

KNX binary input 4-fold for dry contacts

KNX IO 411.1 *secure*

Operation and installation manual



(Art. # 5514)

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1 Application

The KNX IO 411.1 *secure* is a compact binary input with 4 inputs.

The application offers extensive functions for switching, dimming, shutter, valuator, scene and color control as well as an operation time and impulse counter. This can be used to connect energy meters with S0 output or anemometers.

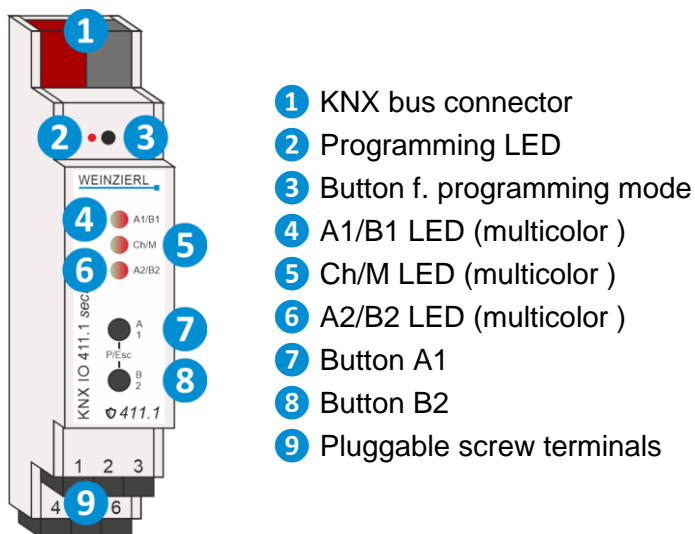
The inputs can be controlled via dry contacts and are suitable for connecting conventional push buttons.

Two push buttons and three LEDs allow a local operation and a visualization of the device state.

In addition, the device contains 16 independent logic or time functions. The device supports KNX Data Security.

2 Installation and connection

The KNX IO 411.1 *secure* is designed for installation on a DIN rail (35 mm) with a width of 1 unit (18 mm). An installation-friendly design with pluggable screw terminals helps to reduce the cost of commissioning. It features the following controls and displays:



This device is powered by the KNX bus. An external power supply is not necessary



If the bus voltage is missing, the device is without function.

2.1 KNX programming mode

The KNX programming mode is activated/deactivated either by pressing the recessed KNX programming button **3** or by simultaneously pressing the buttons (P/Esc) **7** and **8**.

When the programming mode is active, the programming LED **2** and the LED Mode **5** light up red.

The operation/visualization of the programming mode on the front can be activated/deactivated in the ETS® on page general settings.

2.2 Manual operation and status display

The LED Ch/M **5** lights up or flashes if the device is successfully powered by the KNX bus

By pressing button A1 **7** long, the manual operation mode will be entered for channel pair A (Ch A In1/In2). This is indicated by cyclic single flashing of LED Ch/M **5** in orange.

By pressing button B2 **8** long, the manual operation mode will be entered for channel pair B (Ch B In1/In2). This is indicated by cyclic double flashing of LED Ch/M **5** in orange.

If manual operation of a channel pair is activated, the bus telegrams of In1 and In2 can be triggered by button A1 **7** and B2 **8**, if input channel is configured by ETS.

LED A1/B1 **4** and LED A2/B2 **6** are used to indicate state of selected channel pair while manual operation. They light green when the button A1 **7** or B2 **8** is pressed.

Summary of the states of LED Ch/M **5**:

LED Status	Meaning
LED lights green	Device is working in standard operation mode.
LED lights red	Programming mode is active.
LED flashes 1x orange	Programming mode is not active. Manual operation is active: Switching first channel pair (Ch A In1/In2)
LED flashes 2x orange	Programming mode is not active. Manual operation is active: Switching first channel pair (Ch B In1/In2)
LED blinks red	Programming mode is not active. Manual operation is not active. The device is not properly loaded e.g. after an interrupted download .
LED blinks green	The device is currently loaded by the ETS.

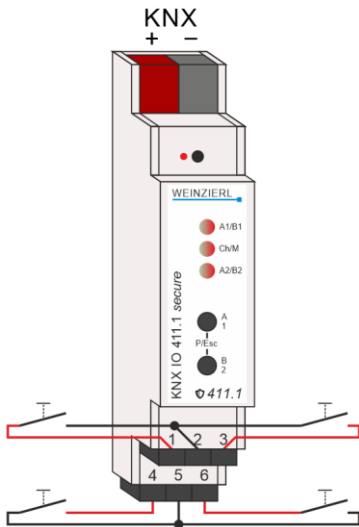
3 Reset to factory default settings

It is possible to reset the device to its factory default settings.

- Disconnect the KNX bus connector **1** from the device.
- Press the KNX programming button **3** and keep it pressed down.
- Reconnect the KNX bus connector **1** to the device.
- Keep the KNX programming button **3** pressed for at least another 6 seconds.
- A short flashing of all LEDs (**2 4 5 6**) visualizes the successful reset of the device to factory default settings.

In the factory default settings, the device has the physical address 15.15.255 and no group addresses are connected. Also, KNX Data Security is disabled and the initial key (FDSK) must be used for secure commissioning.

4 Wiring scheme



4.1 Pluggable screw terminals

The assignment of the Pluggable screw terminals **9** is as follows:

Upper row first channel pair A, left Input 1, right Input 2, in the middle Common. Lower row second channel pair B, left Input 1, right Input 2, in the middle Common:

Ch A In 1	Cm	Ch A In 2
Ch B In 1	Cm	Ch B In 2

4.2 Pin assignment

Connection	Icon	Description
1	Ch A In 1	Channel A input 1
2	Cm	Common
3	Ch A In 2	Channel A input 2
4	Ch B In 1	Channel B input 1
5	Cm	Common
6	Ch B In 2	Channel B input 2
KNX	+	Positive connection for KNX bus
KNX	-	Ground connection for KNX bus

5 KNX Security

The KNX standard was extended by KNX Security to protect KNX installations from unauthorized access. KNX Security reliably prevents the monitoring of communication as well as the manipulation of the system.

The specification for KNX Security distinguishes between KNX IP Security and KNX Data Security. KNX IP Security protects the communication over IP while on KNX TP the communication remains unencrypted. Thus, KNX IP Security can also be used in existing KNX systems and with non-secure KNX TP devices.

KNX Data Security describes the encryption on telegram level. This means that the telegrams on the twisted pair bus or via RF (radio frequency) are also encrypted.



Encrypted telegrams are longer than the previously used unencrypted ones. For secure programming via the bus, it is therefore necessary that the interface used (e.g. USB) and any intermediate line couplers support the so called KNX Long Frames.

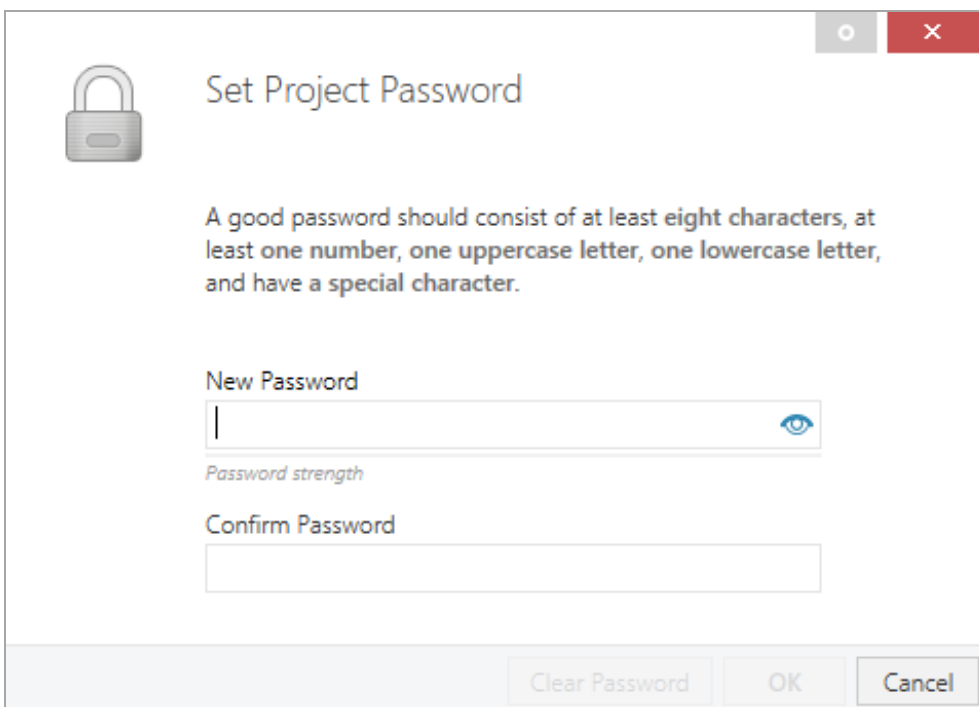
6 ETS database

The ETS 5 database (for ETS 5.7 or newer) can be downloaded from the product website of the KNX IO 411.1 *secure* (www.weinzierl.de) or from the ETS online catalogue.

The KNX IO 411.1 *secure* supports KNX Data Security to protect the device against unauthorized access from the KNX bus. If the device is programmed via the KNX bus, this is done with encrypted telegrams.

