

TAPKO

TECHNOLOGIES GMBH



TAI4

4-fold Contact Interface / Binary Input

Technical & Application Description

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1 Product Description

The TAI4 Contact Interface is a 4-fold KNX binary input to sensor contacts and to control/switch/operate KNX devices via classical conventional switches and push buttons. The input module is suitable to process binary signals of potential-free contacts. Due to its small housing (diagonal of 50 mm) TAI4 finds enough room in a flush-mounted box (Ø 60 mm) behind the switch. The connecting cable pairs of 28 cm can be extended up to 10 m when twisted.

Designed for KNX-enabling of conventional switches and push buttons, TAI4 provides a 3.3 V sensing voltage for contact scanning. All usual input functions like switching, dimming, shutters, blinds control, counter and scenes can be used in a common way.

Due to its small housing with a diagonal of 50 mm, TAI4 finds enough room in a flush-mounted box (Ø 60 mm x 40 mm) behind the switch. The connecting cable pairs of 28 cm can be extended up to 10 m when twisted.



In this document, individually addressed telegrams are named Physical Telegrams.



In this document, group-oriented telegrams are named Group Telegrams.

1.1 Front Panel

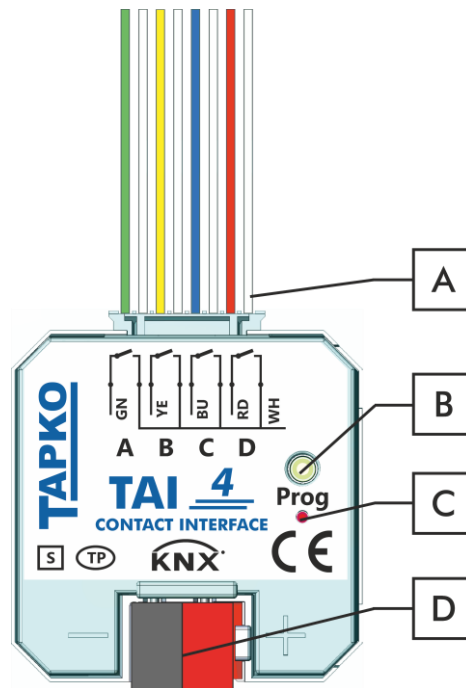


Figure 1: Front View

Table 1: Front Panel Elements

Buttons / Connectors / LEDs	
A	Input
B	Programming Button
C	Programming LED
D	KNX TP Connector

1.2 LED Indication

Table 2: LEDs Colours

Number	LED	Colour	Explanation / Range
C	Programming LED	red	Programming Mode active
		< off >	Programming Mode not active

1.3 Instructions for Commissioning and Safety

Please note for commissioning with default settings:

- Individual Address is 15.15.255

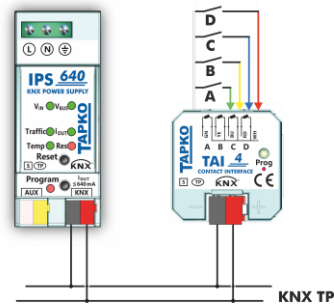


Figure 2: Connection Scheme

Please read carefully before first use:

- After connection to the KNX bus system, the device works with its default settings as intended
- **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
- The device must not be mounted in a box together with 230 V devices and/or 230 V cables
- Combinations of a push button device connected to both the TAI4 and a 230 V device (or sockets) at the same time 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 TAI4, 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
- For changing the configuration use the ETS
- The housing must not be opened
- Installation only in dry locations
- Accessibility of the device for operation and visual inspection must be provided
- Protect the device from moisture, dirt and damage
- The device needs no maintenance
- If necessary, the device can be cleaned with a dry cloth
- In the case of damage (at storage, transport) no repairs may be carried out by unauthorized persons

1.4 Feature Summary

- 4-fold KNX binary input module suitable for potential-free contacts
- Contact scanning of window contacts, door contacts etc.
- KNX-enabling of classical conventional switches and push-buttons
- Small dimensions suitable for flush mounting
- Simple low-cost device
- Low current consumption
- Internal supply via KNX TP bus line
- Average input sensing voltage of 3.3V
- NO or NC contact operation
- Detection of short and long button press
- Channels separately configurable
- Interlock function
- Large number of KNX input applications:
 - Sun protection (one-button and two-button shutter)
 - Dimming (one-button and two-button dimming)
 - Switch (short/long button press)
 - Scene (8-bit with/without saving function, 1-bit)
 - Counter (8-bit, 16-bit, 32-bit)
 - Send value (percent, angle, temperature, 2-bit, 8-bit, 16-bit)
- Push-button for programming the Individual Address
- Can be used with ETS3.0d and higher

