

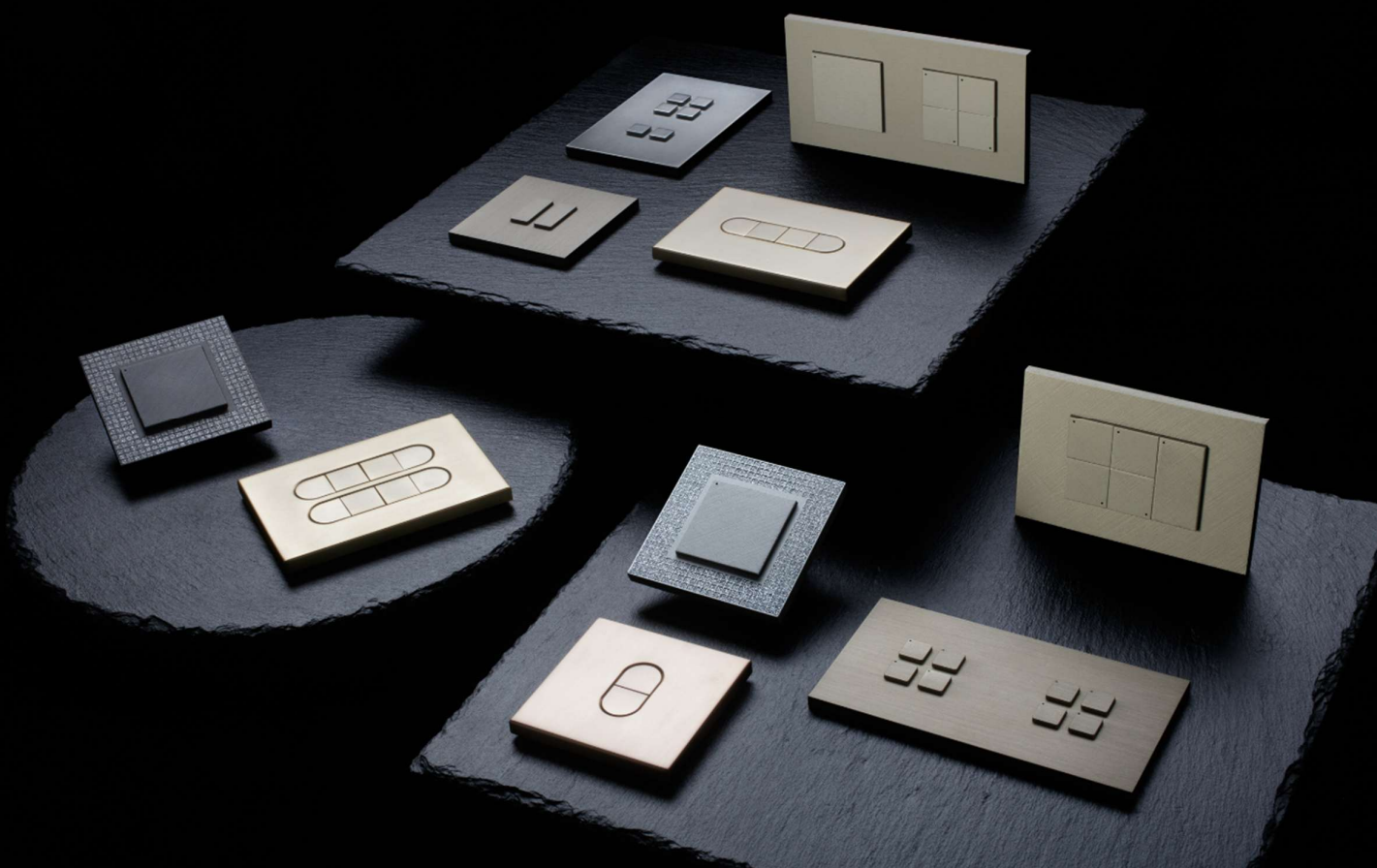


alphaplate

HPLATE/KPLATE for KNX

HPLATE/KPLATE Push-button input with LED backlit

Technical & Application Description



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1 Product Description

The HPATE/KPLATE input devices are ideally suitable to operate KNX devices via push buttons. They are supplied by the bus line and via the KNX application usual KNX input functions one-button shutter (for sun protection), one-button dimming and two-button shutter/dimming, switch (short/long), send value (percent, angle, temperature, 2-bit, 8-bit, 16-bit), impulse counter, and scene (1-bit, 8-bit) are provided. Each channel's function plus its backlit on the plate can separately be configured. The devices can recognize a short and a long button press and have an Interlock function available.

Due to different possibilities of using single, double and quadruple buttons, several button layouts can be realized. The ETS database covers all button layouts of the 502/503 versions of the HPATE/KPLATE push button inputs.

1.1 Plate Versions and KNX Input Channels

- The HPLATE for the 502 standard frame consists of up to 4 KNX input channels.
- The HPLATE for the 503 standard frame consists of up to 8 KNX input channels.