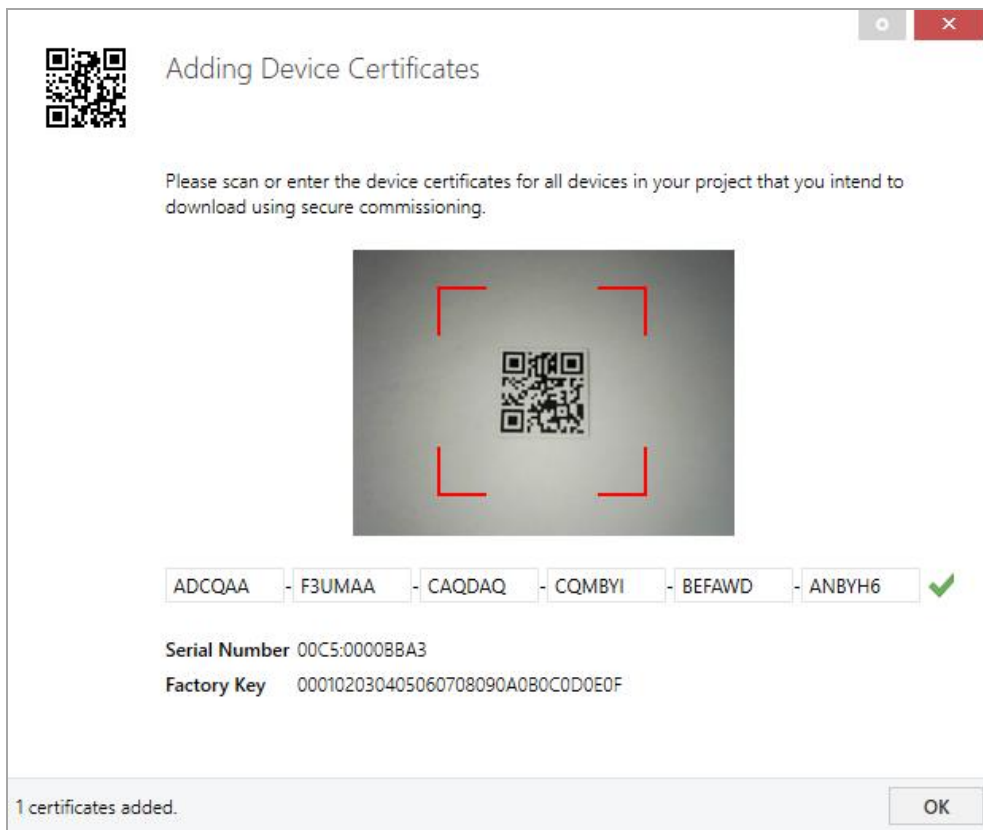
6.1 Secure commissioning

If the first product is inserted into a project with KNX Security, the ETS prompts you to enter a project password.



This password protects the ETS project from unauthorized access. This password is not a key that is used for KNX communication. The entry of the password can be bypassed with "Cancel", but this is not recommended for security reasons.

ETS requires a device certificate for each device with KNX Security that is created in the ETS. This certificate contains the serial number of the device as well as an initial key (FDSK = Factory Default Setup Key).



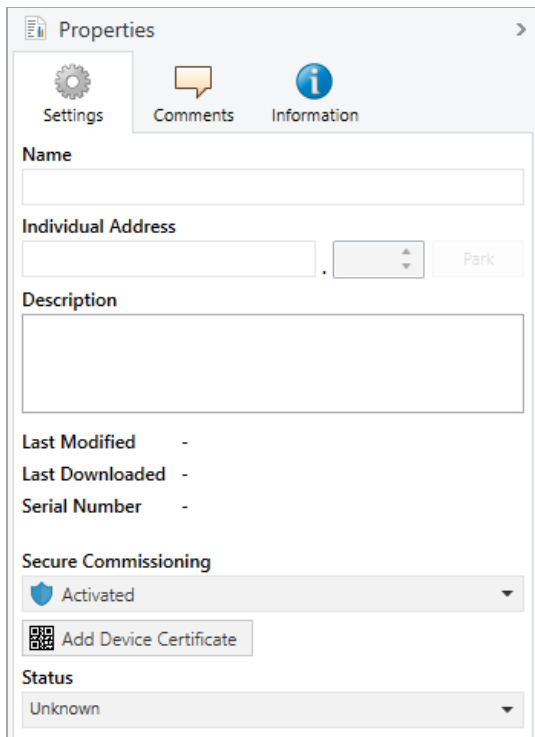
The certificate is printed as text on the device. It can also be scanned from the printed QR code via a webcam.

The list of all device certificates can be managed in the ETS panel Reports – Project Security.

This initial key is required to safely put a device into operation from the start. Even if the ETS download is recorded by a third party, the third party has no access to the secured devices afterwards. During the first secure download, the initial key is replaced by the ETS with a new key that is generated individually for each device. This prevents persons or devices who may know the initial key from accessing the device. The initial key is reactivated after a reset to factory default settings.

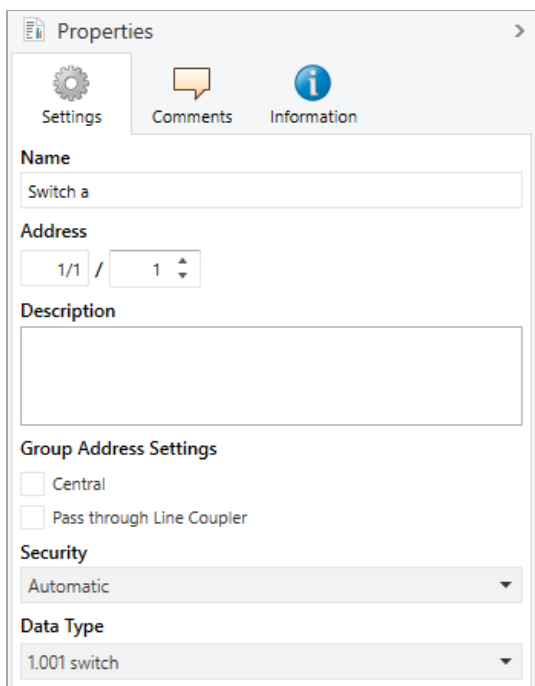
The serial number in the certificate enables the ETS to assign the correct key to a device during a download.

In the ETS project in the properties of the device, secure commissioning can be activated and the device certificate can be added:









6.2 Secure group communication

Each object of the device can communicate either encrypted or unencrypted. The encryption is set under "Security" in the properties of the used group address:



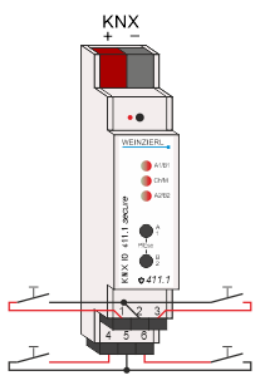
The setting "Automatic" activates encryption if both objects to be connected can communicate encrypted. Otherwise encrypted communication between the objects is not possible.

In the overview of communication objects in the ETS project, secured objects can be recognized by a shield symbol:

	Security	Number ^	Name	Object Function	Description	Group Address
		11	Button A0: Object a	Switch	Switch a	1/1/1
		12	Button A0: Object b	Switch	Switch b	1/1/2
		21	Button A1: Object a	Switch	Switch a	1/1/1
		22	Button A1: Object b	Switch	Switch b	1/1/2

A separate key is automatically generated by the ETS for each secured group address. These keys can also be checked in the ETS panel Reports – Project Security. To enable all devices to communicate with a secure group address, the keys must be known to all. Therefore a download must be made into all devices that use this group address when a key is created or changed. A key is changed by the ETS e.g. when the encryption of a group address is switched off and on again.

6.3 Description

1.1.1 KNX IO 411.1 secure > Description	
Description	
General settings	KNX IO 411.1 secure KNX binary input 4-fold for dry contacts
Diagnostics	
+ Channel A: Input 1	The KNX IO 411.1 secure is a compact binary input with 4 inputs.
+ Channel A: Input 2	The application offers extensive functions for switching, dimming, shutter, valuator, scene and color control as well as an operation time and impulse counter.
+ Channel B: Input 1	This can be used to connect energy meters with S0 output or anemometers.
+ Channel B: Input 2	The inputs can be controlled via dry contacts and are suitable for connecting conventional push buttons.
	Two push buttons and three LEDs allow a local operation and a visualization of the device state.
	In addition, the device contains 16 independent logic or time functions.
	The device supports KNX Data Security.
	<p>Wiring scheme:</p>  <p>Please consult device data sheet and manual for further information.</p>
	<p>Contact:</p> <p>WEINZIERL ENGINEERING GmbH Achatz 3-4 84508 Burgkirchen an der Alz GERMANY www.weinzierl.de info@weinzierl.de</p>

This page shows the device description and the corresponding wiring scheme.

6.4 General Settings

1.1.1 KNX IO 411.1 secure > General settings	
Description	General settings
General settings	Device name <input type="text" value="KNX IO 411.1 secure"/>
Diagnostics	Send delay after bus power return <input type="text" value="5 s"/>
+ Channel A: Input 1	Prog. mode on device front <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
+ Channel A: Input 2	Manual operation on device <input type="text" value="Enabled with time limit 10 min"/>
+ Channel B: Input 1	Heartbeat <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
+ Channel B: Input 2	Binary inputs
	Long button press after <input type="text" value="1.2 s"/>
	LED visualization top <input type="text" value="Input A1"/>
	LED visualization bottom <input type="text" value="Input A2"/>
	Additional functions
	Sequence controller <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Logic / Timer / Comparison / Calculation <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

Device name (30 Characters)

An arbitrary name can be assigned for the KNX IO 411.1 *secure*. The device name should be meaningful, e.g. „Living Room“. This helps the clarity of the ETS project.

Send delay after bus power return

A send delay of telegrams after the return of the bus voltage can be set via this parameter. In this case, telegrams from the device are sent to the KNX bus in a delayed manner by the set time. This results in a reduction of the bus load at a bus power return. Other functions such as receiving telegrams or query of the inputs are not affected by this parameter.

Prog. mode on device front

In addition to the normal programming button **3** the device allows activating the programming mode on the device front without opening the switchboard cover. The programming mode can be activated and deactivated via pressing simultaneously both buttons **7** and **8**.

This feature can be enabled and disabled via the parameter “Prog. mode on device front”. The recessed programming button **3** (next to the Programming LED **2**) is always enabled and not influenced by this parameter.

Manual operation on device

This parameter is used to configure the manual operation on the device. The manual operation mode can be disabled or activated (with or without time limitation). The time limit defines the duration until the automatic return from the manual operation mode back into the normal operating mode.

The device is in normal operating mode when the manual control is not active. In the manual operating mode, received switching telegrams are ignored. When the manual operation mode is terminated (after expiry of the time limit or manually by pressing both buttons **7** and **8**), the next telegram is sent on state change of the inputs.

The following options are selectable :

- Disabled
- Enabled with time limit 1 min
- Enabled with time limit 10 min
- Enabled with time limit 30 min
- Enabled without time limit

Heartbeat

Cyclic sending of values to the KNX-Bus, to indicate that the device is operational. For the *Cycle time* values between 1 min and 24h are selectable.

Group object	Type KNX	Size	Direction
GO 1 Heartbeat - Trigger	1.001	1 Bit	To KNX

Furthermore, the parameters Heartbeat and Cycle time are used as configuration for cyclic sending, in case that switching is configured as state query. For a more detailed description regarding state query please take a look at "[Input A1: Switching – State query](#)".

Long button press after

The time for detection of a long button press can be set here, this time is valid for all input channels.

LED visualization top/bottom

Here the operating mode of the LEDs **4** and **6** in normal operation can be set, it is selectable:

- Disabled
LED is disabled always.
- Channel A1
- Channel A2
- Channel B1
- Channel B2
LED indicates the state of the connected contact at the selected input **9**.
- Via group object
LED is operated only via group object.

