2018

Apricum

TAI4

4-fold Contact Interface

Technical & Application Description

Content

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, physically addressed telegrams are named Physical Telegrams.


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

1.1 Front Panel

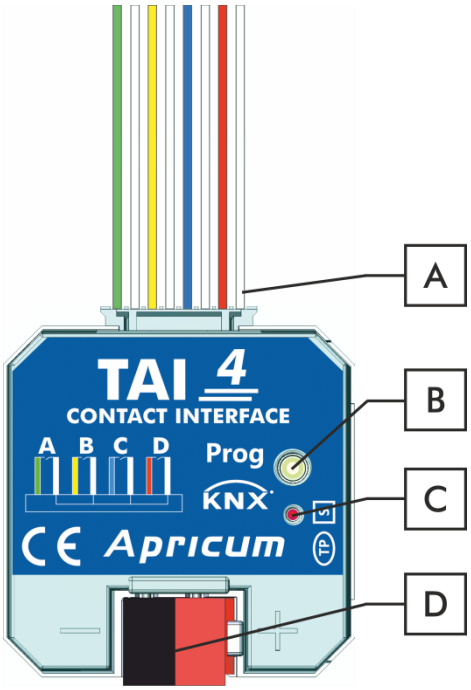


Figure 1: Front View

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 Commissioning

Please note for commissioning with default settings:

- Physical address is 15.15.255

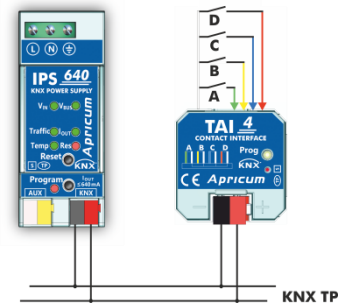


Figure 2: Connection Scheme

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 personnel
- 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 personnel

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)

  Dimming (one-button and two-button)

  Switch (short/long button press)

  Scene (8-bit: save/ no save, 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 physical 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 physical 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 (long press saving, 1-Bit-Scene, 8-Bit-Scene)
- 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 Button

To download the desired physical address or an ETS setting the Programming Button must be activated. Successive pressing the Programming Button will turn on and off the Programming Mode. The Programming LED (C) lighting in red colour indicates Programming Mode is active. When Programming Mode is activated, the ETS is able to download the physical address.

2.2.2 Physical Address Assignment

To configure the device an interface connection (IP, USB) to the KNX bus system is required. The device is supplied with the individual physical address 15.15.255. The KNX product database entry (available for ETS3.0d and higher) can be downloaded from the Apricum website and from the KNX Online Catalog.

The physical 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.

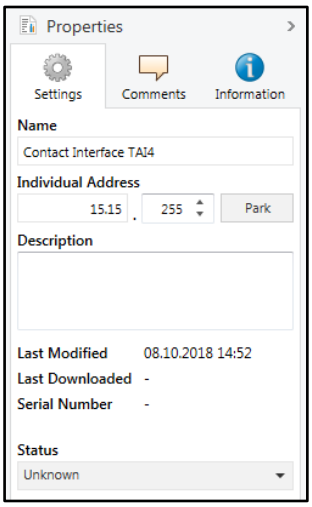


Figure 3: ETS Properties Window

In this document only the term “physical address” is used. The term “physical address” means the KNX physical address as well as the ETS individual address. Both terms are used by the KNX organisation interchangeably.

3 ETS Database Parameters

All screen shots are related to the TAI4 database file R1-1 in ETS5.