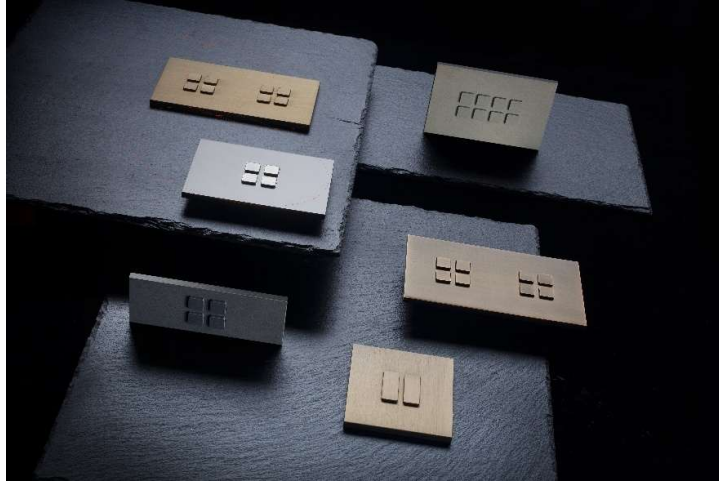


Figure 1: 502/503 HPLATE Standard Frames

- The KPLATE for the 502 standard frame consists of up to 4 KNX input channels.
- The KPLATE for the 503 standard frame consists of up to 6 KNX input channels.



Figure 2: 502/503 KPLATE Standard Frames

1.2 KNX Connection



Figure 3: Backside Top View

Table 1: Backside Elements

Button / Connector / LED	
A	Programming Button
B	Programming LED
C	KNX TP Connector

Table 2: LED Indication

Element	LED	Color	Explanation / Range
B	Programming LED	red	Programming Mode active
		< off >	Programming Mode not active

1.3 Commissioning

Table 3: Factory Default Setting

General	
Individual Address	15.15.255
General settings	
Debounce time	30 ms
Plate type	Please select
Setting up the button layout	Not available
Channel function A/B, C/D, E/F, G/H	single

Please note for commissioning with default settings:

- Individual Address is 15.15.255 (Factory Default). It is recommended not to use this address for normal operation and to assign a different address when commissioning.
- Choose the correct Plate type in ETS. Otherwise ETS will give back an error message when trying to download the configuration settings to the device.
- Read chapter 1.4 Important Notes before putting the device into operation.

Programming of Individual Address and Application:

Successive pressing the Programming Button (on device backside) switches Programming Mode on and off. The Programming LED lighting red indicates Programming Mode is on.

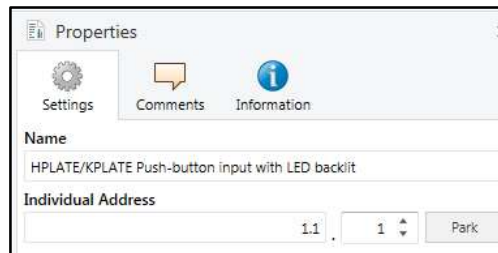


Figure 4: ETS Properties Window

The Individual Address (IA) can be assigned to the HPLATE/KPLATE by setting the desired address in the properties window of ETS. Once the download is started in ETS, the Programming Button has to be pressed. After completing the IA download, the device can be addressed and identified by its new Individual Address. When the Individual Address is assigned, ETS can download the application. A correct topology is mandatory when ETS Current Interface and the HPLATE/KLPATE device are not located on the same line.

1.4 Important Notes

It is recommended to participate in standardized courses of a KNX-certified training center before installing, programming, and commissioning a KNX system. Here, the participant gains the necessary knowledge and skills, also required for troubleshooting, by practical exercises.

Please read this chapter carefully before first use and installation:

1.4.1 Installation and Commissioning

- In the case of damage (at storage, transport) no repairs may be carried out by unauthorized persons
- After connecting to the KNX bus system, the device works with its default settings
- **Warning: Do not connect to 230 V. The device is supplied by the KNX bus and does not require any additional external power supply**
- The device may only be installed and put into operation by a qualified electrician or authorized person
- For planning and construction of electric installations the appropriate specifications, guidelines and regulations in force of the respective country have to be complied with.
- For configuring, use the ETS (or ETS Inside)

1.4.2 Mounting and Safety

- The device must not be mounted in a box together with 230 V devices and/or 230 V cables
- Direct connections between a low-voltage push button device and a 230 V device (or sockets) are not allowed
- Ensure that there is a safety separation (SELV) between connected signal cables (including extensions) and other current and voltage carrying devices and cables
- When connecting the device, ensure that it can be isolated
- Prevailing safety and accident prevention rules must be heeded
- Connect the KNX bus line as for common KNX bus connections with a KNX bus cable, to be stripped and plugged into a KNX TP connector
- Do not damage electrical insulations during connecting
- The housing must not be opened
- Installation only in dry locations

1.4.3 Maintenance

- Accessibility of the device for operation and visual inspection must be provided
- The housing must not be opened
- Protect the device from moisture, dirt and damage
- The device needs no maintenance
- If necessary, the device can be cleaned with dry cloth

2 Operational Description

In network installations, the HPLATE/KPLATE devices are used as KNX push buttons. Depending on their configuration by ETS (and the plate type), the HPLATE/KPLATE can utilize from one to maximum 8/6 push buttons. The single buttons have a configurable backlit each to illuminate their surrounding frame constantly and to indicate a feedback lighting after pressing the button. After connecting to KNX TP, the HPLATE/KPLATE device operates with its default settings. Setting the correct Individual Address is necessary for proper functioning within the installation.

2.1 Plate Type and Button Layout

The ETS database is suitable for 4 plates type versions, the 4-fold HPLATE and KPLATE for the 502-standard frame, and also the 6-fold KPLATE and the 8-fold HPLATE for the 503-standard frame. After selecting the type of plate in that the data will be downloaded to, the menu to set up the button layout opens. When the kinds of buttons are selected (to produce the layout of choice), the resulting button layout and the channels (that become assigned to the buttons automatically) are shown in the displayed graphic. Available are single button, vertical button, horizontal button and quadruple button (only KPLATE).

