									
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>																						
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	none																				
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:																					
Communication Type																									
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>																				
Default Group Address:		---																							
Dynamics																									
Power down:	Save:	<input type="checkbox"/>																							
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>																				
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>																				
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>																				
Exception Handling																									
<p>^{a)} An application may support less than the maximal encodable number of 64 scenes. In the case, if a scene is learned or called with a scene number higher than the maximum supported, the device shall not react.</p>																									
Special Features																									

3.6.9 Output Info OnOff

DP Name:	Info OnOff	Abbr.:	IOO	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
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					
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:	B ₁	DPT_ID:	1.001		
Field	Description	Supp.	Range	Unit	Default
b	State of the actuator.	M	{0,1}	none	none
Access Type					
Output					
this → M	<input checked="" type="checkbox"/>	this → 1	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	COV:	<input checked="" type="checkbox"/>	Δ-Value:	Min repetition time:
		Cyclic	<input type="checkbox"/> ²⁾	Period:	NO
Request	<input checked="" type="checkbox"/>				
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
¹⁾ 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:	Actual Dimming Value		Abbr.:	ADV	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic				Can be internal	<input type="checkbox"/>
Description						
<p>Reflects the actual value of the actuator.</p> <p>If an optional input Datapoint, a Delay- or an Autonomous Switch-Off-Function is implemented, the implementation of ADV becomes mandatory. The behaviour shall at least include reflecting the actual value for read access.</p> <p>The conditions for active transmission are given by the parameters TCT and DDV. If these parameters not are implemented, the value may be sent after the state ON/OFF/DIMMING changes.</p>						
Datapoint Type						
DPT_Name:	DPT_Scaling					
DPT Format:	U ₈	DPT_ID:	5.001			
Field	Description	Supp.	Range	Unit	Default	
			0 % ... 100 %	%	-	
Access Type						
Output						
	this → M	<input checked="" type="checkbox"/>	this → 1	<input type="checkbox"/>		
	Spontaneous	<input checked="" type="checkbox"/>	COV:	<input checked="" type="checkbox"/>	Δ-Value:	given by parameter DDV
			Cyclic	<input checked="" type="checkbox"/>	Period:	given by parameter TCT
	Request	<input checked="" type="checkbox"/>	Min repetition time: 5 s ^{a)}			
Communication Type						
Group Object Datapoint					Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:			---			
Dynamics ²⁾						
	Power down:	Save:	<input type="checkbox"/>			
	Power up:	Value:	No initialisation:	<input type="checkbox"/> ^{b)}	Default value:	<input type="checkbox"/>
			Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
		Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling						
<p>^{a)} In the state DIMMING the minimum repetition time may be violated due to settings in parameter DDV.</p> <p>^{b)} 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.</p> <p>After power up ADV is initialised according parameter "Behaviour Bus Power Up". Parameter "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.</p>						
Special Features						

3.6.11 Output Overload Detection

DP Name:	Overload Detection		Abbr.:	OVL	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic				Can be internal	<input type="checkbox"/>
Description						
Indicates Load Mismatch						
Datapoint Type						
DPT_Name:	DPT_Alarm					
DPT Format:	B ₁	DPT_ID:		1.005		
Field	Description	Supp.	Range	Unit	Default	
			V : {0,1}	-	-	
Access Type						
Output						
this → M	<input checked="" type="checkbox"/>	this → 1	<input type="checkbox"/>			
Spontaneous	<input checked="" type="checkbox"/>	COV:	<input checked="" type="checkbox"/>	Δ-Value:	Min repetition time:	
		Cyclic	<input type="checkbox"/>	Period:	none	
Request	<input checked="" type="checkbox"/>					
Communication Type						
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>	
Default Group Address:		---				
Dynamics						
Power down:	Save:	<input type="checkbox"/>				
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:		<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (nor for input):		<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):		<input type="checkbox"/>
Exception Handling						
Special Features						

3.6.12 Output Load Failed Detection

DP Name:	Load Failed Detection	Abbr.:	LFD	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
Description					
Indicates a failed load.					
Datapoint Type					
DPT_Name:	DPT_Alarm				
DPT Format:	B ₁	DPT_ID:	1.005		
Field	Description	Supp.	Range	Unit	Default
			V : {0,1}	-	-
Access Type					
Output					
this → M	<input checked="" type="checkbox"/>	this → 1	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	COV:	<input checked="" type="checkbox"/>	Δ-Value:	Min repetition time:
		Cyclic	<input type="checkbox"/>	Period:	none
Request	<input checked="" type="checkbox"/>				
Communication Type					
Group Object Datapoint				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):	<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>	
Exception Handling					
Special Features					