3.1 General settings

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

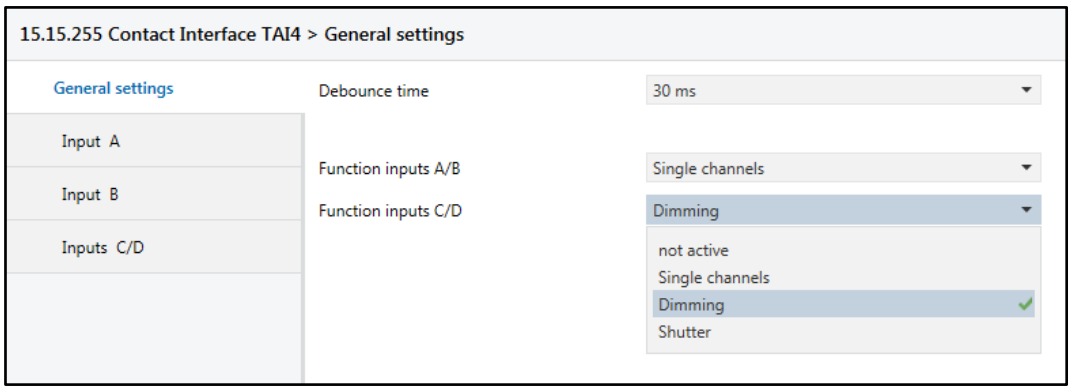


Figure 4: General settings Tab Parameters

Table 3: General settings Tab Parameter Settings

ETS Parameter	Setting [Factory Default]	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 inputs A/B	not active Single channels Dimming Shutter **[not active]**	Configuration of input channels A/B.
Function inputs C/D	not active Single channels Dimming Shutter **[not active]**	Configuration of input channels C/D.

3.2 Input A, B, C, D

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

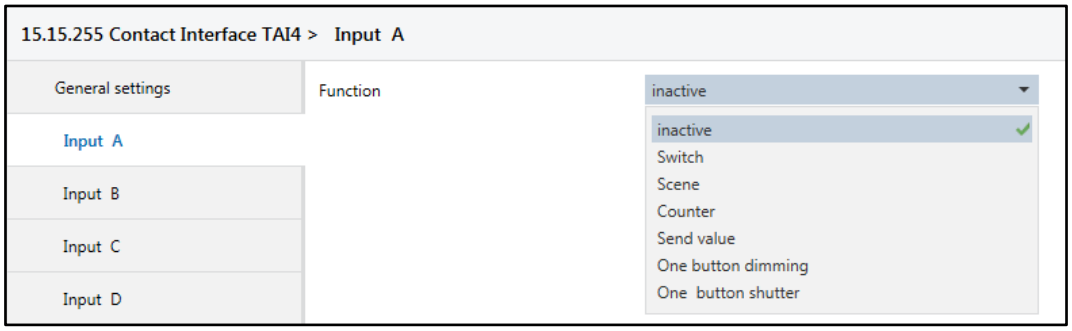


Figure 5: Input A Tab Parameters (same applies to Inputs B, C, D)

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

ETS Parameter	Setting [Factory Default]	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

