EAE KNX Universal Interface

Product Manual UI108

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Content

1   General

EAE KNX Universal Interface operates as an interface between KNX and conventional switches/push buttons. However, any kind of devices which send dry contact information can be connected. UI108 has eight channels which can be configured as input with ETS3/ETS4 or higher version.

Compact design of device allows installation in flush mounted sockets.
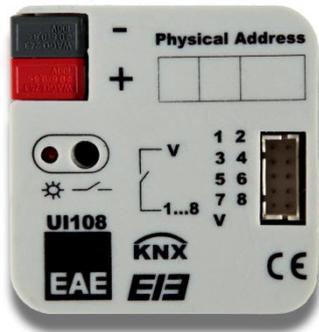
The following list provides an overview of functions;

- Switch / push button input
- Dimmer control
- Control of shutter/blinds
- Value
- Scene control
- Counter for count pulse

Note: Each channel are uniform and can choose any of the functions. Detailed informations of channel functions are in "Parameters" section.

2   Device Technology

EAE Universal Interface has 8 channels which work as input and be parameterized individually in the ETS.

The device can be installed in combination with conventional push buttons/switches in flush-mounted sockets. The bus connection is enclosed bus connecting terminal. It is installing in deep flush-mounted outlet box. (60 mm x 60 mm)

2.1   Technical Data

| Power supply :	- Voltage	21V… 30V DC, via the KNX bus	
	- Current draw from bus voltage	10mA	
Inputs	- Number	8 inputs	
	- Cable length	≤10 m	
Input	- Scanning voltage	3.3 V DC	
	- Input current	0.5 mA	
Operating elements	- LED (red) and button	For physical address	
Connections	- Input	2 x 5 core screw-type terminal	
	- KNX	Bus connect terminal	
Temperature range	- Ambient	-5° C + 45° C	
	- Storage	-25° C + 55° C	
	- Transport	-25° C + 70° C	
Dimensions	42,5 x 42,5 x 12mm		
Weight	0.06 kg		
Box	Plastic, polycarbonate, color grey		
CE	In accordance with the EMC guideline and low voltage		
Application program	Communications objects	Number of addresses(max)	Number of assignments(max)
Binary input display	56	254	255

NOTE: Device default physical address is 15.15.255. In order to configure the universal interface, ETS application file ".knxprod" is needed. It's possible to download the file on EAE website. ETS is required for programming the device. Parameter settings and related group addresses can be changed by ETS. Learn more read ETS help file.

2.2 Connection Diagram

Device comes with color-coded connection cables (30 cm). Connections are explained below. Maximum cable length is 10 m. Required voltage (contact supply voltage, SELV) for the push-button or switch comes from the push-button interface (KNX bus voltage).

Pin	Symbol	Description
V	Vcc	3.3V DC power supply. It supplies voltage for switches/push buttons.
1 … 8	Input	Adjustable pin

Connection Example for Push Buttons;
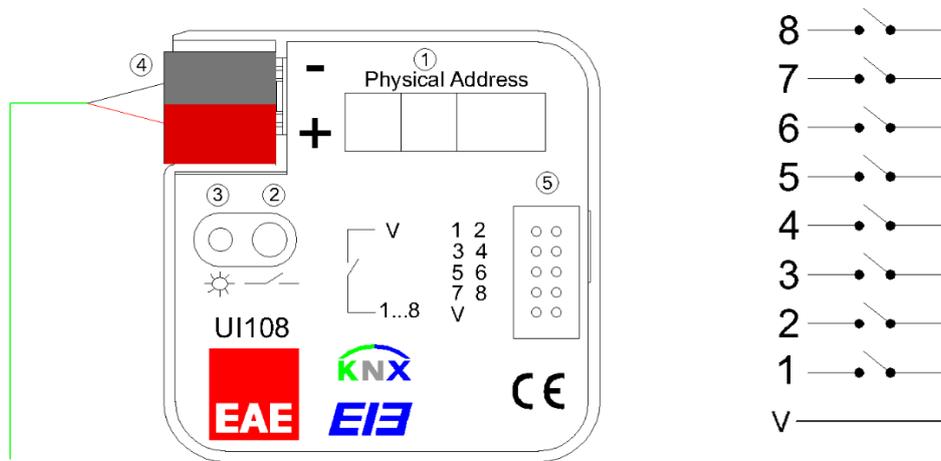
Connection Example

1.   : Physical Address Label
2.   : Programming Button
3.   : Programming Led
4.   : KNX Connection
5.   : Input Connections

3   Communication Object Table

No.	Object name	Function	Number of bits	Flags
0	General, Telegr. operation	on / off	1 bit	CT
1	Channel 1 disable	enable / disable	1 bit	CW
2	Channel 1, switch	on / off Toggle	1 bit	CWT
	Channel 1, switch - short	on / off Toggle	1 bit	CWT
	Channel 1, shutter	Up/Down	1 bit	CT
	Channel 1, value (0,1)	send	1 bit	CWT
	Channel 1, value (forced)	send	2 bit	CWT
	Channel 1, value [0...255]	send	8 bit	CWT
	Channel 1, value [0...65535]	send	16 bit	CWT
	Channel 1, value [-32768...32767]	send	16 bit	CWT
	Channel 1, value [0...4294967295]	send	32 bit	CWT
	Channel 1, switch actuator group A	recall / save	1 bit	CWTU
	Channel 1, value actuator group A	recall / save	1 bit	CWTU
	Channel 1, 8-bit-scene	recall / save	8 bit	CT
	Channel 1, counter value 1 byte	send	8 bit	CWT
	Channel 1, counter value 2 bytes	send	16 bit	CWT
	Channel 1, counter value 4 bytes	send	32 bit	CWT
3	Channel 1, switch - long	on / off	1 bit	CWT
	Channel 1, dimming	brighter / darker	4 bit	CT
	Channel 1, shutter	stop / lamella	1 bit	CT
	Channel 1, value (0,1) - long	send	1 bit	CT
	Channel 1, value (forced) - long	send	1 bit	CT
	Channel 1, value [0...255] - long	send	8 bit	CT
	Channel 1, value [0...65535] - long	send	16 bit	CT
	Channel 1, value [-32768...32767]	send	16 bit	CT
	Channel 1, value [0...4294967295]	send	32 bit	CT
	Channel 1, switch actuator group B	recall / save	1 bit	CWTU
	Channel 1, value actuator group B	recall / save	8 bit	CWTU
	Channel 1, differential counter 1 byte	send	8 bit	CWT
	Channel 1, differential counter 2 bytes	send	16 bit	CWT
	Channel 1, differential counter 4 bytes	send	32 bit	CWT
4	Channel 1, shutter	upper limit position	1 bit	CW
	Channel 1, value (temperature)	send	32 bit	CT
	Channel 1, switch actuator group C	recall / save	1 bit	CWTU
	Channel 1, value actuator group C	recall / save	8 bit	CWTU
	Channel 1, counter	request counter values	1 bit	CW
5	Channel 1, shutter	lower limit position	1 bit	CW
	Channel 1, value (temperature) - long	send	32 bit	CT
	Channel 1, switch actuator group D	recall / save	1 bit	CWTU
	Channel 1, value actuator group D	recall / save	8 bit	CWTU
	Channel 1, Differential counter overflow	send	1 bit	CT
6	Channel 1, switch actuator group E	recall / save	1 bit	CWTU
	Channel 1, value actuator group E	recall / save	8 bit	CWTU
	Channel 1, reset differential counter	send	1 bit	CW
7	Channel 1, store scene	save	1 bit	CWT

4 Parameters

4.1 General Functions

The device contains of eight channels. Functionality of each channel is identical. The designation of channels is always in a consecutive numeric order. Channel disable status: No function is set to the channel so that this channel does not contain of any communication objects.

