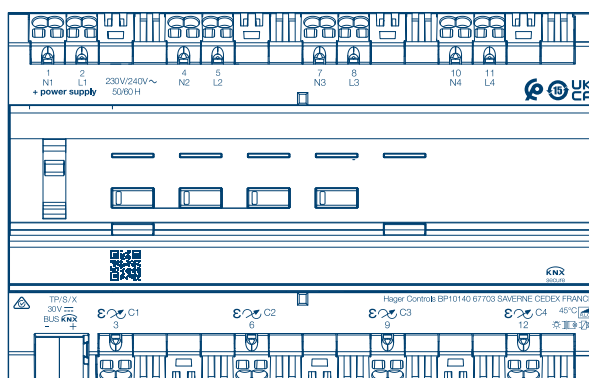



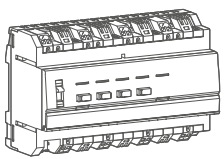


# KNX Building system technology Dimming actuator



Dimmer 4 channels 300W with parallelization,  
KNX Secure  
**TYAS664AN**



# Product overview

|   | Reference no. | Product designation                                     | Application software ref.   | TP device<br>Radio device   |  |
|---|---------------|---|---|---|---|
|  | TYAS664AN     | Dimmer 4 channels 300W with parallelization, KNX Secure |  |  |   |

Subject to technical changes!

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# 1. General

## 1.1 About this guide

The purpose of this manual is to describe the operation and configuration of the KNX-devices using the Easy tool program.

It consists of 3 parts:

- General information.
- The Easy tool configurations are available.
- Technical characteristics.

## 1.2 Easy tool software appearance

This product can also be configured using the configuration tool.

**Compatible software version: V 7.0.9 or higher**

Kompatible Server :

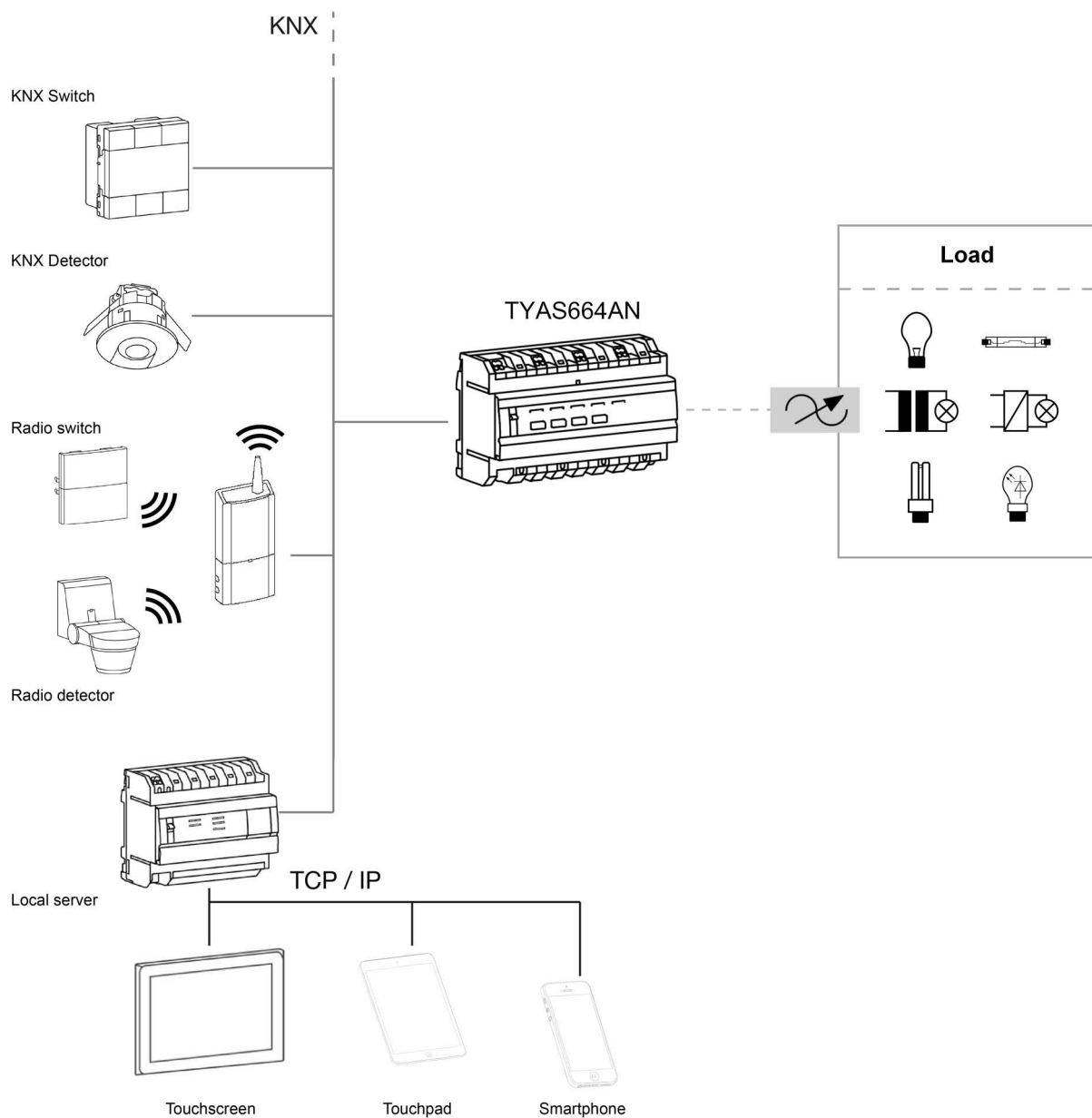
- TJA470: Domovea expert
- TJA670: Domovea basic
- TJA665: Konfigurationsserver KNX easy

It is essential to update the configuration server software version. (Please refer to the user manual).

## 2. General Description

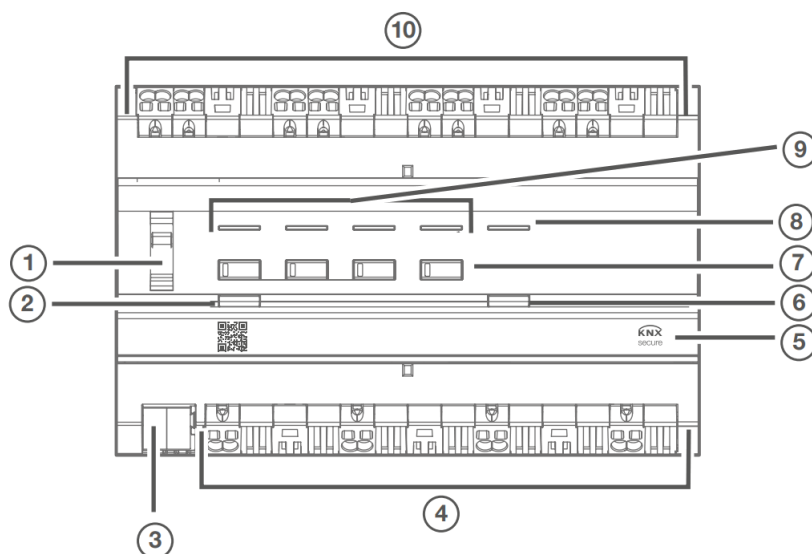
### 2.1 Installation of the device


#### 2.1.1 Overview presentation



## 2.1.2 Connection

### TYAS664AN



- (1) Slide switch **auto/min/max** 
- (2) Illuminated button for dimming mode
- (3) KNX bus connection terminal
- (4) Connections of loads
- (5) Labelling field with cover
- (6) Illuminated programming button
- (7) Operation button for manual operation with status LED
- (8) Control LED overheating protection
- (9) Control LED short circuit and overload protection per output
- (10) Mains supply

*Note: the min and max settings are used to set the lowest and highest lighting levels for the outputs. These settings are achieved by storing the current output values through a long press on the relevant buttons next to the output on the front of the device.*