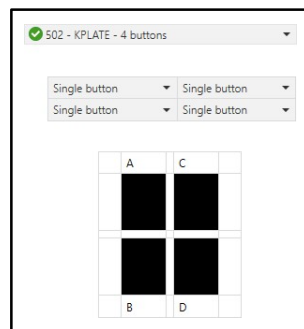


Figure 5: KPLATE - 502 Layout Example

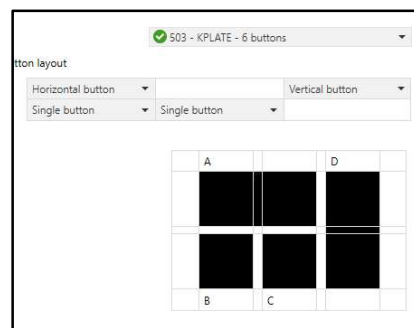


Figure 6: KPLATE - 503 Layout Example

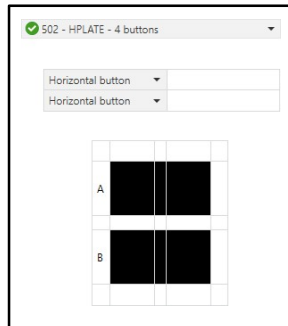


Figure 7: HPLATE - 502 Layout Example

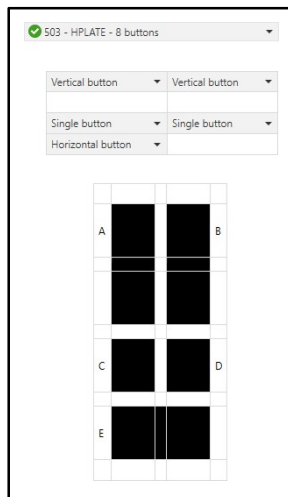


Figure 8: HPLATE - 503 Layout Example

2.2 Push Button Input Application

The HPLATE devices provide up to 8 binary input channels. The KPLATE devices provide up to 6 binary input channels. They can be used as single channels and pairwise combined for two-button functions. For all functions a locking function (“Interlock”) is available. Also, differing between long and short button press can throughout be configured (counter function excluded).

Combining two channels (A/B, C/D, E/F, G/H) enables the two-button functions “Dimming” and “Shutter”. Using single channels, the following functions can be assigned to a single channel:

- Switch (rising edge, toggle, status, short/long)
- Scene (1-bit scene, 8-bit scene with and without long button press saving function)
- Counter (8-bit, 16-bit, 32-bit)
- Send value: Percent, Angle, Temperature, 2-bit, 8-bit, 16-bit
- One-button dimming
- One-button shutter

To reset an input channel’s counter, a telegram containing “0” or “1” must be received by the corresponding communication object „Counter reset“.

For the HPLATE devices, the application provides night/day parameters to adjust the button’s LED backlit intensity and for configuring the button feedback indication.

For the KPLATE devices, the application provides night/day parameters to adjust the button’s RGB LED backlit color and for configuring the button feedback indication.

2.3 Adjustable LED Backlit

The backlit of buttons can be configured to only illuminate their surrounding frame constantly or to show a certain feedback lighting after pressing the button. This feedback lighting can be chosen to indicate the button press itself or to indicate a KNX status of another device after a function activation, (preferably) by the button press. For using the night/day shift, the object nr. 49 is available.

2.3.1 HPLATE Backlit

For the HPLATE, the backlit intensity of buttons can be set from 0 to 50%. When feedback is enabled to indicate the button press, the backlit reacts and rises to 100% intensity during pressing. LED intensity can be set to being different during night. This can be individually set for every single button. Single button's lighting can also be set to being completely disabled during night when the night backlit is set to 0% and the night feedback is disabled.

2.3.2 KPLATE Backlit

Configuring the backlit of the KPLATE is done by setting RGB/HSV values for the constant backlit lighting and for the feedback lighting. When the night/day shift is activated, LED colors can be set to be different during night. It is also possible to set the feedback indication for both night and day individually for every single button.

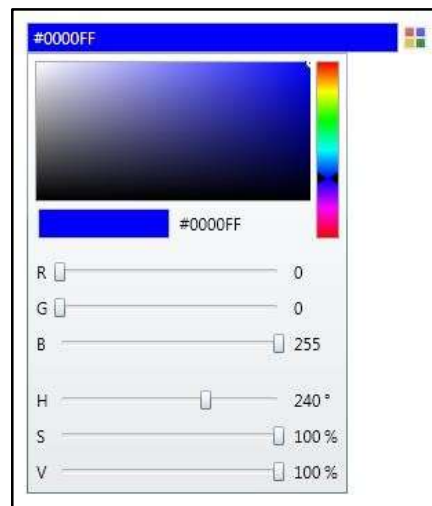


Figure 9: KPLATE RGB Color Setup Window

By clicking on the symbol next to the actual color, the setup window to select new RGB/HSV values opens.

3 ETS Database Parameters

3.1 General

After selecting the HPLATE/KPLATE device in that the parameters will be downloaded to and the button layout is chosen, the channel function must be set to have the parameters for further configuring. Channels can be used as single channels and pairwise combined. To use KNX two-buttons functions Dimming and Shutter, two channels must be set to “combined”.

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > General

General

Debounce time: 30 ms

Plate type: 503 - KPLATE - 6 buttons

Setting up the button layout:

Single button	Single button	Single button
Single button	Single button	Single button

Channel function A/B: ☒ single ☐ combined

Channel function C/D: ☒ single ☐ combined

Channel function E/F: ☒ single ☐ combined

Figure 10: General Tab Parameters

Table 4: General Tab Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Debounce time	10 ms; 30 ms; 60 ms; 120 ms [30 ms]	Setting the debouncing time prevents unwanted multiple operation of the inputs e.g. due to bouncing of the contact. This applies to all four channels.
Plate type	502 - KPLATE - 4 buttons 503 - KPLATE - 6 buttons 502 - HPLATE - 4 buttons 503 - HPLATE - 8 buttons [Please select]	When the kind of device is selected, the parameter tabs to configure the input channels and the LED backlit open.