4.1.1   Parameters

General Parameter Settings

Default settings are written in **bold letters**.

Parameter	Settings	Description
Sending delay after bus voltage recovery in s[2…255]	*2s…255s	The parameter defines the behavior of the universal interface at a bus power return. The transmission delay time determines the period between bus voltage recovery and the point after which telegrams can be sent. **Note:** It hasn't got a communication object.
Limit number of telegrams	*Yes **No**	Is the limit number of telegrams activated?
Max. Number of sent telegrams within a period	*0…**20**…255	Max number of telegrams per period, can be sent freely.
Period	*100ms…**10s**…1min	Period time
Send object "In operation"	*Yes **No**	You use this object to report device stil alive and contacted the KNX line. Telegram value is select ON/OFF. If a telegram is not received, device may be defective or KNX cablo will be interrupted.
In operation value	*ON **OFF**	Telegram data is selected here.

Operation send interval[min]	0…**15**…65000[minute]	Here the time interval which the in operation communication object cyclically sends a telegram is set.

NOTE: Bus voltage recovery and ETS reset device are different things. "Transmit object value after bus voltage recovery" parameters are about only bus voltage recovery state. In "ETS reset", device parameters are return default configuration.

4.1.2   Communication Objects

No	Object name	Function	Data type	Flags
0	**General Telegr. operation**	**on / off**	**1 bit** **DPT 1.002**	**CT**
This communication object is enabled, if general parameter "Send object In operation" is select Yes. The communication object In Operation is sent cyclically on the KNX.				

4.2 Switch Sensor

"Switch sensor" function is used for binary inputs. Switch or a push button can be attached like in connection diagram in order to send a switching telegram (ON, OFF or TOGGLE) as a reaction of a rising and/or falling signal edge. It has got only 1 bit communication objects.

4.2.1   Parameters

Switch Sensor Function

Parameter	Settings	Description
Distinction between long and short operation	*Yes **No**	If the parameter is set no, the input will be evaluated normally on every edge of the input signal. Yes is selected. There is a delay after opening/closing the contact to determine whether there is a short or long operation.
Cyclic transmission of object	**no** *"switch" = OFF *"switch" = ON *always	This parameter is visible if there is no distinction between short and long actuation. This parameter determines if and when a switching value is sent cyclically via the corresponding communication object.
Reaction on closing the contact(rising edge)	**ON** *OFF *TOGGLE *no reaction	This parameter is visible if there is no distinction between short and long actuation. This parameter determines the switching value to be sent when the contact is closed.
Reaction on opening the contact(falling edge)	*ON **OFF** *TOGGLE *no reaction	This parameter is visible if there is no distinction between short and long operation. This parameter determines the switching value to be sent when the contact is open.
Telegram is repeated every(transmission cycle time): base	**100ms** *1s *10s *1min *10min	This parameter determines the desired cycle time. Period time: Base x Factor
Factor	**30**	Select time factor, between [2…255]
Connected contact type	*normally closed **normally open**	This parameter is visible if there is distinction between short and long operation. The contact type of the push button attached to the channel is adjusted here.
Reaction on short operation	**ON** *OFF *TOGGLE *no reaction	This parameter is visible if there is distinction between short and long operation. This parameter determines the switching value to be sent when the contact is short press.
Reaction on long operation	*ON **OFF** *TOGGLE *no reaction	This parameter is visible if there is distinction between short and long operation. This parameter determines the switching value to be sent when the contact is long press.
Number of object for short/long operation	**1 object** *2 object	This parameter is visible if there is distinction between short and long operation. Further communication object can be released by the option 2 communication objects.
Transmit object value after Bus voltage recovery	*yes **no**	This parameter determines if and when a switching value is sent after bus voltage recovery.
Debounce time	*10ms…**50ms**…150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

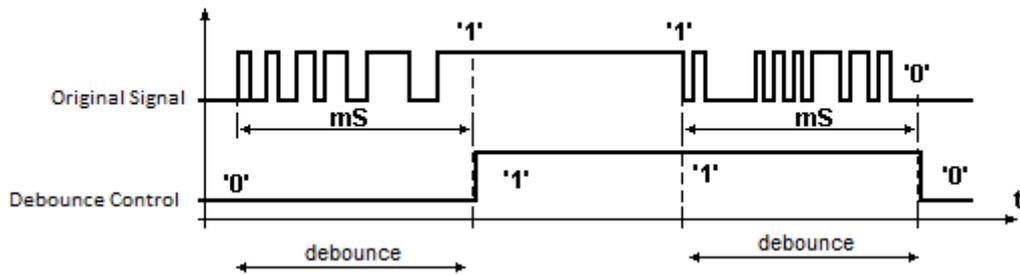Explanation of debounce time and short/long press are as defined below.

Figure 1

Debounce: Bouncing is the tendency of any two metal contacts in an electronic device to generate multiple signals as the contacts close or open; debouncing is any kind of hardware device or software that ensures that only a single signal will be acted upon for a single opening or closing of a contact.

A similar effect takes place when a switch made using a metal contact is opened. The usual solution is a debouncing device or software that ensures that only one digital signal can be registered within the space of a given time (usually milliseconds).
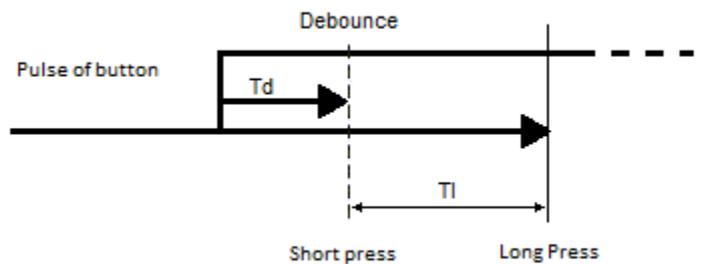
Şekil 2

Short/Long Press: Distinguishing short from long presses is about measuring the pulse length. The event is no longer emitted upon pressing the button, but upon releasing it. This can affect the feeling of responsiveness.

The picture of this step shows a long press and short press timing, with a long press threshold of Tl periods. The button press longer than Td period but shorter than Tl period this mean is short pressed occurs.

4.2.2　Communication Objects

No	Object name	Function	Data type	Flags
1	**Channel (1...8) Disable**	**enable / disable**	**1 bit DPT 1.003**	**CW**
0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off.				

When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.

2	**Channel (1...8) Switch**	**on / off Toggle**	**1 bit** **DPT 1.001**	**CWT**
0: OFF 1: ON Switching telegrams are sent via the group address linked with this object. Object can be switched by actuation of the ON, OFF or TOGGLE input				
3	**Channel (1..8) Switch ,** **long operation**	**on / off Toggle**	**1 bit** **DPT 1.001**	**CT**
0: OFF 1: ON Switching telegrams for long push button press are sent via the group address linked with this object if the parameter "Number of objects for short/long operation" is set to "2 object".				

4.3   Switch/Dimming Sensor

Switch/Dimming sensor function is used to switch the light on or off or dim with corresponding input. When dimming, dimming up or dimming down is carried out via the 4 bit dimming object; the parameters for the dimming steps can be set. In addition, you can also transmit the corresponding dimming step cyclically for a period of time which can be set as required.

