










	<h2>application software</h2>	
<ul style="list-style-type: none"> ▲ Manufacturers ▲ Hager Electro ▲ Inputs <ul style="list-style-type: none"> 2-input modules embedded 4-input modules embedded 4-input modules 10-input modules 	<p>2-4-10 inputs module</p> <p><i>Electrical / Mechanical characteristics: see product user's instructions</i></p>	

	Product reference	Product designation	Application software ref.	TP device  RF device 
	TXA304	4-fold input 230 V	STXA304	
	TXA310	10-fold input 230 V	STXA310	
	TXB302	2-input modules embedded	STXB302	
	TXB304	4-input modules embedded	STXB304	

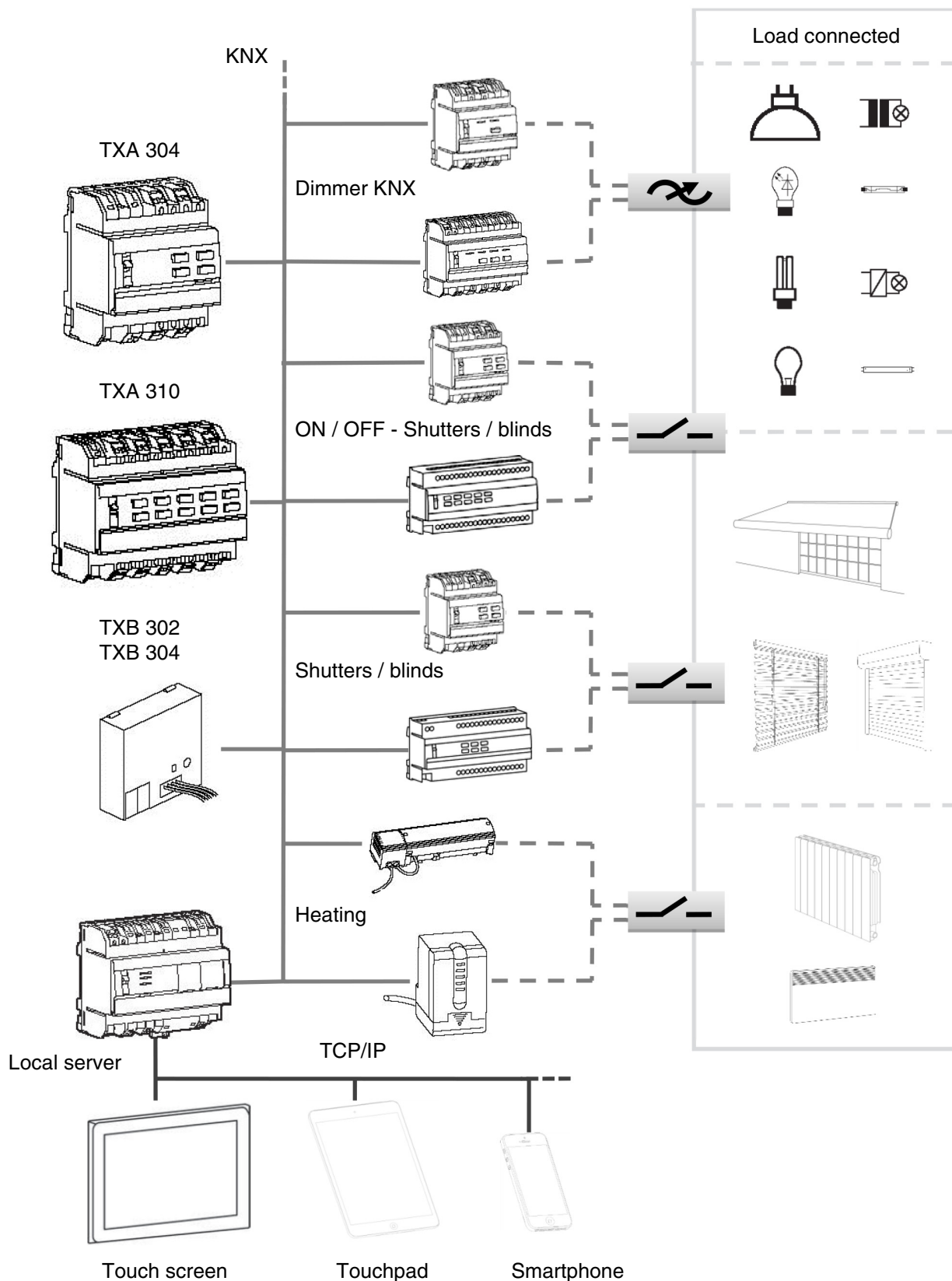
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1. General overview

1.1 Product installation

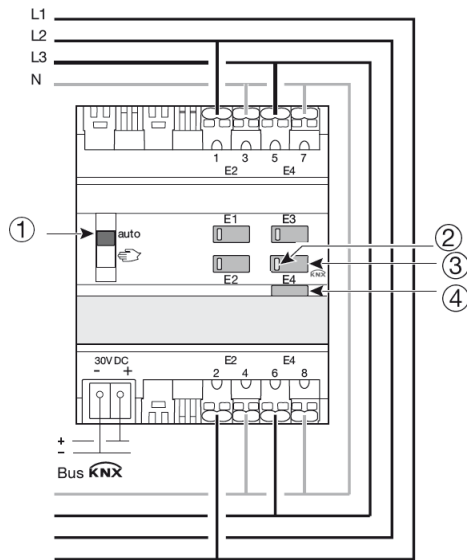
1.1.1 General outline



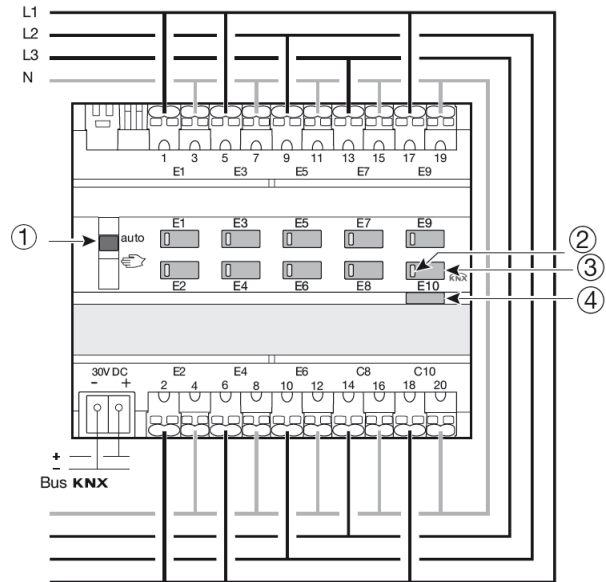
1.1.2 Description of the device

■ Modular products (TXA304 - TXA310)

TXA304



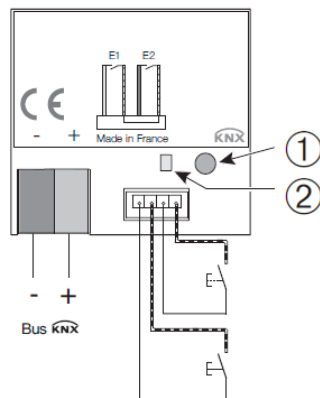
TXA310



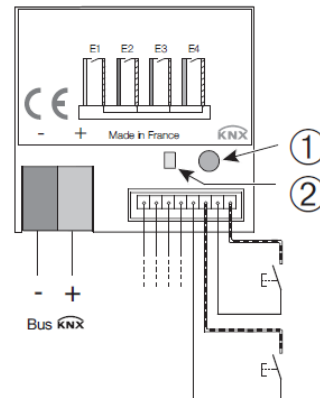
- ① auto Switch
- ② LED
- ③ Pushbutton
- ④ Physical addressing illuminated pushbutton.

■ Embedded modules (TXB302 - TXB304)

TXB302



TXB304



- ① • Physical addressing pushbutton
- ② • Physical addressing indicator

1.1.3 Physical addressing

■ **Modular products (TXA304 - TXA310)**

To perform physical addressing or check for the presence of the bus, press the illuminated pushbutton located on the top right of the device above the label holder.

Programming LED ON = Bus present and the product is in programming mode

The product remains in programming mode until the physical address has been transmitted by ETS. Press again to exit programming mode.

Physical addressing can be performed in either automatic or manual operation ().

■ **Embedded modules (TXB302 - TXB304)**

Press S1 / Addr pushbutton for less than 2 s for physical addressing or to check for the presence of the bus.