3.6.13 Parameter Minimum Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Minimum Set Value	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Lowest possible set value					
DPT:	Name:	DPT_Scaling	DPT ID	Datatype format	U ₈
Field	Description	Sup.	Range	Unit	Default
			cs	%	cs
Communication:					
DP Address:	object_type:	418	PID:	115	
(in the server)	start_index:	1	nr_of_elem:		
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>					
When this optional parameter not is implemented, the value 01h shall be taken into account					
Special Features:					

3.6.14 Parameter Maximum Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Maximum Set Value	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Highest possible set value					
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format U ₈
Field	Description	Sup.	Range	Unit	Default
			cs	%	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	116	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>					
When this optional parameter not is implemented, the value FFh shall be taken into account					
Special Features:					

3.6.15 Parameter Switch On Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Switch On Set Value	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
SetValue after reception of value = 1 for datapoint "Switch On Off" (SOO)					
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format U ₈
Field	Description	Sup.	Range	Unit	Default
			01h % ... FFh %	%	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	117	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>					
When this parameter is set lower than MINSV or higher than MAXSV the relevant minimal and maximal parameter values shall be taken into account.					
Special Features:					

3.6.16 Parameter Dimm Mode Selection

FB:	Dimming Actuator Basic	Property Name (Server):	Dimm Mode Selection	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Selects behaviour dimming/jumping after reception on input "Absolute Setvalue Control". Then this parameter is set to "no ramp", after reception on ASC the actuator jumps to the new Set-Value. In the other case the actuator enters in the state DIMMING.					
DPT:	Name	DPT_Ramp	DPT ID	1.004	Datatype format B ₁
Field	Description	Sup.	Range	Unit	Default
			V : {0,1}	-	No ramp
Communication:					
DP Address: (in the server)	object_type:	418	PID:	118	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.17 Parameter Relativ Off Enable

FB:	Dimming Actuator Basic	Property Name (Server):	Relativ Off Enable	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
If this parameter is set to enabled, switching off after reception on input "Relative Setvalue Control" is possible.					
When the newly calculated set value after "RSC = down DX" is below MINSV, the set value shall be set to zero. In this case the actuator switches off if its actual value reaches MINSV.					
DPT:	Name	DPT_Enable	DPT ID	1.003	Datatype format B ₁
Field	Description	Sup.	Range	Unit	Default
			V : {0,1}		disable
Communication:					
DP Address: (in the server)	object_type:	418	PID:	119	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.18 Parameter Memory Function

FB:	Dimming Actuator Basic	Property Name (Server):	Memory Function	Mandatory Optional	<input type="checkbox"/> <input checked="" type="checkbox"/>		
Description:							
If this parameter is set to enabled, then at reception of SOO = On, the new set value is set to the actual value in last ON-State.							
If this parameter is set to disabled, then at reception of SOO = On, the new set value is given by parameter OSV.							
DPT:	Name	DPT_Enable	DPT ID	1.003	Datatype format B ₁		
Field		Description		Sup.	Range	Unit	Default
					V : {0,1}		disable
Communication:							
DP Address: (in the server)		object_type:	418	PID:	120		
		start_index:	1	nr_of_elem:			
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level	-		
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>							
After initialisation, the actual value in last ON-State may be not known. After reception of SOO = On with unknown last value, it is manufacturer specific to select the switch on set-value between MINSV and MAXSV.							
Special Features:							

3.6.19 Parameter Dimming Speed

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Speed	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Specifies the dimming speed: This parameter is defined as array of max. 8 elements that divide the entire dimming range in subranges. The elements are structured datatypes, consisting of the limit of the dimming subrange (thereby taking into account the limit of the previous subrange) and the time needed for dimming through the subrange. The array shall be implemented in ascending order as regards the various subranges. In other words, the first subrange lies between MINSV and Limit ₀ . The limit for last subrange represents MAXSV. The array may consist of only one element (Limit ₀ = Limit _{Last} = MAXSV). In this case the dimming speed is constant over the whole dimming range.					
DPT:	Name	DPT_ScalingSpeed[]	DPT ID	225.001	Datatype format U ₁₆ U ₈
Field	Description		Sup.	Range	Unit Default
				cs	10 %/s cs
Communication:					
DP Address: (in the server)		object_type:	418	PID:	108
		start_index:	1	nr_of_elem:	8
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>		
Protection		Read level	-	Write level	-
Exception Handling: Value after Power-up: Stored Value <input checked="" type="checkbox"/> Act Value <input type="checkbox"/> Default Value <input type="checkbox"/>					
If this parameter is not implemented, a sweep from MINSV to MAXSV in a time of 4 s shall be possible					
Special Features:					