### 2.1.3 Physical addressing

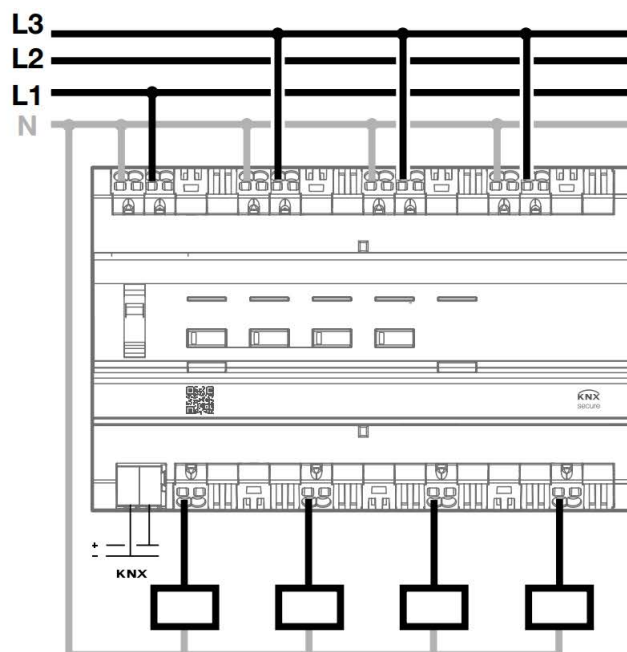
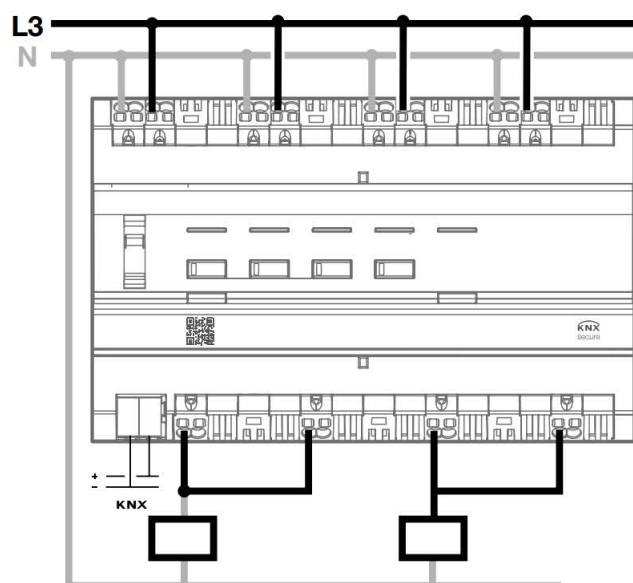
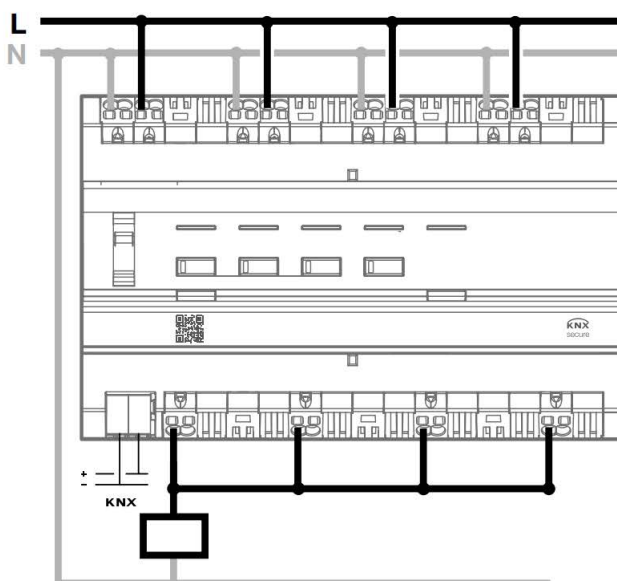
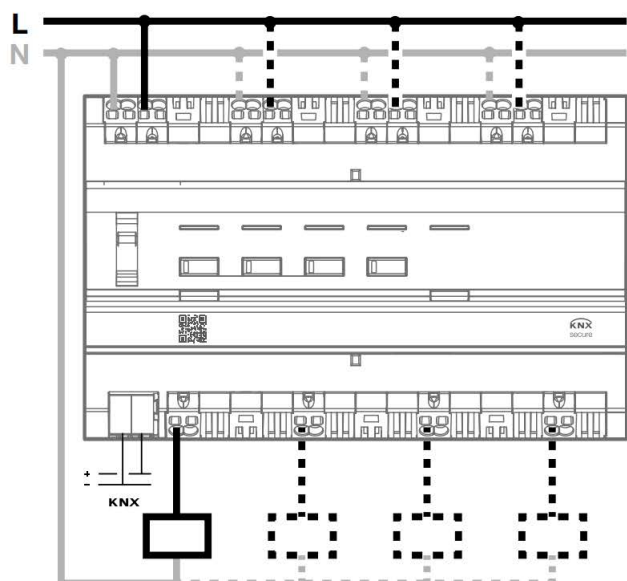
In order to perform the physical addressing or to check whether or not the bus is connected, press the lighted push button (see chapter 2.1.2 for the button location).

Light on = bus connected and ready for physical addressing.

Programming mode is activated, until the physical address is transferred from ETS. Pressing the button again, exits programming mode. Physical addressing can be carried out in automatic or manual mode.

## 2.1.4 Connection

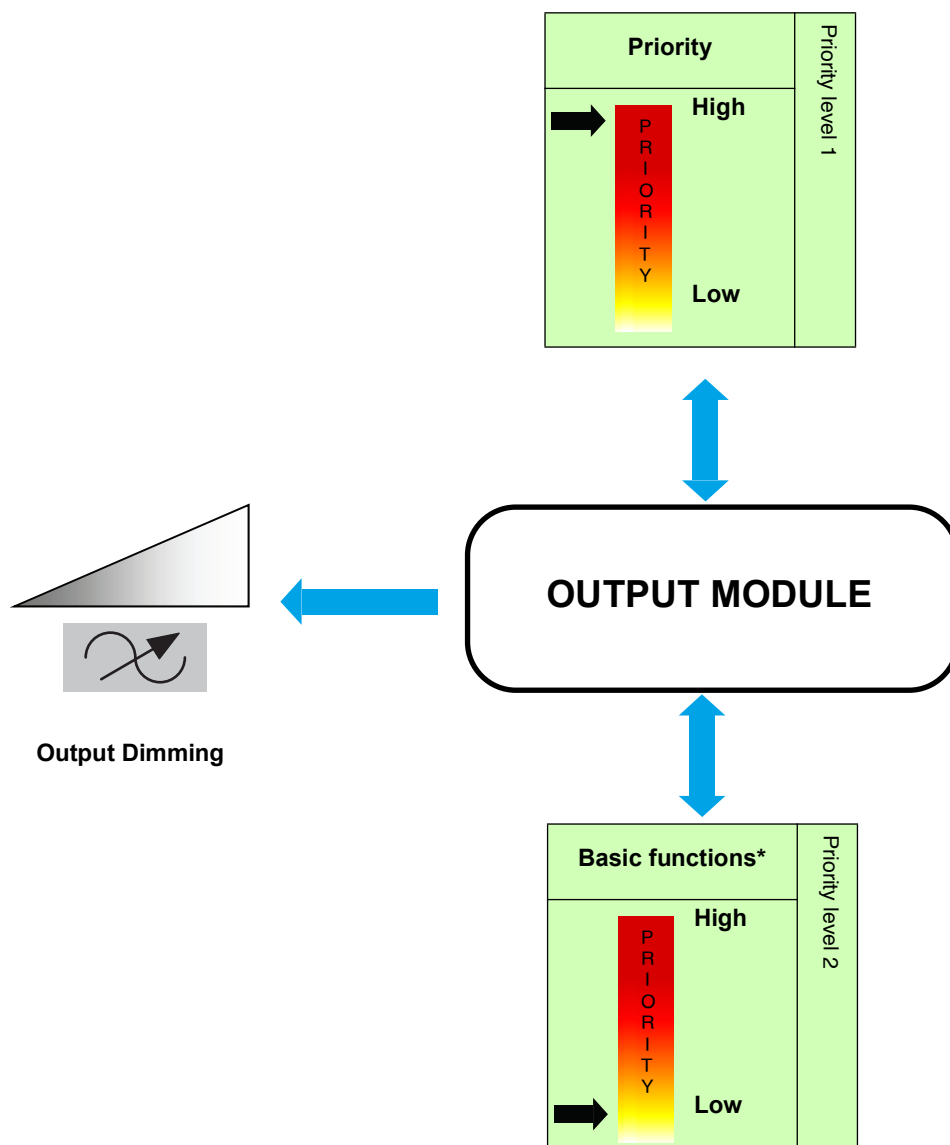
### - TYAS664AN



To ensure proper functioning of the device a load must be connected to output 1.

## 2.2 Function modules of the application

The product has several command modes, each with a different priority..



\* ON/OFF - Dimming - Timer - Scene: The last command received will have priority.

### 2.2.1 Primary functions

The applications allow individual configuration of the device outputs.