Programming LED Addr ON = Bus present and the product is in programming mode

The product remains in programming mode until the physical address has been transmitted by ETS. Press again to exit programming mode.

1.1.4 Application

Application	Product reference
TL340C	TXA304
TL310A	TXA310
TL302B	TXB302
TL304B	TXB304

1.2 Product function

The application software is used to configure the individual inputs.

The sensors associated to the inputs (pushbuttons, switches, automatic controls) are used to control lighting, shutters, blinds, heating and scenes.

The main functions are the following:

■ Toggle switch

The Toggle Switch function changes the status of the controlled output whenever it is operated.

The Time-limited toggle switch function consist of inventing the status of the output after each short key-press. If there is no short key-press, the output will be switched OFF once the delay time has elapsed.

A long push button press restarts the delay time.

■ ON / OFF

This function is used for switching lighting, blind or heating circuits ON or OFF. The command may come from switches, pushbuttons or automatic controls.

■ 1 or 2 button dimmer

This function is used to control lighting circuits using one or two buttons.

The ON / OFF function transmits the **ON / OFF** object (short key-press).

The Dimming function transmits the **Dimming** object (long key-press).

■ Shutters / blinds

This function controls a shutter or a blind using one or two push buttons.

The Up / Down function transmits the **Up / Down** object (long key-press).

The Stop / Angle function transmits the **Stop / Angle** object (short key-press).

■ Alarms

The Alarm 1 and Alarm 2 functions allow alarms coming from automatic controls to be periodically emitted (anemometer, rain detector, light sensitive switch, etc.). Alarm 1 has a higher priority than Alarm 2.

■ Heating mode selection

This function is used to select a heating or air conditioning setpoint (Comfort, Reduced, Frost Protection, Eco, Auto). The command may come from switches, pushbuttons or automatic controls.

■ Value

The Value function (2 byte) is used for sending: Percentage %, Temperature °C, Luminosity level Lux, Brightness value % and Value 0-65535.

■ Scene

This function is used to select and storing scenes. It may concern different output types (lighting, blinds, shutters, heating) to create ambiances or scenarios (leaving home scenario, reading ambience, etc.).

■ Timer

The Timer function is used to switch ON or OFF a lighting circuit, shutters, heating for an adjustable time. The duration can be retrigged via a short key press. The Timer function can be interrupted via a long key press before the time delay expires. An adjustable cut-off pre-warning indicates the end of the delay time by inverting the output status for 1 sec.

■ Priority

The Priority function allows an input to be forced to a defined status.

The forcing action depends on the type of application controlled: lighting ON / OFF, shutter, Heating.

■ 2-channel mode

This function allows controlling, with the same pushbutton, two independent circuits having different functions. The difference resides in the duration of operation. Channel A requiring a short key press and Channel B requiring a long key press. The long key press duration is set in the **Duration of long key-press-channel mode** parameter.

■ Jamming

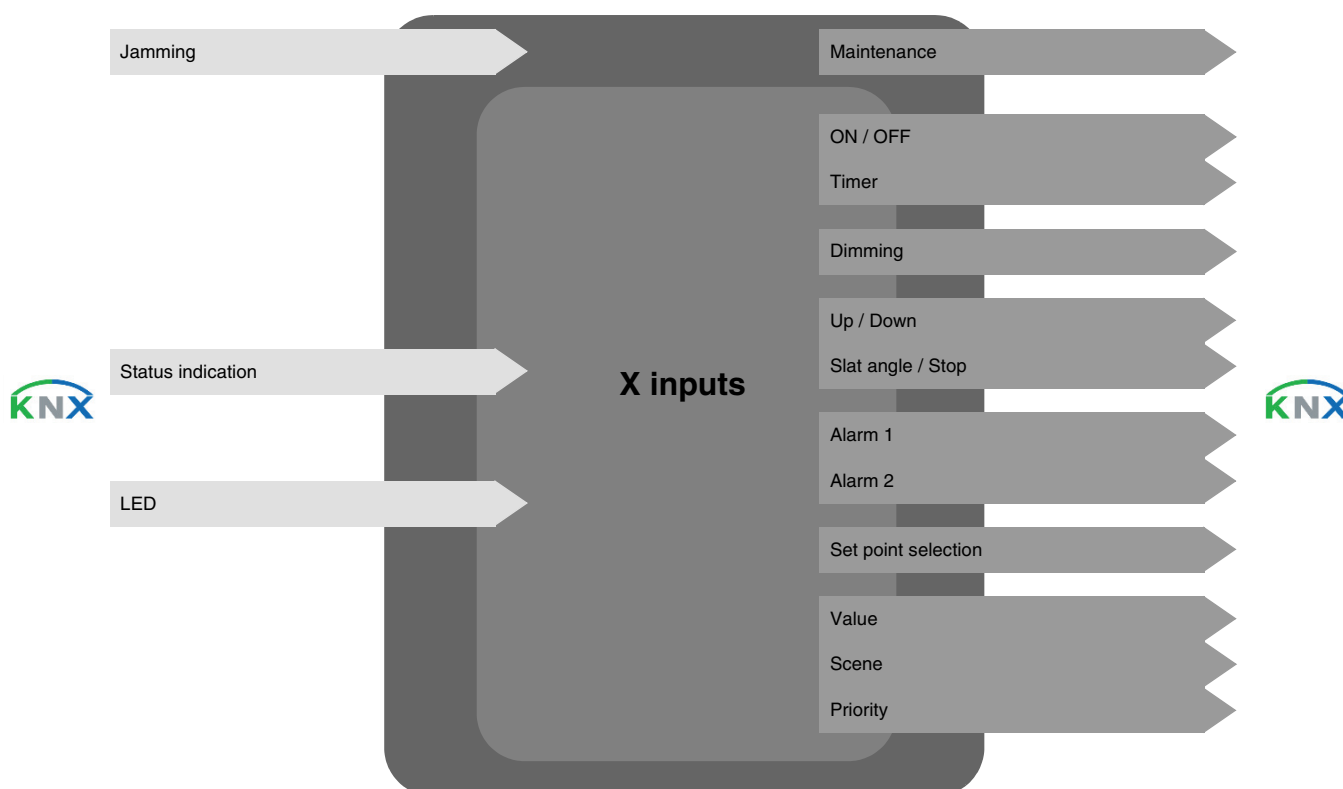
This function is used to lock an input via an object on the bus. It can be activated separately for each input. No commands or values can be sent to the bus during jamming. Input jamming is indicated by the LED briefly flashing (for 5 seconds) upon key press. Jamming must be deactivated before resending the input status to the bus.

■ Power cut detection (Only concerns TXA304 and TXA310)

The power cut detection function is used for specific management of an input during a power cut, taking into account all the status changes which could occur during this period.

For TXA304 / 310, input 1 is a voltage reference for power cut detection.

Communication objects:



2. Input configuration and parametering

2.1 Parameters

2.1.1 General parameters

→ Parameter Setting screen

General	Debounce time	50 ms
Input 1	Duration of long key-press Dimming, shutters/blinds	500 ms
Input 2	Duration of long key-press 2-channel mode	5 s
Input 3	Max number of telegrams Value[1...65535] (Deactivated: 0)	0
Input 4	Limitation time duration in ms Value[1...65535] (Deactivated: 0)	0
Information	Indicator use	Input status
	Activation of manual mode	Used
	Jamming type	<input checked="" type="radio"/> On 1 <input type="radio"/> On 0
	Power cut detection	Not used

Screen 1

→ Parameter

Parameter	Description	Value
Debounce time	This parameter defines for the contacts connected to inputs the minimum closing time before taking into account.	50 ms, 100 ms, 150 ms Default value: 100 ms

A bouncing or flickering effect may occur when mechanical switches are used. The problem is all the more significant when using metal contactors, which have a certain elasticity. When connecting or disconnecting, the contactors may bounce back and can skew the result of the disruption. The number and duration of changes depends on the type of disruption; they most often happen in a few milliseconds.

The main method used to prevent flickering is to filter the bounce caused by the contactors. A program is filtered by estimating the value of the tab to which the switch is connected; if the value is the same during a pre-defined period of time, the position is considered stable and is therefore not affected by the flickering effect.

Managing the debounce software consists of checking that the signal read at the microphone input is stable at least during the debounce time. This stability is verified with a status reading every 10 ms. For a debounce time of 50 ms, for example, a signal may be deemed stable after a time period of between 50 ms and 60 ms. A signal read by the microphone with a duration greater than or equal to 60 ms should always generate an event and a signal read by the microphone with a duration less than 50 ms should never generate an event.

