

KNX Actuator 19.6K



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Table of Contents

1	DEVICE TEMPLATE.....	3
1.1	PRODUCT NAME AND APPLICATION NAME ON DESCRIPTOR	4
1.2	FUNCTIONAL PRIORITIES	4
1.3	NAME OF THE PARAMETER CONFIGURATION PAGES ON DESCRIPTOR.....	4
1.4	LIST OF COMMUNICATION OBJECTS	5
1.4.1	<i>Behavior during the initialization, the Restart and the Bus Recovery</i>	5
1.5	DETAILED DESCRIPTION OF THE COMMUNICATION OBJECTS	6
1.5.1	<i>DPT_Channel X – Set ON/OFF F (1.001 Switch o 7.001 Value_2_Ucount)</i>	6
1.5.2	<i>DPT_Channel X – Force Out (1.001 Switch)</i>	8
1.5.3	<i>DPT_Channel ALL – Force ALL Out (1.001 Switch)</i>	8
1.5.4	<i>DPT_Channel X – Select Scene (18.001 DPT_Scene Control)</i>	9
1.5.5	<i>DPT_Channel X - Status e DPT_Channel X - Status Inverted (1.001 Switch)</i>	9
1.5.6	<i>DPT_Channel X - Logic Input 1 e DPT_Channel X - Logic Input 2 (1.002 Boolean)</i>	9
1.5.7	<i>DPT_Channel X – Lock PORT (1.002 Boolean)</i>	9
1.5.8	<i>DPT_Channel X - High Threshold and DPT_Channel X - Low Threshold (7.001Value_2_Ucount)</i>	9
1.5.9	<i>DPT_Channel X – On Delay (s) and DPT_Channel X – Off Delay (s) (7.005 TimePeriodSec)</i>	10
1.5.10	<i>DPT_Channel X- Blink On Time (s) and DPT_Channel X- Blink Off Time (s) (7.005 TimePeriodSec)</i>	10
1.6	ENABLING CHANNEL LOGICAL BLOCK.....	10
1.7	LIST OF PARAMETERS OF THE CHANNEL CONFIGURATION PAGE	11
1.8	LIST OF PARAMETERS OF THE CHANNEL SCENARIOS CONFIGURATION PAGE	12
1.9	LIST OF GENERAL CONFIGURATION PARAMETERS (VALID FOR EACH CHANNEL)	13
1.10	DETAILED DESCRIPTION OF THE PARAMETERS OF CHANNEL CONFIGURATION PAGE	13
1.10.1	<i>Par_Contact Type</i>	13
1.10.2	<i>PAR_Startup</i>	13
1.10.3	<i>PAR_Function</i>	13
1.10.4	<i>PAR_On Delay (s)</i>	13
1.10.5	<i>PAR_Off Delay (s)</i>	14
1.10.6	<i>PAR_Blink On (s), PAR_Blink Off (s)</i>	14
1.10.7	<i>PAR_Upper Threshold, PAR_Lower Threshold</i>	14
1.10.8	<i>PAR_Comparison method</i>	14
1.10.9	<i>PAR_Stairs Light Time (s)</i>	14
1.10.10	<i>PAR_Enable Logic Function</i>	14
1.10.11	<i>PAR_Logic Operator</i>	15
1.10.12	<i>PAR_Value PORT Locked</i>	15
1.10.13	<i>PAR_Enable Scenes</i>	15
1.10.14	<i>PAR_Value Force Out</i>	15
1.11	DETAILED DESCRIPTION OF THE PARAMETERS OF CHANNEL SCENES CONFIGURATION PAGE.....	15
1.11.1	<i>PAR_Scene Y Number (1≤Y≤4)</i>	15
1.11.2	<i>PAR_Scene Y Value (1≤Y≤4)</i>	15
1.11.3	<i>PAR_Enable Storage for Scene Y (1≤Y≤4)</i>	16
1.12	DETAILED DESCRIPTION OF THE GENERAL CONFIGURATION PARAMETERS	16
1.12.1	<i>PAR_Value Force ALL Out</i>	16
1.12.2	<i>PAR_Enable Keyboard</i>	16
1.13	BEHAVIOR OF CHANNEL LED	16
1.14	SCHEME AND FUNCTIONAL PRIORITIES.....	17