The most important functions are:

- **ON/OFF**

An output can be switched on or off using the ON/OFF function. The command can come from switches, buttons or other control inputs.



- Relative or absolute dimming (Brightness value)

With relative dimming, the brightness value is raised or lowered with respect to the current brightness value. This is achieved, for example, by a long press on a sensor button. With absolute dimming, the brightness value to be achieved is set on the dimmer as a % value.

- Timer

The Timer function can switch a lighting circuit on or off for a configurable period. The output can be switched to a desired brightness level for a specified period. The timer may be interrupted before expiry of the delay time. A programmable Cut-OFF pre-warning announces the end of the delay time by halving the present brightness value of the output.

- Priority

The Priority function is used to force the output into a defined state. The Priority function is controlled with a 2-bit command.

Priority: **Priority** > Basic function.

Only a Priority OFF command authorizes the output for control.

Application: Keeping lighting on for security reasons.

- Automatic control

The Automation functionality allows commanding an output at the same time as the ON/OFF functionality or lighting value. The two functions have the same level of priority. The last command received will act on the status of the output.

An additional command object is used to activate or deactivate the Automatic control.

- Scene

The Scene function is used to switch groups of outputs into a configurable predefined state.

A scene is activated by receipt of a 1-byte command.

Each output can be included in 64 different scenes.

- Output combination

Different combinations of channels can be used for more powerful load variations. The device automatically runs a wiring recognition test corresponding to one of the authorised combinations. After the ETS download, the device will automatically run a wiring recognition test to check the consistency between the actual cable and the parameters given in ETS.

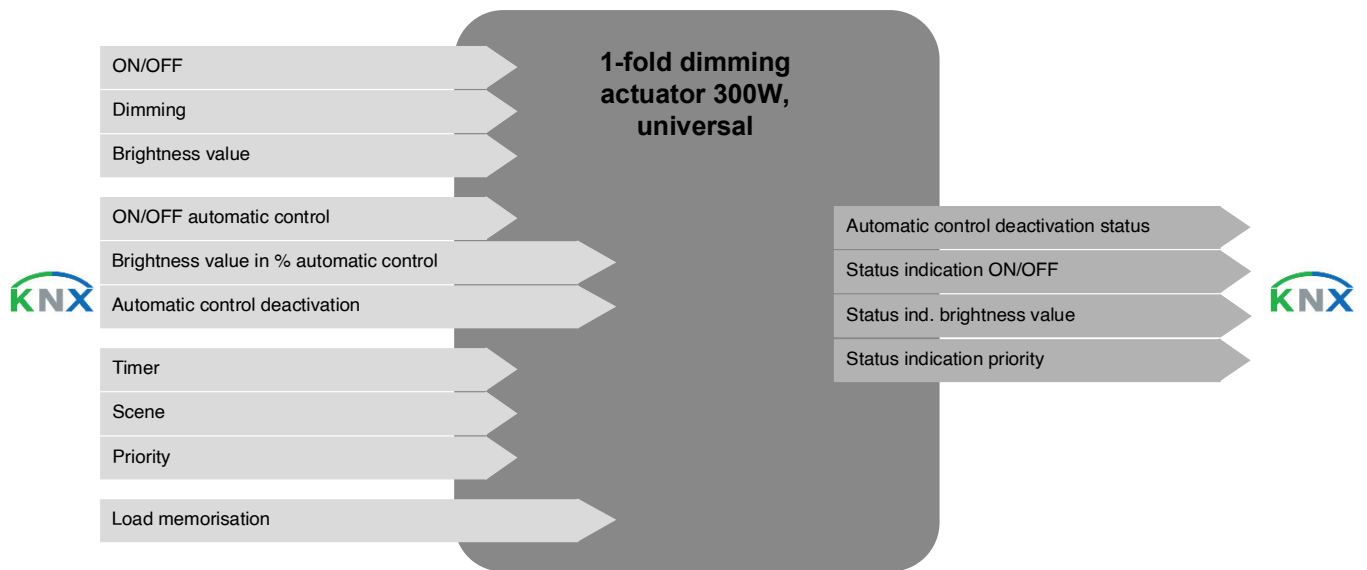
- Manual mode

Manual mode allows the device to be disconnected from the bus. In this mode, each output can be priority controlled locally.

- Status indication

The Status indication sends the switching status of the individual output contact on the KNX bus.

## Communication objects







## 3. Programming by Easy Tool

### 3.1 Product overview





#### ■ TYAS664AN: 4-fold dimming actuator 300W, universal

Product view:

| Product  |   | 4 Outputs |  |
|--|---|-----------|--|
| Name:  | TYAS664AN - 4-fold dimming actuator 300W, universal | 1         |  TYAS664AN - 1 - 1<br>House - Dimming |
| Use:   | Dimming   | 2         |  TYAS664AN - 1 - 2<br>House - Dimming |
| Place:   | House   | 3         |  TYAS664AN - 1 - 3<br>House - Dimming |
| Electrical tracking:   | TYAS664AN - 1                                       | 4         |  TYAS664AN - 1 - 4<br>House - Dimming |
| ⓘ Product : <b>TYAS664AN</b> 4-fold dimming actuator 300W, universal |   |           |  |

View of channels:

0 Input

| 4-fold output   |  |
|---|--|
|    | TYAS664AN - 1 - 1<br>Housing - Dimming |
|  | TYAS664AN - 1 - 2<br>Housing - Dimming |
|  | TYAS664AN - 1 - 3<br>Housing - Dimming |
|  | TYAS664AN - 1 - 4<br>Housing - Dimming |

## Product settings

This configuration window is used for general configuration of the device.

### TYAS664AN

| Parameters  |                       | ⌵ |
|---|-----------------------|---|
| Configuration Channel 1-2-3-4:                    | (1) - (2) - (3) - (4) | ⌵ |
| Check output combination after main power return: | Yes                   | ⌵ |

## Pathway parameters

This parameter window is used to set the device outputs. These parameters are available individually for each output.

| Settings                                  |        | ⌵ |
|---|--------|---|
| Timer duration:                           | 2 min  | ⌵ |
| Cut-OFF pre-warning:                      | 30 s   | ⌵ |
| Switch ON speed (s):                      | 0      |   |
| Switch OFF speed (s):                     | 0      |   |
| Last known brightness value at switch On: | Enable | ⌵ |

## 3.2 Output combination

Different combinations of channels can be used for more powerful load variations.

Parameters

Configuration Channel 1-2-3-4: (1) - (2) - (3) - (4)

Check output combination after main power return: Yes

The table below sets out the different combinations:

| Combination           | TYAS664AN           |
|-----------------------|---------------------|
| (1) - (2) - (3) - (4) | 4 x 300W            |
| (1+2) - (3) - (4)     | 1 x 600W + 2 x 300W |
| (1) - (2) - (3+4)     | 2 x 300W + 1 x 600W |
| (1+2+3) - (4)         | 1 x 900W + 1 x 300W |
| (1+2+3+4)             | 1 x 1200W           |
| (1+2) - (3+4)         | 2 x 600W            |

| Parameter          | Description   | Value  |
|--------------------|---|--|
| Output combination | This parameter defines the combination of outputs applied after the ETS parameters are downloaded. This value is stored in the product. | <b>(1)-(2)-(3)-(4)*</b><br>(1+2)-(3)-(4)<br>(1)-(2)-(3+4)<br>(1+2+3)-(4)<br>(1+2+3+4)<br>(1+2)-(3+4) |





























When the output combinations are modified, the previously set group addresses will be deleted.

| Parameter  | Description  | Value   |
|--|--|---|
| Check output combination after main power return | The output combination test following main power return is not activated.<br>The output combination test following main power return is activated until a correct combination is detected. | <b>Not active*</b><br>Active until correct combination detected |

The device automatically runs a wiring recognition test corresponding to one of the authorised combinations. When the device is found, the output combination set in the configuration tool will be different from the combination detected by the device (except for combination 1+2+3+4). In this case, the device will not report a fault.