Parameter	Description	Value
Duration of long key-press Dimming, shutters / blinds.	This parameter defines for the Dimmer and Shutter / Blind functions the detection time for a hold-down pressure.	400 ms, 500 ms, 600 ms, 700 ms, 800 ms, 900 ms, 1 s Default value: 500 ms

Parameter	Description	Value
Duration of long key-press 2-channel mode.	This parameter defines the duration of detection of a long press for the 2 channel value function and 2 channels ON / OFF.	500 ms, 1 s, 2 s, 3 s, 4 s, 5 s, 6 s, 7 s, 8 s, 9 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, Default value: 5 s
Max number of telegrams Value [1...65535] (Deactivated: 0).	This parameter defines the maximum number of telegrams which can be transmitted on the bus during the limitation period.	1 - 65535 Default value: 0
Limitation time duration in ms Value [1...65535] (Deactivated: 0)	This parameter defines the period during which the the limitation of the maximum number of telegrams takes effect.	1 - 65535 Default value: 0
Indicator use (Only concerns TXA304 and TXA310)	This parameter defines indicator utilization. 3 types of utilization are possible: - Confirm key - Permanently OFF or ON - Status indication associated to the Indication object	Input status, Always ON, Always OFF, Status indication (ON = 1), Status indication (ON = 0) Default value: Input status

Parameter	Description	Value
Activation of manual mode * (Only concerns TXA304 and TXA310)	This parameter enables or disables the 2 position switch located on the front side of the product. In manual mode, the inputs can be activated using the keys on the front. In automatic mode, the inputs are activated from the bus.	Used, Not used, Time limited. Default value: Used
Duration of manual mode activation ** (Only concerns TXA304 and TXA310)	This parameters defines the duration of activation of the manual mode.	15 min, 30 min, 60 min, Default value: 15 min
Jamming type	This function is used to lock an input via an object. It can be activated separately for each input. No commands or values can be sent to the bus during jamming. Input jamming is controlled via the Jamming object. The parameter defines which value is used to activate jamming.	On 1, On 0 Default value: On 1
Power cut detection (Only concerns TXA304 and TXA310)	see under (Power cut detection)	see under (Power cut detection)

* If the switch position does not match the device's parameter setting, the input indicator lights will flash.

** This parameter is only visible if the **Manual mode activation** parameter has following value.

2.1.2 Power cut detection (Only concerns TXA304 and TXA310)

Power cut detection is used to recognize status changes due to a power cut at one or more inputs connected to the same phase as Input 1. Input 1 can be configured as a voltage reference to allow specific management in case of a power cut.

During a power cut, the status changes on the inputs connected to the reference input are ignored. When the power comes back on, the status of the inputs is assessed and compared to the status before the power cut. If a status change has occurred, the corresponding input(s) will be re-emitted.

Possible values are:

Not used,

Input 1 is reference for input 2,

Input 1 is reference for input 2 to 3,

Input 1 is reference for input 2 to 4,

Input 1 is reference for input 2 to 5***,

Input 1 is reference for input 2 to 6***,

Input 1 is reference for input 2 to 7***,

Input 1 is reference for input 2 to 8***,

Input 1 is reference for input 2 to 9***,

Input 1 is reference for input 2 to 10***,

***Only concerns TXA310

For example:

Input 2 has the channel function ON / OFF.

Input 1 is reference for input 2.

Contact Input 2 is closed (Object value is "1" or ON).

Voltage at Input 1 (same voltage as Input 2) fails. The ON / OFF status change due to a power cut is ignored.

Case 1: Input 2 remains unchanged during the power cut.

Input 2 is reassessed when the power comes back. A telegram is not emitted.

Case 2: Input 2 switches from ON to OFF during the power cut.

Input 2 is reassessed when the power comes back. The new OFF status is sent to the bus.

2.1.3 Behaviour if the bus is cut off

When a bus is cut off, the product does not save the status of its inputs. When the bus is restored, the control corresponding to the input can be sent to the bus. This operation is defined using the **Emission after initialization, at bus return or after download** parameter.

Below is the list of channel types on which this parameter is available:

- ON / OFF
- Alarm 1
- Alarm 2
- Heating mode
- Priority

For other channel types, the control is not sent to the bus.

Note: For the Priority function, if there was no priority before cutoff and on bus restoration there is still no priority, the end of priority frame is not re-sent.

2.2 Parameter setting

■ Parameter setting: Channel function

The product allows to control lighting, blinds, shutters, heating and scenes.

→ Parameter Setting screen

Screen 2

Parameter	Description	Value
Channel function	This parameter allows selecting the function associated with each input.	Not used, Toggle switch, ON / OFF, 1-button dimmer, 2-button dimmer, Shutters / blinds, Alarm 1, Alarm 2, Heating mode selection, Value, Scene, Timer, Priority, 2-channel mode ON / OFF, 2-channel mode value. Default value: Not used

2.2.1 Toggle switch

Toggle switch:

This function is used to switch the lighting circuit or any other load ON or OFF.

Each new key-press modifies the output status.

Description:

After pressing the connected pushbutton, depending on the **Status indication** object, an **ON or OFF** command will be sent to the bus via the **ON / OFF** object.

Time limited toggle switch:

A short push button press:

The output status is inverted. The status changes after each short key press. If there is no short key-press, the output will be switched OFF once the delay time has elapsed (Output with **Time-limited toggle switch** parameter).

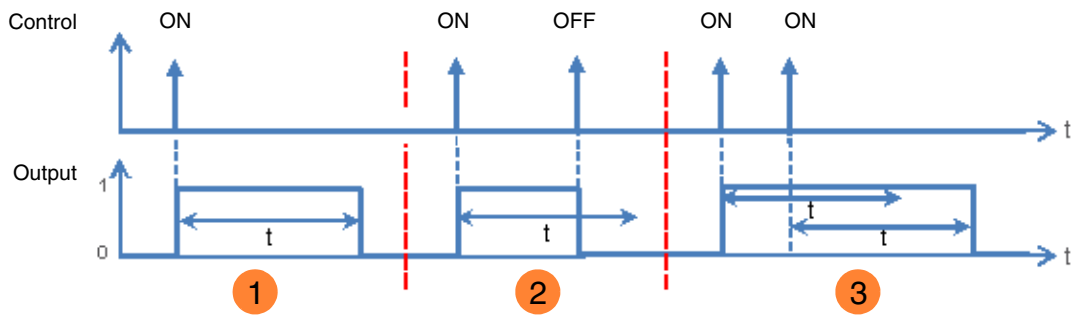
A long push button press restarts the delay time.

Description:

A short key press transmits the **Time-limited toggle switch** object on the bus with the opposite value to that of the **Status indication**. A long press on the pushbutton transmits an ON command via the **Time-limited toggle switch** object.

Upon reception of an ON command from the object **Time limited toggle switch**, TXA-type products switch the output to ON for the set time. An ON command received while the output is still ON will restarts the time delay.