6.5 Diagnostics

1.1.1 KNX IO 411.1 secure > Diagnostics

Description: Diagnostics

General settings

Diagnostics

This page provides a simple overview of all diagnostic information without having to configure all group objects.

Only the function of the channel needs to be programmed (for counter functions switch cycles are displayed). No additional parameters settings or group addresses are required.

	State	Switch cycles	
Channel 1			
Channel 2			
Channel 3		2	<input type="button" value="Reset"/>
Channel 4		3	<input type="button" value="Reset"/>

This parameter page allows the display of diagnostic data directly in the ETS, without having to read group objects. The current status of each channel is displayed. For channels with the “Impulse counter” or “Operation time counter” function, the switching cycles are also displayed. Switch cycles can be reset using the “Reset”-buttons. The display is updated using the “Update” button. To activate the diagnostics, the function of the channel must be programmed.

6.6 Input A1: General

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: General

Description: Input A1: General

General settings

Diagnostics

Channel A: Input 1

Input A1: General

Channel A: Input 2

Channel B: Input 1

Channel B: Input 2

Name:

Function:

- Disabled ✓
- Switching
- Dimming
- Shutter
- Send value
- Color
- Scene
- Generic
- Impulse counter
- Operation time counter

Name (30 Characters)

An arbitrary name can be assigned for the channel. However, this should be clear and meaningful, this makes it easier to work with the associated group objects, because the given name is displayed there as a label. If no name is assigned, the group objects are named “Input ...” with the channel number, which is also used in this manual. The 1st channel will be described below, the functioning of the other 3 channels is according to the 1st.

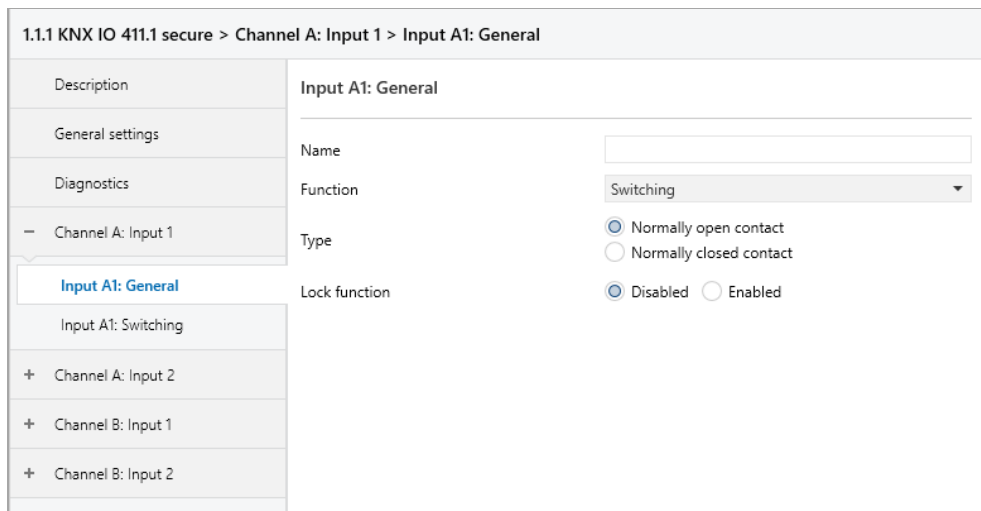
Function

This parameter defines the functionality of the connected contact. The following options are selectable:

- Disabled
- Switching
- Dimming
- Shutter
- Send value
- Scene
- Impulse counter
- Operation time counter

A more detailed description of the functions can be found in the individual function descriptions.

6.6.1 Function “Switching, Dimming, Shutter, Send value, Color, Scene or Generic“



If an input function of a channel is selected, the following parameters are displayed:

Type

The mode of operation of the contact connected to the input channel can be configured here:

- Normally open contact
- Normally closed contact

Lock function

With this parameter the lock function can be enabled. If this functionality is activated, the associated group objects as well as the parameter page “[Input A1: Lock function](#)” are displayed for further configuration. If the lock has been activated via the group object, no telegrams are triggered by state changes of the connected contact.

Group object	Type KNX	Size	Direction
GO 16 Input A1: Lock - Activate	1.001	1 Bit	From KNX

6.6.2 Function „Impulse counter“

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: General

Description	Input A1: General	
General settings	Name	<input type="text"/>
Diagnostics	Function	Impulse counter
Channel A: Input 1	<div style="border: 1px solid #ccc; padding: 2px;"> i The signal shall not exceed 100 ticks per second </div>	
Input A1: General	Count on	<input checked="" type="radio"/> Rising edges <input type="radio"/> Falling edges
+ Channel A: Input 2	Scaled counter (e.g. [kWh])	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
+ Channel B: Input 1	Rate of change (e.g. [kW], [m/s], [km/h])	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
+ Channel B: Input 2		

If the impulse counter function is selected, further parameters are displayed in the general settings of the input channel. Here, the general settings of the impulse counter are made, a scaled counter and/or counter of the rate of change must also be selected.

Count on

This parameter can be used to determine whether the value of the counter is increased at the rising or falling edge at the input

Scaled counter (e.g. [kWh])

Here, the scaled counter can be activated, the parameter page "Scaled counter" is displayed when activated.

Rate of change (e.g. [kW], [m/s], [km/h])

The counter for a rate of change can be activated here. If activated, the "Rate of change" parameter page is displayed.

6.7 Input A1: Switching

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Switching

Description	Input A1: Switching		
General settings	User control	<input checked="" type="radio"/> Press / Release <input type="radio"/> Short / Long	
Diagnostics	Function of output a on press	No reaction ▼	
Channel A: Input 1	Function of output a on release	No reaction ▼	
Input A1: General	Output b	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled	
Input A1: Switching	Function of output b on press	No reaction ▼	
+ Channel A: Input 2	Function of output b on release	No reaction ▼	
+ Channel B: Input 1			
+ Channel B: Input 2			

If the switching function is selected, up to 2 binary switching telegrams can be sent via the following objects:

Group object	Type KNX	Size	Direction
GO 11 Input A1: Output a – Switch	1.001	1 Bit	To KNX
GO 12 Input A1: Output b – Switch	1.001	1 Bit	To KNX

Output b is only visible when activated by parameter.

The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

User control

The parameter “User control” determines whether telegrams are sent when the input is changed (e.g. key switches) or when the button is operated short/long (e.g. button for switching/dimming).

Function of object a/b on press

Function of object a/b on short press

Function of object a/b on release

Function of object a/b on long press

It is selectable for each object a and b, which telegram is sent on press and release or on short/long button press.

The following options are available:

- No reaction
- Switch on
- Switch off
- Toggle

On toggle the last value received from the bus is evaluated if the write flag is activated on the object.

Output b

Here you can show/hide the parameters and the object for output b.

6.7.1 Input A1: Switching – State query

The Status query function is used, for example, to monitor window contacts.

The status query mode is automatically recognized by the firmware if the following parameter settings are present:

User control: Press / Release

Function (...) on press: Switch on

Function (...) on release: Switch off

or inverted:

User control: Press / Release

Function (...) on press: Switch off

Function (...) on release: Switch on

With configured status query, the value on the object is kept up to date. The value corresponds to the current state that is read. If the lock is active, the object value corresponds to the last status before the lock or the configured value when the lock is activated.

Cyclic sending of object a/b (*only for state query*)

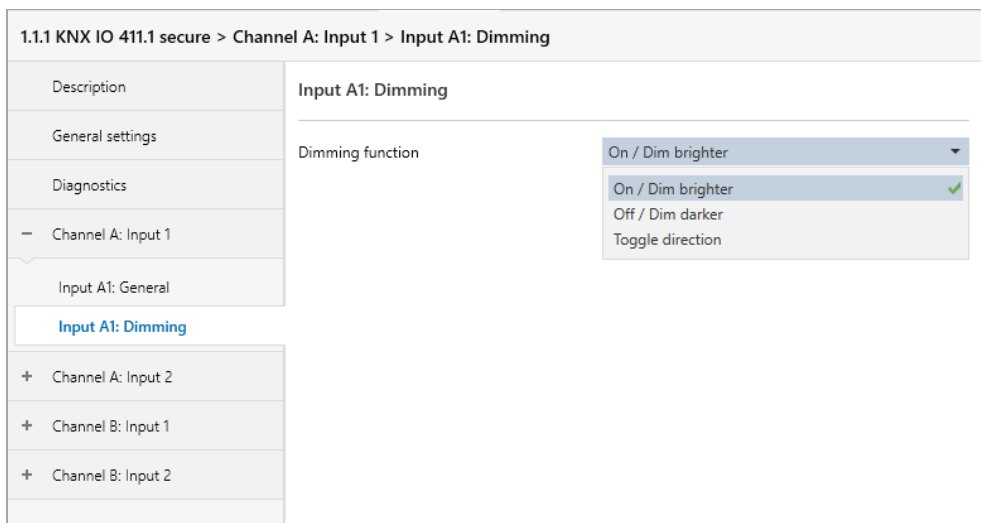
When the status query is active, cyclic sending can be configured independently for object a and b. The following options are available:

- 1 min
- 2 min
- 5 min
- 10 min
- 20 min
- 30 min
- 1 h
- 6 h
- 12 h
- 24 h



When the lock is active, cyclic sending is disabled.

6.8 Input A1: Dimming



On selection of function Dimming following objects are visible:

Group object	Type KNX	Size	Direction
GO 11 Input A1: Dimming on/off – Switch	1.001	1 Bit	To KNX
GO 12 Input A1: Dimming relative – Brighter/Darker	3.007	4 Bit	To KNX



The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

Dimming function

The dimming function parameter determines whether only one switching / dimming direction or 1-button control is to be used:

- On / Dim brighter
- Off / Dim darker
- Toggle direction

On toggle direction, the last value received from the bus is evaluated if the write flag is activated on the object. This applies to object 11 and object 12.

In addition, object 13 is visible. If one of the limit values is received here as the status (e.g. 0 % or 100 %), the dimming direction is adjusted accordingly.

Group object	Type KNX	Size	Direction
GO 13 Input A1: Dimming absolute – State	5.001	1 Byte	From KNX

If the input detects a short button press, a switching telegram is sent via object 11. On long button press, a relative dimming is sent over the entire dimming range to object 12. When releasing after long button press, a dimming-stop telegram is sent via object 12.

The time for detection of a long button press can be set in the general parameters and is valid for all channels.

Dimming direction after switch on (*only for toggle direction*)

This parameter is only visible on toggle direction and determines the dimming direction of the next dimming command following an ON telegram.