ETS Parameter	Settings [Default Parameter]	Comment
Setting up the button layout	Not available Single button Horizontal button Vertical button Quadruple button (at KPLATE) No selection [Not available]	When the layout is set here (to match the hardware design), channels are assigned to the buttons automatically and can be configured as well as their backlits.
Channel function A/B...G/H	single combined [single]	When Channel function is set to single use, one-button Input functions become available. When it is set to combined use, two-buttons functions become available.

3.2 Input Channels A, B, C, D, E, F, G, H

When a channel pair usage was set to single channels, following KNX binary input functions become available.

3.2.1 Switch



1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A

General	Input function	Switch
Input Channel A	Subfunction	switch on rising edge
Input Channel B	Value rising edge	☐ off ☒ on
Input Channel C	Interlock	☒ disabled ☐ enabled

Figure 11: Input channel A: Switch Parameters

Table 5: Input channel A: Switch Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for 'Switch' are described in this table).
Sub function	switch on rising edge toggle on rising edge send status switch on short/long button press [switch on rising edge]	Defines the sub function on which the object value is changed.
Value rising edge	off on [on]	The here defined value will be sent to the object on a rising edge; available for "switch on rising edge".
Value falling edge	off on [off]	The here defined value will be sent to the object on a falling edge; available for "send status".
Send cyclic	disabled if value = 1 if value = 0 if contact is opened or closed [disabled]	If enabled, the parameterized object value will be sent cyclically; available for "send status".
Cyclic sending period [s]	1...3000 [10]	Time interval for "Send cyclic".

ETS Parameter	Settings [Default Parameter]	Comment
Value for short press	nothin g off on toggle [off]	The here defined action is executed after a short button press; available for “switch on short/long button press”.
Value for long press	nothin g off on toggle [on]	The here defined action is executed after a long button press; available for “switch on short/long button press”.
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Duration that the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent; available for “Switch short/long”.
Interlock	disable d enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.2 Scene

For storing 8-bit scenes, there are 64 scene numbers available. For storing 1-bit scenes, there are 2 scene numbers available. When saving function is enabled, a long button press can be used to store an 8-bit scene.

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A

General	Input function	Scene
Input Channel A	Scene	saving function is on
Input Channel B	Scene number	Scene 1
Input Channel C	Long button press starts at ...	2.0 s
Input Channel D		
Input Channel E	Interlock	☒ disabled ☐ enabled

Figure 12: Input channel A: Scene Parameters

Table 6: Input channel A: Scene Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for 'Scene' are described in this table).
Scene	saving function is off saving function is on 1-bit scene [saving function is off]	Sets the saving option for an 8-bit scene or sets the 1-bit scenes.
Scene number	Scene 1...64 [Scene 1]	One of the 64 possible 8-bit scenes can be recalled; available for "without saving function" and "saving function".
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Duration that the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent; available for "with saving function".
Scene	Scene 1 Scene 2 [Scene 1]	One of 2 possible 1-bit scenes can be recalled; available for "1-bit".
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.3 Counter

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A

General	Input function	Counter
Input Channel A	Count edge	rising edge
Input Channel B	Counter type	8-bit
Input Channel C	Counter limit active	☒ no ☐ yes
Input Channel D	Sending difference	5
Input Channel E	Write value via KNX	☐ disabled ☒ enabled
Input Channel F	Interlock	☒ disabled ☐ enabled

Figure 13: Input channel A: Counter Parameters

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for 'Counter' are described in this table).
Count edge	rising edge falling edge both edges [rising edge]	Defines on which edge(s) the counter is increasing.
Counter type	8-bit 16-bit 32-bit [8-bit]	Counters to be set according to the application's requirement.
Counter limit active	no yes [no]	Must be set to "yes", when a counter limit is needed.
Counter limit value	<u>8-bit:</u> 1...255 [50] <u>16-bit:</u> 1...65535 [200] <u>32-bit:</u> 1...2147483647 [500]	Sets the counter limit value; available if "Counter limit active" is set to "yes".

ETS Parameter	Settings [Default Parameter]	Comment
Sending difference	8-bit: 1...255 [5] 16-bit: 1...65535 [100] 32-bit: 1...65535 [250]	Object is sent when the sending difference is reached.
Write value via KNX	disabled enabled [enabled]	Must be enabled for setting the counter value via object.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.4 Send value

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A

General	Input function	Send value
Input Channel A	Send value	on both edges
Input Channel B	Value type	Percent
Input Channel C	Value rising edge	0 %
Input Channel D	Value falling edge	0 %
Input Channel E	Interlock	☒ disabled ☐ enabled

Figure 14: Input channel A: Send value Parameters

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for 'Send value' are described in this table).
Send value	on rising edge on both edges on short/long button press on long button press [on rising edge]	Defines on which event(s) the object value is sent.
Value type	Percent Angle Temperature 2-bit value (forced operation) 8-bit value 16-bit value [Percent]	Sets the type of value.
Value rising edge	<u>Percent</u> : 0 % ...100 % [0 %] <u>Angle</u> : 0°; 5°; 10° ...360° [0°] <u>Temperature</u> (x 100/°C): -27300...32000 [0]	Sets value; available for "on rising edge" and "on both edges".
Value falling edge	<u>2-bit</u> : ON, activate forced OFF, activate forced deactivate forced [deactivate forced]	Sets value; available for "on both edges".
Value for short press	<u>8-bit</u> : 0...255 [0] <u>16-bit</u> : 0...65535 [0]	Sets value; available for "on short/long button press".
Value for long press		Sets value; available for "on short/long button press" and "on long button press".