1 Device Template

Input	KNX Actuator	Output
DPT_Channel X – Set ON/OFF		
DPT_Channel ALL – Force ALL Out		DPT_DPT_Channel X - Status
DPT_Channel X – Force Out		DPT_Channel X – Status Inverted
DPT_Channel X – Select Scene ⁽¹⁾		
DPT_Channel X – Lock PORT ^{(2) (3)}		
DPT_Channel X - Logic Input 1 ^{(2) (4)}		
DPT_Channel X - Logic Input 2 ^{(2) (4)}		
DPT_Channel X - High Threshold ⁽⁷⁾		
DPT_Channel X - Low Threshold ⁽⁷⁾		
DPT_Channel X – On Delay (s) ⁽⁵⁾		
DPT_Channel X – Off Delay (s) ⁽⁵⁾		
DPT_Channel X- Blink On Time (s) ⁽⁵⁾		
DPT_Channel X–Blink Off Time (s) ⁽⁵⁾		
	Single Channel parameters	
	Par_Contact Type PAR_Startup condition PAR_Function PAR_On Delay (s) PAR_Off Delay (s) PAR_Blink On (s) PAR_Blink Off (s) PAR_Upper Threshold ⁽²⁾⁽⁷⁾ PAR_Lower Threshold ⁽²⁾⁽⁷⁾ PAR_Comparison method PAR_Light Time (s) PAR_Enable Logic Function PAR_Logic Operator ⁽²⁾ PAR_Value PORT Locked PAR_Enable Scenes PAR_Scene Y Number ⁽⁶⁾ PAR_Scene Y Value ⁽⁶⁾ PAR_Enable Storage for Scene Y ⁽⁶⁾ PAR_Value Force Out	
	General Parameters	
	PAR_Value Force ALL Out PAR_Enable Keyboard	

Legend of notes	
Note	Description
(1):	It appears on product descriptor only if the PAR_Enable Scenes parameter is set to "Yes".
(2):	It appears on product descriptor only if the PAR_Enable Logic Function parameter is set to "Yes".
(3):	It appears on product descriptor only if the PAR_Logic Operator parameter is set to "PORT".
(4):	It appears on product descriptor only if the PAR_Logic Operator parameter is set to values "AND, OR, XOR".
(5):	It appears on product descriptor only if the PAR_Function parameter is set to corresponding function.
(6):	Y takes values 1, 2, 3 e 4.
(7):	It appears on product descriptor only if the PAR_Logic Operator parameter is set to "THRESHOLD".

1.1 Product name and Application name on descriptor

Product	Application
6 Channels Switch Actuator 16A 250V 19.6K	Finder Application for Switch Actuator

1.2 Functional priorities

DPT_Channel ALL – Force ALL Out	Operating highest priority
DPT_Channel X – Force Out	Operating medium priority
DPT_Channel X – Select Scene	Operating lowest priority

1.3 Name of the parameter configuration pages on descriptor

Page	Description
General settings	It contains the general and configuration parameters common to all Channels
Channel 1	Parameter configuration page of Channel 1
Channel 2	Parameter configuration page of Channel 2
Channel 3	Parameter configuration page of Channel 3
Channel 4	Parameter configuration page of Channel 4
Channel 5	Parameter configuration page of Channel 5
Channel 6	Parameter configuration page of Channel 6
Channel 1 scenes ⁽¹⁾	Parameter configuration page of Channel 1 scenarios
Channel 2 scenes ⁽¹⁾	Parameter configuration page of Channel 2 scenarios
Channel 3 scenes ⁽¹⁾	Parameter configuration page of Channel 3 scenarios
Channel 4 scenes ⁽¹⁾	Parameter configuration page of Channel 4 scenarios
Channel 5 scenes ⁽¹⁾	Parameter configuration page of Channel 5 scenarios
Channel 6 scenes ⁽¹⁾	Parameter configuration page of Channel 6 scenarios

(1): It appears on product descriptor only if the **PAR_Enable Scenes** parameter is set to "Yes".

1.4 List of Communication Objects

Datapoint	DPT	Flags
DPT_Channel X – Set ON/OFF	DPT_Switch (1.001) ⁽⁰⁾	C-R-W
DPT_Channel X – Force Out	DPT_Switch (1.001)	C-R-W
DPT_Channel ALL – Force ALL Out	DPT_Switch (1.001)	C-R-W
DPT_Channel X – Select Scene ⁽¹⁾	DPT_SceneControl (18.001)	C-R-W-U
DPT_Channel X - Logic Input 1 ⁽²⁾	DPT_Boolean (1.002)	C-R-W
DPT_Channel X - Logic Input 2 ⁽²⁾	DPT_Boolean (1.002)	C-R-W
DPT_Channel X – Lock PORT ⁽²⁾⁽³⁾	DPT_Boolean (1.002)	C-R-W
DPT_Channel X - High Threshold ⁽²⁾⁽⁵⁾	DPT_Value_2_Ucount (7.001)	C-R-W
DPT_Channel X - Low Threshold ⁽²⁾⁽⁵⁾	DPT_Value_2_Ucount (7.001)	C-R-W
DPT_Channel X – On Delay (s) ⁽⁴⁾	DPT_TimePeriodSec (7.005)	C-R-W
DPT_Channel X – Off Delay (s) ⁽⁴⁾	DPT_TimePeriodSec (7.005)	C-R-W
DPT_Channel X- Blink On Time (s) ⁽⁴⁾	DPT_TimePeriodSec (7.005)	C-R-W
DPT_Channel X- Blink Off Time (s) ⁽⁴⁾	DPT_TimePeriodSec (7.005)	C-R-W
DPT_Channel X - Status	DPT_Switch (1.001)	C-R-T
DPT_Channel X - Status Inverted	DPT_Switch (1.001)	C-R-T

(0): if the **PAR_Enable Logic Function** parameter is set to “Yes” and the **PAR_Logic Operator** parameter is set to “THRESHOLD”, the switching DPT for the channel will be DPT_Value_2_Ucount (7,001).