2 Operational Description

In network installations, TAI4 can be used as KNX binary input for potential-free contacts. After connecting to KNX TP, TAI4 operates with its default settings. Setting the correct Individual Address is necessary to include TAI4 in the present KNX bus system.

2.1 Binary Input Application

TAI4 provides four binary input channels for contact scanning. They can be used as single channels and pairwise combined for two-button functions. For all functions the contact type can be set (NO or NC) and a locking function ("Interlock") is available. Excluding the counter function also the differing between long and short button press can throughout be set.

Combining two channels (A/B or C/D) enables the two-button functions "Dimming" and "Shutter". In single channel mode, following functions can be assigned to a single channel:

- Switch (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“.

2.2 Programming

2.2.1 Programming of Individual Address and Application

To download Individual Address and/or ETS application the Programming Mode must be activated. Successive pressing the Programming Button will turn on and off Programming Mode. LED C lighting in red colour indicates Programming Mode is active.

To make a download and configure the device, an interface connection (IP, USB) to the KNX bus system is required. When Programming Mode is activated, the ETS is able to start the download.

The Individual Address can be assigned to the device by setting the desired address in the properties window of the ETS. After starting the ETS download and then pressing the Programming Button the device restarts itself.

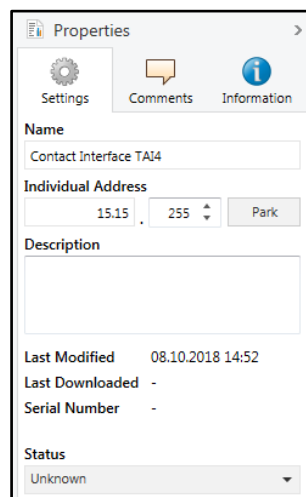


Figure 3: ETS Properties Window



The device is supplied with the Individual Address 15.15.255 (Factory Default Setting).



The KNX product database entry (available for ETS3.0d and higher) can be downloaded from the TAPKO website and from the KNX Online Catalog.

3 ETS Database Parameters

Screenshots are related to the TAI4 database file R1-2 in ETS5.7.

3.1 General

The Input channels can be used as single channels and pairwise combined for functions "Dimming" and "Shutter".

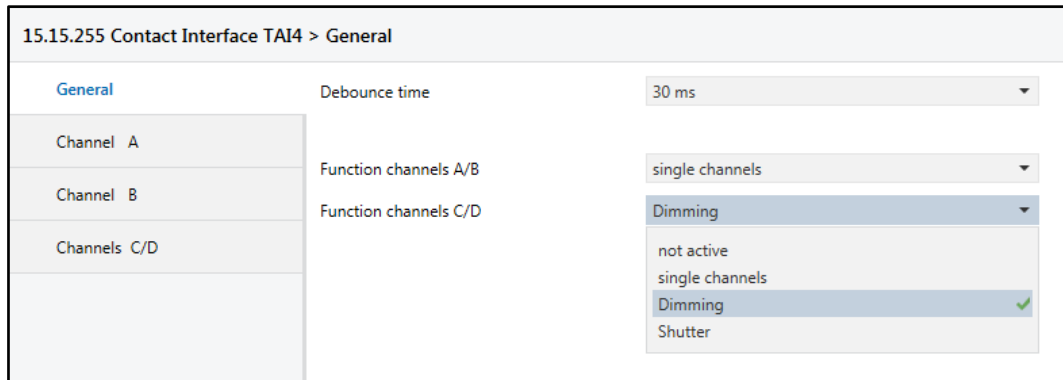


Figure 4: General Tab Parameters

Table 3: 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. It applies to all four channels.
Function channels A/B	not active single channels Dimming Shutter [not active]	Configuration of input channels A/B.
Function channels C/D	not active single channels Dimming Shutter [not active]	Configuration of input channels C/D.