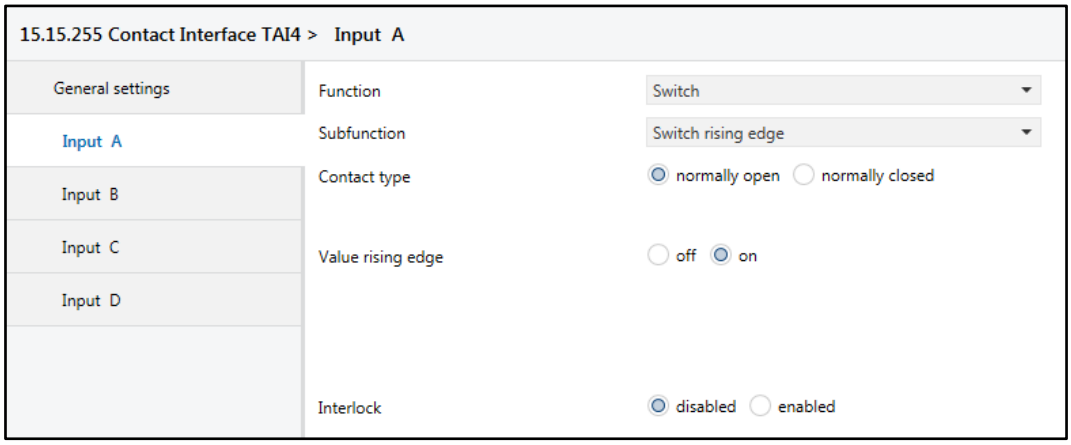


Figure 6: Input A: Switch Parameters

Table 5: Input A: Switch Parameter Settings

ETS Parameter	Setting [Factory Default]	Comment
Subfunction	Switch rising edge Toggle rising edge Status send Switch short/long **[Switch rising edge]**	Defines the event on which the value of the object 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 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 rising edge” and “Status send”.
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 “Status send”.
Cyclic send [s]	1…3000 **[10]**	Time interval for “Send cyclic”.
Value short action	nothing off on toggle **[off]**	The here defined action is executed after a short button press; available for “Switch short/long”.
Value long action	nothing off on toggle **[on]**	The here defined action is executed after a long button press; available for “Switch short/long”.

ETS Parameter	Setting [Factory Default]	Comment
Long operation 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 enabled, a long button press can be used to store an 8-Bit-Scene (“save”).

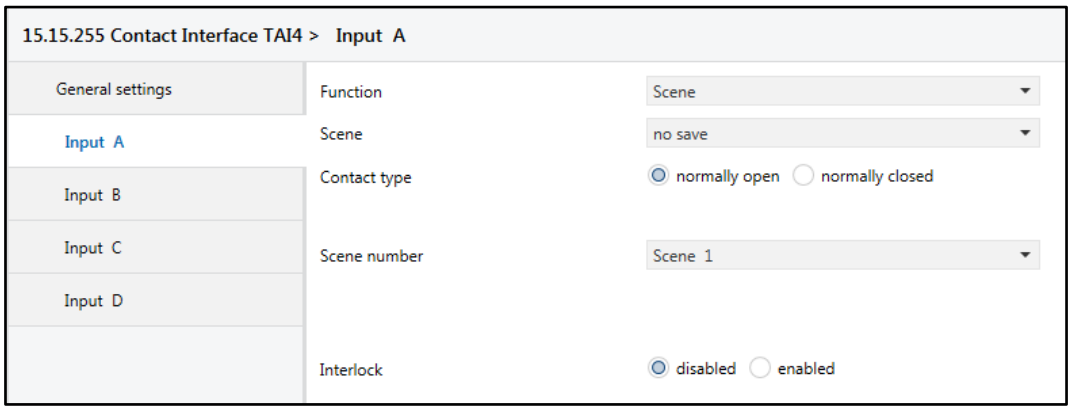


Figure 7: Input A: Scene Parameters

Table 6: Input A: Scene Parameter Settings

ETS Parameter	Setting [Factory Default]	Comment
Scene	no save save 1-Bit **[no save]**	Sets the “save” option for an 8-Bit-Scene or sets a 1-Bit-Scene.
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 “no save” and “save”.
Long operation 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 “save”.
Scene	Scene 1 Scene 2 **[Scene 1]**	One of the 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