3.6.20 Parameter Dimming Step Time

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Step Time	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
<p>Specifies the time that is needed for changing the actual value by one incremental step (i.e. $\approx 0,4\%$). This parameter is defined as array of max. 8 elements that divide the entire dimming range in subranges. The elements are structured datatypes, consisting of the limit of the dimming subrange (thereby taking into account the limit of the previous subrange) and the time needed for changing the actual value by one incremental step in this subrange. The array shall be implemented in ascending order as regards the various subranges. In other words, the first subrange lies between MINSV and Limit₀. The limit for last subrange represents MAXSV.</p> <p>The array may consist of only one element (Limit₀ = Limit_{Last} = MAXSV). In this case the dimming step is constant over the whole dimming range.</p>					
DPT:	Name	DPT_Scaling_Step_Time[]	DPT ID	225.002	Datatype format U ₁₆ U ₈
Field	Description	Sup.	Range	Unit	Default
			cs	ms	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	109	
	start_index:	1	nr_of_elem:	8	
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>
				Default Value	<input type="checkbox"/>
If this parameter is not implemented, a sweep from MINSV to MAXSV in a time of 4 s shall be possible					
Special Features:					

3.6.21 Parameter On Delay

FB:	Dimming Actuator Basic	Property Name (Server):	On Delay	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
<p>Specifies the delay-time from</p> <ul style="list-style-type: none"> - state OFF to ON (usually after access to Input SOO and ASC), and - state OFF to DIMMING (usually after access to Input RSC). <p>The selection of input Datapoints that are affected by the delay mechanism is manufacturer specific.</p>					
DPT:	Name	DPT_TimePeriod_10MSec	DPT ID	7.003	Datatype format U ₁₆
Field	Description	Sup.	Range	Unit	Default
			cs	10 ms	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	101	
	start_index:	1	nr_of_elem:		
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>
				Default Value	<input type="checkbox"/>
Special Features:					

3.6.22 Parameter Off Delay

FB:	Dimming Actuator Basic	Property Name (Server):	Off Delay	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Specifies the delay-time from							
<ul style="list-style-type: none"> - state ON to OFF (usually after access to Input SOO and ASC), and - state DIMMING to OFF (usually after access to Input RSC). 							
The selection of input Datapoints that are affected by the delay mechanism is manufacturer specific.							
DPT:	Name	DPT_TimePeriod_10MSec	DPT ID	7.003	Datatype format	U ₁₆	
Field	Description			Sup.	Range	Unit	Default
					cs	10 ms	cs
Communication:							
DP Address: (in the server)	object_type:	418	PID:	102			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.23 Parameter Dimming Speed for Switch On Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Speed for Switch on Set Value	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_ScalingSpeed[]	DPT ID	225.001	Datatype format	U ₁₆ U ₈	
Field	Description			Sup.	Range	Unit	Default
					cs	10 %/s	cs
Communication:							
DP Address: (in the server)	object_type:	418	PID:	110			
	start_index:	1	nr_of_elem:	8			
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.24 Parameter Dimming Speed for Switch Off

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Speed for Switch Off	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_ScalingSpeed	DPT ID	225.001	Datatype format	U ₁₆ U ₈	
Field	Description		Sup.	Range	Unit	Default	
				cs	10 %/s	cs	
Communication:							
DP Address: (in the server)		object_type:	418	PID:		111	
		start_index:	1	nr_of_elem:		8	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>		Default Value <input type="checkbox"/>	
Special Features:							

3.6.25 Parameter Dimming Step Time for Switch On Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Step Time for Switch On Set Value	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_Scaling_Step_Time	DPT ID	225.002	Datatype format	U ₁₆ U ₈	
Field	Description		Sup.	Range	Unit	Default	
				cs	10 %/s	cs	
Communication:							
DP Address: (in the server)		object_type:	418	PID:		112	
		start_index:	1	nr_of_elem:		8	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>		Default Value <input type="checkbox"/>	
Special Features:							