3.2 Channel A, B, C, D

When Inputs are used as single channels, following functions are available and described in this chapter.

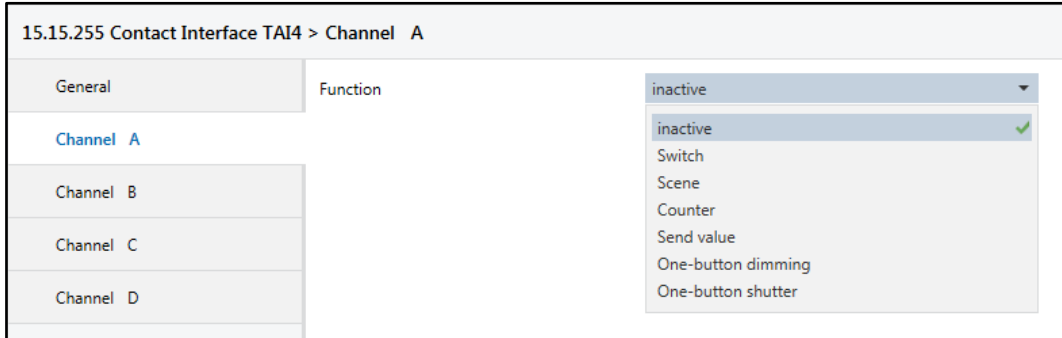


Figure 5: Channel A Tab Parameters (same applies to Input B, C, D)

Table 4: Channel A Tab Parameter Settings (same applies to Channel B, C, D)

ETS Parameter	Settings [Default Parameter]	Comment
Function	inactive Switch Scene Counter Send value One-button dimming One-button shutter [inactive]	Functions that can be set for each channel.

3.2.1 Switch

15.15.255 Contact Interface TAI4 > Channel A

General	Function	Switch
Channel A	Sub function	switch on rising edge
Channel B	Contact type	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channel C	Value rising edge	<input type="radio"/> off <input checked="" type="radio"/> on
Channel D	Interlock	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

Figure 6: Channel A: Switch Parameters

Table 5: Channel A: Switch Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
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.
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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 "switch on rising edge" and "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 [s]	1...3000 [10]	Time interval for "Send cyclic".
Value short press	nothing off on toggle [off]	The here defined action is executed after a short button press; available for "switch on short/long button press".
Value long press	nothing off on toggle [on]	The here defined action is executed after a long button press; available for "switch on short/long button press".

ETS Parameter	Settings [Default Parameter]	Comment
Long button press after	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	disabled enabled [disabled]	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.2.2 Scene

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

15.15.255 Contact Interface TAI4 > Channel A

General	Function	Scene
Channel A	Scene	with saving function
Channel B	Contact type	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channel C	Scene number	Scene 1
Channel D	Long button press after	2.0 s
	Interlock	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

Figure 7: Channel A: Scene Parameters

Table 6: Channel A: Scene Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Scene	without saving function saving function 1-bit [without saving function]	Sets the saving option for an 8-bit scene or sets 1-bit scenes.
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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 after	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

15.15.255 Contact Interface TAI4 > Channel A

General	Function	Counter
Channel A	Count edge	rising edge
Channel B	Contact type	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channel C	Counter type	8-bit
Channel D	Counter limit active	<input checked="" type="radio"/> no <input type="radio"/> yes
	Sending difference	5
	Write value via KNX	<input type="radio"/> disabled <input checked="" type="radio"/> enabled
	Interlock	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

Figure 8: Channel A: Counter Parameters

Table 7: Channel A: Counter Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Count edge	rising edge falling edge both edges [rising edge]	Defines on which edge(s) the counter is increasing.
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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".
Sending difference	<u>8-bit:</u> 1...255 [5] <u>16-bit:</u> 1...65535 [100] <u>32-bit:</u> 1...65535 [250]	Object is sent when the sending difference is reached.
Write value via KNX	disabled enabled [enabled]	Must be enabled if a value shall be written to the counter via KNX.
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

Figure 9: Channel A: Send value Parameters

Table 8: Channel A: Send value Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
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.
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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	Percent: 0 % ... 100 % [0 %] Angle: 0°; 5°; 10° ... 360° [0°] Temperature (x 100/°C):	Sets value; available for "on rising edge" and "on both edges".
Value falling edge	-27300...32000 [0] 2-bit: ON, activate forced operation	Sets value; available for "on both edges".
Value short press	OFF, activate forced operation deactivate forced operation	Sets value; available for "on short/long button press".
Value long press	[deactivate forced operation] 8-bit: 0...65535 [0] 16-bit: 0...65535 [0]	Sets value; available for "on short/ long button press" and "on long button press".