Function diagram

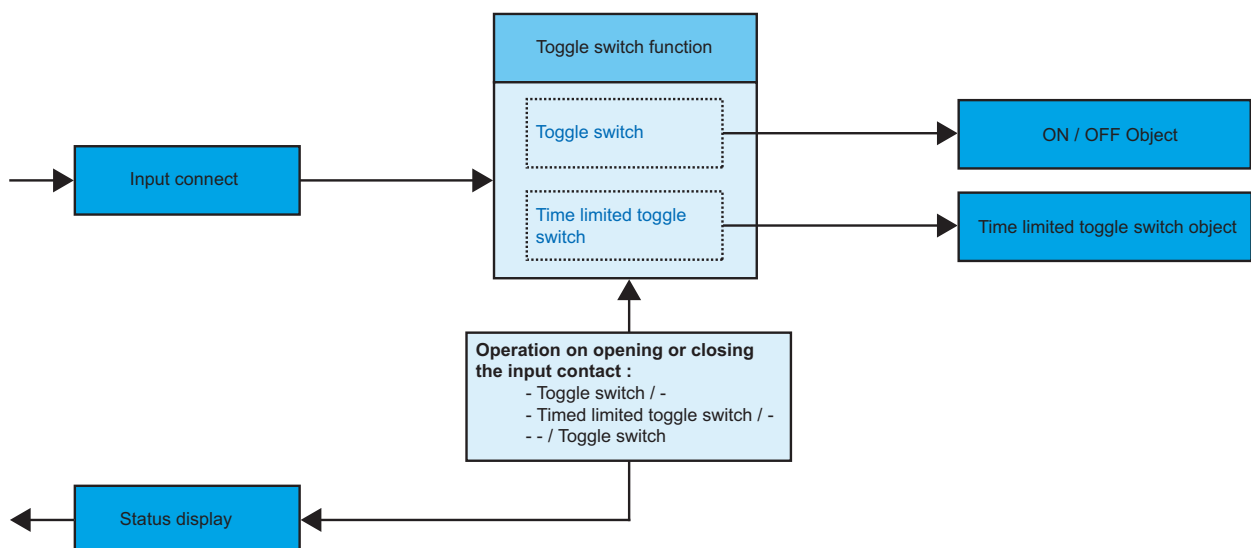


- 1 Emission of an ON command: The output which is at ON will switch to OFF on expiry of the Time-limited OFF time.
- 2 Emission of an ON command: The output switches to ON.
Emission of an OFF command before expiry of the Time-limited OFF time, t: The output switches to OFF.
- 3 Emission of an ON command: The output switches to ON.
Emission of an ON command before expiry of the Time-limited OFF time, t: The output remains at ON and the Time-limited OFF time, t, is re-started.

→ Parameter Setting screen

General	Channel function	Toggle switch
Input 1	Function by opening / closing of input connected contact	Toggle switch / -
Input 2	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 3		
Input 4		
Information		

Screen 3



Parameter	Description	Value
Channel function	This parameter defines the function types.	Toggle switch
Function by opening / closing of input connected contact	This parameter defines the commands transmitted when input status changes occur.	Toggle switch / - , Time limited toggle switch / - , - / Toggle switch Default value: Toggle switch / - ("-" = No action)
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

2.2.2 ON / OFF

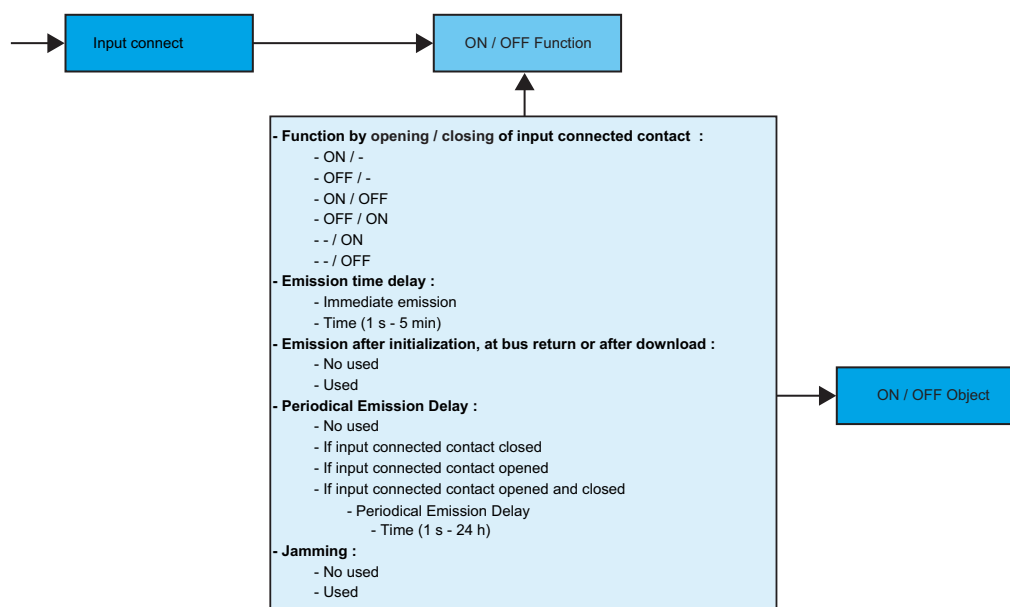
This function is used to switch the lighting circuit or any other load ON or OFF.

The ON or OFF command will be transmitted to the bus via the **ON / OFF** object. The command to be sent (ON or OFF) can be defined in the parameters.

→ Parameter Setting screen

General	Channel function	ON / OFF
Input 1	Function by opening / closing of input connected contact	ON / -
Input 2	Emission time delay	Immediate emission
Input 3	Emission after initialization, at bus return or after download	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 4	Periodical emission	Not used
Input 4	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Information		

Screen 4



→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the function types.	ON / OFF
Function by opening / closing of input connected contact	This parameter defines the commands transmitted when input status changes occur.	ON / -, OFF / -, ON / OFF, OFF / ON, - / ON, - / OFF Default value: ON / - ("-" = No action)
Emission time delay	This parameter sends commands with a set delay in relation to pressing or releasing.	Immediate emission, 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min Default value: Immediate emission
Emission after initialization, on bus return or after download.	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Not used, Used Default value: Not used
Periodical emission	This parameter defines the condition activating cyclic transmission input status.	Not used, If input connected contact closed, If input connected contact opened, If input connected contact opened and closed Default value: Not used
Periodical emission delay *	This parameter defines the cyclic transmission period.	Duration: 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 20 s, 30 s, 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h. Default value: 30 min
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

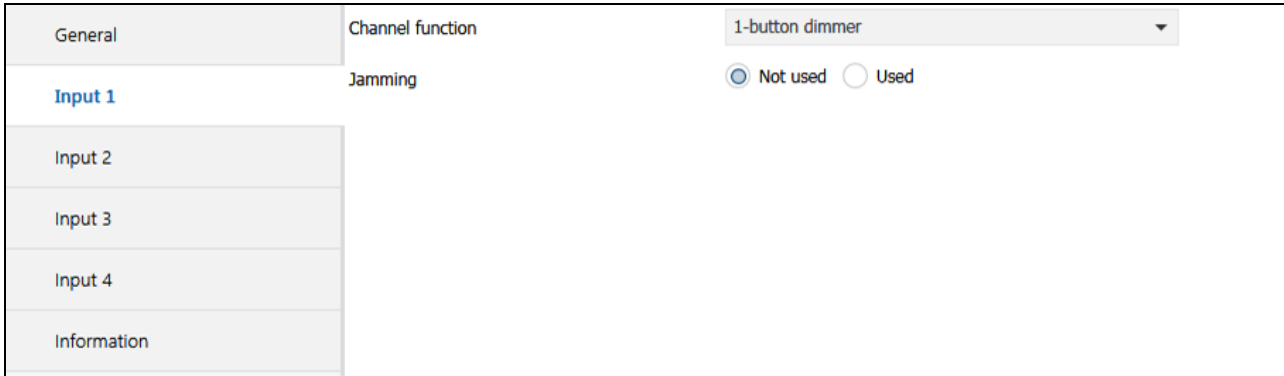
* This parameter is only visible if the **Emission periodicity** parameter has a value other than: Not used.