4.3.1   Parameters

Switching and Dimming Sensor Function

Parameter	Settings	Description
Connected contact type	*normally closed **normally open**	The contact type of the push button attached to the channel is adjusted here.
Dimming functionality	***Dimming and switching** *Only dimming	This parameter is select "Dimming and switching";

|		If the dimming actuator was switched on by a short push button action, then it is dimmed brighter/darker by the first long push button action. This parameter is select "Only dimming"; The advantage of the "Only dimming" function is that no distinction is between short and long actuation. It is not necessary to wait for a long actuation.
Reaction on short operation	*ON *OFF ***TOGGLE** *no reaction	This parameter is visible if there is selected "Dimming and switching" operation. When the push button is pressed briefly the value currently stored in the switching object. An ON or OFF telegram is only generated when the push button is released. (falling edge)
Reaction on long operation	*Dim BRIGHTER *Dim DARKER ***Dim BRIGHTER/DARKER**	With the long push button action, the light becomes brighter or darker depending on the object value and the last controlled dimming direction. A long operation changes the value of the object Dimming.
Long operation after	*0,3s…**5s**…10s	This parameter is visible if the parameter value is set "Dimming and switching". Long press time period is select here.
Dimming mode	***Start-Stop dim** *Dimming steps	"Start- Stop dim": It starts the dimming process with a telegram BRIGHTER or DARKER. In addition button releases than STOP dimming telegram sends. Cyclic sending telegram is not necessary in this case. "Dimming steps": The dimming telegram is sent cyclically during a long operation. STOP telegram sends at the end of operation.
Brightness change on every sent telegram	*%100…**%3,13**…%1,56	This parameter is only visible with the "Dimming steps" options. This parameter is cyclically sent with every dim telegram.
Transmission cycle time: Telegram is repeated every	*0,3s…**0,5s**…10s	This parameter is only visible with the "Dimming steps" options. The cycle time for sending corresponds with the time interval between two telegrams during cyclical sending.
Debounce time	*10ms…**50ms**…150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.
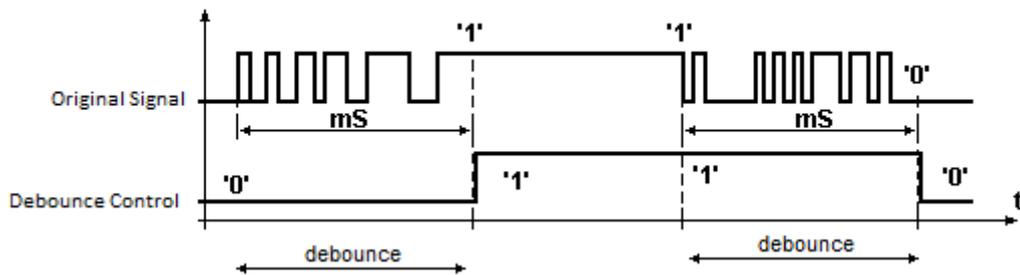
Figure 3

Debounce: Bouncing is the tendency of any two metal contacts in an electronic device to generate multiple signals as the contacts close or open; debouncing is any kind of hardware device or software that ensures that only a single signal will be acted upon for a single opening or closing of a contact.

A similar effect takes place when a switch made using a metal contact is opened. The usual solution is a debouncing device or software that ensures that only one digital signal can be registered within the space of a given time (usually milliseconds).
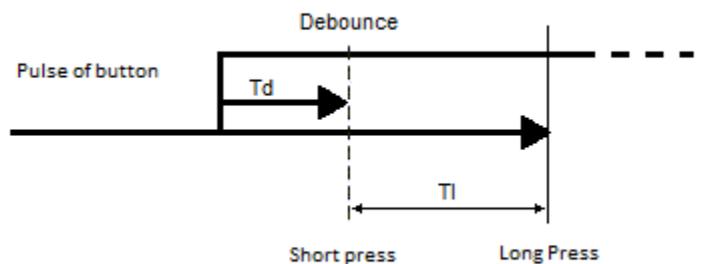
Figure 4

Short/Long Press: Distinguishing short from long presses is about measuring the pulse length. The event is no longer emitted upon pressing the button, but upon releasing it. This can affect the feeling of responsiveness.

The picture of this step shows a long press and short press timing, with a long press threshold of Tl periods. The button press longer than Td period but shorter than Tl period this mean is short pressed occurs.

4.3.2   Communication Objects

No	Object name	Function	Data type	Flags
1	**Channel (1...8) Disable**	**enable / disable**	**1 bit** **DPT 1.003**	**CW**
0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off. When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.				

2	Channel (1...8) Switch	on / off Toggle	1 bit DPT 1.001	CWT
This object is visible if in the parameter "Dimming functionality" the value "Switch and Dimming" is set. You can dim brighter or darker and also switch on or off using a single key. The object value can be switched to ON, OFF or TOGGLE. An update or change to the switch/object value is possible via the bussensor dims the actuator. It uses feedback of the dimming actuator.				
3	Channel (1...8) Dimming	Brighter/Darker	4 bit DPT 3.007	CT

4 bit: B_1U_3

1

c Step-Code

B U U U

c = {0,1}
StepCode = [000b...111b]

c	Increase or decrease the brightness	0 = Decrease
		1 = Increase
StepCode	The amount of intervals into which the range of 0 % ... 100 % is subdivided or the break indication.	- 001b ... 111b: Step
		Number of interval = $(2)^{(stepcode-1)}$
		- 000b : Break

The dimming telegrams are sent to the dimming actuator via the group address linked with this object. In the process, a long push button action produces a "100 % dimming" telegram. A stop command is sent when the push button is released.

4.4 Shutter Sensor

The dual surface shutter function triggers shutter actuators, which can adjustment shutter and blind. If you choose a pair of channels as a shutter function, five communication objects will appear for this channel. It is possible to rise the shutter/adjust the lamella using a single key and lower the shutter/adjust the lamella using a second key surface blind operation. Every shutter actuator controls with a "0"signal the up movement and a "1" signal down movement.

4.4.1 Parameters

Device: 1.1.1 UI108 Universal Interface,8-Channel

General		
Channel 1	Function of the channel	Shutter sensor
Channel 2	Operating functionality of blind	1-push-button, short = stepping, long = moving
Channel 3		
Channel 4	Long operation: move UP/DOWN Short operation: Lamella	<--- NOTE
Channel 5		
Channel 6	Connected contact type	normally open
Channel 7		
Channel 8	Long opertion after	0.4s
	Debounce time	30ms debounce time

Shutter Sensor Function

Parameter	Settings	Description
Operating functionality of the blind	*1 push-button, short=stepping, long=moving *1 push-button, short=moving, long=stepping *1 push-button-operation, moving *1 switch-operation, moving *2 push-button, standart *2 switch-operation, moving *2 push-button,moving *2 push-button,stepping	Description is below the table.
Connected contact type	*normally closed *normally open	The contact type of the push button attached to the channel is adjusted here.
Reaction on short operation	*STOP/lamella UP *STOP/lamella DOWN	This parameter is visible if there is distinction between short and long operation. Stop/step lamella adjustment parameter. This parameter object stops shutter movement.
Reaction on long operation	*Move up *Move down	Distinction between short and long; This parameter use for choose shutter movement direction.
Long operation after	*0,3s…0,5s…10s	Distinction between short and long; Long press time period is select here.
Telegr. STOP/lamella adj. is repeated every	*0,3sn… 0,4s…10sn	Only visible 1 push-button, short=moving, This parameter we choose each sending stop/lamella telegram sending period. Lamella adjustment cycly.
Debounce time	*10ms…50ms…150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

1 button, short=steping, long=moving	
Short operation	Stop / lamella adjustment The stop/lamella adjustment object is for the adjustment opposite direction to the last movement of the lamella. In additional it stops a running movement of the shutter.
Long operation	Shutter up / Shutter down Long press is opposite direction to the last movement for moving the shutter up or down.

1 button, short=stepping, long=moving	
Short operation	Shutter up / Shutter down Long press is for moving the shutter up or down.

Long operation	Stop / lamella adjustment
	The stop/lamella adjustment object is for the adjustment opposite direction to the last movement of the lamella. In additional it stops a running movement of the shutter. Long press detects than stop/lamella adj communication object sends periodically.