ETS Parameter	Settings [Default Parameter]	Comment
Long button press after	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 process. A short keystroke button press affects the switching object “Dimming on/off”. Dimming direction is toggled by every button press. The one-button dimming is a start stop dimming meaning a darker or brighter command is sent until the button is released. After releasing the button the dimming process stops.

The screenshot shows a configuration window titled "15.15.255 Contact Interface TAI4 > Channel A". It features a sidebar with tabs for "General", "Channel A", "Channel B", "Channel C", and "Channel D". The "Channel A" tab is active, displaying the following settings:

- Function:** One-button dimming (dropdown menu)
- Contact type:** normally open (selected radio button), normally closed (radio button)
- Long button press after:** 2.0 s (dropdown menu)
- Interlock:** disabled (selected radio button), enabled (radio button)

Figure 10: Channel A: One-button dimming Parameters

Table 9: Channel A: One-button dimming Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
Long button press after	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 "Sun protection 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 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.

15.15.255 Contact Interface TAI4 > Channel A

General	Function	One-button shutter
Channel A	Contact type	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channel B	Long button press after	2.0 s
Channel C	Interlock	<input checked="" type="radio"/> disabled <input type="radio"/> enabled
Channel D		

Figure 11: Channel A: One-button shutter Parameters

Table 10: Channel A: One-button shutter Parameter Settings

ETS Parameter	Settings [Default Parameter]	Comment
Contact type	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
Long button press after	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 Channels A/B, C/D

Combined input channels have one two-button function. Configuring the two-button functions “Dimming” and “Shutter” is only possible by use of combined channels. According to the setting in the “General” tab either two-button dimming or two-button shutter can be configured for a combined input. In contrast to the one-button functions, assignment of buttons can be made individually. For example, it is possible to configure one button will drive shutters up and the other one will drive them down.

3.3.1 Two-button dimming

Figure 12: Channels A/B Tab Parameters (same applies to Channels C/D)

Table 11: Channels A/B Tab Parameter Settings (same applies to Channels C/D)

ETS Parameter	Settings [Default Parameter]	Comment
Contact type - Channel A	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
Contact type - Channel B	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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 after	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.

3.3.2 Two-button shutter

15.15.255 Contact Interface TAI4 > Channels A/B

General	Contact type - Channel A	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channels A/B	Contact type - Channel B	<input checked="" type="radio"/> normally open <input type="radio"/> normally closed
Channels C/D	Shutter function A/B	<input checked="" type="radio"/> up/down <input type="radio"/> down/up
	Long button press after	2.0 s
	Interlock	<input checked="" type="radio"/> disabled <input type="radio"/> enabled

Figure 13: Channels A/B Tab Parameters (same applies to Channels C/D)

Table 12: Channels A/B Tab Parameter Settings (same applies to Channels C/D)

ETS Parameter	Settings [Default Parameter]	Comment
Contact type - Channel A	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
Contact type - Channel B	normally open normally closed [normally open]	Defines the contact type at the input, NO or NC. If NO is selected, the input is logic high after the contact is closed.
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> <ul style="list-style-type: none"> • Channel A moves the shutter up. • Channel B moves the shutter down. <u>down/up:</u> <ul style="list-style-type: none"> • Channel A moves the shutter down. • Channel B moves the shutter up.
Long button press after	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 13: Communication Object Overview