(1): it appears on product descriptor only if the **PAR_Enable Scenes** parameter is set to “Yes”.

(2): it appears on product descriptor only if the **PAR_Enable Logic Function** parameter is set to “Yes”.

(3): it appears on product descriptor only if the **PAR_Logic Operator** parameter is set to “PORT”.

(4): it appears on product descriptor only if the **PAR_Function** parameter is set to corresponding function.

(5): it appears on product descriptor only if the **PAR_Logic Operator** parameter is set to “THRESHOLD”.

1.4.1 Behavior during the initialization, the Restart and the Bus Recovery.

During the initialization, the Restart and the Bus Recovery, no Communication Object is sent on the Bus.

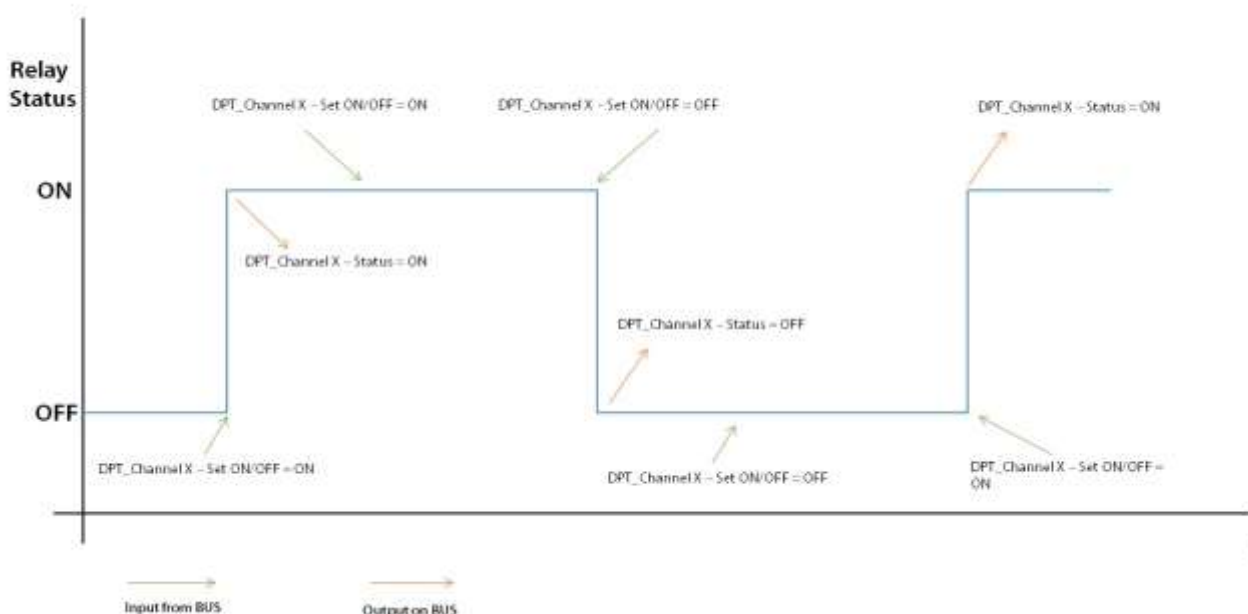
1.5 Detailed description of the communication objects

1.5.1 DPT_Channel X – Set ON/OFF F (1.001 Switch o 7.001 Value_2_Ucount)

The DPT_Channel X – Set ON/OFF message is relayed to the device in order to define the output status of the channel X. The status of the relay on the X Channel switches mutually depending by the value assigned to the **PAR_Contact Type** parameter. Moreover, the channel switching depends on the channel function set by the **PAR_Function** parameter.

1.5.1.1 Function “Set On/Off” example

When the **PAR_Function** parameter is set to “Set On/Off”. At each switching the **DPT_Channel X - Status** message is sent on the bus with the value of the new status of the channel, as well as the **DPT_Channel X - Status Inverted** message (not shown), which represents the negation.