1 button operation, moving	
On operation	This property is for moving only shutters up or down. Each press this commands send sequence;
	->Move UP → Stop/lamella adj UP→
	Move DOWN → Stop/ lamella DOWN

1 switch operation, moving	
Start of operation	This property is for moving only shutters up or down. While button is pressing, operation is continuing. This action is opposite direction to the last movement for moving the shutter up or down.
End of operation	When button releases, operation stop. Stop/ Lamella adj command is send than movement stoped.

With below functions, you must set the parameters for a second key (second input) with the corresponding settings for the shutter movement in the opposite direction.

2 button, standard	
Short operation	Stop / lamella adjustment
	The stop/lamella adjustment object is adjustment of the lamella UP or DOWN. In additional it stops a running movement of the shutter.
Long operation	This action is for moving the choosen direction shutter. Movement direction is choosing on parameter move up or moves down.

2 switch operation, moving(shutter)	
Start of operation	This property is for moving only shutters up or down. While button is pressing, operation is continuing. This action is moving the shutter "move up" or "move down".
End of operation	When button releases, operation stop. "Stop/ Lamella adj UP" or "Stop/ Lamella adj DOWN" command is send than movement stoped. You should use the property with two switches.

2 button, moving(shutter)	
On operation	The property object "Shutter" is choose and performs the up- and down-movement of the shutter. The direction of movement depends to the parameters. When the button pressed firstly, than shutter move in direction that it was programmed. Second time button is

	pressed shutter stop command is sended such as STOP/Lamella adj UP or STOP/Lamella adj DOWN. 1) Shutter MOVE UP -> STOP/Lamella UP 2) Shutter MOVE DOWN -> STOP/Lamella DOWN

2 button, stepping	
On operation	Stop / lamella adjustment The stop/lamella adjustment object is adjustment of the lamella UP or DOWN. Lamella move direction chooses on the parameters.

4.4.2   Communication Objects

No	Object name	Function	Data type	Flags
1	**Channel (1...8) Disable**	**enable / disable**	**1 bit** **DPT 1.003**	**CW**
0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off. When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.				
2	**Channel (1...8) Shutter**	**up / down**	**1 bit** **DPT 1.008**	**CT**
The driving object is for moving the shutters "move UP" and "move DOWN". 0: Move upwards (UP) 1: Move downwards (DOWN)				
3	**Channel (1...8) Shutter**	**stop / lamella**	**1 bit** **DPT 1.007**	**CT**
The stop-/lamella adjustment object is for the adjustment of the lamellas and additional it stops a running movement of the shutter. 0: Stop / lamella UP 1: Stop / lamella DOWN				
4	**Channel (1...8) Shutter**	**Upper Limit position**	**1 bit** **DPT 1.002**	**CW**
This object the shutter actuator indicates is it is in the upper limit position. This object is used for 1 button options. 0: No Upper end limit 1: Upper end limit				
5	**Kanal (1...8) Shutter**	**Lower Limit position**	**1 bit** **DPT 1.002**	**CW**
This object the shutter actuator indicates is it is in the lower limit position. This object is used for 1 button options. 0: No Lower end limit 1: Lower end limit				

4.5 Value/Forced Operation

Value/forced functions is used to parameterise different object actions. It is possible to transmit one or two objects short or long press status sequence, and select the size of the objects required (1 bit, 2 bit priority control, 1 byte, 2 byte or 4 byte) as needed. This enables you to parameterise a large number of application options. You can enter two values and set whether and how they are to be transmitted short or long.

4.5.1 Parameters

Value/Forced Operation

Parameter	Settings	Description
Connected contact type	*normally closed **normally open**	The contact type of the push button attached to the channel is adjusted here.
Distinction between long and short operation	*Yes **No**	If the parameter is set no, the input will be evaluated normally on every edge of the input signal. Yes is selected. There is a delay after opening/closing the contact to determine whether there is a short or long operation.
Reaction on operation	*no reaction *2 bit value **1 bayt value** *2 bayt [signed] *2 bayt [unsigned] *4 bayt [float] *4 bayt value	This parameter is visible no distinction short/long operation; This parameter determines the data type. When button is pressed, this type of data sent KNX line with the communication object.
Reaction on short operation	*no reaction *2 bit value **1 bayt value** *2 bayt [signed] *2 bayt [unsigned] *4 bayt [float] *4 bayt value	This parameter is visible distinction short/long operation; When button is pressed, this value sends KNX line on the communication object.
Sent value	*Dependet on the selection made at reaction on operation.	Short press value or on operation value is enter here.

Reaction on long operation	*no reaction *2 bit value **1 bayt value** *2 bayt [signed] *2 bayt [unsigned] *2 bayt [float] *4 bayt value	This parameter is visible distinction short/long operation; This parameter determines the data type. When button is pressed, this type of data sent KNX line with the communication object.
Sent value (long press)	* Dependet on the selection made at reaction on operation.	This parameter is visible distinction short/long operation; Short press value or on operation value is enter here.
Long operation after: Time base	**100ms**.1s.10s…1hour	This parameter is visible distinction short/long operation; This parameter determines the desired long press time. Period time: Base x Factor
Factor	**4**	Select time factor, between [1…255]
Transmit object value after bus voltage recovery.	*Yes **No**	This parameter is visible no distinction short/long operation; In the event of power supply failure to the electronics the value (if this can be changed via a communication object) is permanently stored in a memory protected against data loss in the event of voltage failure. They are transferred from this memory into the working memory on bus voltage recovery.
Debounce time	*10ms…**50ms**…150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

4.5.2   Communication Objects

No	Object name	Function	Data type	Flags
1	**Channel (1…8) Disable**	**enable / disable**	**1 bit** **DPT 1.003**	**CW**
0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off. When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.				
2	**Channel (1…8) value**	**send**	**DPT**	**CT**
An adjustment can be made as to whether a value telegram is to be sent as a reaction to a short and / or long button press action when a push button is pressed or released. Additionally, it is possible to configure whether the value associated with the long button press action is sent via a second object.				

1 bit [0 / 1]	DPT 1.001	switch command
2 bit [0…3]	DPT 2.001	forced operation
1 byte [0…255]	DPT 5.001	brightness value
2 byte [-32768…32767]	DPT 7.001	signed value
2 byte [0…65535]	DPT 8.001	unsigned value
4 byte [float value]	DPT14.068	temperature
4 byte [0…4294967295]	DPT12.001	value unsigned

| 2 | Value(…) - short | send | DPT variable | CT |
| 3 | Value(…) - long | send | | |
| An adjustment can be made as to whether a value telegram is to be sent as a reaction to a short and / or long button press action when a push button is pressed or released. Additionally, it is possible to configure whether the value associated with the long button press action is sent via a second object. |

4.6 Control Scene

The scene function calls scenes which are saved in actuators. Scene numbers in the universal interface and the actuators must be identical. It is possible to save scenes by a long button press if the saving function was activated. This function has got a special property. If 5 separate objects parameter is active, UI108 saves scenes on your own communication object.

The storing of a scene is carried out with a long push button action. The device sends read request each individual actuator group for the current value then stores this value as the new scene value.

4.6.1   Parameters

Control Scene

Parameter	Settings	Description
Connected contact type	*normally closed **normally open**	The contact type of the push button attached to the channel is adjusted here.
Connected contact type	***5 separate object** *8 bit scene	There are two types of scene function; **5 separate objects:** If this function is selected, 5 separate objects are created. An object can be present for each actuator group whether a 1 bit or 8 bit. The scene is stored in the push button. If a scene has been stored after programming or read request, the current object values are overwritten with the new values.