This is useful in the bathroom, for example, when the light is switched on at low brightness at night and then should be dimmed brighter.

6.9 Input A1: Shutter

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Shutter

Description	Input A1: Shutter		
General settings	Shutter direction	Up / Step-Stop	▼
Diagnostics	User control	KNX standard: Long / Short	▼
– Channel A: Input 1	Additional function on very long button press		
Input A1: General	Additional function	Call scene	▼
Input A1: Shutter	Scene	1	▲▼
+ Channel A: Input 2	Very long button press after [s]	5	
+ Channel B: Input 1			
+ Channel B: Input 2			

On selection of Shutter function following objects are visible:

Group object	Type KNX	Size	Direction
GO 11 Input A1: Drive start – Up/Down	1.008	1 Bit	To KNX
GO 12 Input A1: Drive stop – Step/Stop	1.007	1 Bit	To KNX



The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

Shutter direction

The parameter “Shutter direction” determines whether only one shutter direction or 1-button control is to be used.

- Up
- Down
- Toggle

If the write flags are set, the shutter objects evaluate the last value received from the bus.

This keeps the direction and state of the shutter in the button up to date. This applies to object 11 and object 12. In addition, object 13 is visible. If one of the limit values is received here as the status (e.g. 0 % or 100 %), the driving direction is adjusted accordingly.

Group object	Type KNX	Size	Direction
GO 13 Input A1: Blind position – State	5.001	1 Byte	From KNX

User control

The parameter "User control" determines the sending of telegrams on short and long button press:

- **KNX standard: Long / Short**
 This is the standard configuration for controlling a shutter.
Long actuation: Drive command via object 11
Short actuation: Stop/Step command via object 12
Very long actuation: Additional function
- **KNX standard with turning time**
 This is the standard configuration for controlling a shutter with the extension that a stop is triggered when the shutter is released within the turning time. Thus, you can turn the slats with dead man.
Long actuation: Drive command via object 11
Release after long actuation within turning time: Stop/Step command via object 12
Release after long actuation after turning time: No reaction
Short actuation: Stop/Step command via object 12
Very long actuation: Additional function
- **KNX Inverted: Short / Long**
 This is the inverted standard configuration for controlling a shutter. This should be used when the main usage is on move commands.
Short actuation: Drive command via object 11
Long actuation: Stop/Step command via object 12
Actuation during drive: Stop/Step command via object 12
Very long actuation: Additional function
- **Short / Short**
 This is an optimized variant for controlling a shutter, which uses only short button presses. The step command in the actuator should be disabled.
Short actuation: Drive command via object 11
Actuation during drive: Stop/Step command via object 12
Long actuation: Additional function
- **Short / Short plus Long with turning time**
 This is an optimized variant for controlling a shutter, which mainly uses short button presses. A long button press can additionally be used to turn the slats. The step command in the actuator should be disabled.
Short actuation: Drive command via object 11
Long actuation: Drive command via object 11
Release after long actuation within turning time: Stop/Step command via object 12
Release after long actuation after turning time: No reaction
Actuation during drive: Stop/Step command via object 12
Very long actuation: Additional function

- Hold (Deadman switch)
 The dead man operation mode can be used for applications with short moving time, for example for skylights. The step command in the actuator should be disabled.
On actuation: Drive command via object 11
On release: Stop/Step command via object 12
- Hold with turning time
 This operating mode is suitable for applications with mainly short moving times, with the addition that long moving times, by holding beyond the turning time, can also be easily realized. The step command in the actuator should be disabled.
On actuation: Drive command via object 11
On release within turning time: Stop/Step command via object 12
On release after turning time: No reaction
- Hold, delayed with turning time
 This is analog to the operating mode "Hold with turning time", with the difference that the movement is on the long button press. The step command in the actuator should be disabled.
Long actuation: Drive command via object 11
Release after long actuation within turning time: Stop/Step command via object 12
Release after long actuation after turning time: No reaction
Short actuation: Additional function
Actuation during drive: Stop/Step command via object 12

Drive time (Time window for stop) [s]

Only displayed for the user controls with "Actuation during drive: Stop/Step command". The time window for the actuation at which a stop/step command is sent is set here.

Turning time [s]

Only displayed for the user controls with turning time. In general, by releasing within the turning time, the shutter can be stopped while continuing to move after the turning time.



If the button tone is activated on the "General settings" page, the end of the turning time is indicated by a signal tone.

Additional function on short/long/very long button press

The following functions can be triggered by short/long/very long keystrokes:

- Switch on
- Switch off
- Toggle
 On toggle, the last value received from the bus is evaluated if the write flag is activated on the object.

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Switch	1.001	1 Bit	To KNX

- Dim brighter
- Dim darker

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Dimming relative	3.007	4 Bit	To KNX

- Drive up
- Drive down

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Up/Down	1.008	1 Bit	To KNX

- Step up / Stop
- Step down / Stop

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Step/Stop	1.007	1 Bit	To KNX

- Send value

With this function, a byte value can be sent. A parameter for selecting the value is displayed

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Send value	5.001	1 Byte	To KNX

- Call scene

With this function, a scene can be sent. A parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Call scene	18.001	1 Byte	To KNX

- Save scene

With this function, a scene can be saved. A parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO 14 Input A1: Additional function – Save scene	18.001	1 Byte	To KNX

Very long button press after [s]

This parameter is visible only when using the very long actuation, it sets the time to detect a very long button press.

6.10 Input A1: Send value

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Send Value

Description	Input A1: Send value		
General settings	Send value	Shutter	
Diagnostics	Send blind position	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled	
Channel A: Input 1	Value [%]	0	
Input A1: General	Send slat position	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled	
Input A1: Send Value	Value [%]	0	
Channel A: Input 2			
Channel B: Input 1			
Channel B: Input 2			

If function Send value is selected, the following telegrams can be sent at button press:

- 1 byte - Percent value

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send percent value (1 byte) – Set value	5.001	1 Byte	To KNX

- 1 byte - Integer value

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send integer value (1 byte) – Set value	5.010	1 Byte	To KNX

- 2 byte - Integer value

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send integer value (2 byte) – Set value	7.001	2 Byte	To KNX

- 2 byte - Float value

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send float value (2 byte) – Set value	9.001	2 Byte	To KNX

- 3 byte - RGB value

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send RGB color value (3 byte) – Set value	232.600	3 Byte	To KNX

- 14 byte - ASCII string

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send ASCII string (14 byte) – Set value	16.000	14 Byte	To KNX

- Shutter

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send blind position – Set position	5.001	1 Byte	To KNX
GO 12 Input A1: Send slat position – Set position	5.001	1 Byte	To KNX



If the shutter is selected as the value to be sent, height is sent on button press, lamella is sent on releasing the button, if the respective value is used.

A field for entering the values to be sent is displayed, as well as the objects appropriate to the selected type.

6.11 Input A1: Color

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Color

Description	Input A1: Color	
General settings	Datapoint type	Single color control RGB (3 x DPT 5.001)
Diagnostics	Color position 1	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Channel A: Input 1	RGB value	#FF0000
Input A1: General	Color position 2	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Input A1: Color	RGB value	#00FF00
Channel A: Input 2	Color position 3	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Channel B: Input 1	RGB value	#0000FF
Channel B: Input 2	Color position 4	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Color position 5	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Color position 6	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Color position 7	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Color position 8	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Reset color position	30 s
	Condition on long button press	Send color value
	RGB value	#FFFFFF
	Condition on very long button press	Additional function
	Additional function	Switch on
	Very long button press after [s]	5



The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

Datapoint type

Depending on this parameter, the following objects are available for color control:

- Single color control RGB (3 x DPT 5.001)

Group object	Type KNX	Size	Direction
GO 11 Input A1: Value R – Set color	5.001	1 Byte	To KNX
GO 12 Input A1: Value G – Set color	5.001	1 Byte	To KNX
GO 13 Input A1: Value B – Set color	5.001	1 Byte	To KNX

- Single color control RGBW (4 x DPT 5.001)

Group object	Type KNX	Size	Direction
GO 11 Input A1: Value R – Set color	5.001	1 Byte	To KNX
GO 12 Input A1: Value G – Set color	5.001	1 Byte	To KNX
GO 13 Input A1: Value B – Set color	5.001	1 Byte	To KNX
GO 14 Input A1: Value W – Set color	5.001	1 Byte	To KNX

- Color control RGB (DPT 232.600)

Group object	Type KNX	Size	Direction
GO 11 Input A1: RGB color value (3 Bytes) – Set color	232.600	3 Byte	To KNX

- Color control RGBW (DPT 251.600)

Group object	Type KNX	Size	Direction
GO 11 Input A1: RGBW color value (6 Bytes) – Set color	251.600	6 Byte	To KNX

Color position 1 – 8

For each position a color can be chosen.

If only one color position is activated, it is sent on short button press. If several color positions are used, the activated positions are switched through with each short button press.

The behavior for selecting and sending the color positions can be determined by the following parameter.

Reset color position

The following options are available:

- Never
Starting with the first color position, the next position of the list is sent with each short button press. After the last color position has been sent, the list starts again from the beginning.
- After execution
This selection enables the parameter **Time until execution**.
Beginning with the first color position, each short button press switches the position by one position within the execution delay. At the end of the execution delay, the current color position is sent.
- 5 s – 10 min
On each button press the configured delay time is started.
Starting with the first color position, the next position of the list is sent with each short button press, after the last color position has been sent, the list starts again from the beginning. After the delay time has expired, the list starts again at the first color position on the next short button press.



When the button lock is used, the color position is always reset when unlocking.

Condition on long button press

Condition on very long button press

Here it is possible to select how a long and very long button press should be handled:

- No reaction
- Reset position
This function is used to override the behavior as set in the parameter **Reset color position**.
- Color off
The color value 0/0/0 for black is sent.
- Send color value
The selected color value is sent.
- Additional function

Additional function

The following functions can be triggered by a long or very long button press:

- Switch on
- Switch off
- Toggle
On toggle, the last value received from the bus is evaluated if the write flag is activated on the object.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Switch	1.001	1 Bit	To KNX

- Dim brighter
- Dim darker

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Dimming relative	3.007	4 Bit	To KNX

- Drive up
- Drive down

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Up/Down	1.008	1 Bit	To KNX

- Step up / Stop
- Step down / Stop

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Step/Stop	1.007	1 Bit	To KNX

- Send value
With this function, a byte value can be sent. A parameter for selecting the value is displayed.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Send value	5.001	1 Byte	To KNX

- Call scene

With this function, a scene can be sent. A parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Call scene	18.001	1 Byte	To KNX

- Save scene

With this function, a scene can be saved. A parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Save scene	18.001	1 Byte	To KNX

Very long button press after [s]

This parameter is visible only when using the very long actuation, it sets the time to detect a very long button press.