1.5.1.2 Function “Stairs light” switching example

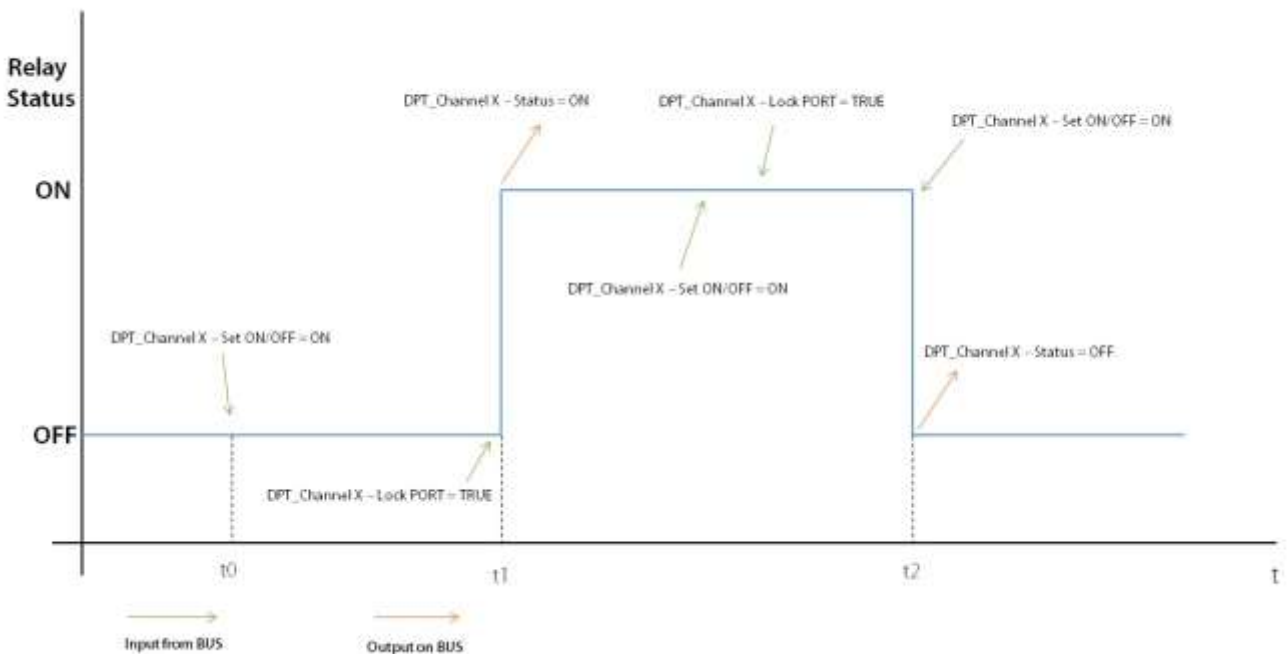
When the **PAR_Function** parameter is set to “Stairs light”. Each time the button is pressed, the channel switches from the OFF to ON status on receipt of **DPT_Channel X – Set ON/OFF = On** message. The resulting switching of the relay turn on the lights. The light timer remains locked until the **DPT_Channel X – Set ON/OFF = Off** message is received.

After the release of the button (instant t_0 , t'_0 and t''_0) the device starts the light timer that will expire after the interval indicated by the **PAR_Stairs Light Time (s)** parameter. If the button is pressed when lights are ON, the timer is stopped and subsequent release of the button involves reset of the light timer (e.g. instant t'_0). At the end of the turn-on period the device switches the channel relay to OFF state, turning off the lights and sends the **DPT_Channel X - Status = Off** message. In the figure are not shown the **DPT_Channel X - Status Inverted** messages that are sent as well from the device in correspondence with the status changing.

1.5.1.3 Function “Blinking” switching example

When the **PAR_Function** parameter is set to “Blinking”. By receiving the **DPT_Channel X – Set ON/OFF = On** message the channel starts to blink following PWM mode with the ON status duration set by the **PAR_Blink On (s)** parameter and the OFF one by the **PAR_Blink Off (s)** parameter. The values of these durations can be changed run-time via the **DPT_Channel X- Blink On Time (s)** and **DPT_Channel X- Blink Off Time (s)** messages without overwriting parameters values. The blinking cycle always begins with the full execution of the ON time programmed. In the figure are not shown the **DPT_Channel X - Status Inverted** messages that are sent as well from the device in correspondence with the status changing.

1.5.1.4 Function “On delayed” switching example



When the **PAR_Function** parameter is set to “On delayed”. By receiving the **DPT_Channel X – Set ON/OFF = On** message the channel status, if it was OFF, switches ON after a time set by **PAR_On Delay (s)** parameter. The subsequent receipt of the message with the Off value switches channel status from ON to OFF immediately. If the channel status is ON and the device receives again the message **DPT_Channel X – Set ON/OFF = On**, the cycle restarts and once delay has elapsed the **DPT_Channel X - Status** and **DPT_Channel X - Status Inverted** messages will be sent on the bus. The delay time can be changed run-time via the **DPT_Channel X – On Delay (s)** message without overwriting parameter value. In the figure are not shown the **DPT_Channel X - Status Inverted** messages that are sent as well from the device in correspondence with the status changing. The functioning with the **PAR_Function** parameter set to “Off delayed” is similar. In this case the delay starts by receiving the **DPT_Channel X – Set ON/OFF = Off** message, while the activation takes place immediately.