2.2.3 Dimming

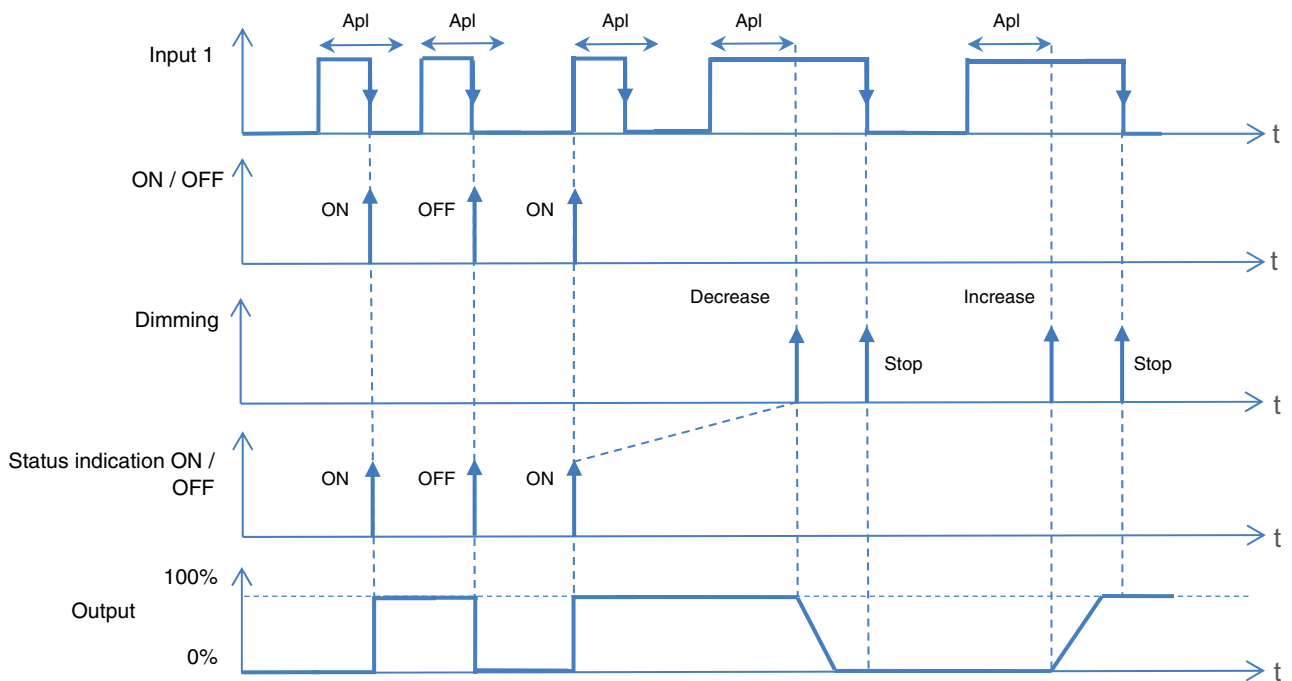
This function is used to control lighting circuits using one or two buttons.
 The 1 button dimmer and 2 buttons dimmer functions send the **ON / OFF** object after a short press.
 A long press send the **Dimmer** object.
 There are 2 different function types: **1-button dimmer** or **2-button dimmer**.

Channel function: 1-button dimmer

This function allows ON / OFF or Increase / Decrease controls using one push button.



Screen 5



Apl: long key-press

Channel function: 2-button dimmer

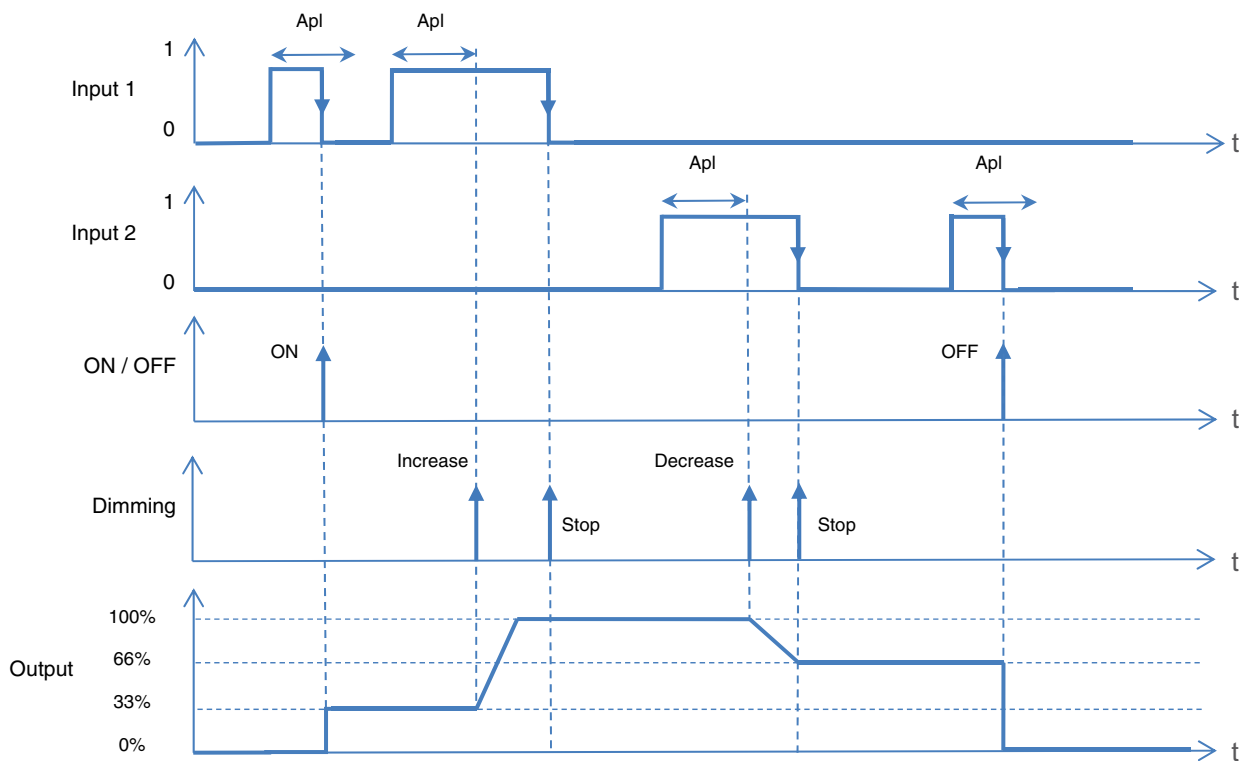
This function allows ON or Increase controls using one push button, and OFF or decrease controls using a second push button.

→ Parameter Setting screen

General	Channel function	2-button dimmer
Input 1	Dimming direction	<input checked="" type="radio"/> Increase <input type="radio"/> Decrease
Input 2	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 3		
Input 4		
Information		

Screen 6

Example : Input 1: Increase
 Input 2: Decrease



Apl: long key-press

→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the function types.	1-button dimmer, 2-button dimmer
Dimming direction *	This parameter defines the dimming direction associated to the button.	Increase, Decrease. Default value: Increase
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Channel Function** parameter has the following value: **2-button dimmer**.

2.2.4 Shutters / blinds

This function controls shutters and blinds (Up, Down and slat angle adjustment for blinds).

There are 4 different functions:

1-button

2-buttons

2-buttons as long as button pressed

Automatic controls

Type of function: 1-button

This function controls shutters or blinds using one push buttons (Input).

Change of function after each operation (Down, STOP, Up, STOP). Slat angle adjustment is not possible here.

→ Parameter Setting screen

General	Channel function	Shutters / blinds
Input 1	Type of function	1-button
Input 2	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 3		
Input 4		
Information		

Screen 7

Type of function: 2-buttons

This function controls shutters or blinds using two push buttons (Inputs). One button for Up and one button for down. The function transmit the **Up / Down** object (long key press) and the **Slat angle adjustment / Stop** object (short key press).

→ Parameter Setting screen

General	Channel function	Shutters / blinds
Input 1	Type of function	2-buttons
Input 2	Function	<input checked="" type="radio"/> Up <input type="radio"/> Down
Input 3	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 4		
Information		

Screen 8

Type of function: 2-buttons as long as button pressed

When the button is pressed, the input sends a Up or down command to the bus via the **Up / Down** object. When the button is released, the input sends a stop command to the bus via the **Slat angle / Stop** object.

→ Parameter Setting screen

General	Channel function	Shutters / blinds
Input 1	Type of function	2-buttons as long as button pressed
Input 2	Function	<input checked="" type="radio"/> Up <input type="radio"/> Down
Input 3	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 4		
Information		

Screen 9

→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the function types.	Shutters / blinds
Type of function	This parameter defines the function type.	1-button, 2-buttons, 2-buttons as long as button pressed, Automatic controls. Default value: 2-buttons
Function *	This parameter defines the movement direction associated to the button.	Up, Down. Default value: Up
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Type of Function** parameter displays the value: **2-buttons, 2-buttons as long as button pressed, Automatic controls**.

Type of function: Automatic controls

This function is used to control shutters or blinds (without slat angle adjustment) using automatic controls (switches, etc.).

The automatic controls transmits the **Up / Down** object.

The operation of the input contact may be configured according to whether the contact is open or closed (Up, Down).

6 different combinations are available:

Function by press	Function on release
Up	-
Down	-
Up	Down
Down	Up
-	Up
-	Down

→ Parameter Setting screen

General	Channel function	Shutters / blinds
Input 1	Type of function	Automatic controls
Input 2	Function	Up / Down
Input 3	Emission time delay	Immediate emission
Input 4	Emission after initialization, at bus return or after download	<input type="radio"/> Not used <input checked="" type="radio"/> Used
Information	Periodical emission	Not used
	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 10

→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the operating modes.	Shutters / blinds
Type of function	This parameter defines the function type.	Automatic controls
Function	This parameter defines the movement direction associated to the button.	Up / -, Down / -, Up / Down, Down / Up, - / Up, - / Down Default value: Up / Down
Emission time delay	This parameter sends commands with a set delay in relation to pressing or releasing.	Immediate emission, 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min Default value: Immediate emission
Emission after initialization, at bus return or after download	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Used, Not used, Default value: Used
Periodical emission	This parameter defines the condition activating cyclic transmission input status.	Not used, If input connected contact closed, If input connected contact opened, If input connected contact opened and closed Default value: Not used
Periodical emission delay *	This parameter defines the cyclic transmission period.	Duration: 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 20 s, 30 s, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h. Default value: 30 min
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Type of Function** parameter displays the value: **Automatic control** and and the **Periodical emission** parameter has a value other than: Not used.