3.6.26 Parameter Dimming Step Time for Switch Off

FB:	Dimming Actuator Basic	Property Name (Server):	Dimming Step Time for Switch Off	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_Scaling_Step_Time	DPT ID	225.002	Datatype format	U ₁₆ U ₈	
Field	Description		Sup.	Range	Unit	Default	
				cs	ms	cs	
Communication:							
DP Address: (in the server)		object_type:	418	PID:		113	
		start_index:	1	nr_of_elem:		8	
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>		Default Value <input type="checkbox"/>	
Special Features:							

3.6.27 Parameter Switch Off Brightness

FB:	Dimming Actuator Basic	Property Name (Server):	Switch Off Brightness	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Limit of brightness for an automatic switching off.							
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format	U ₈	
Field	Description		Sup.	Range	Unit	Default	
				cs	%	cs	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	114			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	
Special Features:							

3.6.28 Parameter Switch Off Brightness Delay Time

FB:	Dimming Actuator Basic	Property Name (Server):	Switch Off Brightness Delay Time	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Delay time for an automatic switching off after reaching the switch off brightness.							
DPT:	Name	DPT_TimePeriod_Sec	DPT ID	7.005	Datatype format	U ₁₆	
Field	Description		Sup.	Range	Unit	Default	
				cs	s	cs	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	103			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	
Special Features:							

3.6.29 Parameter Timed On Duration

FB:	Dimming Actuator Basic	Property Name (Server):	Timed On Duration	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_TimePeriodSec	DPT ID	7.005	Datatype format	U ₁₆	
Field	Description		Sup.	Range	Unit	Default	
				cs	s	cs	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	104			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	
Special Features:							

3.6.30 Parameter Prewarning Duration

FB:	Dimming Actuator Basic	Property Name (Server):	Prewarning Duration	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
see Functional Specification							
DPT:	Name	DPT_TimePeriodSec	DPT ID	7.005	Datatype format	U ₁₆	
Field	Description		Sup.	Range	Unit	Default	
TimePeriod	Time for the prewarning duration.		M	cs	s	1 s	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	105			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.31 Parameter Timed On Retrigger Function

FB:	Dimming Actuator Basic	Property Name (Server):	Timed On Retrigger Function	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Behaviour of the device for the optional property "autonomous switching off".							
DPT:	Name	DPT_Enable	DPT ID	1.003	Datatype format	B ₁	
Field	Description		Sup.	Range	Unit	Resol.:	Default
b	Enables retriggering the on-duration times		M	{0,1}	none	none	cs
Communication:							
DP Address: (in the server)	object_type:	418	PID:	121			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.32 Parameter Manual Off Enable

FB:	Dimming Actuator Basic	Property Name (Server):	Manual Off Enable	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Behaviour of the device for the optional property "autonomous switching off"							
DPT:	Name	DPT_Enable	DPT ID	1.003	Datatype format	B ₁	
Field	Description	Sup.	Range	Unit	Default		
			V : {0,1}	-	cs		
Communication:							
DP Address: (in the server)	object_type:	418	PID:	122			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.33 Parameter Invert Lock Device

FB:	Dimming Actuator Basic	Property Name (Server):	Invert Lock Device	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Inversion of the polarity of the Datapoint "Lock Device".					
DPT:	Name	DPT_Invert	DPT ID	1.012	Datatype format B ₁
Field	Description		Sup.	Range	Unit
				V : {0,1}	No inversion
Communication:					
DP Address: (in the server)	object_type:	418	PID:	123	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.34 Parameter Behaviour at Locking

FB:	Dimming Actuator Basic	Property Name (Server):	Behaviour at Locking	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Behaviour at the beginning of the lock state of the device.					
DPT:	Name	DPT_Behaviour_Lock_Unlock	DPT ID	20.600	Datatype format N ₈
Field	Description		Sup.	Range	Unit
Behaviour	Lock state start behaviour		M	{0 ... 4}	none cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	124	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.35 Parameter Lock Setvalue

FB:	Dimming Actuator Basic	Property Name (Server):	Lock Setvalue	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Actual Value at the beginning of the lock state of the device (frozen value)					
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format U ₈
Field	Description	Sup.	Range	Unit	Default
			0 % ... 100 %	%	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	126	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.36 Parameter Behaviour at Unlocking