ETS Parameter	Settings [Default Parameter]	Comment
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Time the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent; available for “on short/long button press” and “on long button press”.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.5 One-button dimming

A long button press affects the communication object “Dimming” which is responsible for the dimming progress. A short keystroke affects the switching object “Dimming on/off”. Dimming direction is toggled by every button press. One-button dimming is a start & stop dimming. This means a command for darker or brighter is sent until the button is released. After release, dimming stops.

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A

General	Input function	One-button dimming
Input Channel A	Long button press starts at ...	2.0 s
Input Channel B	Interlock	☒ disabled ☐ enabled

Figure 15: Input channel A: One-button dimming Parameters

Table 9: Input channel A: One-button dimming Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for ‘One-button dimming’ are described in this table).
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Time the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.6 One-button shutter

A long button press affects the communication object “Shutter up/down” which is responsible for starting the up down movement of the shutter or blind. Movement direction is toggled by every button press. The one-button shutter is a start & stop movement function meaning a move up or move down command is sent on activation. A short button press affects the switching object “Blinds open/close” for stopping the movement and/or adjusting the blinds.

The screenshot shows the '1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A' configuration window. It has three tabs: 'General', 'Input Channel A', and 'Input Channel B'. The 'General' tab is active, showing the 'Input function' set to 'One-button shutter'. The 'Input Channel A' tab shows 'Long button press starts at ...' set to '2.0 s'. The 'Input Channel B' tab shows 'Interlock' set to 'disabled' (radio button selected).

Figure 16: Input channel A: One-button shutter Parameters

Table 10: Input channel A: One-button shutter Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Input function	Switch Scene Counter Send value One-button dimming One-button shutter [Switch]	Functions that can be set for each channel (parameters for ‘One-button shutter’ are described in this table).
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Time the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.3 LED Backlit

3.3.1 HPLATE

With the General backlit parameters, the LED intensity/brightness for the constant lighting can be set for all buttons of the HPLATE. Using the night/day shift function delivers the LED intensity/brightness for the night time period can be set to a different value.

The screenshot shows a web-based configuration interface for HPLATE/KPLATE. The title bar reads '1.1.1 HPLATE/KPLATE Push-button input with LED backlit > LED Backlit'. On the left is a sidebar with four menu items: 'General', 'Input Channel A', 'LED Backlit' (which is highlighted with a blue minus icon and text), and 'LED A Settings'. The main content area is divided into two sections. The top section, under the 'General' header, contains 'Backlit intensity' with a slider set to 10% and 'Use night/day shift' with radio buttons for 'no' and 'yes' (where 'yes' is selected). The bottom section, under the 'LED A Settings' header, contains 'Backlit intensity night' with a slider set to 0%.

Figure 17: General HPLATE LED Backlit Parameters

ETS Parameter	Settings [Default Parameter]	Comment
Backlit intensity	0...100 % [10 %]	Sets the backlit intensity value.
Use night/day shift	no yes [no]	Backlit intensity can be set either to a fixed value, or to different values for day and night.
Backlit intensity night	0...100 % [0 %]	Sets the backlit intensity value for the night time period.

3.3.2 KPLATE

With the General backlit parameters, the LED color for the constant lighting and the LED feedback can be set for all buttons of the KPLATE. Using the night/day shift function delivers the LED colors for the night time period can be set to different values.

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > LED Backlit

General	Backlit color	#000010
Input Channel A	General feedback color	#0000FF
LED Backlit	Use night/day shift	☐ no ☒ yes
LED A Settings	Backlit color night	#000025
	General feedback color night	#0000FF

Figure 18: General KPLATE LED Backlit Parameters

ETS Parameter	Settings [Default Parameter]	Comment
Backlit color	[black]	Sets the backlit color (and intensity).
General feedback color	[blue]	Sets the backlit color (and intensity) of the LED feedback.
Use night/day shift	no yes [no]	Backlit lighting can be set either to fixed values, or to different values for day and night.
Backlit color night	[black]	Sets the backlit color (and intensity) for the night time period.
General feedback color night	[blue]	Sets the backlit color (and intensity) of the LED feedback for the night time period.

3.4 LED A, B, C, D, E, F, G, H Settings

3.4.1 HPLATE

For every single button, it can be set what the LED feedback indicates (button press or external feedback) and if the LED feedback is on during the night time period.

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > LED Backlit > LED A Settings

General

Input Channel A

LED Backlit

LED A Settings

LED feedback reacts: on object value from external

Invert object value: ☒ no ☐ yes

Feedback disabled during night: ☐ no ☒ yes

Figure 19: HPLATE LED A Backlit Parameters

ETS Parameter	Settings [Default Parameter]	Comment
LED feedback reacts	disable on object value from external on button press [on button press]	Sets the backlit feedback as reaction to the button press itself or as reaction on an object reception from an external device.
Invert object value	no yes [no]	When object reception from an external device is set, the object value to activate the feedback indication can be inverted.
Feedback disabled during night	no yes [no]	The backlit feedback indication can be deactivated during the night time period.

3.4.2 KPLATE

For every single button, it can be set what the LED feedback indicates (button press or external feedback). When the general feedback color is deactivated for a single button, the night and day feedback colors for this button can be set differently to the general setting.