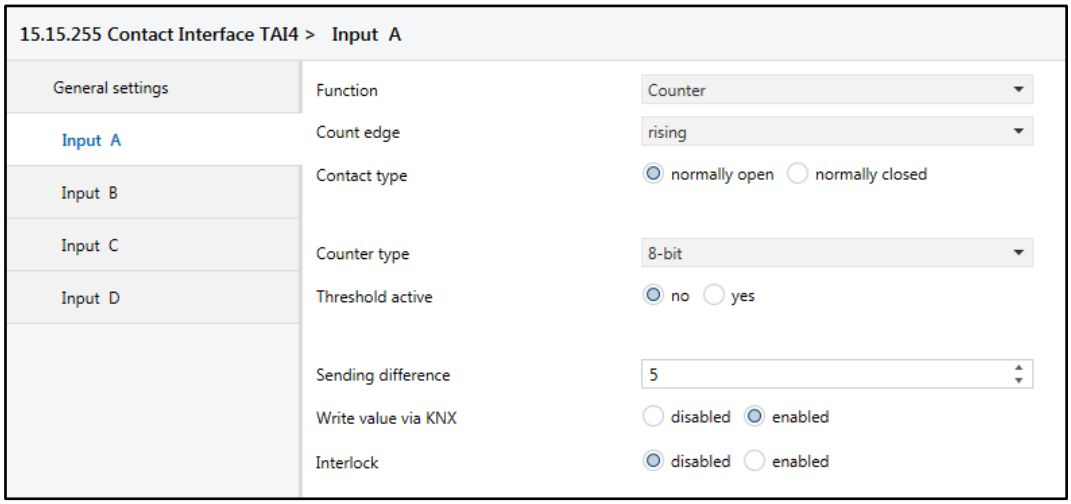


Figure 8: Input A: Counter Parameters

Table 7: Input A: Counter Parameter Settings

ETS Parameter	Setting [Factory Default]	Comment
Count edge	rising falling rising and falling **[rising]**	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.
Threshold active	no yes **[no]**	To be set if a counter limit is needed.
Counter limit	8-bit: 1…255 **[50]** 16-bit: 1…65535 **[200]** 32-bit: 1…2147483647 **[500]**	Sets the threshold/limit value; available if “Threshold active” is set to “yes”.
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 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

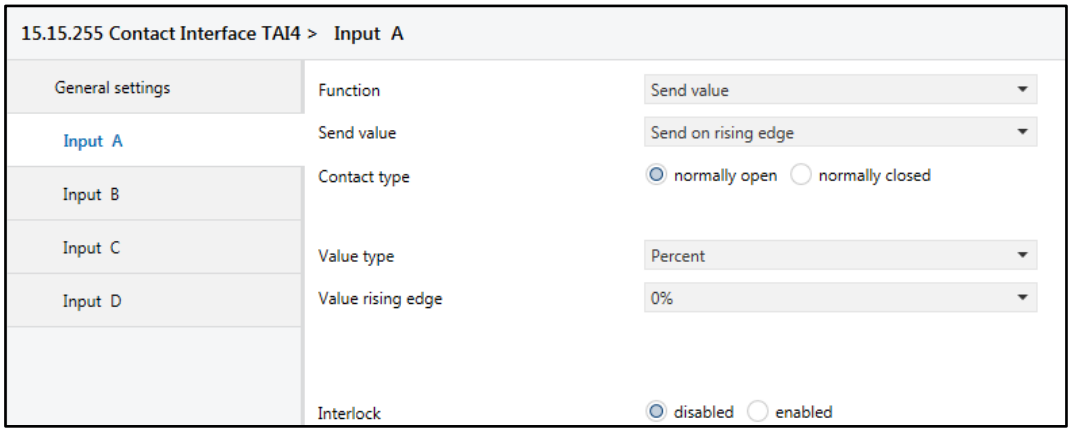


Figure 9: Input A: Send value Parameters

Table 8: Input A: Send value Parameter Settings

ETS Parameter	Setting [Factory Default]	Comment
Send value	Send on rising edge Send on both edges Send on short/long Send on long **[Send 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 2bit value (forced operation) 8bit value 16bit value **[Percent]**	Sets the type of value.
Value rising edge	Percent: 0 % …100 % **[0 %]** Angle: 0°; 5°; 10° …360° **[0°]** Temperature (x 100/°C): -27300…32000 **[0]** 2bit: ON, activate forced OFF, activate forced, deactivate forced **[deactivate forced]** 8bit: 0…65535 **[0]** 16bit: 0…65535 **[0]**	Sets the value; available for “Send on rising edge” and “Send on both edges”.
Value falling edge		Sets the value; available for “Send on both edges”.
Value short action		Sets the value; available for “Send on short/long”.
Value long action		Sets the value; available for “Send on short/long” and “Send on long”.
Long operation 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 “Send on short/long” and “Send on long”.
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.