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
0	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	
0	Sun protection up/down	Input A/B	This object is used to move the shutter(s) up or down (two-button shutter).	1 bit	DPT1	X	X		X	
0	Switch	Input A	This object is used to switch on/off, to toggle or to "send status".	1 bit	DPT1	X	X		X	
0	Switch short	Input A	This object is used to switch on/off or to toggle on a short button press.	1 bit	DPT1	X	X		X	
0	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
0	Send value	Input A	This object is used to send a predefined value on a short button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT7, DPT9	X	X		X	
0	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	
0	Sun protection up/down	Input A	This object is used to move the shutter(s) up or down (one-button shutter).	1 bit	DPT1	X	X		X	
1	Dimming	Input A/B	This object is used to dim brighter or darker (two-button dimming).	4 bit	DPT3	X	X		X	
1	Blinds open/close	Input A/B	This object is used to close or open the blinds (two-button shutter).	1 bit	DPT1	X	X		X	
1	Switch long	Input A	This object is used to switch on/off or to toggle on a long button press.	1 bit	DPT1	X	X		X	
1	Counter limit	Input A	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
1	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	DPT2, DPT5, DPT7, DPT9	X	X		X	
1	Dimming	Input A	This object is used to dim brighter or darker (one-button dimming).	4 bit	DPT3	X	X		X	
1	Blinds open/close	Input A	This object is used to stop movement and adjust the blinds (one-button shutter).	1 bit	DPT1	X	X		X	
2	Scene	Input A	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
2	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	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
3	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
4	Interlock	Input A/B	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X
4	Interlock	Input A	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X
5	Switch	Input B	This object is used to switch on/off, to toggle or to "send status".	1 bit	DPT1	X	X		X	
5	Switch short	Input B	This object is used to switch on/off or to toggle on a short button press.	1 bit	DPT1	X	X		X	
5	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
5	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, DPT7, DPT9	X	X		X	
5	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	
5	Sun protection up/down	Input B	This object is used to move the shutter(s) up or down (one-button shutter).	1 bit	DPT1	X	X		X	
6	Switch long	Input B	This object is used to switch on/off or to toggle on a long button press.	1 bit	DPT1	X	X		X	
6	Counter limit	Input B	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
6	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	DPT2, DPT5, DPT7, DPT9	X	X		X	
6	Dimming	Input B	This object is used to dim brighter or darker (one-button dimming).	4 bit	DPT3	X	X		X	
6	Blinds open/close	Input B	This object is used to stop movement and adjust the blinds (one-button shutter).	1 bit	DPT1	X	X		X	
7	Scene	Input B	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
7	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	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
9	Interlock	Input B	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
10	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	
10	Sun protection up/down	Input C/D	This object is used to move the shutter(s) up or down (two-button shutter).	1 bit	DPT1	X	X		X	
10	Switch	Input C	This object is used to switch on/off, to toggle or to "send status".	1 bit	DPT1	X	X		X	
10	Switch short	Input C	This object is used to switch on/off or to toggle on a short button press.	1 bit	DPT1	X	X		X	
10	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
10	Send value	Input C	This object is used to send a predefined value on a short button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT7, DPT9	X	X		X	
10	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	
10	Sun protection up/down	Input C	This object is used to move the shutter(s) up or down (one-button shutter).	1 bit	DPT1	X	X		X	
11	Dimming	Input C/D	This object is used to dim brighter or darker (two-button dimming).	4 bit	DPT3	X	X		X	
11	Blinds open/close	Input C/D	This object is used to close or open the blinds (two-button shutter).	1 bit	DPT1	X	X		X	
11	Switch long	Input C	This object is used to switch on/off or to toggle on a long button press.	1 bit	DPT1	X	X		X	
11	Counter limit	Input C	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
11	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	DPT2, DPT5, DPT7, DPT9	X	X		X	
11	Dimming	Input C	This object is used to dim brighter or darker (one-button dimming).	4 bit	DPT3	X	X		X	
11	Blinds open/close	Input C	This object is used to stop movement and adjust the blinds (one-button shutter).	1 bit	DPT1	X	X		X	
12	Scene	Input C	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
12	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	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