1.5.2 DPT_Channel X – Force Out (1.001 Switch)

The **DPT_Channel X – Force Out** message allows to control the channel X status with the medium priority level, as shown in the table below, regardless of the selected Channel function and the previous output status. The channel status is set on the value defined by the **PAR_Value Force Out** parameter if the device receives the message with value On and is maintained until the **DPT_Channel X – Force Out** message will be received with the value Off or a higher priority message is sent to the device. In the forcing state the reception of messages different from **DPT_Channel ALL – Force ALL Out** or **DPT_Channel X – Force Out** will be ignored by the device and will not have any effect on Changing Channel status. These messages will then be sent back when the forcing ceases by receiving the **DPT_Channel X – Force Out = Off** message. The **DPT_Channel X - Status** and **DPT_Channel X - Status Inverted** messages, activating the forcing status, will always be sent by the device if they are used in group addresses. By receiving the **DPT_Channel X – Force Out = Off** message, the channel status remains the one acquired on forcing, until the device gets a message that make it Switch, except for the case where the channel function is "Stairs lights" that, if lights were lit by forcing, they will turn off after the period set with the **PAR_Stairs Light Time (s)** parameter.

Received message	Priority
DPT_Channel ALL – Force ALL Out	High
DPT_Channel X – Force Out	Medium
DPT_Channel X – Select Scene	Low

Table 1

1.5.3 DPT_Channel ALL – Force ALL Out (1.001 Switch)

The **DPT_Channel ALL – Force ALL Out** message is sent to the device, with the value On, each time all outputs have to be forced with the highest priority in the status defined by the **PAR_Value Force ALL Out** parameter. In the forcing status the reception of messages different from **DPT_Channel ALL – Force ALL Out** will be ignored by the device and will not have any effect on changing the Channel status. These messages will then be sent back when the forcing ceases by receiving the **DPT_Channel ALL – Force ALL Out = Off** message. In order to avoid bus overloading by sending datagrams after the activation of the forcing status, pairs of **DPT_Channel X - Status** and **DPT_Channel X - Status Inverted** messages will be sent every 100ms, starting from Channel 1. The status messages are always sent at the activation of the high priority forcing independently by of the status of the channels, if any used in the group addresses.

By receiving the **DPT_Channel ALL – Force ALL Out = Off** message, the status of each channel remains the one acquired on forcing, until the device gets a message that make it Switch, except for the case where the channel function is "Stairs lights" that, if lights were lit by forcing, they will turn off after the period set with the **PAR_Stairs Light Time (s)** parameter.

1.5.4 DPT_Channel X – Select Scene (18.001 DPT_Scene Control)

Typically, the scenarios are used to set a predetermined channels configuration of the device, when the function (direct, logical or analog) is “Set On/Off”, that is, when the **PAR_Function** parameter is set to value 0. The **DPT_Channel X – Select Scene** message is sent to device whenever user wants to recall an expected scenario for the Channel X. The DPT assigned to this message is 18.001.

User can set up to four different scenarios for each individual channel. If the channel scenarios are enabled through the **PAR_Enable Scenes** parameter, the scenarios configuration page appears, on which will include the relevant parameters. The number that can be set as scenario ‘Y’ is attributed to the **PAR_Scene Y Number** parameter ($1 \leq Y \leq 4$) in the range [1-64]. Leaving the parameter with the default value “No scene number”, the scenario has no effect because even if it was enabled, it is not assigned any numbers. In this way the user has the option to configure only the scenarios that actually will use. Channel status on scenario Y will be set by the **PAR_Scene Y Value** parameter value ($1 \leq Y \leq 4$). After a scenario has been recalled, the channel output status can be changed by sending the message **DPT_Channel X - Out**. If the **PAR_Enable Storage for Scene Y** parameter ($1 \leq Y \leq 4$) is set to “Yes”, the user is able to reprogram the channel status of the scenario with the current status value. When the device receives the message with the value

DPT_Channel X – Select Scene = 0x80 | PAR_Scene Y Number

the **PAR_Scene Y Value** parameter will update with the current status of the channel set by the user and to store it for the next recall of scenario Y.

1.5.5 DPT_Channel X - Status e DPT_Channel X - Status Inverted (1.001 Switch)

The **DPT_Channel X - Status** and **DPT_Channel X - Status Inverted** messages are relayed from the device on the bus every time Channel X status switches, as shown in the previous figures.

1.5.6 DPT_Channel X - Logic Input 1 e DPT_Channel X - Logic Input 2 (1.002 Boolean)

If the **PAR_Enable Logic Function** parameter is set to value “Enable”, the communication objects related to the **DPT_Channel X - Logic Input 1** and **DPT_Channel X - Logic Input 2** messages appear on device descriptor only if the **PAR_Logic Operator** parameter is set to AND, OR, XOR. They are the Boolean values to be sent to the device and that will be composed with the **DPT_Channel X – Set ON/OFF** message for channel switching.