FB:	Dimming Actuator Basic	Property Name (Server):	Behaviour at Unlocking	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Behaviour at the end of the lock state of the device							
DPT:	Name	DPT_Behaviour_Lock_Unlock	DPT ID	20.600	Datatype format	N ₈	
Field	Description			Sup.	Range	Unit	Default
Behaviour	Lock state end behaviour			M	{0 ... 6}	none	cs
Communication:							
DP Address: (in the server)		object_type:	418	PID:		125	
		start_index:	1	nr_of_elem:			
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>		Default Value <input type="checkbox"/>	
Special Features:							

3.6.37 Parameter Unlock Setvalue

FB:	Dimming Actuator Basic	Property Name (Server):	Unlock Setvalue	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Actual Value at the end of the lock state of the device							
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format	U ₈	
Field	Description	Sup.	Range			Unit	Default
			0 % ... 100 %			%	cs
Communication:							
DP Address: (in the server)		object_type:	418	PID:		127	
		start_index:	1	nr_of_elem:			
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level		-	
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>		Default Value <input type="checkbox"/>	
Special Features:							

3.6.38 Parameter Brightness for Scene

FB:	Dimming Actuator Basic	Property Name (Server):	Brightness for Scene	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Stored Brightness for recalling after receiving the dedicated scene number					
DPT:	Name	DPT_Scaling[]	DPT ID	5.001	Datatype format
Field	Description	Sup.	Range	Unit	Default
			1 % ... 100 %	%	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	128	
	start_index:	1	nr_of_elem:	64	
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>
				Default Value	<input type="checkbox"/>
Special Features:					
It is allowed to implement the array with less than the given number of 64 elements.					

3.6.39 Parameter Storage Function for Scene

FB:	Dimming Actuator Basic	Property Name (Server):	Storage Function for Scene	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Enabling memory storage for a received scene number with a new brightness.					
DPT:	Name	DPT_Enable[]	DPT ID	1.003	Datatype format
Field	Description	Sup.	Range	Unit	Default
			V = {0,1}	-	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	129	
	start_index:	1	nr_of_elem:	64	
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>
				Default Value	<input type="checkbox"/>
Special Features:					
It is allowed to implement the array with less than the given number of 64 elements					

3.6.40 Parameter Transmission Cycle Time

FB:	Dimming Actuator Basic	Property Name (Server):	Transmission Cycle Time	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
See Functional Specification.					
DPT:	Name	DPT_TimePeriodSec	DPT ID	7.005	Datatype format
Field	Description	Sup.	Range	Unit	Default
			5 s to 65,536 s	s	cs
Communication:					
DP Address: (in the server)	object_type:	418	PID:	106	
	start_index:	1	nr_of_elem:		
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>	
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>
				Default Value	<input type="checkbox"/>
Special Features:					

3.6.41 Parameter Delta Dimming Value

FB:	Dimming Actuator Basic	Property Name (Server):	Delta Dimming Value	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
Minimal change of the actual dimming value in the state 'dimming' to send on the bus with the optional Datapoint "Actual Dimming Value (ADV)".							
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format	U ₈	
Field	Description		Sup.	Range	Unit	Default	
				5 % to 25 %	%	cs	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	130			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.42 Parameter Bus Power Up Message Delay

FB:	Dimming Actuator Basic	Property Name (Server):	Bus Power Up Message Delay	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
The delay time after bus power up for sending a telegram on the bus.							
DPT:	Name	DPT_Timeout_10MSec	DPT ID	7.003	Datatype format	U ₁₆	
Field	Description		Sup.	Range	Unit	Default	
Communication:							
DP Address: (in the server)	object_type:	418	PID:	107			
	start_index:	1	nr_of_elem:				
Property access:	Read only	<input type="checkbox"/>	Read/Write	<input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-			
Exception Handling:	Value after Power-up:	Stored Value	<input checked="" type="checkbox"/>	Act Value	<input type="checkbox"/>	Default Value	<input type="checkbox"/>
Special Features:							