\* Default value

## Available functionalities

| Beleuchtung   |                              | Dimmen  |  |
|---|------------------------------|---|--|
|    | ON                           |    | Increase dimming/ON                            |
|    | OFF                          |    | Decrease dimming/OFF                           |
|    | ON/OFF                       |    | Increase/decrease dimming                      |
|    | Toggle switch                |    | Dimming  |
|    | Timer                        |    | Dimming switch                                 |
|    | Priority ON                  |    | Dimming automatic control PB                   |
|   | Priority OFF                 |   | Dimmer switch automatic control                |
|  | Priority ON push-button (1)  |  | Scene  |
|  | Priority OFF push-button (1) |  | Scene switch                                   |
|  | Automatic control ON         |  | Automatic control deactivation                 |
|  | Automatic control OFF        |  | Deactivation Automatic control push-button (1) |
|  | ON/OFF automatic control     |   |  |
|  | ON general                   |   |  |
|  | OFF general                  |   |  |
|  | ON/OFF general               |   |  |
|  | Scene                        |   |  |
|  | Scene switch                 |   |  |

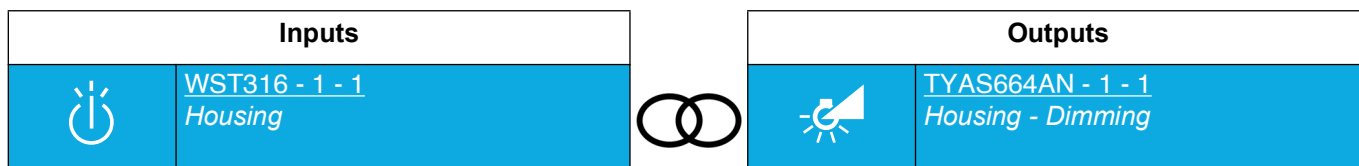
(1) These functionalities are only available with products with push-button input that have status indication LEDs.

## 3.3 Product functionalities

### 3.3.1 ON/OFF

An output can be switched on or off using the ON/OFF function. The command can come from switches, buttons or other control inputs.

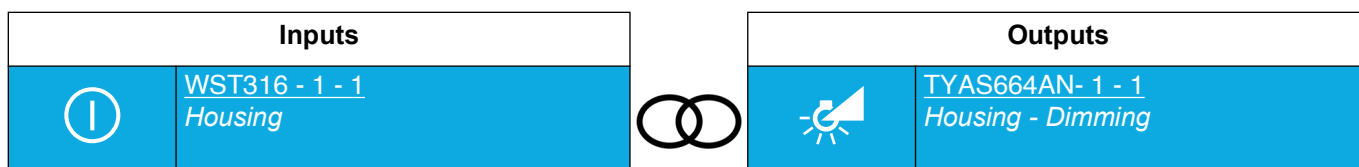
- **ON:** turns on the lighting circuit.



Closing input contact: turns on the light at the last saved level

Opening input contact: no action

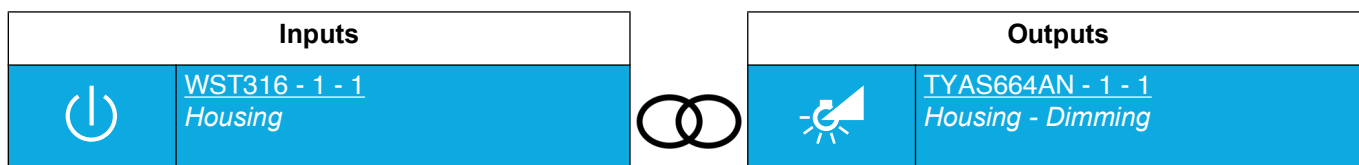
- **OFF:** turns off the lighting circuit.



Closing input contact: turns off the light

Opening input contact: no action

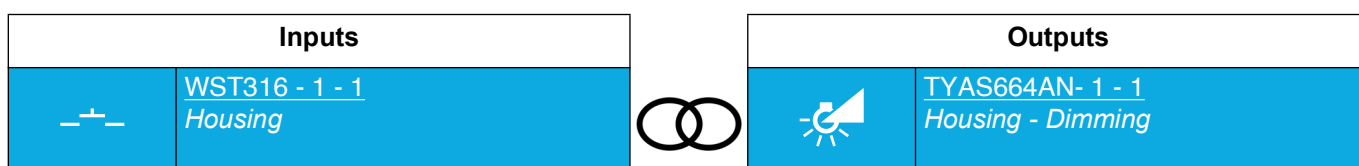
- **ON/OFF:** turns on or shuts off the lighting circuit (switch).



Closing input contact: turns on the light at the last saved level

Opening input contact: Turns off the light

- **Toggle switch:** inverses the lighting circuit status.



Closing input contact: toggles between turning on at the last saved level and turning off the light

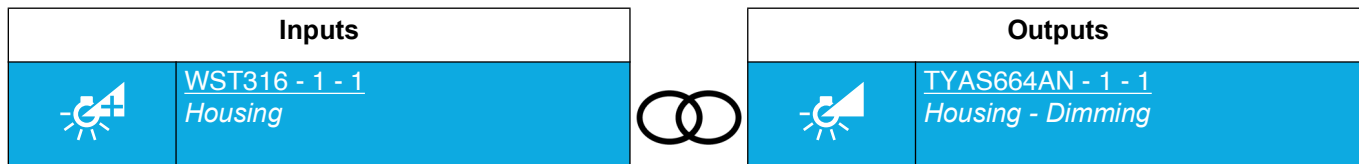
Successive closings inverse output contact status each time.



## 3.3.2 Relative or absolute dimming (Brightness value)

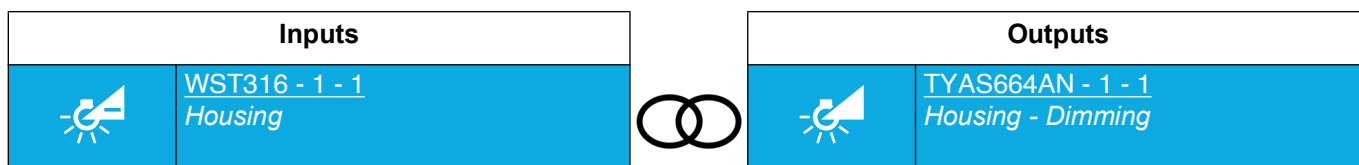
With relative dimming, the brightness value is raised or lowered with respect to the current brightness value. This is achieved, for example, by a long press on a sensor button. With absolute dimming, the brightness value to be achieved is set on the dimmer as a % value.

- **Increase dimming/ON:** increases the output level.



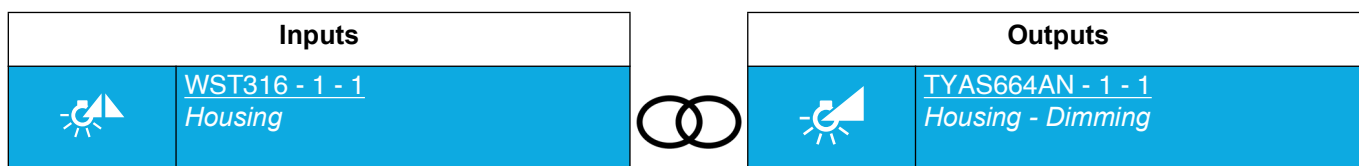
Brief closing of the input contact: turns on the light at the last saved level  
Prolonged closing of the input contact: increase in the brightness level

- **Decrease dimming/OFF:** decreases the output level



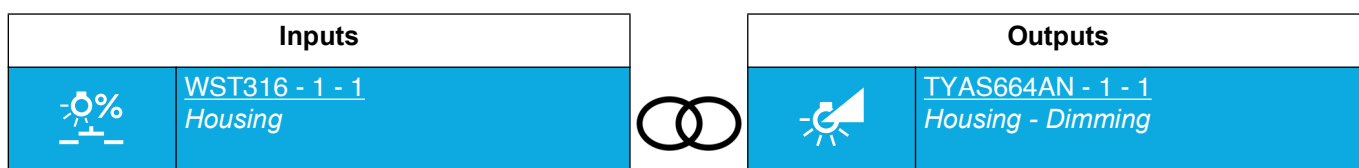
Brief closing of the input contact: turns off the light  
Prolonged closing of the input contact: decrease in the brightness level

- **Increase/decrease dimming:** varies the light with a single push-button



Brief closing of the input contact: turns on the light at the last saved level or turns off the light  
Prolonged closing of the input contact: increase or decrease in the lighting level

- **Dimming:** varies the light with a defined brightness value.