1.5.7 DPT_Channel X – Lock PORT (1.002 Boolean)

If the **PAR_Enable Logic Function** parameter is set to value “Enable”, and the **PAR_Logic Operator** parameter is set to “PORT”, the communication object related to the **DPT_Channel X – Lock PORT** message appear on device descriptor, together with the **PAR_Value PORT Locked** parameter, which defines the value that the message must have to lock the logic function PORT formed with the input channel switching.

The **DPT_Channel X – Set ON/OFF** message will have effect in order to change the channel status in accordance with the selected function, only if device has not received previously the **DPT_Channel X – Lock PORT** message with the value set by the **PAR_Value PORT Locked** parameter. Otherwise the channel status preserves the value it had before the switching request, meaning that all **DPT_Channel X – Set ON/OFF** messages received after locking the PORT will not be considered by the device.

1.5.8 DPT_Channel X - High Threshold and DPT_Channel X - Low Threshold (7.001 Value_2_Ucount)

These messages allow to change run-time the thresholds set by the **PAR_Upper Threshold** and **PAR_Lower Threshold** parameters without overwriting them. They only appear on the device descriptor if the **PAR_Enable Logic Function** parameter is set to “Yes” and the logical operator chosen by the **PAR_Logic Operator** parameter is “THRESHOLD”.

1.5.9 DPT_Channel X – On Delay (s) and DPT_Channel X – Off Delay (s) (7.005 TimePeriodSec)

These messages allow to Change run-time the delays set by the **PAR_On Delay (s)** and **PAR_Off Delay (s)** parameters without overwriting them. They only appear on the device descriptor selecting the corresponding channel function by the **PAR_Function** parameter.

1.5.10 DPT_Channel X- Blink On Time (s) and DPT_Channel X- Blink Off Time (s) (7.005 TimePeriodSec)

These messages allow to change run-time the blinking periods set by the **PAR_Blink On (s)** and **PAR_Blink Off (s)** parameters without overwriting them. They only appear on the device descriptor selecting the corresponding channel function by the **PAR_Function** parameter.

1.6 Enabling Channel logical block

If the **PAR_Enable Logic Function** parameter is set to value “Enable”, the communication objects related to the logical functions are displayed on the device descriptor. The logical operator is selected through the **PAR_Logic Operator** parameter. Selections are listed in Table 2.

PAR_Logic Operator	Value
AND	DPT_Channel X - Logic Input 1 AND DPT_Channel X - Logic Input 2 AND DPT_Channel X – Set ON/OFF
OR	DPT_Channel X - Logic Input 1 OR DPT_Channel X - Logic Input 2 OR DPT_Channel X – Set ON/OFF
XOR	DPT_Channel X - Logic Input 1 XOR DPT_Channel X - Logic Input 2 XOR DPT_Channel X – Set ON/OFF (*)
PORT	FLIP_FLOP (DPT_Channel X – Lock PORT, DPT_Channel X – Set ON/OFF)
THRESHOLD	SOGLIA (DPT_Channel X – Set ON/OFF, PAR_Upper Threshold, PAR_Lower Threshold, PAR_Comparison method)

Table 2

(*) The logical value is true if only one of the inputs is true, or both inputs are true.

The channel will change status, according to the configured logical operator. In the case of AND, OR or XOR selections, switching will occur only if the result of the logical computation on the three inputs **DPT_Channel X – Set ON/OFF**, **DPT_Channel X - Logic Input1** and **DPT_Channel X – Logic Input 2** is TRUE.

In case the **PAR_Logic Operator** parameter is set to “THRESHOLD”, the value of the **DPT_Channel X – Set ON/OFF** message will be processed comparing it with the thresholds set by the **PAR_Upper Threshold** and **PAR_Lower Threshold** parameters

(or with the values for the **DPT_Channel X - High Threshold** and **DPT_Channel X - Low Threshold** messages, once received by the device), in order to build the logical input for channel switching.

If the value of the message exceeds the channel activation threshold (**DPT_Channel X – Set ON/OFF ≥ PAR_Upper Threshold**), the logical input value will be TRUE. Conversely, if the value of the message exceeds the channel deactivation threshold (**DPT_Channel X – Set ON/OFF ≤ PAR_Lower Threshold**), the logical input value will be FALSE.

1.6.1.1 Logical function PORT (FLIP-FLOP)

By setting the **PAR_Logic Operator** parameter to value “PORT” the switching status depends by the **DPT_Channel X – Lock PORT** message the device receives.