Figure 20: KPLATE LED A Backlit Parameters

ETS Parameter	Settings [Default Parameter]	Comment
LED feedback reacts	disable on object value from external on button press [on button press]	Sets the backlit feedback as reaction to the button press itself or as reaction on an object reception from an external device.
Invert object value	no yes [no]	When object reception from an external device is set, the object value to activate the feedback indication can be inverted.
Use general color settings	no yes [no]	When set to “yes”, the LED feedback indication for this button can be set different to the plate’s general setting.
Feedback color	[blue]	Sets the backlit color (and intensity) of the LED feedback when general color settings are not used.
Use night/day shift	no yes [no]	Backlit feedback color (and intensity) can be set either to a fixed value, or to different values for day and night.
Feedback color night	[blue]	Sets the backlit color (and intensity) for the night time period.

3.5 Channels A/B, C/D, E/F, G/H

Combined input channels enable two-button functions “Dimming” and “Shutter”. According to the setting in the “General” tab, either two-button dimming or two-button shutter is active. Regarding a channel pair, or better say a button pair, for example, one button is for driving shutters up, and the other one is for driving them down.

3.5.1 Two-button dimming

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A/B

General

Button function: ☒ Dimming ☐ Shutter

Input Channel A/B

Dimming function A/B: ☒ brighter / darker ☐ darker / brighter

Long button press starts at ...: 2.0 s

Interlock: ☒ disabled ☐ enabled

LED Backlit

LED A Settings

LED B Settings

Figure 21: Input channel A/B Dimming Parameters (same applies to other channel pairs)

Table 15: Input channel A/B Dimming Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Button function	Dimming Shutter [Dimming]	Sets the two-button function “Dimming” or “Shutter”.
Dimming function A/B	brighter/darker darker/brighter [brighter/darker]	Defines the inputs for dimming up and dimming down. <u>brighter/darker:</u> - Input A dims up and switches to on. - Input B dims down and switches to off. <u>darker/brighter:</u> - Input A dims down and switches to off. - Input B dims up and switches to on.
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Time the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.5.2 Two-button shutter

1.1.1 HPLATE/KPLATE Push-button input with LED backlit > Input Channel A/B

General	Button function	☐ Dimming ☒ Shutter
Input Channel A/B	Shutter function A/B	☒ up / down ☐ down / up
LED Backlit	Long button press starts at ...	2.0 s
LED A Settings	Interlock	☒ disabled ☐ enabled
LED B Settings		

Figure 22: Input channel A/B Shutter Parameters (same applies to other channel pairs)

ETS Parameter	Settings [Default Parameter]	Comment
Button function	Dimming Shutter [Dimming]	Sets the two-button function “Dimming” or “Shutter”.
Shutter function A/B	up/down down/up [up/down]	Defines the inputs for moving the shutter up and for moving the shutter down. <u>up/down</u> : - Channel A moves the shutter up. - Channel B moves the shutter down. <u>down/up</u> : - Channel A moves the shutter down. - Channel B moves the shutter up.
Long button press starts at ...	0.3 s; 0.5 s; 0.7 s; 1.0 s; 1.5 s; ... 4.0 s; 5.0 s; 6.0 s; ... 10.0 s; 15.0 s; 20.0 s; 30.0 s [2.0 s]	Time the input needs to be logical high to start the long operation. If the input is logical high for a shorter time, only the command for short operation will be sent.
Interlock	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

4 Communication Objects

Table 17: Communication Object Overview

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
1	Switch	Input A	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
1	Switch short	Input A	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
1	Counter reset	Input A	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
1	Send value	Input A	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT 9	X	X		X	
1	Dimming on/off	Input A	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
1	Shutter up/down	Input A	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
1	Dimming on/off	Input A/B	This object is used to switch on/off a dimmable light source (Two-button dimming).	1 bit	DPT1	X	X		X	
1	Shutter up/down	Input A/B	This object is used to move shutters up or down (Two-button shutter).	1 bit	DPT1	X			X	
2	Toggle status	Input A	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
2	Counter limit	Input A	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
3	Switch long	Input A	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
3	Scene	Input A	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	

3	1-bit Scene	Input A	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
3	Send value long	Input A	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
3	Dimming	Input A	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
3	Blinds step/stop	Input A	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
3	Dimming	Input A/B	This object is used to dim brighter or darker (Two-button dimming).	4 bit	DPT3	X			X	
3	Blinds step/stop	Input A/B	This object is used to close or open blinds (Two-button shutter).	1 bit	DPT1	X			X	
4	Toggle status long	Input A	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
4	Counter	Input A	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5, DPT7, DPT12	X	X	X	X	X
5	Interlock	Input A	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
5	Interlock	Input A/B	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X		X
6	Switch	Input B	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
6	Switch short	Input B	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
6	Counter reset	Input B	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
6	Send value	Input B	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT6, DPT7, DPT9	X	X		X	
6	Dimming on/off	Input B	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
6	Shutter up/down	Input B	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	

	n									
7	Toggle status	Input B	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
7	Counter limit	Input B	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
8	Switch long	Input B	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
8	Scene	Input B	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
8	1-bit Scene	Input B	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
8	Send value long	Input B	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
8	Dimming	Input B	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
8	Blinds step/stop	Input B	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
9	Toggle status long	Input B	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
9	Counter	Input B	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5 , DPT7 , DPT12	X	X	X	X	X
10	Interlock	Input B	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
11	Switch	Input C	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
11	Switch short	Input C	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
11	Counter reset	Input C	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
11	Send value	Input C	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7,	X	X		X	