3.6.43 Parameter Behaviour Bus Power Up

FB:	Dimming Actuator Basic	Property Name (Server):	Behaviour Bus Power Up	Mandatory <input type="checkbox"/>	Optional <input checked="" type="checkbox"/>
Description:					
Behaviour of the device after bus power up.					
DPT:	Name	DPT Behaviour Bus Power Up Down	DPT ID	20.601	Datatype format N ₈
Field	Description	Sup.	Range	Unit	Default
			0 : off	-	off
			1 : on		
			2 : no change		
			3 : value according additional parameter		
			4 : last (value before bus power down)		
			5-255 : reserved		
Communication:					
DP Address: (in the server)	object_type:	418	PID:	131	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
<p>In case the actuator is not able to save its value during/before bus power down in non-volatile memory, it is allowed to use this parameter with restricted range 0 to 3.</p> <p>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.</p>					
Special Features:					

3.6.44 Parameter Behaviour Bus Power Down

FB:	Dimming Actuator Basic	Property Name (Server):	Behaviour Bus Power Down	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
DPT:	Name	DPT_Behaviour_Bus_Power_Up_Do wn	DPT ID	20.601	Datatype format	N ₈	
Field	Description	Sup.	Range	Unit	Default		
			0 : off 1 : on 2 : no change 3 : value according additional parameter 4-255 : reserved	-	off		
Communication:							
DP Address:		object_type:	418	PID:	133		
(in the server)		start_index:	1	nr_of_elem:			
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level	-		
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>		
<p>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:</p> <p>Selection 2: no change ⇒ value before power down = 0: OFF ⇒ value before power down ≠ 0: ON</p> <p>Selection 3: value according additional parameter ⇒ parameter value = 0: OFF ⇒ parameter value ≠ 0: ON</p>							
Special Features:							

3.6.45 Parameter Bus Power Up Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Behaviour Bus Power Up Set Value	Mandatory	<input type="checkbox"/>	Optional	<input checked="" type="checkbox"/>
Description:							
State of the device after bus power up.							
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format		
Field	Description	Sup.	Range	Unit	Default		
			0 % to 100 %	%	0		
Communication:							
DP Address:		object_type:	418	PID:	132		
(in the server)		start_index:	1	nr_of_elem:			
Property access:		Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>				
Protection		Read level	-	Write level	-		
Exception Handling:		Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>		
Special Features:							

3.6.46 Parameter Bus Power Down Set Value

FB:	Dimming Actuator Basic	Property Name (Server):	Bus Power Down Set Value	Mandatory	<input type="checkbox"/>
				Optional	<input checked="" type="checkbox"/>
Description:					
Value of the device after bus power up					
DPT:	Name	DPT_Scaling	DPT ID	5.001	Datatype format U ₈
Field	Description	Sup.	Range	Unit	Default
			0 % to 100 %	%	0 %
Communication:					
DP Address: (in the server)	object_type:	418	PID:	134	
	start_index:	1	nr_of_elem:		
Property access:	Read only <input type="checkbox"/>	Read/Write <input checked="" type="checkbox"/>			
Protection	Read level	-	Write level	-	
Exception Handling:	Value after Power-up:	Stored Value <input checked="" type="checkbox"/>	Act Value <input type="checkbox"/>	Default Value <input type="checkbox"/>	
Special Features:					

3.6.47 Parameter Scene Learning Mode Enable

DP Name:	Scene Learning Mode Enable	Abbr.:	SLME	Mandatory	<input type="checkbox"/>
FB Name:	Dimming Actuator Basic			Can be internal	<input type="checkbox"/>
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 is 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				
DPT Format:	B ₁	DPT_ID:	1.003		
Field:	Description:	Sup.:	Range:	Unit:	Resol.:
b	Enabling scene learning	M	{0,1}	none	none
Access Type					
◆ Input					
N → this	<input checked="" type="checkbox"/>	1 → this	<input type="checkbox"/>		
Spontaneous	<input checked="" type="checkbox"/>	Cyclically:	<input type="checkbox"/>	Time-out:	no
Request	<input type="checkbox"/>	Polling:	<input type="checkbox"/>	Period:	
Communication Type					
Group Object DP				Mandatory:	<input checked="" type="checkbox"/>
Default Group Address:		---			
Dynamics					
Power down:	Save:	<input type="checkbox"/>			
Power up:	Value:	No initialisation:	<input type="checkbox"/>	Default value:	<input type="checkbox"/>
		Saved value:	<input type="checkbox"/>	Current value (not for input):	<input type="checkbox"/>
	Transmit on bus (only for output):		<input type="checkbox"/>	Read from bus (only for input):	<input type="checkbox"/>
Exception Handling					
Special Features					
None.					