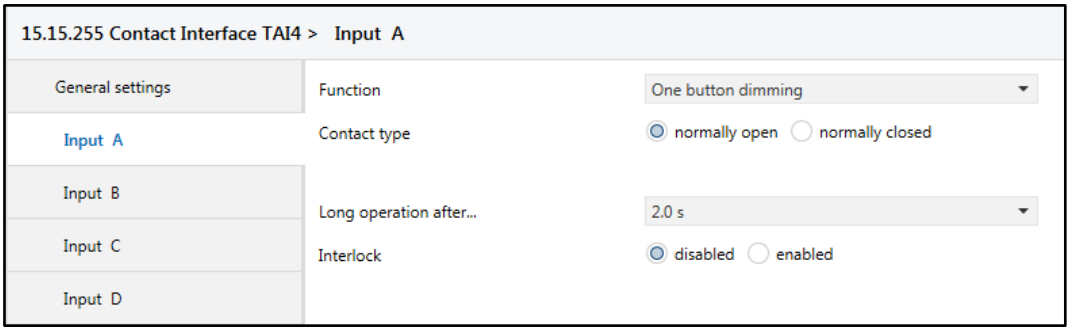


Figure 10: Input A: One button dimming Parameters

Table 9: Input A: One button dimming Parameter Settings

ETS Parameter	Setting [Factory Default]	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 operation 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.
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 “Sunprotection 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 on/off” for stopping the movement and/or adjusting the blinds.

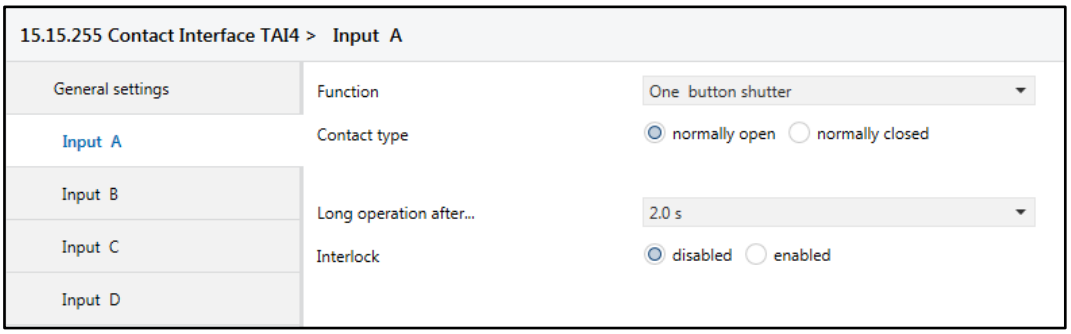


Figure 11: Input A: One button shutter Parameters

Table 10: Input A: One button shutter Parameter Settings

ETS Parameter	Setting [Factory Default]	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 operation 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.
Interlock	disabled enabled **[disabled]**	If Interlock is active, changes at the Input are not considered until the Interlock is deactivated again.

3.3 Inputs 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 settings” 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

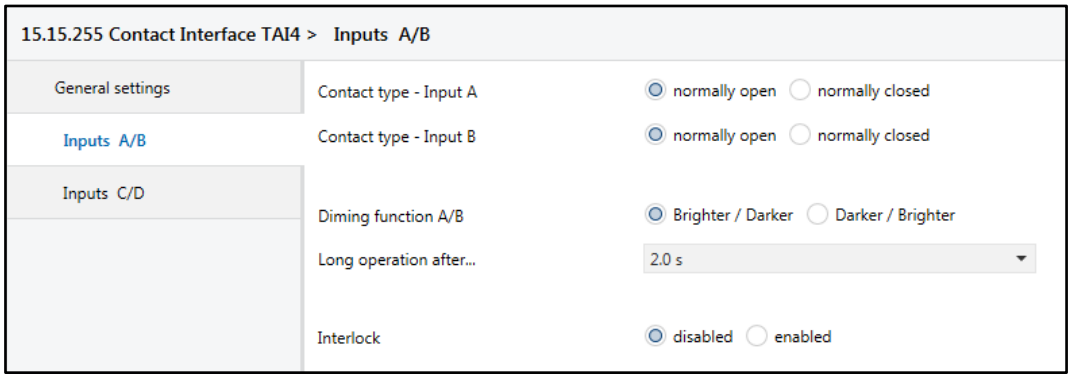


Figure 12: Inputs A/B Tab Parameters (same applies to Inputs C/D)