		8 bit scene: The scene is not stored in the push button but rather in the actuator. 8-bit scenes are stored in the actuators. Single group address is managed 64 different scenes.
No of scene	***1** *2 … *64	This parameter is visible if there is selected "8-bit scene"operation. This parameter determines which scene (1…64) is to be stored or recalled.
Store scene	***No** *on long operation *with object value = 1 *on long operation (if object value = 1)	Storing of the current scene can be triggered that type of action. **On long operation:** On long button press operation, store scene command will send on the bus. **With object value = 1**: If the "store scene" object receives value 1, store scene command will send on the bus. **On long operation (if object value = 1)**: If on long operation and "store scene" object receives value 1, than store scene command will send on the bus.
Long operation after	*0,3s… **5s**…10s	This parameter is visible distinction short/long operation; This parameter determines the desired long press time. It is long press period time
Debounce time	*10ms…**50ms**…150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.

4.6.2   Communication Objects

No	Object name	Function	Data type	Flags
1	**Channel (1…8) Disable**	**enable / disable**	**1 bit** DPT 1.003	**CW**
0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off. When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.			
2 … **6**	**Actuator group A: switch** … **Actuator group E: switch**	**recall**	**1 bit** DPT 1.001	**CWT**
2 … **6**	**Actuator group A: value** … **Actuator group E: value**	**recall**	**8 bit** DPT 5.010	**CWT**

These objects are visible if there is selected "5- separate object" operation.

They are control 5 actuator groups. An object can be present for each actuator group whether a 1 bit or 8 bit. The scene is stored in these objects.

No	Object name	Function	Data type	Flags
2	**Channel (1...8) scene**	**recall**	**8 bit** **DPT 18.001**	**CWTU**

These objects are visible if there is selected "8-bit scene" operation. Scene control allows numbering the scene from 0 to 63. Below scene structure is show.
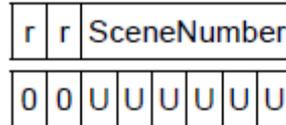
r: 0 – recall scene
1 – store scene

The object to recall and store the scene (1…64) is sent via the group address. 8-bit scenes are stored in the actuators.

No	Object name	Function	Data type	Flags
7	**Channel (1...8) scene**	**save**	**1 bit** **DPT 1.003**	**CWT**

This object is used to trigger the storing of a scene via the bus.

This telegram receives on the bus. Function;

0: End of the storage of the current scene.
1: The storage of the current scene starts.

Object sends the following function;

0: Storage of the current scene is ended.
1: Storage of the current scene is started

4.7 Counter

Counter function is used to count pulses of inputs. It is possible to choose two counter types "differential counter" and "standart counter". Both counters are triggered by counting pulses but each of them operates independently. Important thing is that data widths of the counters are always same. Counter value is stored in both counter objects. In the event of power supply failure to the electronics the value is permanently stored in a memory protected. They are transferred from this memory into the working memory on bus voltage recovery.

4.7.1   Parameters

Counter Function

Parameter	Settings	Description
Pulse detection on	***closing contact (rising edge)** *opening contact (falling edge)	There is a setting which edge is counted at the counter function.
Data width of counter	*8 bit *16 bit signed *16 bit unsigned ***32 bit**	The type of the counter is selected this parameters. Standart counter and differential counter widths are equal.
Counter starts at	*...0...	The standart counter starts count at this value. **NOTE: This parameter is only used for normal**

		counter. It isn't used differential counter. **Differantial counter starts from 0 value.**
Debounce time	*10ms...**50ms**...150ms	Debounce uses the input, which means checking twice in a short period of time to make sure it's definitely pressed.
Transmit counter values after bus voltage recovery	*Yes **No**	In the event of power supply failure to the electronics the value is permanently stored in a memory protected. They are transferred from this memory into the working memory on bus voltage recovery.
Divider: number of input pulses for one counter step	*1...255 (selected 8bit) *1...65535	Here an adjustment is made as to whether how many pulses increase the counter.
Factor: One counter step changes counter value	*1...255 (selected 8bit) *1...65535	Here an adjustment is made as to whether how many the counter should be increased by in the evet of a counting pulse.
Transmit counter values cyclically	*Yes **No**	Is the counter values are sending cyclically?
Counter values are being transmitted every: Base	**1s** *10s *1min *10min *1hour	Both counter values can either be sent cyclically on the bus. Cyclic time: base x factor
Factor	**30**	Cyclic time: base x factor
Enable differential counter	*Yes **No**	If this parameters is selected "Yes", differential counter enable. In additionally differential object and helper objects are opened.
Over-/under of differential counter	....**1000**....	The differential counter threshold is adjusted via this parameter.

4.7.2   Communication Objects

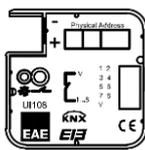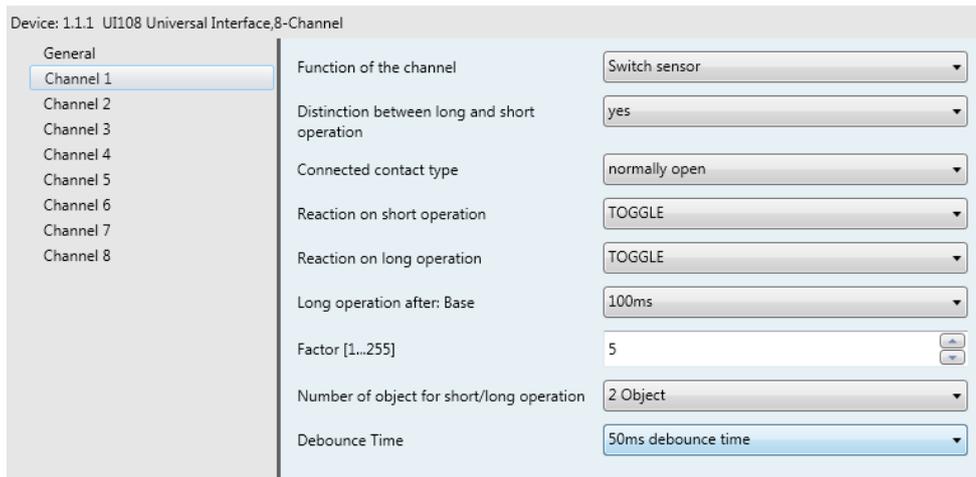| No	Object name	Function	Data type	Flags
1	**Channel (1...8) Disable**	**enable / disable**	**1 bit** **DPT 1.003**	**CW**
\multicolumn{5}{}{0: enable input 1: disable input This object is only visible if it is used as an input. Via the group address linked to this object blocking of the respective input channel is turned on or off. When a disabled input is enabled, no telegrams are sent on the bus, even if the state of the input has changed during blocking. If the input is just being operated as it is being enabled, the input behaves as if the operation has just commenced.}				
2	**Channel (1...8) counter**	**send**	**DPT**	**CWT**
\multicolumn{5}{}{The telegrams with the counter value status sent via the group address. The counter will count selected edges. The following table provides an overview of the data types: 1 byte [0...255] DPT 5.010}				

2 byte [-32 768…32 767]					DPT 7.001
2 byte [0…65 535]					DPT 8.001
4 byte [2 147 483 648…2 147 483 647]					DPT13.001

3	Channel (1…8) differential counter	send		DPT	CT

Firstly "enable additional options" is selected "Yes". Than this parameter is only visible if the parameter "Enable differential counter" is set to "Yes" in the Counter screen. The telegrams with the counter value status sent via the group address. The counter will count selected edges. As soon as the differential counter reaches or falls below the overflow value is defined in the "Over-/underrun of differential counter at". The following table provides an overview of the data types:

1 byte [0…255]   DPT 5.010
2 byte [-32 768…32 767]   DPT 7.001
2 byte [0…65 535]   DPT 8.001
4 byte [2 147 483 648…2 147 483 647]   DPT13.001

Important things the counters data widths are always same.