2.2.5 Alarm 1, Alarm 2

The Alarm 1 and Alarm 2 functions allow alarms coming from automatic controls to be periodically emitted (anemometer, Rain detector, Light-sensitive switch, etc.).

To place the shutters in safety position in case of bad weather: link the Alarm 1 and Alarm 2 functions with the **Alarm 1** and **Alarm 2** object of the **Shutter / Blind output modules**.

These functions have the highest priority. Alarm 1 has a higher priority than Alarm 2.

→ Parameter Setting screen

General	Channel function	Alarm 1
Input 1	Periodical emission of alarm	10 min
Input 2	Active edge	<input checked="" type="radio"/> Rising edge <input type="radio"/> Falling edge
Input 3	Emission after initialization, at bus return or after download	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 4	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Information		

Screen 11

→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the alarm function.	Alarm 1, Alarm 2
Periodical emission of alarm	This parameter defines the emission periodicity of the object Alarm 1 or Alarm 2	Not used, 5 s, 30 s, 1 min, 5 min, 10 min, 30 min, 1 h, 2 h, 3 h, 5 h. Default value: 10 min
Active edge	This parameter defines the edge on which the alarm is active.	Rising edge Falling edge Default value: Rising edge
Emission after initialization, at bus return or after download	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Not used, Used Default value: Not used
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

2.2.6 Heating mode selection

The Heating mode selection functions allow switching ON or OFF the heating or selecting a set-point. The Heating mode selection function transmits the **Set-point selection** object.

These events correspond to the open or closed status of the input contact. Extra parameters define the heating instructions for 2 events.

14 different combinations are available:

Setpoint by press	Setpoint on release
Comfort	Night set-point
Comfort	-
Night set-point	-
Frost protection	Auto
Standby	-
Comfort	Standby
Night set-point	Comfort
Frost protection	-
-	Comfort
-	Night set-point
Auto	Frost protection
-	Standby
Standby	Comfort
-	Frost protection

→ Parameter Setting screen

General	Channel function	Heating mode selection
Input 1	Function	Comfort / -
Input 2	Periodical emission	If input connected contact closed
Input 3	Periodical emission delay	30 min
Input 4	Emission after initialization, at bus return or after download	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Information	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 12

→ Parameter

Parameter	Description	Value
Channel function	This parameter defines the operating modes.	Heating mode selection
Function	This parameter allows selecting the set-point associated with the connected input.	Comfort / Night set-point, Comfort / -, Night set-point / -, Frost protection / Auto, Standby / -, Comfort / Standby, Frost protection / -, Night set-point / Comfort, - / Comfort, - / Night set-point, Auto / Frost protection, - / Standby, Standby / Comfort, - / Frost protection. Default value: Comfort / -
Periodical emission	This parameter defines the emission periodicity of the contact status.	Not used, If input connected contact closed, If input connected contact opened, If input connected contact opened and closed Default value: Not used
Periodical emission delay *	This parameter defines the cyclic transmission period.	Duration: 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 20 s, 30 s, 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h. Default value: 30 min
Emission after initialization, at bus return or after download	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Not used, Used Default value: Not used
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Emission periodicity** parameter has the following value: Not used.

2.2.7 Value

This function is used for sending: Percentage, Temperature, Luminosity level, Brightness value and Values (2 bytes).

This function is used for sending: Percentage, Temperature, Luminosity level, Brightness value and Value (2 byte).

5 value types are available:

Value	Range	Interval	Default value
Value in %	0% ... 100%	1%	0%
Temperature	0°C ... 40°C	0.5°C	20°C
Luminosity level	0 Lux ... 1000 Lux	50 Lux	300 Lux
Brightness value	0% ... 100%	1%	0%
Value	0 ... 65535	1	1

→ Parameter Setting screen

General	Channel function	Value
Input 1	Value type	Brightness value
Input 2	Active edge	<input checked="" type="radio"/> Rising edge <input type="radio"/> Falling edge
Input 3	Value	0%
Input 4	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Information		

Screen 13

→ Parameter

Parameter	Description	Value
Channel function		Value
Value type	This parameter defines the type of value sent.	Value in %, Temperature, Luminosity level, Brightness value, Value Default value: Brightness value
Active edge	This parameter defines on which edge the commands are sent on the bus.	Rising edge, Falling edge, Default value: Rising edge

Parameter	Description	Value
Value	This parameter defines the value to be sent to the bus.	-Value in %, 0% to 100% in 1% steps Default value: 0% -Temperature, 0°C to 40°C in 0.5°C steps Default value: 20°C - Luminosity level, 0 Lux to 1000 Lux in 50 Lux steps Default value: 300 Lux -Brightness value, 0% to 100% in 1% steps Default value: 0% -Value, 0 to 65535 in 1 steps Default value: 1
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

2.2.8 Scene

The Scene function sends group controls to different kinds of outputs to create ambiances or scenarios (Panic switch, Television, etc.).

The value of the **Scene** object is defined by the **Scene number** parameter.

Scene activation by push-button (impulse)

→ Parameter Setting screen

General	Channel function	Scene
Input 1	Scene activation through	<input checked="" type="radio"/> Push button <input type="radio"/> Automatic controls
Input 2	Scene number	Scene 1
Input 3	Scene storing via very long key-press	<input checked="" type="radio"/> Used <input type="radio"/> Not used
Input 4	Very long press duration	5 s
Input 4	Emission time delay	Immediate emission
Information	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 14

→ Parameter

Parameter	Description	Value
Channel function		Scene
Scene activation through	This parameter defines the type of product or automation connected to the input to activate a scene.	Push button
Scene number	This parameter defines the number of the scene which will be transmitted when the input contact is closed.	Scene 1 to Scene 32 Default value: Scene 1
Scene storing via very long key-press	This parameter authorizes or forbids scene storing.	Used, Not used Default value: Used
Very long press duration *	This parameter defines the duration after which a scene is stored.	1 s, 2 s, 3 s, 4 s, 5 s, 6 s, 7 s, 8 s, 9 s, 10 s, 15 s, 20 s, 25 s 30 s Default value: 5 s
Emission time delay	This parameter is used to send commands with a configurable delay in relation to input contact closure.	Immediate emission, 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min Default value: Immediate emission
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Scene storing via very long key press** parameter has the following value: Used.

Learning and memorisation of scenes

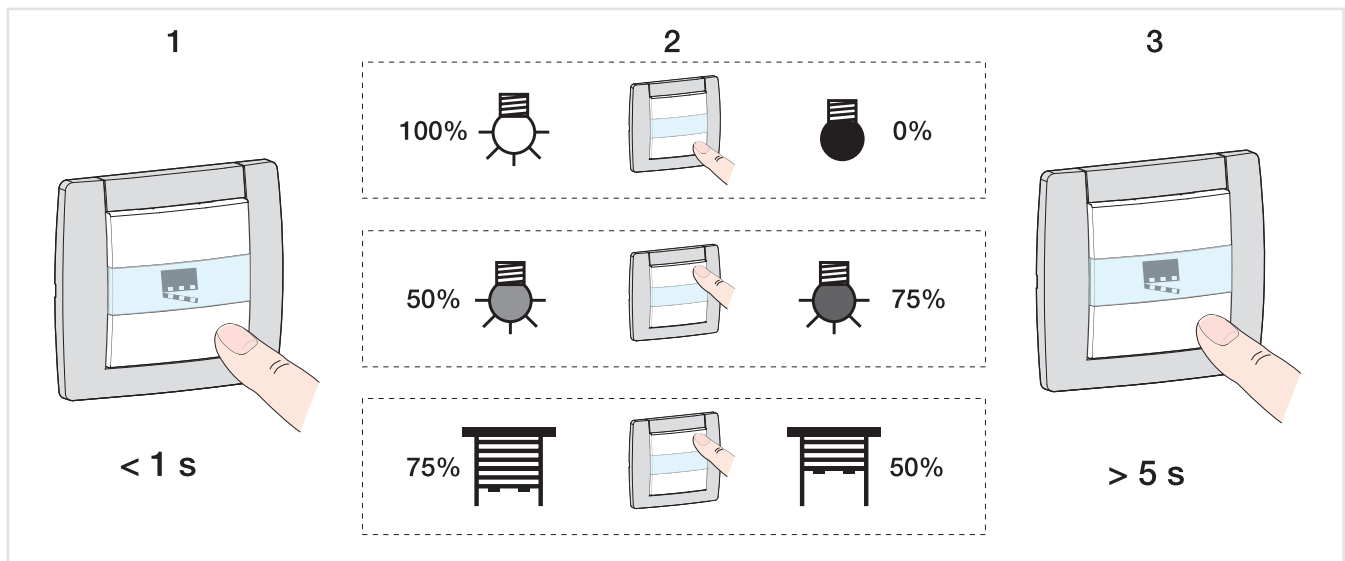
This procedure enables a scene to be modified and saved. For example, by locally pressing the key in the room or by emission of the values from a visualization.