Closing input contact: turns on the light at the defined brightness value  
Opening input contact: no action

*Note: at the time the connection is made, the brightness value must be defined for the contact closure input.*

Select function

Outputs selected : 1

WST314 - 1 - 1

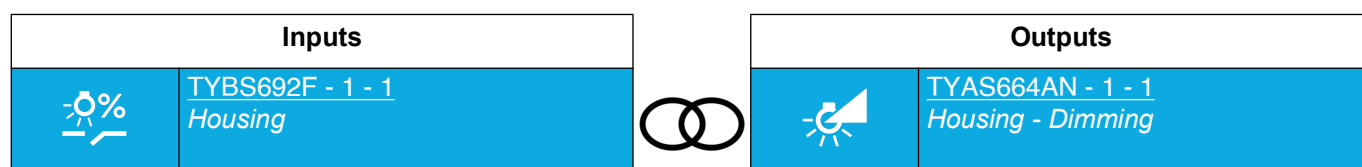
Dimming

Brightness value: 100

Link

Cancel

- **Dimming switch:** varies the light with two brightness values defined according to the opening and closing of the input contact.



Closing input contact: turns on the light at the 1 brightness value

Opening input contact: turns on the light at the 2 brightness value

*Note: at the time the connection is made, the brightness values must be defined for the contact closure input.*

Select function

Outputs selected : 1

TYBS692F - 1 - 1

Dim switch

Brightness value 1: 100

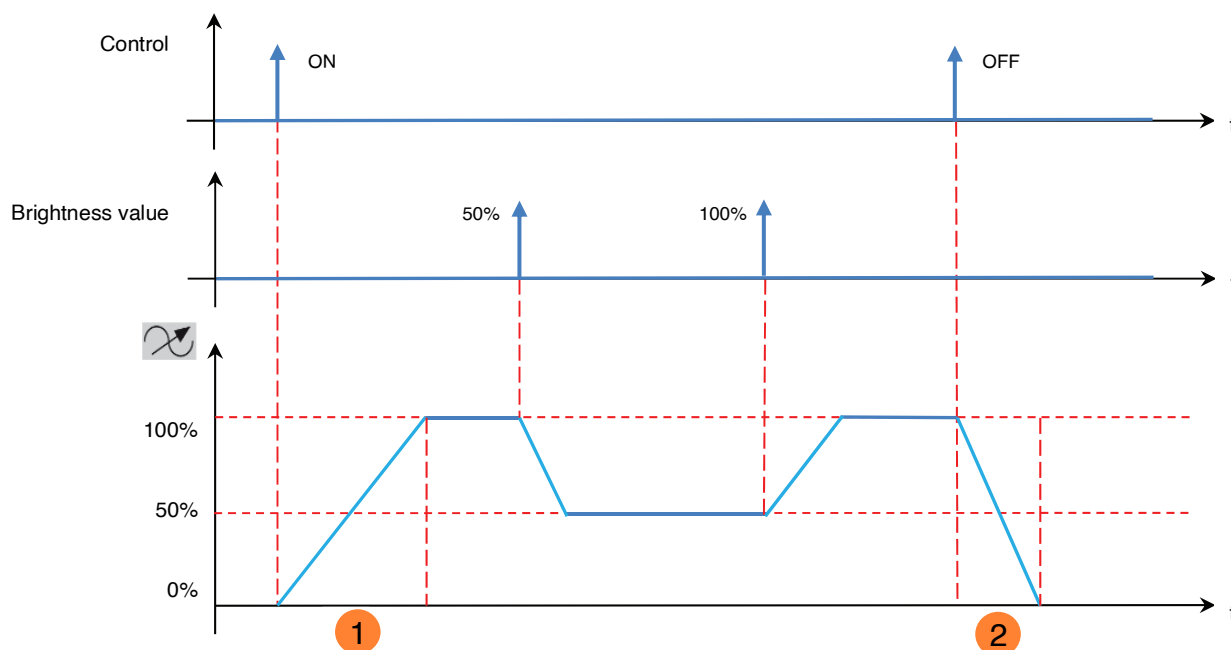
Brightness value 2: 0

Link

Cancel

## 3.3.3 Switch ON speed (soft ON) - Switch OFF speed (soft OFF)

|   |                                     |
|---|-------------------------------------|
| Switch ON speed (s):                      | <input type="text" value="0"/>      |
| Switch OFF speed (s):                     | <input type="text" value="0"/>      |
| Last known brightness value at switch On: | <input type="text" value="Enable"/> |



- ❶ Switch ON speed (soft ON)
- ❷ Switch OFF speed (soft OFF)

| Parameter                 | Description   | Value      |
|---------------------------|---|------------|
| Switch ON speed (soft ON) | This parameter defines the switch ON speed for attaining the brightness value after input of an ON command. | 0*...6553s |

| Parameter                   | Description  | Value      |
|-----------------------------|--|------------|
| Switch OFF speed (soft OFF) | This parameter defines the switch OFF speed for attaining brightness value 0% after input of an OFF command. | 0*...6553s |

| Parameter                                | Description  | Value                        |
|--|--|------------------------------|
| Last known brightness value at switch On | On receipt of an ON command on the <b>ON/OFF</b> communication object, the output is set to the following value:<br>100%<br>To the last brightness value | Not active<br><b>Active*</b> |

\* Default value

## 3.3.4 Timer

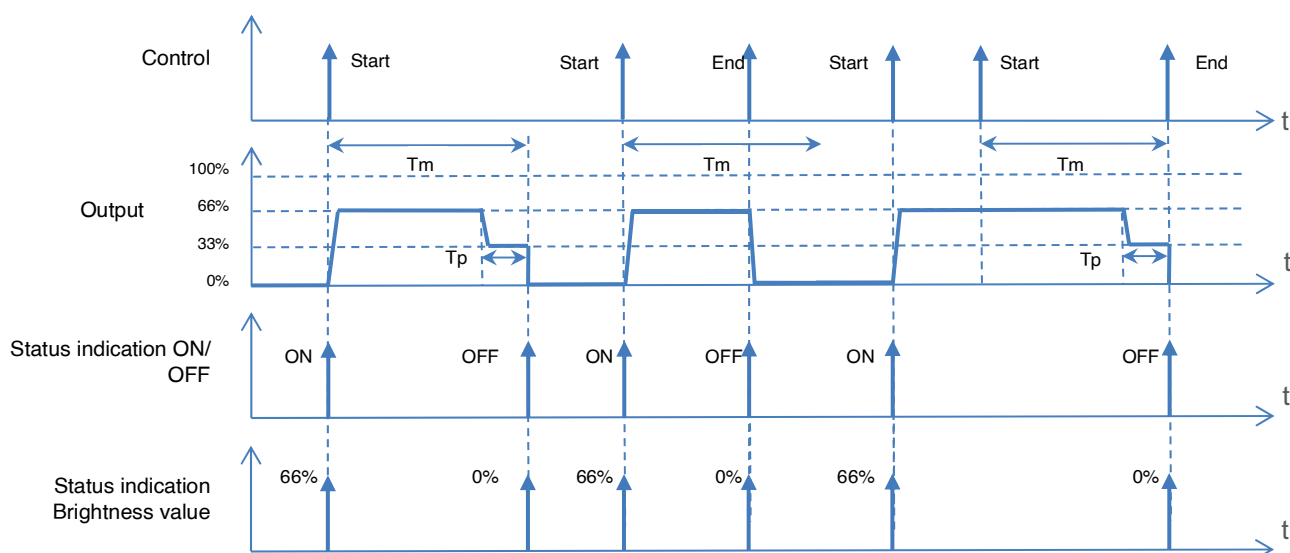
The Timer function is used to switch on a lighting circuit for a programmable period. The timer may be interrupted before expiry of the delay time. A programmable Cut-OFF pre-warning announces the end of the delay time by halving the present brightness value of the output.

|                      |       |   |
|----------------------|-------|---|
| Timer duration:      | 2 min | ▼ |
| Cut-OFF pre-warning: | 30 s  | ▼ |

| Parameter      | Description                                   | Value   |
|----------------|---|---|
| Timer duration | This parameter determines the timer duration. | Not active, 1 s, 2 s, 3 s, 5 s, 10 s, 15 s, 20 s, 30 s, 45 s, 1 min, 1 min 15 s, 1 min 30 s, <b>2 min*</b> , 2 min 30 s, 3 min, 5 min, 15 min, 20 min, 30 min, 1 h, 2 h, 3 h, 5 h, 12 h, 24 h |

| Parameter           | Description   | Value                                  |
|---------------------|---|--|
| Cut-OFF pre-warning | This parameter determines the lead time of the cut-OFF pre-warning. | Not active, 15 s, <b>30 s*</b> , 1 min |

### Operating principle:



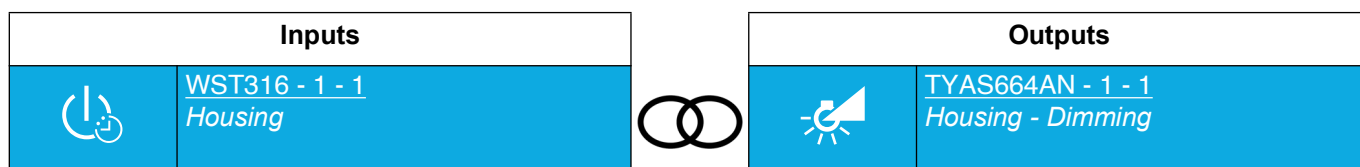
Tm: Timer duration  
Tp: Pre-warning lead time

*Note: if the lead time of the cut-off pre-warning is greater than the duration of the timer, the cut-off pre-warning is not triggered.*

\* Default value

- The connection:

The Timer function is used to switch on a lighting circuit for a programmable period.