6.12 Input A1: Scene

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Scene

Description	Input A1: Scene	
General settings	Scene position 1	Scene 1
Diagnostics	Scene position 2	Scene 2
Channel A: Input 1	Scene position 3	Scene 3
Input A1: General	Scene position 4	Disabled
Input A1: Scene	Scene position 5	Disabled
Channel A: Input 2	Scene position 6	Disabled
Channel B: Input 1	Scene position 7	Disabled
Channel B: Input 2	Scene position 8	Disabled
	Reset scene position	30 s
	Condition on long button press	Send scene
	Scene	1
	Condition on very long button press	Save last scene
	Very long button press after [s]	5

On selection of Scene function the following object is visible:

Group object	Type KNX	Size	Direction
GO 11 Input A1: Send percent value (1 byte) – Set value	5.001	1 Byte	To KNX



The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

Scene position 1 - 8

For each position, scene 1 – 64 can be activated.

If only one scene position is activated, it is sent on short button press.

If several scene positions are used, the activated positions are switched through with each short button press.

The behavior for selecting and sending the scene positions can be determined by the following parameter.

Reset scene position

The following options are available:

- **Never**
Starting with the first scene position, the next position of the list is sent with each short button press, after the last scene position has been sent, the list starts again from the beginning.
- **After execution**
This selection enables the parameter **Time until execution**.
Beginning with the first scene position, each short button press switches the position by one position within the execution delay, at the end of the execution delay, the current scene position is sent.
- **5 s – 10 min**
On each button press the configured delay time is started.
Starting with the first scene position, the next position of the list is sent with each short button press, after the last scene position has been sent, the list starts again from the beginning.
After the delay time has expired, the list starts again at the first scene position on the next short button press.



When the button lock is used, the scene position is always reset when unlocking.

Condition on long button press

Condition on very long button press

It is also possible to select how a long and very long button press should be handled:

- **No reaction**
- **Reset position**
This function is used to override the behavior as set in the parameter **Reset scene position**.
- **Call scene**
The scene configured in the appearing parameter is sent.
- **Save last scene**
A telegram for “save scene” with the last sent scene is triggered.
- **Additional function**

Additional function

The following functions can be triggered by a long or very long button press:

- Switch on
- Switch off
- Toggle

On toggle, the last value received from the bus is evaluated if the write flag is activated on the object.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Switch	1.001	1 Bit	To KNX

- Dim brighter
- Dim darker

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Dimming relative	3.007	4 Bit	To KNX

- Drive up
- Drive down

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Up/Down	1.008	1 Bit	To KNX

- Step up / Stop
- Step down /Stop

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Step/Stop	1.007	1 Bit	To KNX

- Send value

With this function, a byte value can be sent. A parameter for selecting the value is displayed.

Group object	Type KNX	Size	Direction
GO 15 Input A1: Additional function – Send value	5.001	1 Byte	To KNX

Very long button press after [s]

This parameter is visible only when using the very long actuation, he sets the time to detect a very long button press.

6.13 Input A1: Generic

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Generic

Description	Input A1: Generic
General settings	Button - Pressed
Diagnostics	Function Switch on
Channel A: Input 1	Button - Released
Input A1: General	Function Switch off
Input A1: Generic	Button - Pressed short
Channel A: Input 2	Function Send value
Channel B: Input 1	Value 0 / 0x00 / 0.0%
Channel B: Input 2	Button - Pressed long
	Function Call scene
	Scene 1
	Button - Pressed very long
	Function Save scene
	Scene 1
	Very long button press after [s] 5
	Trigger long (on very long button press) <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled

With this button function, a separate object is available for each event at the input/pushbutton in order to set the function of the input/pushbutton individually.

These events at the input/button and their associated objects are:

- Button – Pressed

Group object	Type KNX	Size	Direction
GO 11 Input A1: Pressed – ...	Depending on function		To KNX

- Button – Released

Group object	Type KNX	Size	Direction
GO 12 Input A1: Released – ...	Depending on function		To KNX

- Button – Pressed short

Group object	Type KNX	Size	Direction
GO 13 Input A1: Pressed short – ...	Depending on function		To KNX

- Button – Pressed long

Group object	Type KNX	Size	Direction
GO 14 Input A1: Pressed long – ...	Depending on function		To KNX

- Button – Pressed very long

Group object	Type KNX	Size	Direction
GO 15 Input A1: Pressed very long – ...	Depending on function		To KNX

Each event can be assigned the following functions:

- Switch on
- Switch off
- Toggle

On toggle the last value received from the bus is evaluated if the write flag is activated on the object.

Group object	Type KNX	Size	Direction
GO ... Input A1: ... – Switch	1.001	1 Bit	To KNX

- Dim brighter (no Stop)
- Dim darker (no Stop)
- Dim Stop

Group object	Type KNX	Size	Direction
GO ... Input A1: ... – Dimming relative	3.007	4 Bit	To KNX

- Drive up
- Drive down

Group object	Type KNX	Size	Direction
GO ... Input A1: ... – Up/Down	1.008	1 Bit	To KNX

- Step up / Stop
- Step down / Stop

Group object	Type KNX	Size	Direction
GO ... Input A1: ... – Step/Stop	1.007	1 Bit	To KNX

- Send value

With this function, a byte value can be sent. A parameter for selecting the value is displayed.

Group object	Type KNX	Size	Direction
GO ... Input A1: ... – Send value	5.001	1 Byte	To KNX

- Call Scene

With this function a scene can be sent, a parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO ... Taster A0: ... – Call scene	18.001	1 Byte	To KNX

- Save Scene

With this function a scene can be saved, a parameter for selecting the scene is displayed.

Group object	Type KNX	Size	Direction
GO ... Taster A0: ... – Save scene	18.001	1 Byte	To KNX

The time for detection of a long button press can be set in the general parameters and is valid for all inputs/buttons.

Very long button press after [s]

This parameter is visible only when using the very long actuation, he sets the time to detect a very long button press.

Long triggering (with very long keystroke)

This parameter is only visible when the long and very long actuation is used simultaneously.

If this parameter is activated, both events are always triggered after a very long actuation; if it is deactivated, the duration of the activation is evaluated: if it lies between the time of long and very long actuation, only the function for long actuation is triggered. If the time for very long actuation is exceeded, only the function for very long actuation is triggered.

6.14 Input A1: Scaled counter

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Scaled counter

Description	Input A1: Scaled counter	
General settings	Scaling factor (Value per pulse)	<input type="text" value="1"/>
Diagnostics	Datapoint type	Integer (32 bit) - DPT 13
Channel A: Input 1	Send condition	On change
Input A1: General	Send on value change (Delta)	<input type="text" value="1"/>
Input A1: Scaled counter	Monitoring limit value	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Input A1: Lock function	Limit value	<input type="text" value="1"/>
Channel A: Input 2	Behavior on reaching limit value	<input type="radio"/> Send 0 <input checked="" type="radio"/> Send 1
Channel B: Input 1	Behavior on reaching limit value	Counter continue
Channel B: Input 2	Send on device restart	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Reset via object	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Reset on ETS download	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Lock function	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
	Example: Electricity meter with 1000 impulses per kWh -> Scaling factor = 0.001 for kWh	

This counter can be used to count values on input impulses, where an integer value or a floating-point value can be selected as a counter variable. With this function, e.g. Electrical energy can be counted directly and sent to the bus via an object.

Scaling factor (Value per pulse)

Here, a floating-point value is to be entered. It determines the value by which the counter value is increased per pulse.

Datapoint type

The datapoint type of output object of the counter variable can be selected here:

- Integer (32 Bit) – DPT 13

Group object	Type KNX	Size	Direction
GO 11 Input A1: Counter – Value	13.013	4 Byte	To KNX

- Float (16 Bit) – DPT 9

Group object	Type KNX	Size	Direction
GO 11 Input A1: Counter – Value	9.024	2 Byte	To KNX

- Float (32 Bit) – DPT 14

Group object	Type KNX	Size	Direction
GO 11 Input A1: Counter – Value	14.056	4 Byte	To KNX

Send condition

This parameter can be used to determine how the current counter value is to be sent:

- On read
No independent sending of the counter value by the device. To read the counter value, the read-flag of the group object has to be set.
- On change
An additional parameter is displayed to select the minimal delta from the last sent value for sending a new counter value.
- Cyclically
An additional parameter is displayed to configure the sending frequency of the counter variable.
- On change and cyclically
Both sending conditions are active.

If the counter is locked by the object, also cyclic sending is stopped.

Monitoring limit value

When limit monitoring is activated, the following object is displayed:

Group object	Type KNX	Size	Direction
GO 12 Input A1: Counter threshold – State	1.002	1 Bit	To KNX

When limit monitoring is activated, the following parameters are displayed:

Limit value

Here you can edit the checked limit value. The datapoint type is the same as the counter value.

Behavior on reaching limit value (object)

Here it is possible to determine whether a 0 or a 1 is sent via the object “Counter threshold – State” when the limit value is reached.

Behavior on reaching limit value (counter)

In addition to the limit value itself, it is possible to determine the behavior of the counter when the limit value is reached:

- Counter continue
Counter value continues increasing on ever pulse
- Counter reset and continue
Counter value is reset to 0 and continues increasing on ever pulse
- Counter stop
Counter value stays on limit value and must be reset by object

Send on device restart

It can be determined with this parameter whether the counter value should be sent when the device is restarted.

Reset via object

If this function is activated, the following object appears:

Group object	Type KNX	Size	Direction
GO 13 Input A1: Reset – Trigger	1.017	1 Bit	From KNX

When a telegram is received via this object, the current count values are reset to 0.

Reset after ETS download

If this parameter is activated, the counter values are reset to 0 after device reset (e.g. after ETS download), otherwise they are retained.

Lock function

The lock function can be activated or deactivated here. If this functionality is activated, the following group object appears, as well as the parameter page "[Input A1: Lock function](#)" for detailed configuration.

Group object	Type KNX	Size	Direction
GO 16 Input A1: Lock – Activate	1.001	1 Bit	From KNX

If the lock has been activated via the group object, state changes at the input do not cause an increase of the counter variable.