To access and store scenes, the following values must be sent:

Scene number	Scene launch (Object value: 1 byte)	Store scene (Object value: 1 byte)
1- 64	= Scene number - 1	= Scene number + 128
Example		
1	0	128
2	1	129
3	2	130
...	...	
64	63	191

Here is the scene memorisation for local switches, for example.

- Activate the scene with a short key-press on the transmitter that launches the scene.
- The outputs (lights, shutters, etc.) are set in the desired state using the usual local control devices (buttons, remote control, etc.).
- Memorise the status of the inputs with a long key-press greater than 5s on the transmitter that launches the scene. The memorisation is indicated by the momentary activation of the outputs.



Scene activation by automatic controls:

→ Parameter Setting screen

General	Channel function	Scene
Input 1	Scene activation through	<input type="radio"/> Push button <input checked="" type="radio"/> Automatic controls
Input 2	Scene at contact closing	Scene 1
Input 3	Scene at contact opening	Not used
Input 4	Emission time delay	Immediate emission
Information	Emission after initialization, at bus return or after download	<input checked="" type="radio"/> Not used <input type="radio"/> Used
	Periodical emission	<input type="radio"/> Not used <input checked="" type="radio"/> Used
	Periodical emission delay	30 min
	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 15

→ Parameter

Parameter	Description	Value
Channel function		Scene
Scene activation through	This parameter defines the type of product or automation connected to the input to activate a scene.	Automatic controls
Scene at contact closing	This parameter defines the number of the scene which will be transmitted when the input contact is closed.	Scene 1 to Scene 32 Default value: Scene 1
Scene at contact opening	This parameter defines the number of the scene which will be transmitted when the input contact is opened.	Scene 1 to Scene 32 Default value: Not used
Emission time delay	This parameter is used to send commands with a configurable delay in relation to input contact closure.	Immediate emission, 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, 40 s, 50 s, 1 min, 1 min 30 s, 2 min, 2 min 30 s, 3 min, 3 min 30 s, 4 min, 4 min 30 s, 5 min Default value: Immediate emission
Emission after initialization, at bus return or after download.	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Not used, Used Default value: Not used
Periodical emission	This parameter defines the condition activating cyclic transmission Scene.	Not used, Used Default value: Not used
Periodical emission delay *	This parameter defines the cyclic transmission period.	Duration: 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 20 s, 30 s, 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h. Default value: 30 min

Parameter	Description	Value
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Emission periodicity** parameter has the following value: Used.

2.2.9 Timer

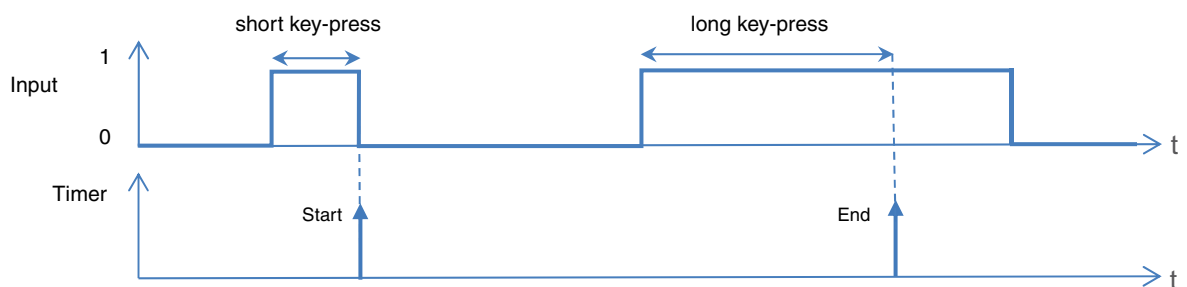
This function operates like a staircase light function. The timer duration is set on the output module (**Timer** parameters **Timer** object).

Feature:

short key-press (Rising edge): Timer start.

long key-press (Falling edge): Timer end.

Operating principle:



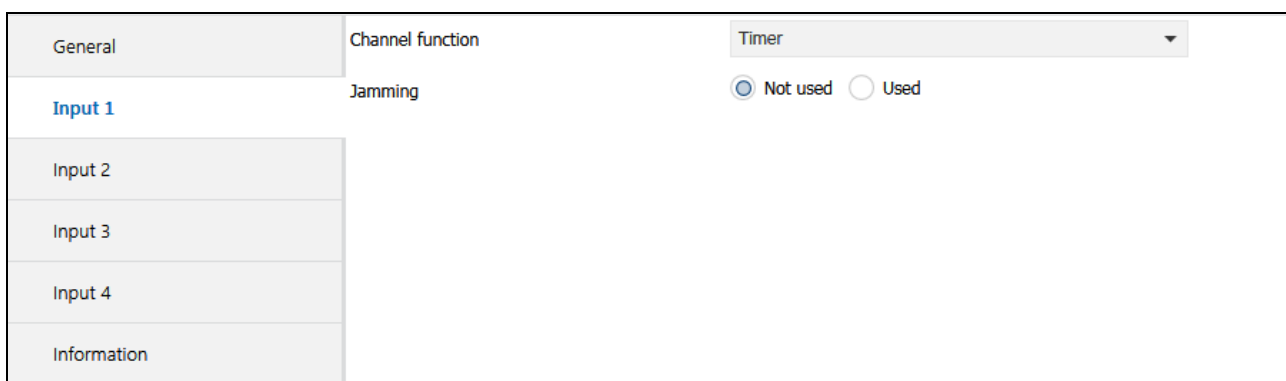
The time is retrigged in the output by a recurrent short key press.

Feature of TXA products:

If additional ON commands are sent to the **Timer** object within the first 10 s, the output's ON-switching time is then calculated as follows.

ON-switching time = (1 + Number of additional operations) * Set time.

→ Parameter Setting screen



Screen 16

2.2.10 Priority

This function sends priority-start or priority-stop commands.

No other command is taken into account if a priority is active. Only end of priority or alarm commands will be taken into consideration.

→ Parameter Setting screen

General	Channel function	Priority
Input 1	Priority type	<input checked="" type="radio"/> Priority ON / Down / Comfort <input type="radio"/> Priority OFF / Up / Frost protection
Input 2	Active edge	<input checked="" type="radio"/> Rising edge <input type="radio"/> Falling edge
Input 3	Emission after initialization, at bus return or after download	<input type="radio"/> Not used <input checked="" type="radio"/> Used
Input 4	Periodical emission	<input type="radio"/> Not used <input checked="" type="radio"/> Used
Information	Periodical emission delay	30 min
	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 17

→ Parameter

Parameter	Description	Value
Channel function		Priority
Priority type	This parameter selects a Priority type. It depends on the type of application (Lighting, Shutter, Blind, Heating).	ON / Down / Comfort OFF / Up / Frost protection Default value: ON / Down / Comfort
Active edge	This parameter defines on which edge the commands are sent on the bus.	Rising edge, Falling edge, Default value: Rising edge
Emission after initialization, at bus return or after download.	This parameter defines if the input status is transmitted on the bus when the product is initialised or on bus return.	Not used, Used Default value: Not used
Periodical emission	This parameter defines the condition activating cyclic transmission priority.	Not used, Used Default value: Not used
Periodical emission delay *	This parameter defines the cyclic transmission period.	Duration: 1 s, 2 s, 3 s, 4 s, 5 s, 10 s, 20 s, 30 s, 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h. Default value: 30 min
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

* This parameter is only visible if the **Emission periodicity** parameter has a value other than: Not used.