					DPT9					
11	Dimming on/off	Input C	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
11	Shutter up/down	Input C	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
11	Dimming on/off	Input C/D	This object is used to switch on/off a dimmable light source (Two-button dimming).	1 bit	DPT1	X	X		X	
11	Shutter up/down	Input C/D	This object is used to move shutters up or down (Two-button shutter).	1 bit	DPT1	X			X	
12	Toggle status	Input C	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
12	Counter limit	Input C	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
13	Switch long	Input C	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
13	Scene	Input C	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
13	1-bit Scene	Input C	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
13	Send value long	Input C	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT 9	X	X		X	
13	Dimming	Input C	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
13	Blinds step/stop	Input C	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
13	Dimming	Input C/D	This object is used to dim brighter or darker (Two-button dimming).	4 bit	DPT3	X			X	
13	Blinds step/stop	Input C/D	This object is used to close or open blinds (Two-button shutter).	1 bit	DPT1	X			X	
14	Toggle status long	Input C	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
14	Counter	Input C	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5, DPT7, DPT12	X	X	X	X	X
15	Interlock	Input C	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	

15	Interlock	Input C/D	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X		X
16	Switch	Input D	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
16	Switch short	Input D	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
16	Counter reset	Input D	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
16	Send value	Input D	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
16	Dimming on/off	Input D	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
16	Shutter up/down	Input D	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
17	Toggle status	Input D	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
17	Counter limit	Input D	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
18	Switch long	Input D	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
18	Scene	Input D	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
18	1-bit Scene	Input D	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
18	Send value long	Input D	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
18	Dimming	Input D	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
18	Blinds step/stop	Input D	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	

19	Toggle status long	Input D	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
19	Counter	Input D	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5 , DPT7 , DPT12	X	X	X	X	X
20	Interlock	Input D	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
21	Switch	Input E	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
21	Switch short	Input E	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
21	Counter reset	Input E	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
21	Send value	Input E	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
21	Dimming on/off	Input E	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
21	Shutter up/down	Input E	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
21	Dimming on/off	Input E/F	This object is used to switch on/off a dimmable light source (Two-button dimming).	1 bit	DPT1	X	X		X	
21	Shutter up/down	Input E/F	This object is used to move shutters up or down (Two-button shutter).	1 bit	DPT1	X			X	
22	Toggle status	Input E	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
22	Counter limit	Input E	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
23	Switch long	Input E	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
23	Scene	Input E	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
23	1-bit Scene	Input E	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
23	Send value long	Input E	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6,	X	X		X	

					DPT 7, DPT 9					
23	Dimming	Input E	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
23	Blinds step/stop	Input E	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
23	Dimming	Input E/F	This object is used to dim brighter or darker (Two-button dimming).	4 bit	DPT3	X			X	
23	Blinds step/stop	Input E/F	This object is used to close or open blinds (Two-button shutter).	1 bit	DPT1	X			X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
24	Toggle status long	Input E	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
24	Counter	Input E	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5 , DPT7 , DPT12	X	X	X	X	X
25	Interlock	Input E	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
25	Interlock	Input E/F	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X		X
26	Switch	Input F	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
26	Switch short	Input F	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
26	Counter reset	Input F	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
26	Send value	Input F	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT6, DPT7, DPT9	X	X		X	
26	Dimming on/off	Input F	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
26	Shutter up/down	Input F	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
27	Toggle status	Input F	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
27	Counter limit	Input F	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
28	Switch long	Input F	This object is used to switch on/off on a long	1 bit	DPT1	X	X		X	

			button press.							
28	Scene	Input F	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
28	1-bit Scene	Input F	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
28	Send value long	Input F	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
28	Dimming	Input F	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
28	Blinds step/stop	Input F	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
29	Toggle status long	Input F	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
29	Counter	Input F	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5, DPT7, DPT12	X	X	X	X	X
30	Interlock	Input F	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
31	Switch	Input G	This object is used to switch on/off, to toggle or to “send status”.	1 bit	DPT1	X	X		X	
31	Switch short	Input G	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	
31	Counter reset	Input G	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
31	Send value	Input G	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT6, DPT7, DPT9	X	X		X	
31	Dimming on/off	Input G	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
31	Shutter up/down	Input G	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	
31	Dimming on/off	Input G/H	This object is used to switch on/off a dimmable light source (Two-button dimming).	1 bit	DPT1	X	X		X	

31	Shutter up/down	Input G/H	This object is used to move shutters up or down (Two-button shutter).	1 bit	DPT1	X			X	
32	Toggle status	Input G	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
32	Counter limit	Input G	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
33	Switch long	Input G	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
33	Scene	Input G	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
33	1-bit Scene	Input G	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
33	Send value long	Input G	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
33	Dimming	Input G	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
33	Blinds step/stop	Input G	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
33	Dimming	Input G/H	This object is used to dim brighter or darker (Two-button dimming).	4 bit	DPT3	X			X	
33	Blinds step/stop	Input G/H	This object is used to close or open blinds (Two-button shutter).	1 bit	DPT1	X			X	
34	Toggle status long	Input G	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
34	Counter	Input G	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5 , DPT7 , DPT12	X	X	X	X	X
35	Interlock	Input G	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
35	Interlock	Input G/H	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X		X
36	Switch	Input H	This object is used to switch on/off, to toggle or to "send status".	1 bit	DPT1	X	X		X	
36	Switch short	Input H	This object is used to switch on/off on a short button press.	1 bit	DPT1	X	X		X	