1.7 List of parameters of the channel configuration page

Parameter	Default value
Par_Contact Type	NO
Type of contact (NO/NC)	
PAR_Startup	OFF
Channel condition at startup	
PAR_Function	Switch On/Off
Channel function selector (Switch On/Off, On/Off delayed, Blinking, Stairs light)	
PAR_On Delay (s)	5
Delay in seconds selecting function On delayed	
PAR_Off Delay (s)	5
Delay in seconds selecting function Off delayed	
PAR_Blink On (s)	5
On period in seconds selecting function Blinking	
PAR_Blink Off (s)	5
Off period in seconds selecting function Blinking	
PAR_Upper Threshold	0
Upper threshold selecting logical operator THRESHOLD	
PAR_Lower Threshold	0
Lower threshold selecting logical operator THRESHOLD	
PAR_Comparison method	Up
Comparison method selecting logical operator THRESHOLD	
PAR_Value PORT Locked	1
Lock value used to lock Channel selecting logical operator PORT	
PAR_Stairs Light Time (s)	30
Light On period in seconds selecting function Stairs Light	
PAR_Enable Logic Function	No
Enable logical block	
PAR_Logic Operator	AND
Logical operator when logical block is enabled. Values can be AND, OR, XOR, PORT, THRESHOLD	
PAR_Enable Scenes	No
Enable/Disable scene configuration	
PAR_Value Force Out	OFF
Forcing status with medium priority	

1.8 List of parameters of the channel scenarios configuration page

Parameter	Default value
PAR_Scene1Number	No scene number
Scene 1 number (values from 0 to 64, 64 = default, shown on descriptor with "No scene number")	
PAR_Scene1Value	Off
Value of Channel for scene 1 (On/Off)	
PAR_EnableScene1Storage	No
Enable or disable overwriting Channel value (learn) for scene 1	
PAR_Scene2Number	No scene number
Scene 2 number (values from 0 to 64, 64 = default, shown on descriptor with "No scene number")	
PAR_Scene2Value	Off
Value of Channel for scene 2 (On/Off)	
PAR_EnableScene2Storage	No
Enable or disable overwriting Channel value (learn) for scene 2	
PAR_Scene3Number	No scene number
Scene 3 number (values from 0 to 64, 64 = default, shown on descriptor with "No scene number")	
PAR_Scene3Value	Off
Value of Channel for scene 3 (On/Off)	
PAR_EnableScene3Storage	No
Enable or disable overwriting Channel value (learn) for scene 3	
PAR_Scene4Number	No scene number
Scene 4 number (values from 0 to 64, 64 = default, shown on descriptor with "No scene number")	
PAR_Scene4Value	Off
Value of Channel for scene 4 (On/Off)	
PAR_EnableScene4Storage	No
Enable or disable overwriting Channel value (learn) for scene 4	

1.9 List of general configuration parameters (valid for each Channel)

Parameter	Default value
PAR_Value Force ALL Out	OFF
Forcing status of all Channels with highest priority	
PAR_Enable Keyboard	Yes
Enable local keyboard for manual activation of Channels on test phase	

1.10 Detailed description of the parameters of Channel configuration page

1.10.1 Par_Contact Type

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: 0÷1

It defines the contact type, normally open (NO = default) with the value 0, normally closed (NC) with the value 1. If the parameter is set to NO, the OFF state will correspond to relay/circuit open. If the parameter is set to NC value in the OFF state will correspond to relay/circuit closed.

1.10.2 PAR_Startup

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷2]

It defines the channels condition at startup. Value 0 always select Off (default), value 1 always select On, value 2 selects “previous condition” which is the last channel status before power off or device reset. selecting value 2 after downloading the application the device will save the status of the channels at each change in a non-volatile memory location (EEPROM), in order to recover it correctly at power-on. If the device has never been programmed via the ETS, the state set will be the default value stored in EEPROM.

1.10.3 PAR_Function

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷5]

It defines the function associated with the channel in accordance with Table 3:

Value	Meaning	Related parameters
0 (default)	Switch On/Off	None
1	On delayed	PAR_On Delay (s)
2	Off delayed	PAR_Off Delay (s)
3	Blinking	PAR_Blink On (s), PAR_Blink Off (s)
5	Stairs Light	PAR_Stairs Light Time (s)

Table 3

1.10.4 PAR_On Delay (s)

- Property Datatype: PDT_UNSIGNED_16bit
- Datapoint Type: None
- Range: [1÷65535]

It defines the waiting time in seconds from the reception of the **DPT_Channel X – Set ON/OFF = On** message before switching a channel in the ON status. Default value is 5. The maximum value is a waiting of about 18 hours.

1.10.5 PAR_Off Delay (s)

- Property Datatype: PDT_UNSIGNED_16bit
- Datapoint Type: None
- Range: [1÷65535]

It defines the waiting time in seconds from the reception of the **DPT_Channel X – Set ON/OFF = Off** message before switching a channel in the Off status. Default value is 5. The maximum value corresponds to a waiting of about 18 hours.