Brief closing of the input contact: timing function light switched on at the last saved level


Timing function interruption:


Prolonged closing of the input contact: stop of timing delay in progress and light is turned off

*Note: at the time of connection, it is possible to define the timer duration.*

Select function


×

Outputs selected : 1 

WST314 - 1 - 1 

Timer

▼

1 

Timer duration:

2 min

▼

Link

Cancel

## 3.3.5 Priority

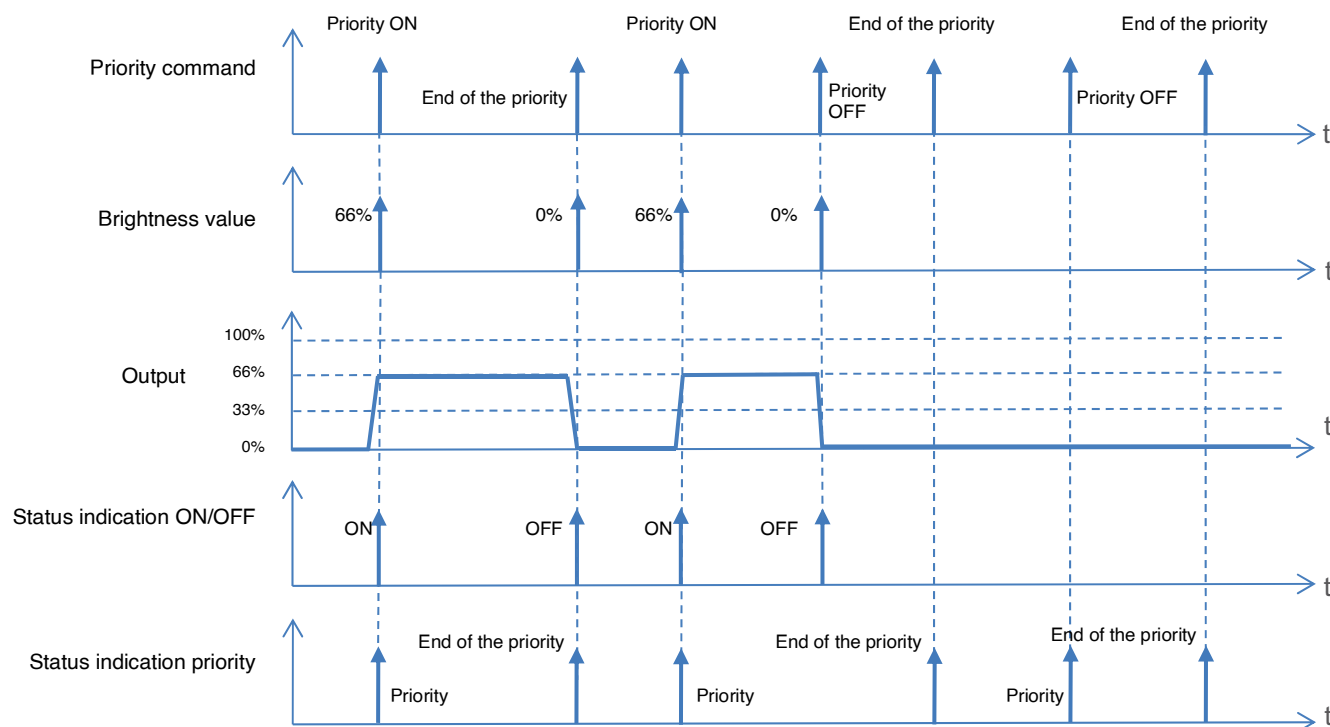
The Priority function is used to force the output into a defined state.

Priority: **Priority** > Basic function.

Only a Priority OFF command authorizes the output for control.

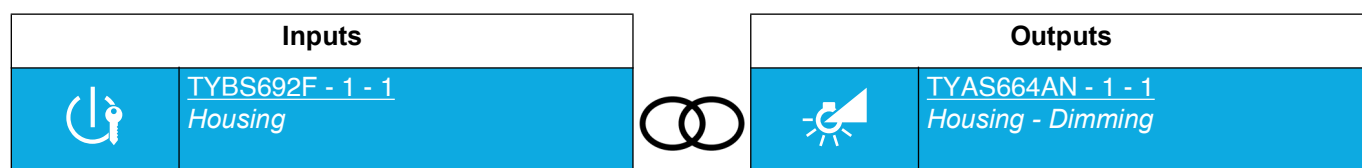
At the end of the priority, the output returns to the status it had before the priority (Memorisation function).

### Operating principle:



*Note: the brightness value for the on priority corresponds to the last saved level.*

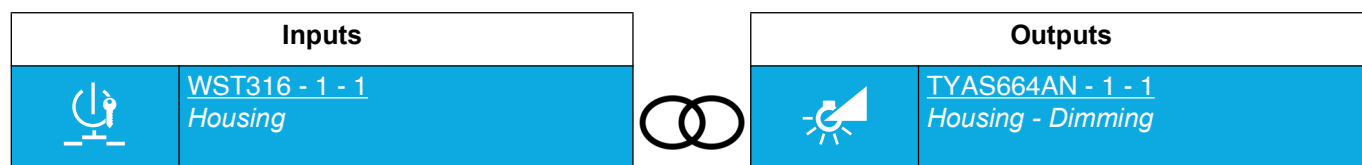
- Links
  - Priority ON:** allows forcing and keeping the lighting circuit on.



Closing input contact: turns on the light at the last saved level

Opening input contact: end of the priority

- Priority ON push-button:** allows forcing and keeping the light circuit on using a push-button.

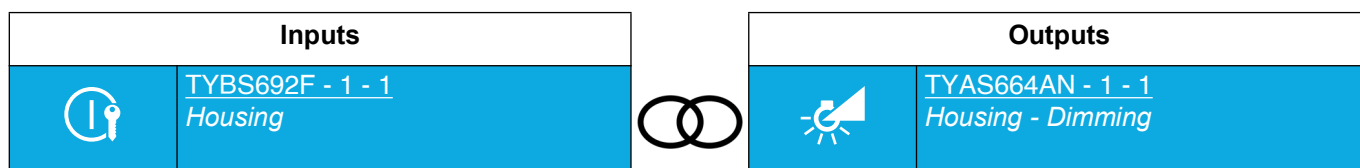


Closing input contact: turns on the light at the last saved level

Opening input contact: no action

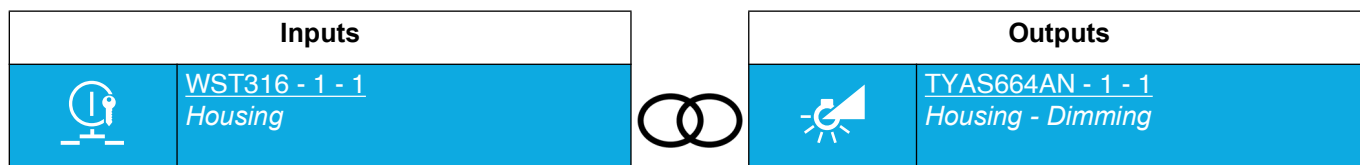
A second closure of the input contact triggers the end of priority.

- **Priority OFF:** allows forcing and keeping the lighting circuit off.



Closing input contact: turns off the light  
Opening input contact: end of the priority

- **Priority OFF push-button:** allows forcing and keeping the lighting circuit off using a push-button.