4	Channel (A…H) counter	Request counter values	1 bit DPT 1.017	CW

Standart counter and the differential counter are requested via this object

Telegram value: "0" no reaction

          "1" send counter values

5	Kanal (A…H) differential counter	overflow	1 bit DPT 1.017	CT

This parameter is only visible if the parameter "Enable differential counter" is set to "Yes" in the Counter screen.
If the counter value is bigger than threshold, a modifield counter value is sent (telegram value = 1)

6	Channel (A…H) differential counter	Reset	1 bit DPT 1.015	CW

The differential counter can be reset to the value 0 via this object.

Telegram value: "0" no reaction

          "1" reset differential counter
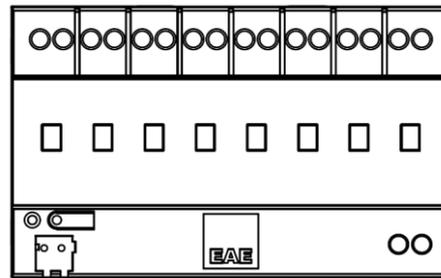
5   Sample Applications

EAE KNX Universal Interface can be used a large amount of applications. Some of them are illustrated below.

5.1   Switch Sensor Application

2 channels of EAE Switch Actuator (SW108) will be controlled by EAE Universal Interface. Short/Long press functions are defined to 2 channels of Universal Interface. Both two inputs will control Light Groups (Channel A and B of SW108). On short operation will execute respective Lighting Group as "toggle" (Group adresses: 1/1/1, 1/1/2). On the other hand long operation will execute as central control (Group adress: 1/1/3).

Device: 1.1.1 UI108 Universal Interface,8-Channel		
General		
Channel 1	Function of the channel	Switch sensor
Channel 2	Distinction between long and short operation	yes
Channel 3		
Channel 4	Connected contact type	normally open
Channel 5		
Channel 6	Reaction on short operation	TOGGLE
Channel 7	Reaction on long operation	TOGGLE
Channel 8	Long operation after: Base	100ms
	Factor [1...255]	5
	Number of object for short/long operation	2 Object
	Debounce Time	50ms debounce time

UI108   **SW108**

Button 1

EAE KNX Universal Interface UI108 *Channel 1*			
Object No	Object Name	Object Function	Group Adress
2	Input 1	Telegr.switch	1/1/1
3	Input 1-uzun	Telegr.switch	1/1/3

Lighting 1

EAE KNX Switch Actuator SW108 *Channel A*		
Group Adress	Obje Name	Object Function
1/1/1 1/1/3	Switch	Telegr.switch

Button 2

EAE KNX Universal Interface UI108 *Channel 2*			
Object No	Object Name	Object Function	Group Adress
9	Input 2	Telegr.switch	1/1/2
10	Input 2- long	Telegr.switch	1/1/3

Lighting 2

EAE KNX Switch Actuator SW108 *Channel B*		
Group Adress	Obje Name	Object Function
1/1/2 1/1/3	Switch	Telegr.switch

5.2   Switch/Dimming Sensor Application

Switch/Dimming function can be used to control any kind of KNX Dimmer Actuator or KNX DALI Gateway. First and second channel of UI108 are working reverse on this application.
Button 1- short operation **ON**, long operation **Dim BRIGTHER**
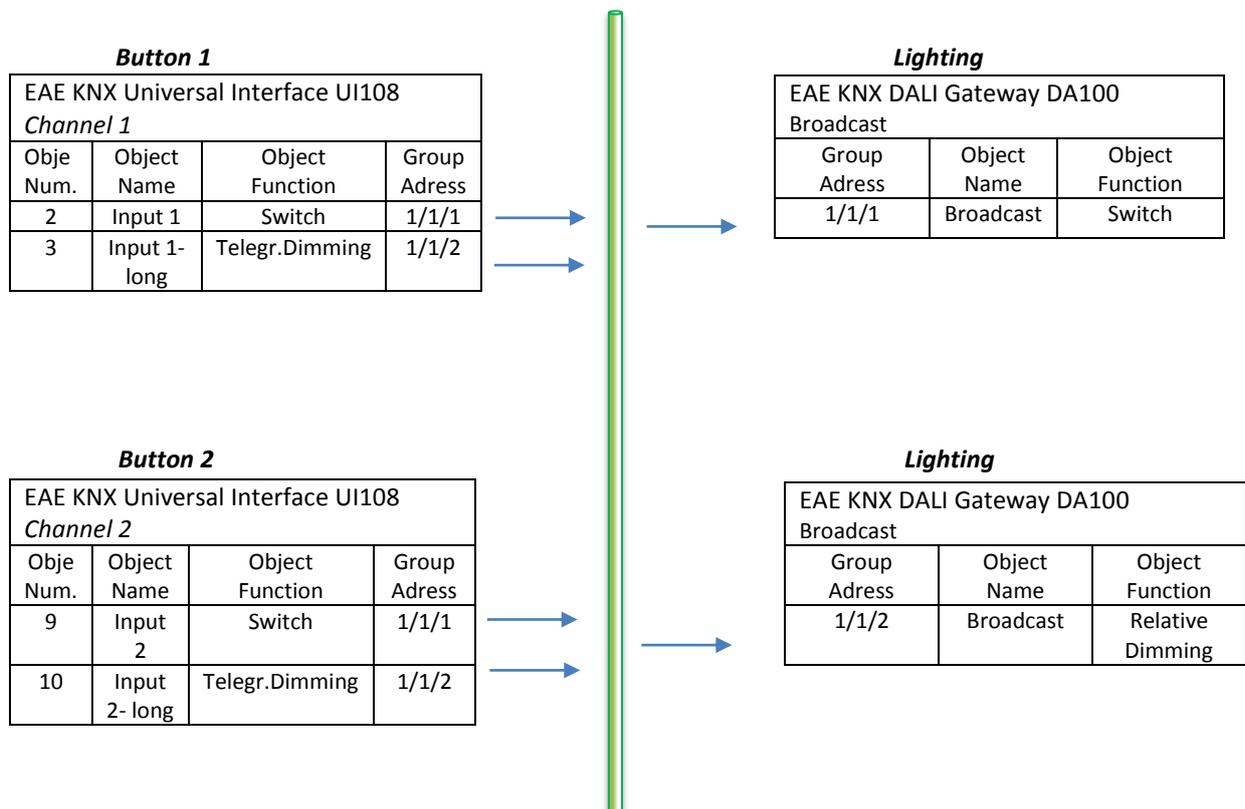**Button 2**- short operation **OFF**, long operation **Dim DARKER**

Device: 1.1.1 UI108 Universal Interface,8-Channel

General	
Channel 1	Function of the channel — Switch/Dimming sensor
Channel 2	Connected contact type — normally open
Channel 3	Dimming functionality — Dimming and switching
Channel 4	Reaction on short operation — ON
Channel 5	Reaction on long operation — Dim BRIGHTER
Channel 6	Long operation after — 0.5s
Channel 7	Dimming mode — Dimming steps
Channel 8	Brighness change on every sent telegram — 6.25%
	Transmission cycle time: telegram is repeated every — 0.5s
	Debounce time — 50ms debounce time

Button 1 Parameters

Reaction on short operation	OFF
Reaction on long operation	Dim DARKER

Button 2 Parameters

Button 1

EAE KNX Universal Interface UI108
Channel 1

Obje Num.	Object Name	Object Function	Group Adress
2	Input 1	Switch	1/1/1
3	Input 1- long	Telegr.Dimming	1/1/2

Lighting

EAE KNX DALI Gateway DA100
Broadcast

Group Adress	Object Name	Object Function
1/1/1	Broadcast	Switch

Button 2

EAE KNX Universal Interface UI108
Channel 2

Obje Num.	Object Name	Object Function	Group Adress
9	Input 2	Switch	1/1/1
10	Input 2- long	Telegr.Dimming	1/1/2