1.10.6 PAR_Blink On (s), PAR_Blink Off (s)

- Property Datatype: PDT_UNSIGNED_16bit
- Datapoint Type: None
- Range: [1÷65535]

They define the blinking periods in seconds for Channel status ON and OFF at the reception of the **DPT_Channel X – Set ON/OFF = On** message. The ON status will remain for **PAR_Blink On (s)** seconds while the OFF for **PAR_Blink Off (s)** seconds. Default value is 5. The maximum value corresponds to periods of about 18 hours.

1.10.7 PAR_Upper Threshold, PAR_Lower Threshold

- Property Datatype: PDT_UNSIGNED_16bit
- Datapoint Type: None
- Range: [0÷65535]

They define the upper and lower threshold for channel activation/deactivation based on the **PAR_Comparison method** parameter. The gap between the two values defines the switching hysteresis. The values assigned to the **PAR_Upper Threshold** and **PAR_Lower Threshold** parameters must be consistent following the relationship:

$$\text{PAR_Upper Threshold} > \text{PAR_Lower Threshold}$$

1.10.8 PAR_Comparison method

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

It defines the comparison method used to set the thresholds exceeding direction for the channel activation. Value 0 (default) indicates the upward direction, i.e. the channel is activated when the value of the **input** exceeds **PAR_Upper Threshold** and is disabled when that value falls below of **PAR_Lower Threshold**, which is equal to **PAR_Upper Threshold** minus the switching hysteresis. Value 1 indicates the downward direction and the activation/ deactivation of the channel are reversed.

1.10.9 PAR_Stairs Light Time (s)

- Property Datatype: PDT_UNSIGNED_16bit
- Datapoint Type: None
- Range: [1÷65535]

It defines the stairs lighting time in seconds after the reception of the **DPT_Channel X – Set ON/OFF = Off** message. The lights timer is reset each time the device gets the message. Default value is 30. The maximum value corresponds to about 18 hours.

1.10.10 PAR_Enable Logic Function

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

This parameter enables or disables the functions of the channel logical block. Default value 0 means the functions are disabled, when disabled, all the communication objects related to the logical function are hidden in the device descriptor, otherwise they appear according to the logical operator set with the **PAR_Logic Operator** parameter.

1.10.11 PAR_Logic Operator

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷4]

It selects the type of logical operator when the **PAR_Enable Logic Function** parameter is set to 1. The allowable values shown in Table 4.

Value	PAR_Logic Operator
0 (default)	AND
1	OR
2	XOR
3	PORT
4	THRESHOLD

Table 4

1.10.12 PAR_Value PORT Locked

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

It selects the value by which the channel will be locked in the logical function PORT.

1.10.13 PAR_Enable Scenes

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

It enables or disables the visualization of the channel scenarios page.

1.10.14 PAR_Value Force Out

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

It is the value of the forcing status with medium priority.

1.11 Detailed description of the parameters of channel scenes configuration page

1.11.1 PAR_Scene Y Number ($1 \leq Y \leq 4$)

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: enumerated
- Range: 0÷64

It sets the number of Channel Y scenario. The number appears on the descriptor by an offset of +1, as required by the official KNX specifications.

1.11.2 PAR_Scene Y Value ($1 \leq Y \leq 4$)

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: enumerated
- Range: [0÷1]

It set the channel status expected for the Y scenario. Default value 0 corresponds to the OFF status, while value 1 corresponds to ON status.

1.11.3 PAR_Enable Storage for Scene Y (1≤Y≤4)

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: enumerated
- Range: [0÷1]

It enables or disables the scenario overwriting. Default value 0 means disabled, while 1 enabled. If enabled, the channel actual status will be stored on the device by sending the **DPT_Channel X – Select Scene** message.

1.12 Detailed description of the general configuration parameters

These parameters are common to all channels.

1.12.1 PAR_Value Force ALL Out

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

Value at which all outputs will be forced with highest priority.

1.12.2 PAR_Enable Keyboard

- Property Datatype: PDT_UNSIGNED_8bit
- Datapoint Type: none
- Range: [0÷1]

It enables or disables the keypad for manual control of channels on testing phase. Once the device has been **programmed with the parameter set to “Yes”, test mode starts by pressing the button TEST for 2 seconds**, after which the yellow LED blinks to indicate test is in progress. To exit test mode briefly press the TEST button. During test mode in progress, the channel relay switches by pressing the corresponding channel key. The green LED turns ON or OFF any time channel switches according to Table 5. During test mode in progress (yellow LED blinking) all telegrams received from the device to command a channel switching will not take effect and shall be resend after completing the test.

1.13 Behavior of Channel LED

The led reflects the channel status, so it turns on if status is ON, and turns off if status is OFF. The table below summarizes the correspondence led/relay condition.

Led status	Relay condition (*)
On	Relay is in ON condition
Off	Relay is in OFF condition

Table 5

(*) The status of the relay contacts will depend on the setting of the **Par_Contact Type** parameter, if is set on NC, the configuration results inverted.

1.14 Scheme and functional priorities