6.15 Input A1: Rate of change

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Rate of change	
Description	Input A1: Rate of change
General settings	Scaling factor (Value per delta in base time span) <input type="text" value="1"/>
Diagnostics	Time base <input checked="" type="radio"/> Pulses per second (e.g. [m/s], [km/h]) <input type="radio"/> Pulses per hour (e.g. [kW])
Channel A: Input 1	Measurement time span <input type="text" value="10 s"/>
Input A1: General	Datapoint type <input checked="" type="radio"/> Float (16 bit) - DPT 9 <input type="radio"/> Float (32 bit) - DPT 14
Input A1: Rate of change	Send condition <input type="text" value="On change"/>
Channel A: Input 2	Send on value change (Delta) <input type="text" value="1"/>
Channel B: Input 1	Monitoring limit value <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Channel B: Input 2	Limit value <input type="text" value="1"/>
	Behavior on exceeding limit value <input type="radio"/> Send 0 <input checked="" type="radio"/> Send 1
	Behavior on going below limit value <input checked="" type="radio"/> Send 0 <input type="radio"/> Send 1
	Example: Electricity meter with 1000 impulses per kWh -> Scaling factor = 0.001 for kW -> Scaling factor = 1 for W Anemometer with 4 pulses per 1s at 1m/s -> Scaling factor = 0.25 for m/s -> Scaling factor = 0.25 * 3.6 = 0.9 for km/h

This counter is used to connect devices to the bus where the rate of change is critical within a time interval, e.g. an anemometer.

Scaling factor (Value per delta in base time span)

A floating-point value is to be entered here. It determines the value by which the counter value is increased on every pulse

Time base

Here the time base of the rate of change can be specified:

- Pulses per second (e.g. [m/s], [km/h])
Value from parameter Scaling factor is multiplied by 1
- Pulses per hour (e.g. [kW])
Value from parameter Scaling factor is multiplied by 3600

Measurement time span

The measurement time span determines how quickly the counter can react to changes. Therefore, a short sample rate should be selected for fast processes (e.g. anemometer).

The rate of change is calculated using the 3 parameters mentioned above:

The device saves several meter readings per measurement interval, scales it with the scaling factor * time base and divides it by the measuring interval.

Datapoint type

The datapoint type of output object of the counter variable can be selected here:

- Floating point (16 Bit) - DPT 9

Group object	Type KNX	Size	Direction
GO 14 Input A1: Rate of change – Value	9.024	2 Byte	To KNX

- Floating point (32 Bit) - DPT 14

Group object	Type KNX	Size	Direction
GO 14 Input A1: Rate of change – Value	14.056	4 Byte	To KNX

Send condition

This parameter can be used to determine how the current counter value is to be sent:

- On read
No independent sending of the counter value by the device. To read the counter value, the read-flag of the group object has to be set.
- On change
An additional parameter is displayed to select the minimal delta from the last sent value for sending a new counter value.
- Cyclically
An additional parameter is displayed to configure the sending frequency of the counter variable.
- On change and cyclically
Both sending conditions are active.

Monitoring limit value

When limit monitoring is activated, the following object is displayed:

Group object	Type KNX	Size	Direction
GO 15 Input A1: Rate threshold – State	1.002	1 Bit	To KNX

When limit monitoring is activated, the following parameters are displayed:

Limit value

Here you can edit the checked limit value. The datapoint type is the same as rate of change value.

Behavior on exceeding limit value

In addition to the limit value itself, it is possible to determine whether the counter should transmit 0 or 1 via the object if the limit value is exceeded.

Behavior on going below limit value

Here it is possible to determine whether the counter should transmit 0 or 1 via the object if the counter variable goes under limit value.

Example: Electricity meter with S0 interface

From the data sheet of the electricity meter it can be seen that the device delivers 500 pulses per kWh. A device with constant power of 1kW is connected to this current meter for one hour.

The scaled counter measures the energy consumed:

Scaling factor (Output in kWh): $1 / 500 = 0.002$

The counter for the rate of change measures the current power:

Scaling factor (Output in kW): $1/500 = 0.002$

*Scaling factor (Output in W): $1/500 * 1000 = 2$*

Time base: Pulses per hour

Measurement time span: 300 s

Example: Anemometer

From the data sheet of the electricity meter it can be seen that the device delivers 4 pulses/s at a wind speed of 1 m/s.

The counter for the rate of change measures the wind speed:

Scaling factor (Output in m/s): $1/4 = 0.25$

*Scaling factor (Output in km/h): $1/4 * 3.6 = 0.9$*

Time base: Pulses per second

Measurement time span: 10 s

6.16 Input A1: Operation time counter

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Operation time counter

Description	Input A1: Operation time counter		
General settings	Input state send condition	Disabled ▾	
Diagnostics	Switch counter send condition	Disabled ▾	
– Channel A: Input 1	Operation time send condition [s]	Disabled ▾	
Input A1: General			
Input A1: Operation time co...			
+ Channel A: Input 2			
+ Channel B: Input 1			
+ Channel B: Input 2			

The operation time counter can be used to output how long the channel has been switched on.

Input state send condition

This parameter is used to determine how the current input status is to be sent:

- Disabled
- On read
No independent sending of the counter value by the device. To read the counter value, the read-flag of the group object has to be set.
- On change
Sends on changed value
- Cyclically
An additional parameter is displayed to configure the sending frequency of the counter variable.
- On change and cyclically
Both sending conditions are active.

Group object	Type KNX	Size	Direction
GO 11 Input A1: Input – State	1.001	1 Bit	To KNX

Switch counter send condition

This parameter is used to determine how the current switching counter is to be sent:

- Disabled
- On read
No independent sending of the counter value by the device. To read the counter value, the read-flag of the group object has to be set.
- On change
Sends on changed value
- Cyclically
An additional parameter is displayed to configure the sending frequency of the counter variable.
- On change and cyclically
Both sending conditions are active.

Group object	Type KNX	Size	Direction
GO 12 Input A1: Switch counter – State	13.001	4 Bytes	To KNX
GO 13 Input A1: Reset switch counter – Trigger	1.017	1 Bit	From KNX

Operation time send condition [s]

This parameter is used to determine how the current operating time is to be sent:

- Disabled
- On read
No independent sending of the counter value by the device. To read the counter value, the read-flag of the group object has to be set.
- On change
An additional parameter is displayed to select the minimal delta from the last sent value for sending a new value.
- Cyclically
An additional parameter is displayed to configure the sending frequency of the operation time.
- On change and cyclically
Both sending conditions are active.

Group object	Type KNX	Size	Direction
GO 14 Input A1: Operation time – State	13.100	4 Bytes	To KNX
GO 15 Input A1: Reset operation time – Trigger	1.017	1 Bit	From KNX

6.17 Input A1: Lock function

6.17.1 Lock function „Switching“

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Lock function	
Description	Input A1: Lock function
General settings	Polarity of object <input checked="" type="radio"/> Lock active on 1 <input type="radio"/> Lock active on 0
Diagnostics	Behavior of output a on start <input type="text" value="Switch on"/>
– Channel A: Input 1	Behavior of output a at end <input type="text" value="Switch off"/>
Input A1: General	Behavior of output b on start <input type="text" value="Toggle"/>
Input A1: Switching	Behavior of output b at end <input type="text" value="No reaction"/>
Input A1: Lock function	
+ Channel A: Input 2	
+ Channel B: Input 1	
+ Channel B: Input 2	

Polarity of object

This parameter defines, if the lock should be activated by receiving a 1 or by receiving a 0. The respective opposite telegram deactivates the lock again.

Behavior of object a/b on start

The telegram can be configured here, which is sent on the according object when the lock is activated.

Behavior of object a/b at end

The telegram can be configured here, which is sent on the according object when the lock is deactivated.

6.17.2 Lock function „Dimming, Shutter, Send value, Color, Scene“

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Lock function	
Description	Input A1: Lock function
General settings	
Diagnostics	
- Channel A: Input 1	
Input A1: General	
Input A1: Dimming	
Input A1: Lock function	
+ Channel A: Input 2	
+ Channel B: Input 1	
+ Channel B: Input 2	

Polarity of object	<input checked="" type="radio"/> Lock active on 1 <input type="radio"/> Lock active on 0
Behavior on start	Dim to 0 % ▾
Behavior at end	Dim to 100 % ▾

Polarity of object

This parameter defines, if the lock should be activated by receiving a 1 or by receiving a 0. The respective opposite telegram deactivates the lock again.

Behavior on start

The telegram can be configured here, which is sent on the according object when the lock is activated.

Behavior at end

The telegram can be configured here, which is sent on the according object when the lock is deactivated.

6.17.3 Lock function „Generic“

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Lock function	
Description	Input A1: Lock function
General settings	
Diagnostics	
- Channel A: Input 1	
Input A1: General	
Input A1: Generic	
Input A1: Lock function	
+ Channel A: Input 2	
+ Channel B: Input 1	
+ Channel B: Input 2	

Polarity of object	<input checked="" type="radio"/> Lock active on 1 <input type="radio"/> Lock active on 0
--------------------	--

Polarity of object

This parameter defines, if the lock should be activated by receiving a 1 or by receiving a 0. The respective opposite telegram deactivates the lock again.

6.17.4 Lock function „Scaled counter“

Nur bei aktivierter Sperrfunktion und bei Funktion „Impulszähler“.

1.1.1 KNX IO 411.1 secure > Channel A: Input 1 > Input A1: Lock function	
Description	Input A1: Lock function
General settings	
Diagnostics	
– Channel A: Input 1	
Input A1: General	
Input A1: Scaled counter	
Input A1: Lock function	
+ Channel A: Input 2	
+ Channel B: Input 1	
+ Channel B: Input 2	

Polarity of object	<input checked="" type="radio"/> Lock active on 1	<input type="radio"/> Lock active on 0
Behavior on start of lock	<input checked="" type="radio"/> Counter stop	<input type="radio"/> Counter stop and reset
Behavior on end of lock	<input checked="" type="radio"/> Counter continue	<input type="radio"/> Counter reset and continue

Polarity of object

This parameter can be used to determine how the lock is to be activated, either by receiving a 1 or a 0. The corresponding telegram disables the lock again.

Behavior on start of lock

With this parameter the behavior of the counter can be configured when the lock is activated:

- Counter stop
- Counter stop and reset

Behavior on end of lock

With this parameter the behavior of the counter can be configured when the lock is deactivated:

- Counter continue
- Counter reset and continue

6.18 Sequence controller

1.1.1 KNX IO 411.1 secure > Sequence controller	
Description	Sequence 1
General settings	Call sequence via binary object <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Diagnostics	Reaction on '1' Start
+ Channel A: Input 1	Reaction on '0' Sequence 'Off'
+ Channel A: Input 2	Call sequence via scene object Scene 1
+ Channel B: Input 1	Function Start
+ Channel B: Input 2	Save <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
- Sequence controller	Call sequence 'Off' via scene object Scene 2
	Minimum delay between telegrams 100 ms
Sequence 1	Output A Switch (1 bit)
Sequence 2	Value <input checked="" type="radio"/> Switch on <input type="radio"/> Switch off
Sequence 3	Delay before sending 00:00:00 h:mm:ss
Sequence 4	Output B Value (1 byte)
	Value 0 / 0x00 / 0.0%
	Delay before sending 00:00:00 h:mm:ss
	Output C Disabled
	Output D Disabled
	Output E Disabled
	Output F Disabled
	Output G Disabled
	Output H Disabled

With the sequence controller, one or more switching or value telegrams can be triggered by an input telegram to a switching or scene object. In this way several devices can be controlled simultaneously in different ways via a presence detector, for example.