Lighting

EAE KNX DALI Gateway DA100
Broadcast

Group Adress	Object Name	Object Function
1/1/2	Broadcast	Relative Dimming

5.3 Shutter Sensor Application

2 push buttons are used for Shutter Control. Buttons are working reverse as below,

Button 1, short operation **stops** the shutter or moves **lamella UP**. Long operation moves **shutter UP**.
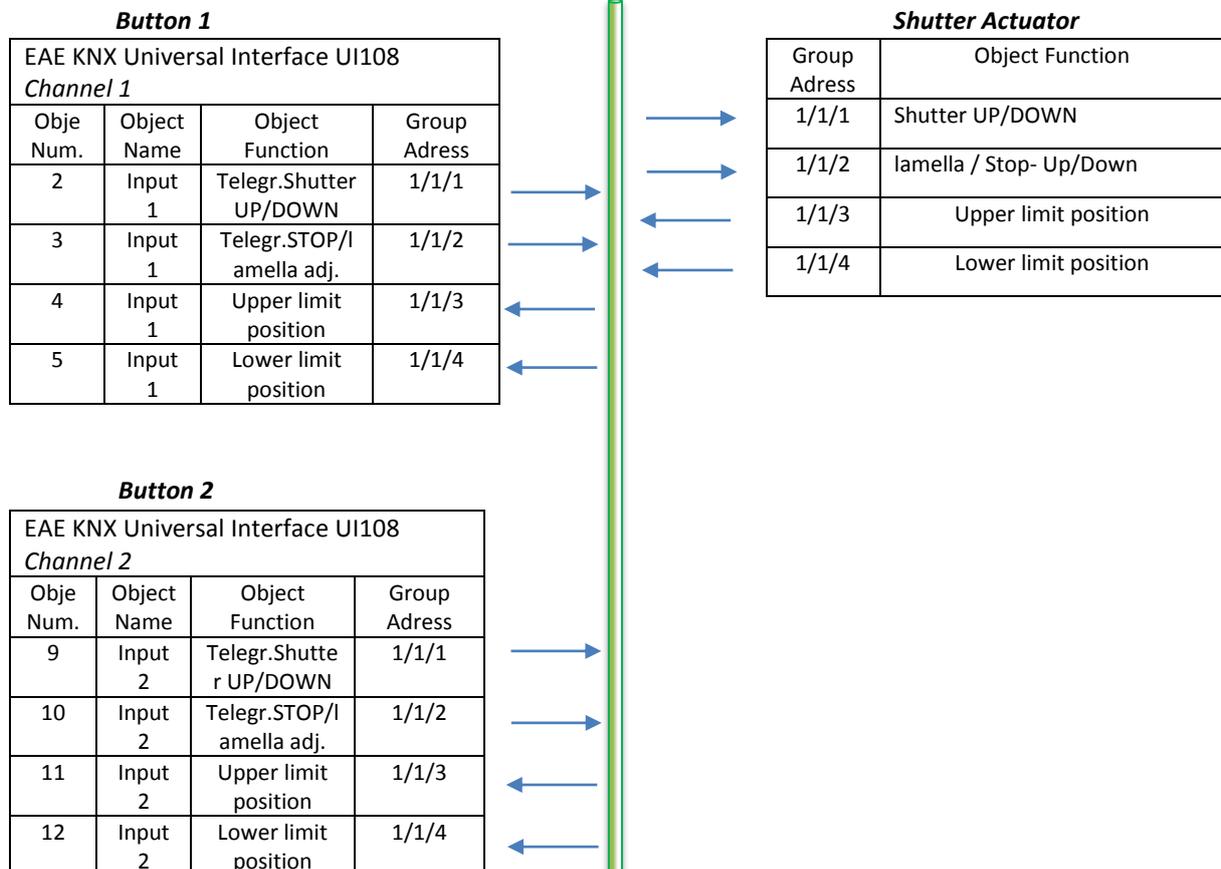**Button 2**,short operation **stops** the shutter or moves **lamella DOWN**. Long operation moves **shutter DOWN**.

Device: 1.1.1 UI108 Universal Interface,8-Channel

General	
Channel 1	
Channel 2	
Channel 3	
Channel 4	
Channel 5	
Channel 6	
Channel 7	
Channel 8	

Function of the channel	Shutter sensor
Operating functionality of blind	2-push-button, standard
Short operation: STOP / lamella UP/DOWN Long operation: move UP/DOWN	<--- NOTE
Connected contact type	normally open
Reaction on short operation	STOP / lamella UP
Reaction on long operation	MOVE UP
Long opertion after	0.4s
Debounce time	30ms debounce time

Button 1 Parameters

|	
Reaction on short operation	STOP / lamella DOWN
Reaction on long operation	MOVE DOWN

Button 2 Parameters

Button 1

EAE KNX Universal Interface UI108
Channel 1

Obje Num.	Object Name	Object Function	Group Adress
2	Input 1	Telegr.Shutter UP/DOWN	1/1/1
3	Input 1	Telegr.STOP/lamella adj.	1/1/2
4	Input 1	Upper limit position	1/1/3
5	Input 1	Lower limit position	1/1/4

Shutter Actuator

Group Adress	Object Function
1/1/1	Shutter UP/DOWN
1/1/2	lamella / Stop- Up/Down
1/1/3	Upper limit position
1/1/4	Lower limit position

Button 2

EAE KNX Universal Interface UI108
Channel 2

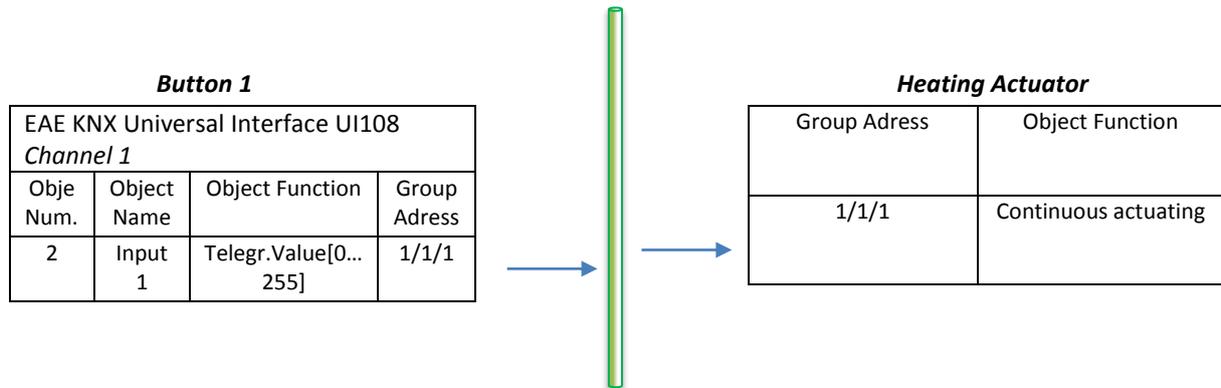| Obje Num.	Object Name	Object Function	Group Adress
9	Input 2	Telegr.Shutter UP/DOWN	1/1/1
10	Input 2	Telegr.STOP/lamella adj.	1/1/2
11	Input 2	Upper limit position	1/1/3
12	Input 2	Lower limit position	1/1/4