36	Counter reset	Input H	This object is used to reset the counter on receiving a telegram with “0” or “1”.	1 bit	DPT1	X		X		X
36	Send value	Input H	This object is used to send a predefined value on a (short) button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT 9	X	X		X	
36	Dimming on/off	Input H	This object is used to switch on/off a dimmable light source (One-button dimming).	1 bit	DPT1	X	X		X	
36	Shutter up/down	Input H	This object is used to move shutters up or down (One-button shutter).	1 bit	DPT1	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
37	Toggle status	Input H	This object is used to toggle on a button press (Switch and One-button dimming).	1 bit	DPT1	X		X		X
37	Counter limit	Input H	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
38	Switch long	Input H	This object is used to switch on/off on a long button press.	1 bit	DPT1	X	X		X	
38	Scene	Input H	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
38	1-bit Scene	Input H	This object is used to recall or learn the configured 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
38	Send value long	Input H	This object is used to send a predefined value on a long button press.	2 bit, 1 byte, 2 bytes	DPT 2, DPT 5, DPT 6, DPT 7, DPT9	X	X		X	
38	Dimming	Input H	This object is used to dim brighter or darker (One-button dimming).	4 bit	DPT3	X	X		X	
38	Blinds step/stop	Input H	This object is used to stop movement and adjust blinds (One-button shutter).	1 bit	DPT1	X	X		X	
39	Toggle status long	Input H	This object is used to toggle on a long button press (Switch).	1 bit	DPT1	X		X		X
39	Counter	Input H	This object is used as counter (8-bit, 16-bit or 32-bit) for rising edge, falling edge or both edges.	1 byte, 2 bytes, 4 bytes	DPT5, DPT7, DPT12	X	X	X	X	X
40	Interlock	Input H	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	
41	LED A	Output A	This object is used to show the feedback of a device via LED A.	1 bit	DPT1	X		X		X
42	LED B	Output B	This object is used to show the feedback of a device via LED B.	1 bit	DPT1	X		X		X

43	LED C	Output C	This object is used to show the feedback of a device via LED C.	1 bit	DPT1	X		X		X
44	LED D	Output D	This object is used to show the feedback of a device via LED D.	1 bit	DPT1	X		X		X
45	LED E	Output E	This object is used to show the feedback of a device via LED E.	1 bit	DPT1	X		X		X
46	LED F	Output F	This object is used to show the feedback of a device via LED F.	1 bit	DPT1	X		X		X

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
47	LED G	Output G	This object is used to show the feedback of a device via LED G.	1 bit	DPT1	X		X		X
48	LED H	Output H	This object is used to show the feedback of a device via LED H.	1 bit	DPT1	X		X		X
49	Day/Night	Night/day shift for LED backlit	For operating the LED backlits with night/day shift, this object is used to switch between the settings for day and night.	1 bit	DPT1	X		X		X

5 KNX Glossary

ACK	An ACK is a positive IACK frame. If the sender detects an ACK, then the sender's data has been received correctly, meaning the data has been successfully transmitted to the receiver.
Acknowledgement frames	Acknowledgment on the KNX Link Layer is also called Immediate ACK (IACK) in KNX jargon, presumably to differentiate it from other ack methods on the upper layers. Regarding sender and receiver, IACK frames are used to confirm to the sender the transmitted data was received correctly by the receiver (ACK) or not (BUSY/NACK). Also, a receiver cannot respond by sending back an IACK when a frame is damaged or incorrectly addressed (missing IACK). The IACK confirmation is a mechanism within a KNX TP line or segment. For communication across different lines or segments, the couplers connecting the lines generate the relevant IACKs.
BUSY	A BUSY is a negative IACK frame. If the sender detects a BUSY, then the receiver was not able to process the received frame. Thereafter, the sender waits for a short time period and retries to send the frame.
Communication Object	same as Group Object
Data Point Type (DPT)	Standardized data format for transmitting values via KNX. The complete list of DPTs is available at KNX Association.
Extended Frames format	An extended frame has a maximum APDU length of 254 octets and a maximum length of 263 octets (incl. checksum).
Filtering	Filtering of telegrams by couplers can be accomplished according to the topology via Individual Addresses (Physical Telegrams) and according to filter tables for group communication via Group Addresses (Group Telegrams).
Group Address	Group addresses are used to link group communication objects.

Group Communication Object	Group communication objects contain the datapoints which are transmitted via runtime communication. One or more group addresses are assigned to one group communication object. One of these assigned group addresses is the sending group address (to send the group communication object value to the bus). The remaining assigned group addresses, if available, then receive the value.
Group Object	same as Group Communication Object. A data point in KNX can be called shortly a 'Group Object' or just 'Object'.
Group Telegram	Group-oriented telegrams are named Group Telegrams. Filtering of Group Telegrams by couplers is accomplished according to their built-in filter tables for group communication.
IACK	see Acknowledgement frames
Individual Address	The Individual Address of a device defines the location of the device within the topology.
Long Telegrams	Long telegrams or long frames are telegrams having an APDU length that exceeds 15 octets. Long telegrams use the extended frame format.
NACK	A NACK is a negative IACK frame. When the sender detects a NACK, then the sender's data has not been received correctly by at least one device meaning it has not been successfully transmitted to one or more receivers. Thereafter, the sender waits for a short time period and retries to send the frame.
Physical Address	same as Individual Address
Physical Telegram	Individually addressed telegrams are named Physical Telegrams.
Repetition of telegrams	When there is no positive IACK on the regarded TP line (e.g. NACK, BUSY, missing IACK), couplers usually repeat messages up to three times. For all MEC couplers, the number of repetitions on TP is configurable.

Short Telegrams	Short telegrams or short frames are telegrams having an APDU length that is not exceeding 15 octets. Short telegrams use the standard frame format.
Standard Frame format	A standard frame has a maximum APDU length of 15 octets and a maximum length of 23 octets (incl. checksum).



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