The output telegrams can be sent simultaneously or with an individually adjustable time delay.



There are 4 sequence controllers available in the device, each controller can send up to 8 different output telegrams. Sequence 1 is described below, the function of sequences 2 – 4 is identical.

Sequence call via binary object

This parameter activates the following binary object to control the sequence:

Group object	Type KNX	Size	Direction
GO 51 Sequence controller: Sequence 1 – Binary	1.001	1 Bit	From KNX

Reaction on '1' *(only for binary object)*

Reaction on '0' *(only for binary object)*

If sequence call via binary object is activated, these parameters can be used to define how the sequence controller reacts to the corresponding binary telegram.

The following options are available:

- **Disabled**
No reaction to the corresponding telegram.
- **Start**
When the corresponding value is received, the sequence is started with output A. Restarting via this value is only possible again after the sequence has run through.
- **Start and retrigger**
Each time the corresponding value is received, the sequence is restarted with output A.
- **Start once (until Sequence 'Off')**
When the corresponding value is received, the sequence is started with output A. Any further starting of the sequence by receiving this value is no longer possible until the function Sequence 'Off' is triggered.
- **Save**
For each activated output, a reading telegram is sent on KNX, the received value overwrites the parameter value of the corresponding output. The received values are stored and active until the device is reloaded with the ETS.
- **Stop**
When the corresponding value is received, the sequence is stopped.
- **Sequence 'Off'**
The sequence 'Off' function sends an OFF telegram or 0% via every activated output, regardless of the value set in the parameters. Only the minimum delay between the telegrams is observed, but not the delay before sending the individual outputs. Sequence 'Off' is always executed completely.
- **Sequence 'Off' once (until sequence)**
When the corresponding value is received, the function Sequence 'Off' is started; any further starting of this function by receiving this value is no longer possible until the sequence has been started.

Sequence call with scene object

This parameter can be used to activate a scene object for sequence call up and to determine its scene number. If a scene number is selected, additional parameters and the following object become visible:

Group object	Type KNX	Size	Direction
GO 52 Sequence controller: Sequence 1 – Scene	18.001	1 Byte	From KNX

Function *(only for scene object)*

This parameter determines the reaction of the sequence controller when the set scene is received. It is available for selection:

- **Start**
When the corresponding scene is received, the sequence is started with output A; restarting via this scene is only possible again after the sequence has run through.
- **Start and retrigger**
Each time the corresponding scene is received, the sequence is restarted with output A.
- **Start and stop**
When the corresponding scene is received, the sequence is alternately started or stopped with output A.
- **Start once (until sequence 'Off')**
When the corresponding scene is received, the sequence is started with output A; any further start of the sequence via reception of this scene is no longer possible until the Sequence 'Off' function is triggered.

Save *(only for scene object)*

This parameter determines whether the "Save scene" command should be evaluated for sequence recall when the scene is received. If this function is activated, a read telegram is sent on KNX for each activated output when "Save scene" is received; the value received overwrites the value of the corresponding output. The received values are saved and active until the device is reloaded with the ETS.

Sequence 'Off' with scene object

This parameter can be used to activate a scene object to start the 'Off' sequence function and to determine its scene number.

The following object is visible when used:

Group object	Type KNX	Size	Direction
GO 53 Sequence controller: Sequence 1 – Scene 'Off'	18.001	1 Byte	From KNX

If "Start once (until sequence 'Off')" is set for sequence call up with scene object, sequence 'Off' must first be executed to start the sequence again.

Minimum delay between telegrams

This parameter defines the minimum delay between 2 output telegrams, this delay is always kept and has priority over the individually adjustable delays before sending of the outputs.

Output A – H

For each output either a switch or a value object can be activated:

Group object	Type KNX	Size	Direction
GO 54 – 61 Sequence controller: Sequence 1 – Output A-H	1.001	1 Bit	To KNX

Group object	Type KNX	Size	Direction
GO 54 – 61 Sequence controller: Sequence 1 – Output A-H	5.001	1 Byte	To KNX

Value

Depending on the set object type of the output, the value of the output telegram can be determined here:

- Switch on, if output switching (1 bit)
- Switch off if output switching (1 bit)
- 0...255 or 0...100%, if output value (1 byte)

Delay before sending

This determines the waiting time from starting the sequence (output A) or from sending the previous output (output B – H), which waits until the output telegram of the corresponding output has been sent.

6.19 Logic / Timer / Comparison / Calculation

1.1.1 KNX IO 411.1 secure > Logic / Timer / Comparison / Calculation	
Description	Logic / Timer / Comparison / Calculation
General settings	
Diagnostics	
+ Channel A: Input 1	Function 1 Timer
+ Channel A: Input 2	Function 2 Logic
+ Channel B: Input 1	Function 3 Comparison
+ Channel B: Input 2	Function 4 Calculation
- Logic / Timer / Comparison / C...	Function 5 Disabled
	Function 6 Disabled
	Function 7 Disabled
	Function 8 Disabled
	Function 9 Disabled
	Function 10 Disabled
	Function 11 Disabled
	Function 12 Disabled
	Function 13 Disabled
	Function 14 Disabled
	Function 15 Disabled
	Function 16 Disabled

Function 1 - 16

These parameters contain the functions timer and logic, whereby all 16 functions are identical.

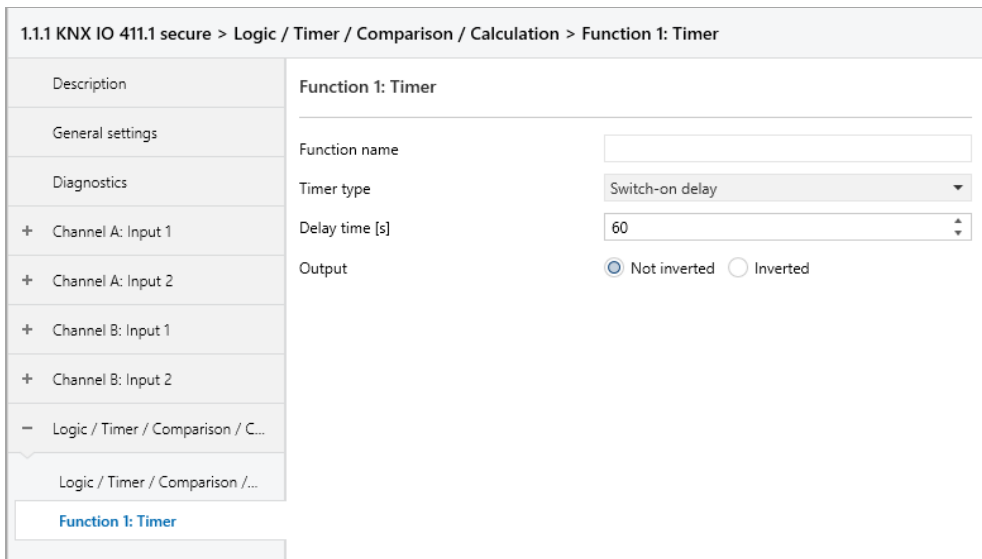
The following options are available:

- Disabled
No parameters and group objects for timer and logic.
- Timer
Parameters and group objects for timer are available.
- Logic
Parameters and group objects for logic are available.
- Compare
Parameters and group objects for compare are available.
- Calculation
Parameters and group objects for calculation are available.



The functions for timer and logic can be linked to one another by means of the associated group objects. This also allows to create complex structures. For this purpose, the output of a function is set to the same group address as the input of the next function.

6.19.1 Function 1 – 16: Timer



Function name (10 characters)

The function name can be chosen freely.

The name is visible in the group object entry in the ETS software. This makes it easier to work with the associated group objects, because the given name is displayed there as a label.

Timer type

The type of time switch can be selected here:

- Switch-on delay

The ON telegram (1) received on the input is delayed on the output.

Input: --1-----0-----

Output: -- | -T-1-----0-----

Group object	Type KNX	Size	Direction
Timer – Switch-on delayed – Input	1.002	1 Bit	From KNX
Timer – Switch-on delayed – Output	1.002	1 Bit	To KNX

- Switch-off delay

The OFF telegram (0) received on the input is delayed on the output.

Input: --1-----0-----

Output: --1----- | -T-0--

Group object	Type KNX	Size	Direction
Timer – Switch-off delayed – Input	1.002	1 Bit	From KNX
Timer – Switch-off delayed – Output	1.002	1 Bit	To KNX

- Switch-on and switch-off delay

The ON/OFF telegram (1/0) received on the input is delayed on the output.

Input: --1-----0-----

Output: -- | -T-1----- | -T-0-

Group object	Type KNX	Size	Direction
Timer – Switch-on/off delayed – Input	1.002	1 Bit	From KNX
Timer – Switch-on/off delayed – Output	1.002	1 Bit	To KNX

- Impulse (staircase)

The ON telegram (1) received on the input is sent on the output. After a delay the output sends the OFF telegram (0).

Input: --1-----0-----

Output: --1-T-0-----

Group object	Type KNX	Size	Direction
Timer – Impulse (staircase) – Input	1.002	1 Bit	From KNX
Timer – Impulse (staircase) – Output	1.002	1 Bit	To KNX



Each timer can be stopped by sending the opposite value to its input group object. For example: An already started switch-on timer can be stopped by sending OFF (0) to its input group object.

Delay [s]

This parameter defines the delay when sending at the output.