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

ETS Parameter	Setting [Factory Default]	Comment
Contact type - Input 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 - Input 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. Brighter/Darker: • Input A dims up and switches on. • Input B dims down and switches off. Darker/Brighter: • Input A dims down and switches off. • Input B dims up and switches on.
Long operation 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.
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

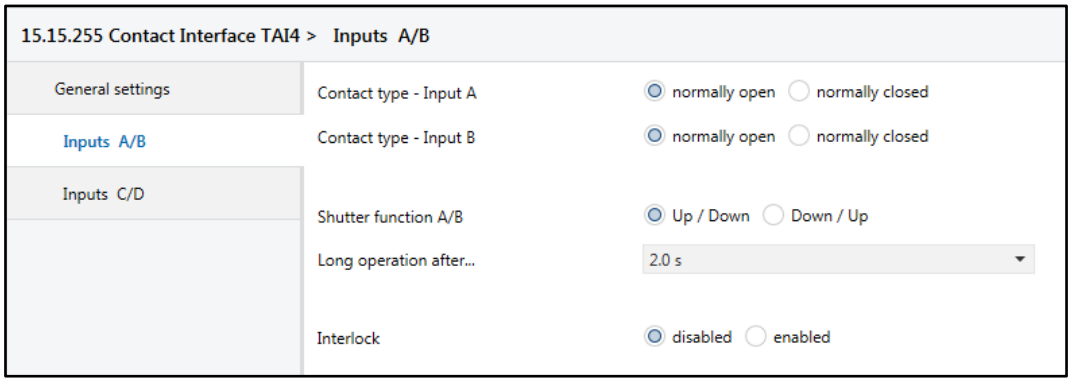


Figure 13: Inputs A/B Tab Parameters (same applies to Inputs C/D)

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

ETS Parameter	Setting [Factory Default]	Comment
Contact type - Input 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 - Input 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. Up/Down: • Input A moves the shutter up. • Input B moves the shutter down. Down/Up: • Input A moves the shutter down. • Input B moves the shutter up.
Long operation 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.
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 inputs used).	1 bit	DPT1	X	X		X	
0	Sunprotection up/down	Input A/B	This object is used to move the shutter(s) up or down (two inputs used).	1 bit	DPT1	X	X		X	
0	Switch	Input A	This object is used to switch “on”, to switch “off” and for “Status send”.	1 bit	DPT1	X	X		X	
0	Switch	Input A	This object is used to “toggle”.	1 bit	DPT1	X	X	X	X	
0	Switch Short	Input A	This object is used to switch “on”, to switch “off” and “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 of the signal state at the input on rising edge, on both edges and on short/long.	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 input used).	1 bit	DPT1	X	X		X	
0	Sunprotection up/down	Input A	This object is used to move the shutter(s) up or down (one input used).	1 bit	DPT1	X	X		X	
1	Dimming	Input A/B	This object is used to dim brighter or darker (two inputs used).	4 bit	DPT3	X	X		X	
1	Blinds on/off	Input A/B	This object is used to close or open the blinds (two inputs used).	1 bit	DPT1	X	X		X	
1	Switch Long	Input A	This object is used to switch “on”, to switch “off” and “toggle” on a long button press.	1 bit	DPT1	X	X		X	
1	Counter Threshold	Input A	This object is used to set a limit/threshold to the related counter.	1 bit	DPT1	X	X		X	X
1	Send value long	Input A	This object is used to send a predefined value of the signal state at the input on short/long and on long.	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 input used).	4 bit	DPT3	X	X		X	
1	Blinds on/off	Input A	This object is used to stop movement and adjust the blinds (one input used).	1 bit	DPT1	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
2	Scene	Input A	This object is used to recall or learn the output state of the related 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 output state of the related 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
3	Counter	Input A	This object is used as 8-bit counter counting on rising edge, on falling edge or on both edges.	1 byte	DPT5	X	X	X	X	X
3	Counter	Input A	This object is used as 16-bit counter counting on rising edge, on falling edge or on both edges.	2 bytes	DPT7	X	X	X	X	X
3	Counter	Input A	This object is used as 32-bit counter counting on rising edge, on falling edge or on both edges.	4 bytes	DPT12	X	X	X	X	X
4	Interlock	Input A/B	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X
4	Interlock	Input A	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X
5	Switch	Input B	This object is used to switch “on”, to switch “off” and for “Status send”.	1 bit	DPT1	X	X		X	
5	Switch	Input B	This object is used to “toggle”.	1 bit	DPT1	X	X	X	X	
5	Switch Short	Input B	This object is used to switch “on”, to switch “off” and “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 of the signal state at the input on rising edge, on both edges and on short/long.	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 input used).	1 bit	DPT1	X	X		X	
5	Sunprotection up/down	Input B	This object is used to move the shutter(s) up or down (one input used).	1 bit	DPT1	X	X		X	
6	Switch Long	Input B	This object is used to switch “on”, to switch “off” and “toggle” on a long button press.	1 bit	DPT1	X	X		X	
6	Counter Threshold	Input B	This object is used to set a limit/threshold to the related counter.	1 bit	DPT1	X	X		X	X