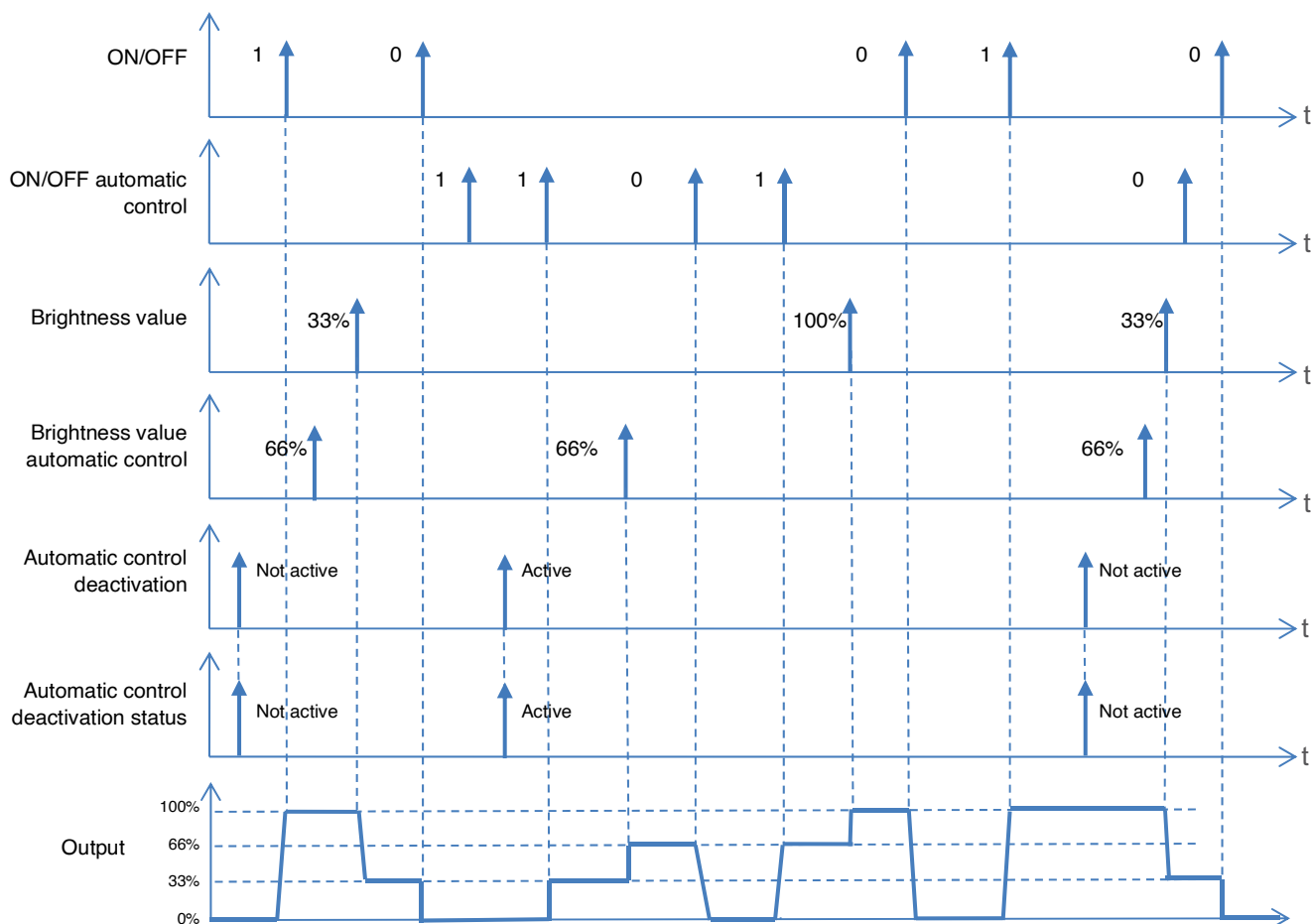
Closing input contact: turns off the light  
Opening input contact: no action  
A second closure of the input contact triggers the end of priority.

## 3.3.6 Automatic control

The Automatic control function is used to command an output in parallel to the ON/OFF function. The two functions have the same level of priority. The last command received will act on the status of the output. An additional command object is used to activate or deactivate the Automatic control.

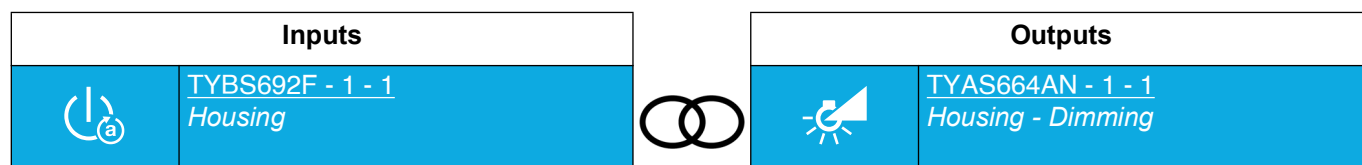
*Example: when an output is controlled by a button and in parallel by an automatic control (timer, twilight switch, weather station, etc.) the automatic control can be deactivated for reasons of comfort (vacations, public holidays, etc.).*

### Operating principle:



#### Links

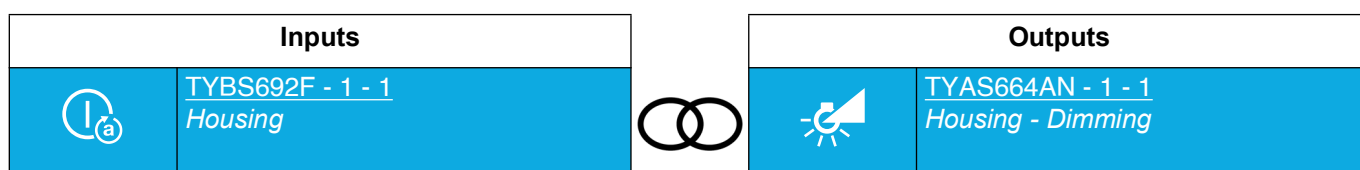
- **Automatic control ON:** allows turning on the light circuit using automatic control.



Closing input contact: turns on the light at the last saved level  
Opening input contact: no action

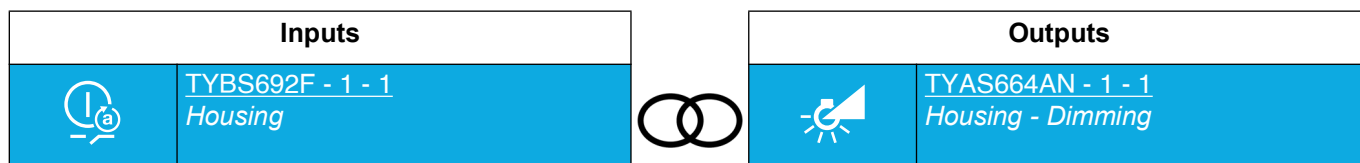


- **Automatic control OFF:** allows turning on the light circuit using automatic control.



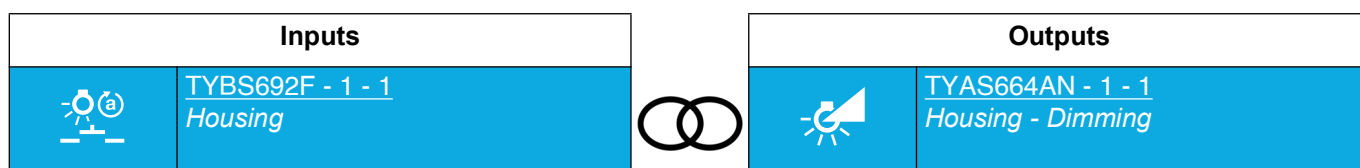
Closing input contact: turns off the light  
Opening input contact: no action

- **ON/OFF automatic control:** allows turning the lighting circuit on or off using automatic control (switch).



Closing input contact: turns on the light at the last saved level  
Opening input contact: turns off the light


- **Dimming automatic control PB:** allows varying the light with a defined brightness value using automatic control.




Closing input contact: turns on the light at the last saved level  
Opening input contact: turns off the light

*Note: at the time the connection is made, the brightness value must be defined for the contact closure input.*

**Select function** ✕


Outputs selected : 1 



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Dimming automatic control

Brightness value 1 : 100

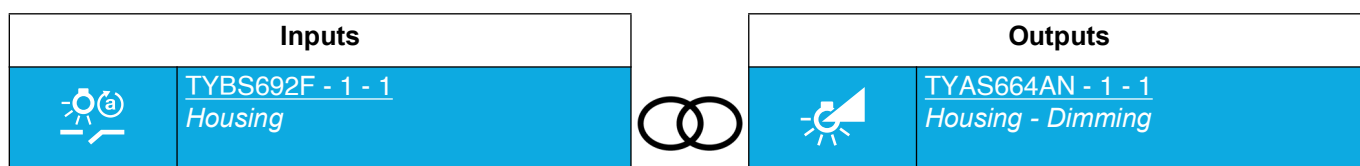


1

Link

Cancel

- **Dimmer switch automatic control:** allows varying the light with two defined brightness values according to the opening and closing input contact using automatic control.