2.2.11 2-channel mode ON / OFF

This function is used to control two independent circuits with different functions using the same input. This function transmits the **ON / OFF Channel A** and **ON / OFF Channel B** objects. **Channel A** requiring a short key press and **Channel B** requiring a long key press.

The long key press duration is set in the **Duration of long key-press-channel mode** parameter.

→ Parameter Setting screen

General	Channel function	2-channel mode ON / OFF
Input 1	Channel A function (short key-press)	ON
Input 2	Channel B function (long key-press)	Toggle switch
Input 3	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used
Input 4		
Information		

Screen 18

→ Parameter

Parameter	Description	Value
Channel function		2-channel mode ON / OFF
Channel A function (short key-press)	This parameter defines the command sent by a short key-press.	Not used, ON, OFF, Toggle switch Default value: ON
Channel B function (long key-press)	This parameter defines the command sent by a long key-press.	ON, OFF, Toggle switch Default value: Toggle switch
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

2.2.12 2-channel mode value

This function is used to send 2 different values using a single button.

This function transmits the **Value type channel A** and **Value type channel B** objects. **Channel A** requiring a short key press and **Channel B** requiring a long key press.

The long key press duration is set in the **Duration of long key-press-channel mode** parameter.

5 value types are available:

Value	Range	Interval	Default value
Value in %	0% ... 100%	1%	0%
Temperature	0°C ... 40°C	0.5°C	20°C
Luminosity level	0 Lux ... 1000 Lux	50 Lux	300 Lux
Brightness value	0% ... 100%	1%	0%
Value	0 ... 65535	1	1

→ Parameter Setting screen

General	Channel function	2-channel mode value
Input 1	Value type channel A (short key press)	Value in %
Input 2	Value	0%
Input 3	Value type channel B (long key press)	Value in %
Input 4	Value	0%
Information	Jamming	<input checked="" type="radio"/> Not used <input type="radio"/> Used

Screen 19

→ Parameter

Parameter	Description	Value
Channel function		2-channel mode value
Value type channel A (short key-press)	This parameter defines the value type and the unit that are sent to the bus for Channel A.	Not used, Value in %, Temperature, Luminosity level, Brightness value, Value Default value: Value in %
Value	This parameter defines the value to be sent to the bus.	-Value in %, 0% to 100% in 1% steps Default value: 0% -Temperature, 0°C to 40°C in 0.5°C steps Default value: 20°C - Luminosity level, 0 Lux to 1000 Lux in 50 Lux steps Default value: 300 Lux -Brightness value, 0% to 100% in 1% steps Default value: 0% -Value, 0 to 65535 in 1 steps Default value: 1

Parameter	Description	Value
Value type channel B (long key-press)	This parameter defines the value type and the unit that are sent to the bus for Channel B.	Value in %, Temperature, Luminosity level, Brightness value, Value, Default value: Value in %
Value	This parameter defines the value to be sent to the bus.	-Value in %, 0% to 100% in 1% steps Default value: 0% -Temperature, 0°C to 40°C in 0.5°C steps Default value: 20°C - Luminosity level, 0 Lux to 1000 Lux in 50 Lux steps Default value: 300 Lux -Brightness value, 0% to 100% in 1% steps Default value: 0% -Value, 0 to 65535 in 1 steps Default value: 1
Jamming	This parameter is used to prevent the input from being used. Jamming forbids sending commands.	Not used, Used Default value: Not used

2.3 Objects List

2.3.1 Continuous communication objects

	Number	Name	Function of the object	Length	C	R	W	T
	26	Jamming	Jamming	1 bit	C	R	W	-
	27	Maintenance	Maintenance	2 bytes	C	R	-	T
	28	Input 1	LED	1 bit	C	R	W	-
	33	Input 2	LED	1 bit	C	R	W	-
	38	Input 3	LED	1 bit	C	R	W	-
	43	Input 4	LED	1 bit	C	R	W	-

Note: The **Maintenance** object is used to send the switch position to the bus:

- Value 2: Auto position
- Value 3: Manual position

2.3.2 Communication objects by input


Channel function		Number	Name	Function of the object	Length	C	R	W	T
Toggle switch		0	Input 1	Status indication	1 bit	C	R	W	-
		1	Input 1	ON / OFF	1 bit	C	R	-	T
ON / OFF		1	Input 1	ON / OFF	1 bit	C	R	-	T
Timer		0	Input 1	Status indication	1 bit	C	R	W	-
		1	Input 1	Timer	1 bit	C	R	-	T
Shutters / blinds		0	Input 1	Status indication	1 bit	C	R	W	-
		1	Input 1	Slat angle / Stop	1 bit	C	R	-	T
		2	Input 1	Up / Down	1 bit	C	R	-	T
Dimming		0	Input 1	Status indication ON / OFF	1 bit	C	R	W	-
		1	Input 1	ON / OFF	1 bit	C	R	-	T
		4	Input 1	Dimming	4 bit	C	R	-	T
Heating		5	Input 1	Set point selection	1 byte	C	R	-	T
Priority		3	Input 1	Priority	2 bit	C	R	-	T
Scene		5	Input 1	Scene	1 byte	C	R	-	T
Alarm		1	Input 1	Alarm 1	1 bit	C	R	-	T
		1	Input 1	Alarm 2	1 bit	C	R	-	T
Value		29	Input 1	Value	1 byte	C	R	-	-
2-channel mode		0	Input 1	Status indication channel A	1 bit	C	R	W	-
ON / OFF		1	Input 1	ON / OFF Channel A	1 bit	C	R	-	T
		31	Input 1	Status indication channel B	1 bit	C	R	W	-
		32	Input 1	ON / OFF Channel B	1 bit	C	R	-	T
2-channel mode		29	Input 1	Channel function A	1 bit	C	R	-	T
Value		30	Input 1	Channel function B	1 bit	C	R	-	T

Note: For devices with additional inputs, the name of objects is the same. Only the object number differs.

3. Appendix

3.1 Specifications

3.1.1 TXA304

KNX power supply voltage	21  ... 32V SELV
Operating altitude	≤ 2000m
Degree of pollution	2
Surge voltage	4KV
Housing protection class	IP20
Housing protection class under the faceplate	IP30
Protection class against mechanical shocks	IK04
Overvoltage category	III
Signal voltage	230V [~] 50/60 Hz
Maximum connection distance per input	100 m
Low signal level	0 ... 100 V
High signal level	> 195V
Busline typ. Consumption	3 mA
Busline max consumption	4 mA
Dimensions	4 x 17,5 mm
Operating temperature	-5 ...+ 45°C
Storage temperature	- 20 ...+ 70°C
Connections	0.75 mm ² ...2.5 mm ²

3.1.2 TXA310

KNX power supply voltage	21 $\overline{=}$... 32V SELV
Operating altitude	\leq 2000m
Degree of pollution	2
Surge voltage	4KV
Housing protection class	IP20
Housing protection class under the faceplate	IP30
Protection class against mechanical shocks	IK04
Overvoltage category	III
Signal voltage	230V \sim 50/60 Hz
Maximum connection distance per input	100 m
Low signal level	0 ... 100 V
High signal level	> 195V
Busline typ. Consumption	9 mA
Busline max consumption	15 mA
Dimensions	6 x 17,5 mm
Operating temperature	-5 ...+ 45°C
Storage temperature	- 20 ...+ 70°C
Connections	0.75 mm ² ...2.5 mm ²

3.1.3 TXB302 - TXB304

KNX power supply voltage	30V $\overline{=}$ SELV
Operating altitude	\leq 2000m
Degree of pollution	2
Surge voltage	4KV
Housing protection class	IP30
Protection class against mechanical shocks	IK04
Overvoltage category	III
Contact current	0,5 mA
Dimensions	38 x 35 x 12 mm
Operating temperature	-5 ...+ 45°C
Storage temperature	- 20 ...+ 70°C

3.2 Main characteristics

Product	TXA304	TXA310	TXB302	TXB304
Max. number of group addresses	254	254	254	254
Max. number of links	255	255	255	255
Parameter	23 per input, plus 11 global parameters, so 103 in total	23 per input, plus 11 global parameters, so 241 in total	26 per input, 10 global, 114 in total	26 per input, 10 global, 166 in total
Objects	48	114	26	48