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
6	Send value long	Input B	This object is used to send a predefined value of the signal state at the input on short/long and on long.	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 input used).	4 bit	DPT3	X	X		X	
6	Blinds on/off	Input B	This object is used to stop movement and adjust the blinds (one input used).	1 bit	DPT1	X	X		X	
7	Scene	Input B	This object is used to recall or learn the output state of the related 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 output state of the related 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
8	Counter	Input B	This object is used as 8-bit counter counting on rising edge, on falling edge or on both edges.	1 byte	DPT5	X	X	X	X	X
8	Counter	Input B	This object is used as 16-bit counter counting on rising edge, on falling edge or on both edges.	2 bytes	DPT7	X	X	X	X	X
8	Counter	Input B	This object is used as 32-bit counter counting on rising edge, on falling edge or on both edges.	4 bytes	DPT12	X	X	X	X	X
9	Interlock	Input B	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X
10	Dimming on/off	Input C/D	This object is used to switch on/off a dimmable light source (two inputs used).	1 bit	DPT1	X	X		X	
10	Sunprotection up/down	Input C/D	This object is used to move the shutter(s) up or down (two inputs used).	1 bit	DPT1	X	X		X	
10	Switch	Input C	This object is used to switch “on”, to switch “off” and for “Status send”.	1 bit	DPT1	X	X		X	
10	Switch	Input C	This object is used to “toggle”.	1 bit	DPT1	X	X	X	X	
10	Switch Short	Input C	This object is used to switch “on”, to switch “off” and “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 of the signal state at the input on rising edge, on both edges and on short/long.	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 input used).	1 bit	DPT1	X	X		X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
10	Sunprotection up/down	Input C	This object is used to move the shutter(s) up or down (one input used).	1 bit	DPT1	X	X		X	
11	Dimming	Input C/D	This object is used to dim brighter or darker (two inputs used).	4 bit	DPT3	X	X		X	
11	Blinds on/off	Input C/D	This object is used to close or open the blinds (two inputs used).	1 bit	DPT1	X	X		X	
11	Switch Long	Input C	This object is used to switch “on”, to switch “off” and “toggle” on a long button press.	1 bit	DPT1	X	X		X	
11	Counter Threshold	Input C	This object is used to set a limit/threshold to the related counter.	1 bit	DPT1	X	X		X	X
11	Send value long	Input C	This object is used to send a predefined value of the signal state at the input on short/long and on long.	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 input used).	4 bit	DPT3	X	X		X	
11	Blinds on/off	Input C	This object is used to stop movement and adjust the blinds (one input used).	1 bit	DPT1	X	X		X	
12	Scene	Input C	This object is used to recall or learn the output state of the related 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 output state of the related 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
13	Counter	Input C	This object is used as 8-bit counter counting on rising edge, on falling edge or on both edges.	1 byte	DPT5	X	X	X	X	X
13	Counter	Input C	This object is used as 16-bit counter counting on rising edge, on falling edge or on both edges.	2 bytes	DPT7	X	X	X	X	X
13	Counter	Input C	This object is used as 32-bit counter counting on rising edge, on falling edge or on both edges.	4 bytes	DPT12	X	X	X	X	X
14	Interlock	Input C/D	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X
14	Interlock	Input C	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X
15	Switch	Input D	This object is used to switch “on”, to switch “off” and for “Status send”.	1 bit	DPT1	X	X		X	
15	Switch	Input D	This object is used to “toggle”.	1 bit	DPT1	X	X	X	X	