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
14	Interlock	Input C/D	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X
14	Interlock	Input C	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X
15	Switch	Input D	This object is used to switch on/off, to toggle or to "send status".	1 bit	DPT1	X	X		X	
15	Switch short	Input D	This object is used to switch on/off or to toggle on a short button press.	1 bit	DPT1	X	X		X	
15	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
15	Send value	Input D	This object is used to send a predefined value on a short button press.	2 bit, 1 byte, 2 bytes	DPT2, DPT5, DPT7, DPT9	X	X		X	
15	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	
15	Sun protection up/down	Input D	This object is used to move the shutter(s) up or down (one-button shutter).	1 bit	DPT1	X	X		X	
16	Switch long	Input D	This object is used to switch on/off or to toggle on a long button press.	1 bit	DPT1	X	X		X	
16	Counter limit	Input D	This object is used to set the counter limit availability.	1 bit	DPT1	X	X		X	X
16	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	DPT2, DPT5, DPT7, DPT9	X	X		X	
16	Dimming	Input D	This object is used to dim brighter or darker (one-button dimming).	4 bit	DPT3	X	X		X	
16	Blinds open/close	Input D	This object is used to stop movement and adjust the blinds (one-button shutter).	1 bit	DPT1	X	X		X	
17	Scene	Input D	This object is used to recall or learn the configured 8-bit scene (1-64).	1 byte	DPT18	X	X		X	
17	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	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
19	Interlock	Input D	This object is used to lock/unlock functioning on receiving the value 1.	1 bit	DPT1	X		X	X	X

5 Technical

5.1 State of Delivery

Table 14: Factory Default Setting

General	
Individual Address	15.15.255

General settings	
Debounce time	30 ms
Function Inputs A/B	not active
Function Inputs C/D	not active

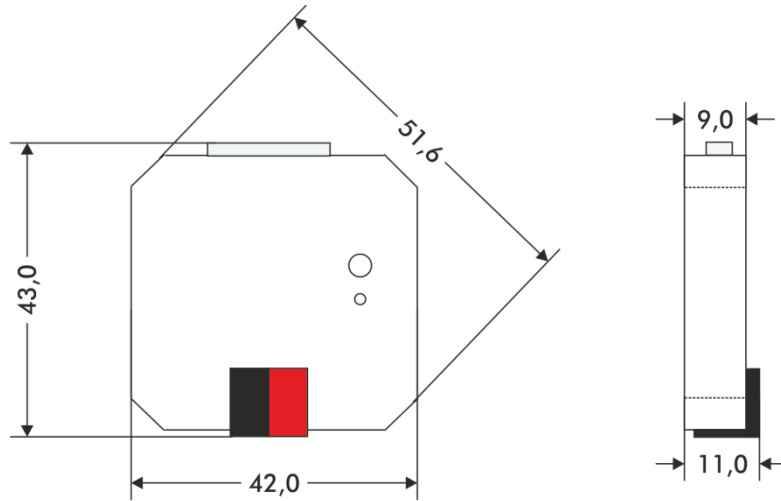
5.2 Datasheet

Marking/Design	TAI4
Current consumption	< 10 mA
Connections	KNX TP line: KNX TP connector (red/black), screwless, for single-core cable Ø 0.6...0.8 mm
LED Display elements	Programming LED
Control elements	Programming Button
Protection type	IP20 according to IEC60529
Pollution degree	2 according to IEC60664-1
Protection class	III according to IEC61140
Overvoltage category	III according to IEC60664-1
Approbation	KNX-certified according to ISO/IEC14543-3
CE Marking	In compliance with directives 2014/35/EU (LVD), 2014/30/EU (EMC), 2011/65/EU (RoHS)
Standards	EN50491-2, EN50491-5-1, EN50491-5-2, EN50491-5-3, EN50581
Voltage supply	KNX: 21...30V DC (SELV)
Housing colour	Plastic PA66 housing, grey
Housing dimensions	H = 43 mm, W = 42 mm, D = 11 mm
Flush mounting	Box of Ø 60 mm x 40 mm
Weight	22 g
Operating temperature	-5...45 °C
Storage temperature	-25...70 °C
Ambient humidity	5...93 %, non-condensing
Binary input channels	4 (potential-free contacts)
Input sensing voltage	3.3 V
Input sensing current	0.3 mA (100 mA short-time)
Input cables	4 pairs, 28 cm length, 0.22 mm ² , Ø 0.56 mm

5.3 Drawings



Dimensions shown here are specified in mm.



Dimensions in mm
Tolerance: +/- 0.5 mm

Figure 14: Dimension Drawings

TAI4

Product:

4-fold Contact Interface / Binary Input

Doctype:

Technical & Application Description

Release Number / Release Date:

R1.1 / October 2019

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