Output

Via this parameter the sent value on the output can be inverted:

- Not inverted
- Inverted

6.19.2 Function 1 – 16: Logic

1.1.1 KNX IO 411.1 secure > Logic / Timer / Comparison / Calculation > Function 1: Logic

Description	Function 1: Logic
General settings	Function name <input type="text"/>
Diagnostics	Gate type <input type="text" value="AND gate"/>
+ Channel A: Input 1	Number of inputs <input type="text" value="4"/>
+ Channel A: Input 2	<div style="border: 1px solid #ccc; padding: 2px;"> ⓘ If an internal input is used, a function (!="Impulse counter") needs to be set to the channel. Group object connections are not required. </div>
+ Channel B: Input 1	Input A <input type="radio"/> External <input checked="" type="radio"/> Internal
+ Channel B: Input 2	Value A <input type="text" value="Input A1 - Input state (DPT 1.001 - 1 Bit)"/>
- Logic / Timer / Comparison / C...	Input B <input checked="" type="radio"/> External <input type="radio"/> Internal
Logic / Timer / Comparison / ...	Input C <input checked="" type="radio"/> External <input type="radio"/> Internal
Function 1: Logic	Input D <input checked="" type="radio"/> External <input type="radio"/> Internal
	Send cyclically <input type="text" value="Disabled"/>

Function name (10 characters)

The function name can be freely selected.

It is visible in the group object entry in the ETS software. This makes it easier to work with the associated group objects later, as the assigned name is displayed there as a designation.

Gate type

This parameter defines the type of logic gate:

- **And gate**
The output is triggered ON (1), if all inputs are switched ON (1).
- **OR gate**
The output is triggered ON (1), if at least one input is switched ON (1).
- **XOR gate**
The output is triggered ON (1), if an odd number of inputs is switched ON (1).
- **NAND gate**
The output is triggered ON (1), if at least one inputs is switched OFF (0).
- **NOR gate**
The output is triggered ON (1), if all inputs are switched OFF (0).
- **XNOR gate**
The output is triggered ON (1), if an even number of inputs is switched ON (1).

Group object	Type KNX	Size	Direction
Logic – Gate input A – Input	1.002	1 Bit	From KNX
Logic – Gate input B – Input	1.002	1 Bit	From KNX
Logic – Gate output – Output	1.002	1 Bit	To KNX
Logic – Gate input C – Input	1.002	1 Bit	From KNX
Logic – Gate input D – Input	1.002	1 Bit	From KNX



The output sends when a telegram is received at an input. The condition for this is that both inputs are valid (have received at least one telegram). The output sends a 1 if the respective condition is fulfilled, otherwise a 0.

- **INVERTER**

The input is inverted at the output, ON (1) becomes OFF (0) and OFF (0) becomes EIN (1).

Group object	Type KNX	Size	Direction
Logic – Gate input – Input	1.002	1 Bit	From KNX
Logic – Gate output – Output	1.002	1 Bit	To KNX



The output transmits when a telegram is received at the input.

Number of inputs

This parameter defines the number of inputs for the logic gate.

Input (A, B, C, D)

This parameter specifies whether the input is to be filled via an external (from the bus) or internal value (from the device).

Value (A, B, C, D) (with Input (A, B, C, D) = "Internal")

This parameter defines the internal value that is used as an input.

The status of a channel can only be used as a value for the input if the function is set for this channel. (Only for Function != "Impulse counter")

Send cyclically

This parameter specifies whether the result is sent cyclically and at what interval.

6.19.3 Function 1 – 16: Compare

1.1.1 KNX IO 411.1 secure > Logic / Timer / Comparison / Calculation > Function 1: Comparison	
Description	Function 1: Comparison
General settings	Function name <input type="text"/>
Diagnostics	Operation <input type="text" value="A < B"/>
+ Channel A: Input 1	Input type <input type="text" value="Integer (DPT 5.010 - 1 Byte)"/>
+ Channel A: Input 2	Input B <input type="radio"/> External <input checked="" type="radio"/> Static
+ Channel B: Input 1	Value B <input type="text" value="1"/>
+ Channel B: Input 2	Send cyclically <input type="text" value="Disabled"/>
Logic / Timer / Comparison / C... Logic / Timer / Comparison / ... Function 1: Comparison	

Function name (10 Characters)

The function name can be freely selected.

It is visible in the group object entry in the ETS software. This makes it easier to work with the associated group objects later, as the assigned name is displayed there as a description.

Operation

This parameter defines the type of comparison operation used to compare the values of input A and B:

- A < B
Input A is less than input B
- A = B
Input A is equal to input B
- A > B
Input A is higher than input B

Input type

This parameter defines the type of inputs:

- Percent (DPT 5.001 - 1 Byte)
Value range: 0 (\cong 0) - 100% (\cong 255)
- Integer (DPT 5.010 - 1 Byte)
Wertebereich: 0 - 255
- Integer (DPT 7.001 - 2 Byte)
Value range: 0 - 65535
- Integer (DPT 12.001 - 4 Bytes)
Value range: 0 - 4294967295
- Float (DPT 9.001 - 2 Bytes)
Value range: -671088.64 - +670433.28
- Float (DPT 14.001 - 4 Bytes)
Value range: -3.4E+38 - +3.4E+38

Input B

This parameter specifies whether the input is to be filled via an external (from the bus) or static (from the ETS).

Value B (Input B = "Static")

This parameter defines the static value that is used as an input.

Send cyclically

This parameter specifies whether the result is sent cyclically and at what interval.

Group object	Type KNX	Size	Direction
Logic – Comparison – ... Byte input A	5.001, 5.010, 7.001, 12.001, 9.001, 14.001**	1 Byte, 2 Byte, 4 Byte	From KNX
Logic – Comparison – ... Byte input B*	5.001, 5.010, 7.001, 12.001, 9.001, 14.001**	1 Byte, 2 Byte, 4 Byte	From KNX
Logic – Comparison – Output	1.002	1 Bit	To KNX

* Only for "Input B" parameter = External

** Type KNX determined by "Input type" parameter



The output sends when a telegram is received at an input. The condition for this is that both inputs are valid (have received at least one telegram). The output sends a 1 if the respective condition is fulfilled, otherwise a 0.

6.19.4 Function 1 – 16: Calculation

1.1.1 KNX IO 411.1 secure > Logic / Timer / Comparison / Calculation > Function 1: Calculation	
Description	Function 1: Calculation
General settings	Function name <input type="text"/>
Diagnostics	Operation Average of Input A and B ▼
+ Channel A: Input 1	Input type Integer (DPT 5.010 - 1 Byte) ▼
+ Channel A: Input 2	Input B <input type="radio"/> External <input checked="" type="radio"/> Static
+ Channel B: Input 1	Value B <input type="text" value="1"/>
+ Channel B: Input 2	Send cyclically Disabled ▼
- Logic / Timer / Comparison / C...	
Logic / Timer / Comparison / ...	
Function 1: Calculation	

Function name (10 Characters)

The function name can be freely selected.

It is visible in the group object entry in the ETS software. This makes it easier to work with the associated group objects later, as the assigned name is displayed there as a description.

Operation

This parameter defines the type of comparison operation:

- Average value of input A and B
(input A + input B) / 2
- Convert value
Convert input A to another type
- Limit value
Limit input A

Input type (with Input A != "Internal" OR for Input B != "Internal")

This parameter defines the type of input:

- Percent (DPT 5.001 - 1 Byte)
Value range: 0 (\cong 0) - 100% (\cong 255)
- Integer (DPT 5.010 - 1 Byte)
Value range: 0 - 255
- Integer (DPT 7.001 - 2 Bytes)
Value range: 0 - 65535
- Integer (DPT 12.001 - 4 Bytes)
Value range: 0 - 4294967295
- Floating point number (DPT 9.001 - 2 Bytes)
Value range: -671088.64 - +670433.28
- Floating point number (DPT 14.001 - 4 Bytes)
Value range: -3.4E+38 - +3.4E+38

Input B (with Operation = "Average value of input A and B")

This parameter specifies whether the input is to be filled via an external (from the bus) or static (from the ETS).

Value B (with Input B "Static")

This parameter defines the static or internal value that is used as an input.

Correction (with Operation = "Convert value")

This parameter specifies whether the value is to be added with an offset or multiplied by a factor.

Offset (with Correction = "Offset" AND for output type != "Binary (DPT 1.002 - 1 Byte)")

This parameter defines the offset that is added to the input.

Factor (with Correction = "Factor" AND for output type != "Binary (DPT 1.002 - 1 Byte)")

This parameter defines the factor by which the input is multiplied.

Send 1 on (with Operation = "Convert value" AND for output type = "Binary (DPT 1.002 - 1 Byte)")

This parameter specifies whether 1 is sent at input A lower or higher than the threshold value.

Threshold value

(with Operation = "Convert value" AND for output type = "Binary (DPT 1.002 - 1 Byte)")

This parameter defines the threshold value to which the input is compared.

Limit (min.) (with Operation = "Limit value")

This parameter defines the lower limit with which the output is limited.

Limit (Max.) (with Operation = "Limit value")

This parameter defines the upper limit with which the output is limited.

Output type (with Operation = "Convert value")

This parameter defines the type of input:

- Binary (DPT 1.002 - 1 Byte)
Value range: 0 - 1
- Percent (DPT 5.001 - 1 Byte)
Value range: 0 (\cong 0) - 100% (\cong 255)
- Integer (DPT 5.010 - 1 Byte)
Value range: 0 - 255
- Integer (DPT 7.001 - 2 Bytes)
Value range: 0 - 65535
- Integer (DPT 12.001 - 4 Bytes)
Value range: 0 - 4294967295
- Floating point number (DPT 9.001 - 2 Bytes)
Value range: -671088.64 - +670433.28
- Floating point number (DPT 14.001 - 4 Bytes)
Value range: -3.4E+38 - +3.4E+38

Send cyclically

This parameter specifies whether the result is sent cyclically and at what interval.

Group object	Type KNX	Size	Direction
Logic – Calculation – ... Byte Input A	5.001, 5.010, 7.001, 12.001, 9.001, 14.001**	1 Byte, 2 Byte, 4 Byte	Von KNX
Logic – Calculation – ... Byte Input B*	5.001, 5.010, 7.001, 12.001, 9.001, 14.001**	1 Byte, 2 Byte, 4 Byte	Von KNX
Logic – Calculation – ... Output	1.002, 5.001, 5.010, 7.001, 12.001, 9.001, 14.001***	1 Bit, 1 Byte, 2 Byte, 4 Byte	Nach KNX

* Only for "Input B" parameter = External

** Type KNX determined by "Input type" parameter

*** Type KNX is determined by the types of the inputs. With the Operation "Convert value", the output type can be freely chosen.



The output sends when a telegram is received at an input. The condition for this is that both inputs are valid (have received at least one telegram). The output sends a 1 if the respective condition is fulfilled, otherwise a 0.



WARNING

- The device must be mounted and commissioned by an authorized electrician.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- The power rating is indicated on the side of the product.



Product database for ETS 5/6

www.weinzierl.de/en/products/411-1/ets6

Data sheet

www.weinzierl.de/en/products/411-1/datasheet

CE Declaration

www.weinzierl.de/en/products/411-1/ce-declaration

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