5.4 Value/Forced Operation Application

Value/Forced operation function of UI108 can be used various applications. Because it enables sending different kind of datas to KNX bus. This application is a sample for sending a temperature value. 24° is ideal temperature for most places. So it is possible to go this temperature directly just with a push button except using thermostat module.
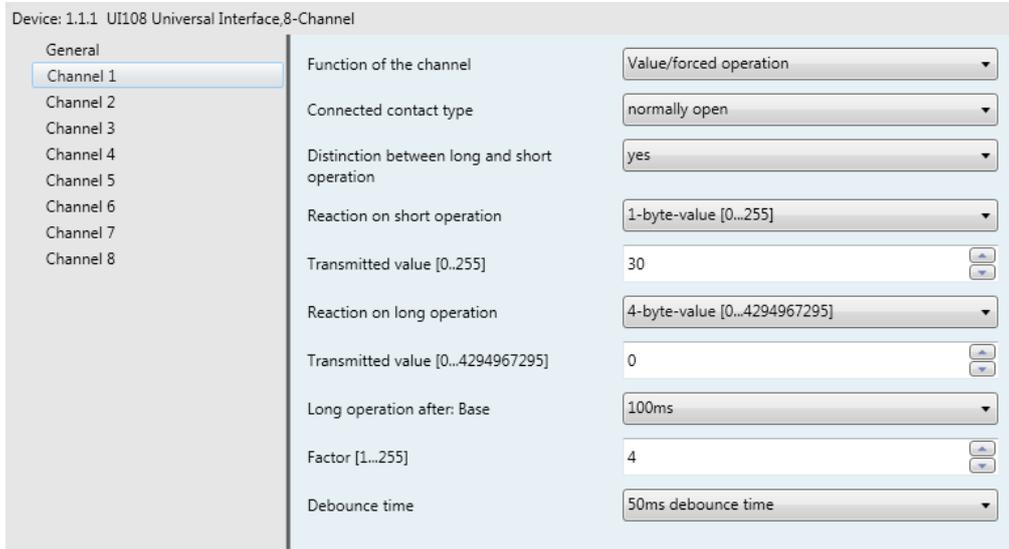
Button 1 Parameters

Note: It is assumed that transmitted value [30] is equal to 24°. Long operation is not used.

Button 1

EAE KNX Universal Interface UI108 *Channel 1*			
Obje Num.	Object Name	Object Function	Group Adress
2	Input 1	Telegr.Value[0... 255]	1/1/1

Heating Actuator

Group Adress	Object Function
1/1/1	Continuous actuating

5.5 Control Scene Application

There are 2 types of control scene function as mentioned before in parameters section of control scene. It's possible to call scenes with 5 separate objects or 8 bit scene objects. Many KNX devices have 8 bit scene objects. Using with one push button you can call and overwrite them. EAE KNX DALI Gateway (DA100) will used on this application.

There are 64 ballasts which are connected to DALI line and 3 scenes are defined in DA100. Scenes;

Scene 1: All Ballasts = %100

Scene 2: All Ballasts = %10

Scene 3: Ballast 5 =%100, Diğerleri = %0

Note: All scenes are arranged in DALI Gateway DA100.

3 push button will used to call scenes. On short operation, scene will be called. On long operation, scene will be stored.

Device: 1.1.1 UI108 Universal Interface,8-Channel

General	
Channel 1	Function of the channel — Control scene
Channel 2	Connected contact type — normally open
Channel 3	Control the scene via — 8-bit-scene
Channel 4	No of scene — Scene no. 1
Channel 5	Reaction on short operation — Recall scene
Channel 6	Store scene — on long operation
Channel 7	Long operation after — 3s
Channel 8	Debounce time — 50ms debounce time

Button 1 Parameters

No of scene	Scene no. 2
Reaction on short operation	Recall scene
Store scene	on long operation

Button 2 Parameters

No of scene	Scene no. 3
Reaction on short operation	Recall scene
Store scene	on long operation

Button 3 Parameters
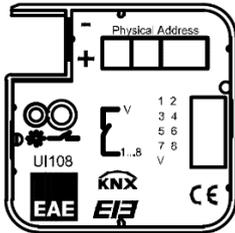
UI108
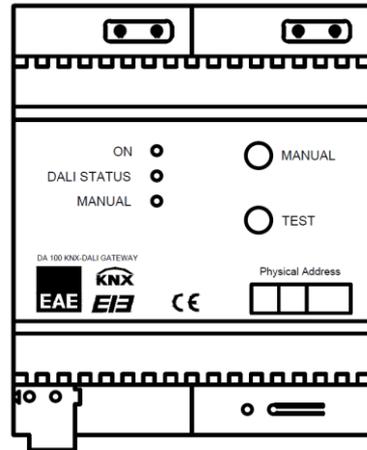
DA100

Button 1

EAE KNX Universal Interface UI108 Channel 1			
Obje Num.	Object Name	Object Function	Group Adress
2	Input 1	8-bit-scene	1/1/1
7	Input 1	Store Scene	1/1/2

Button 2

EAE KNX Universal Interface UI108 Channel 2			
Obje Num.	Object Name	Object Function	Group Adress
9	Input 2	8-bit-scene	1/1/1
14	Input 2	Store Scene	1/1/2

Button 3

EAE KNX Universal Interface UI108 Channel 3			
Obje Num.	Object Name	Object Function	Group Adress
16	Input 3	8-bit-scene	1/1/1
21	Input 3	Store Scene	1/1/3

Sahneler

EAE KNX DALI Gateway DA100		
Group Adress	Object Name	Object Function
1/1/1	Scene	8-bit-scene
1/1/2	Scene 1/2	Scene 1/2 Store
1/1/3	Scene 3/4	Scene 3/4 Store

Note: Scene 1 and Scene 2 will be stored using same communication object on DALI Gateway. In order to store Scene 1, low bit (0) must be sent. For storing Scene 2, high bit (1) must be sent. In the same way to store Scene 3 low bit (0) must be sent.

5.6 Counter Application

Counter function can be used such moments need to count a pulse or an important actuation coming from output of a conventional sensor.

Pulses which are coming from input 1 will count on this application. However differential counter is activated and overrun value is "10". Differential counter will be "0" after overrun value and start to count again. Input 2 will be used for request of counter values.

Channel 1 Parameters

Channel 2 Parameters

Screen

Group Adress	Object Name	Object Function
1/1/1	x	x
1/1/2	x	x

EAE KNX Universal Interface UI108
Channel 1

Object Num.	Object Name	Object Function	Group Adress
2	Input 1	Telegr. Counter value 4 bytes	1/1/1
3	Input 1	Differential Counter 4 bytes	1/1/2
4	Input 1	Request counter values	1/1/3
5	Input 1	Differential counter overflow	1/1/4

EAE KNX Universal Interface UI108
Channel 2

Object Num.	Object Name	Object Function	Group Adress
9	Input 2	Switch	1/1/3

Using channel 2, counter values are requested 3 times on group monitor screen below. If an "ON" value is sent to "Request counter values" object. Input 1 sends immediately following objects; "Telegr.Counter value 4 bytes" and "Differential counter 4 bytes". However, when differential counter value is "0" after an overflow, it sends "ON" value over "Diffrential counter overflow" object.

1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/3	Request counter values	6	Write	1.001 switch	$01 | On
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/1	Telegr. counter value 4 bytes	6	Write	13.001 counter pulses (signed)	00 00 00 06 | 6 pulses
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/2	Differential counter 4 bytes	6	Write	12.001 counter pulses (unsigned)	00 00 00 06 | 6 pulses
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/4	Differential counter overflow	6	Write	1.001 switch	$01 | On
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/3	Request counter values	6	Write	1.001 switch	$01 | On
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/1	Telegr. counter value 4 bytes	6	Write	13.001 counter pulses (signed)	00 00 00 0A | 10 pulses
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/2	Differential counter 4 bytes	6	Write	12.001 counter pulses (unsigned)	00 00 00 00 | 0 pulses
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/3	Request counter values	6	Write	1.001 switch	$01 | On
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/1	Telegr. counter value 4 bytes	6	Write	13.001 counter pulses (signed)	00 00 00 0C | 12 pulses
1.1.5 UI108 Univ. Interface	,8-Kanal 1/1/2	Differential counter 4 bytes	6	Write	12.001 counter pulses (unsigned)	00 00 00 02 | 2 pulses

Counter Values- ETS Group Monitor