No.	Name	Function	Description	Length	DPT	C	R	W	T	U
15	Switch Short	Input D	This object is used to switch “on”, to switch “off” and “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 of the signal state at the input on rising edge, on both edges and on short/long.	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 input used).	1 bit	DPT1	X	X		X	
15	Sunprotection up/down	Input D	This object is used to move the shutter(s) up or down (one input used).	1 bit	DPT1	X	X		X	
16	Switch Long	Input D	This object is used to switch “on”, to switch “off” and “toggle” on a long button press.	1 bit	DPT1	X	X		X	
16	Counter Threshold	Input D	This object is used to set a limit/threshold to the related counter.	1 bit	DPT1	X	X		X	X
16	Send value long	Input D	This object is used to send a predefined value of the signal state at the input on short/long and on long.	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 input used).	4 bit	DPT3	X	X		X	
16	Blinds on/off	Input D	This object is used to stop movement and adjust the blinds (one input used).	1 bit	DPT1	X	X		X	
17	Scene	Input D	This object is used to recall or learn the output state of the related 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 output state of the related 1-bit scene (1 or 2).	1 bit	DPT1	X	X		X	
18	Counter	Input D	This object is used as 8-bit counter counting on rising edge, on falling edge or on both edges.	1 byte	DPT5	X	X	X	X	X
18	Counter	Input D	This object is used as 16-bit counter counting on rising edge, on falling edge or on both edges.	2 bytes	DPT7	X	X	X	X	X
18	Counter	Input D	This object is used as 32-bit counter counting on rising edge, on falling edge or on both edges.	4 bytes	DPT12	X	X	X	X	X
19	Interlock	Input D	This object is used to lock/unlock functioning of the device on receiving the value 1.	1 bit	DPT1	X		X	X	X

5 State of Delivery

5.1 Default Factory Setting

Table 14: Default Factory Setting

General	
Physical Address	15.15.255

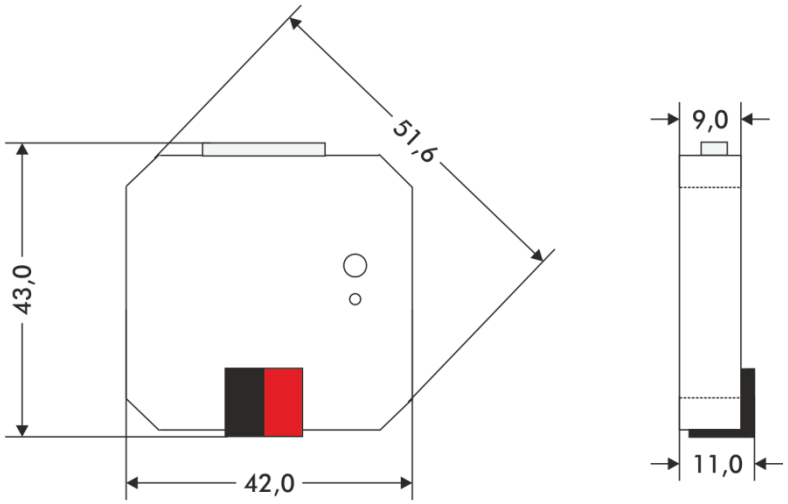
General settings	
Debounce time	30 ms
Function Inputs A/B	not active
Function Inputs C/D	not active

5.2 Technical 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 Technical Drawings

All dimensions shown here are specified in mm.



Dimensions in mm
Tolerance: +/- 0.5 mm

Figure 14: Dimension Drawings

TAI4

Product:	4-fold Contact Interface
Doctype:	Technical & Application Description
Release Number / Release Date:	R1.0 / December 2018
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