Closing input contact: turns on the light at the 1 brightness value  
Opening input contact: turns on the light at the 2 brightness value

Note: at the time the connection is made, the brightness values must be defined for the contact closure input.

Select function

Outputs selected : 1

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Dimming automatic control switch

1

Brightness value 1 :

100

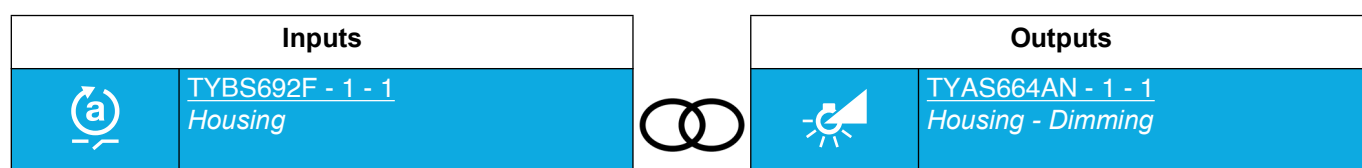
Brightness value 2 :

0

Link

Cancel

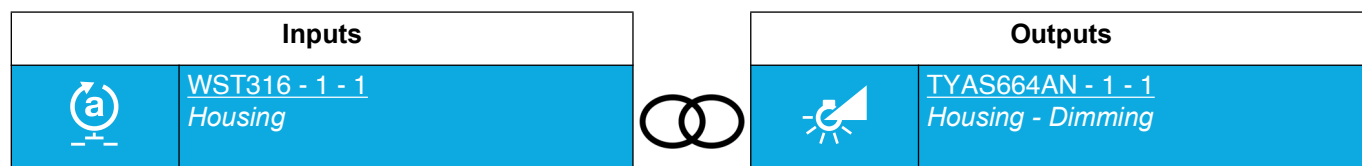
- **Automatic control deactivation:** deactivates automatic control.



Closing input contact: deactivated automatic control

Opening input contact: activated automatic control

- **Deactivation Automatic control push-button:** Deactivates Automatic control using a push-button.



Closing input contact: deactivated automatic control

Opening input contact: no action

A second closing input contact triggers activation of the automatic control.

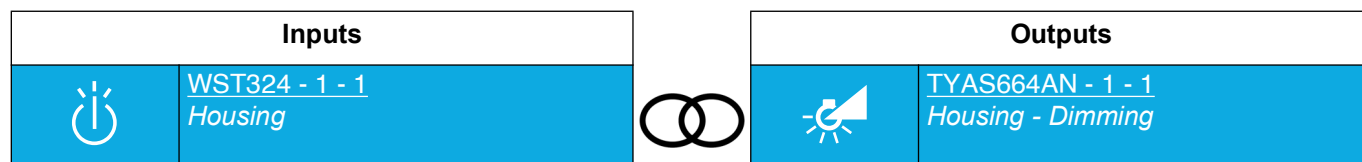
## 3.3.7 ON/OFF general

The general ON/OFF function switches the lighting circuit assembly on or off. Unlike the ON/OFF function, it does not transmit the state feedback of the lighting control.

It is generally used with LED push buttons to prevent a number of links becoming saturated. It is recommended that you use this function for a number of lighting circuits greater than 20.

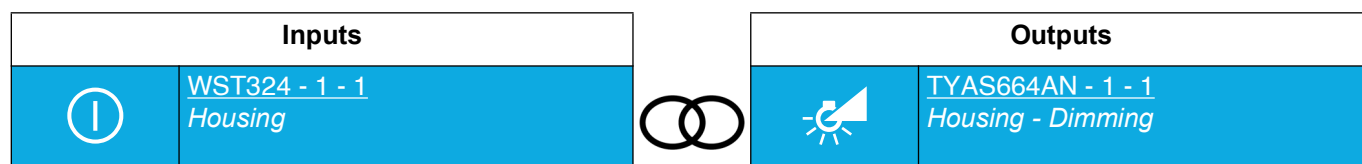
The command can come from switches, buttons or other control inputs.

- **ON general:** switches on a lighting circuit assembly.



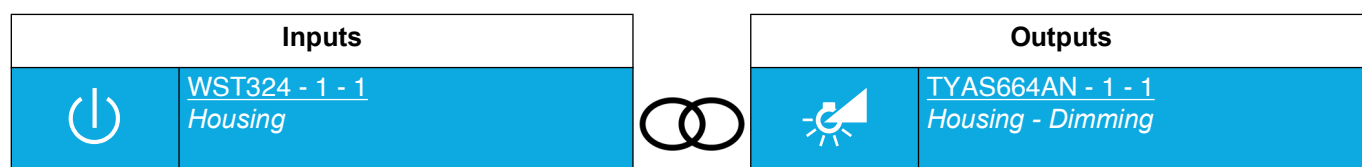
Closing input contact: turns on the light at the last saved level  
Opening input contact: no action

- **OFF general:** switches off a lighting circuit assembly.



Closing input contact: turns off the light  
Opening input contact: no action

- **ON/OFF general:** switches a lighting circuit assembly on or off (switch).

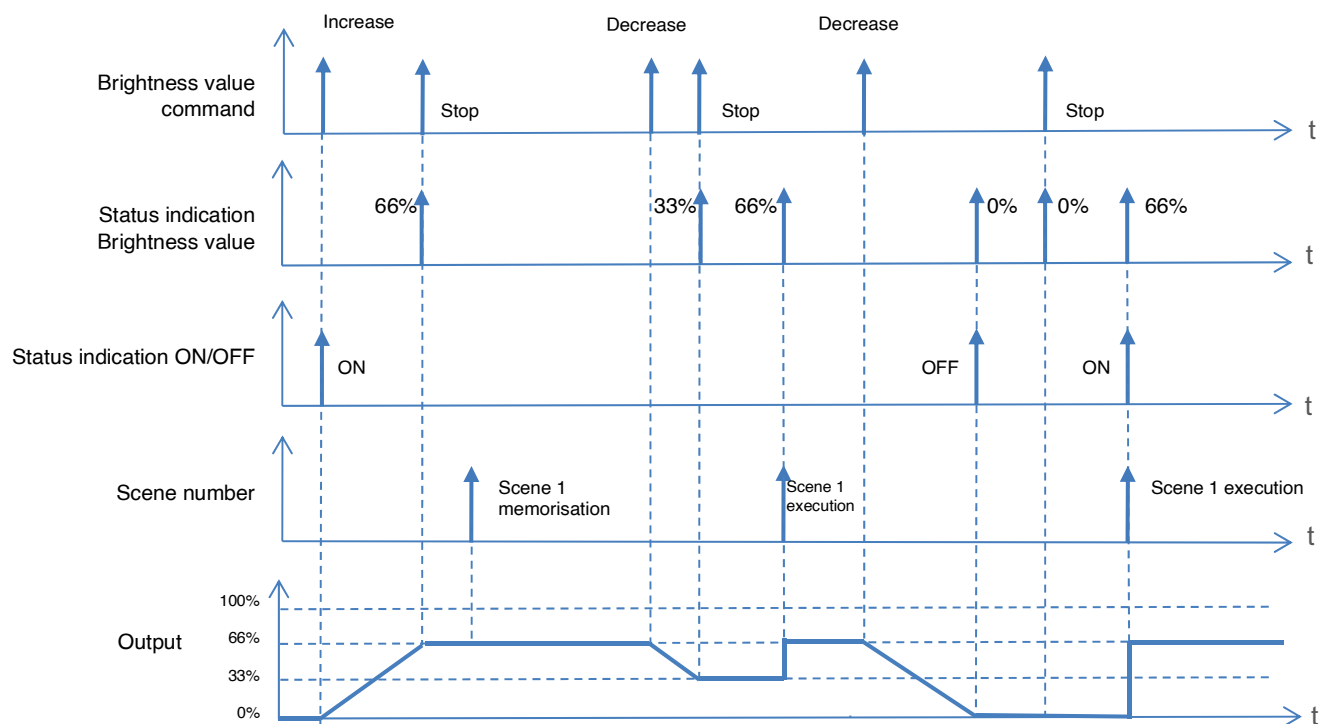


Closing input contact: turns on the light at the last saved level  
Opening input contact: Turns off the light

## 3.3.8 Scene

The Scene function is used to switch groups of outputs into a configurable predefined state. Each output can be included in 8 different scenes.

### Operating principle:



### Learning and storing scenes

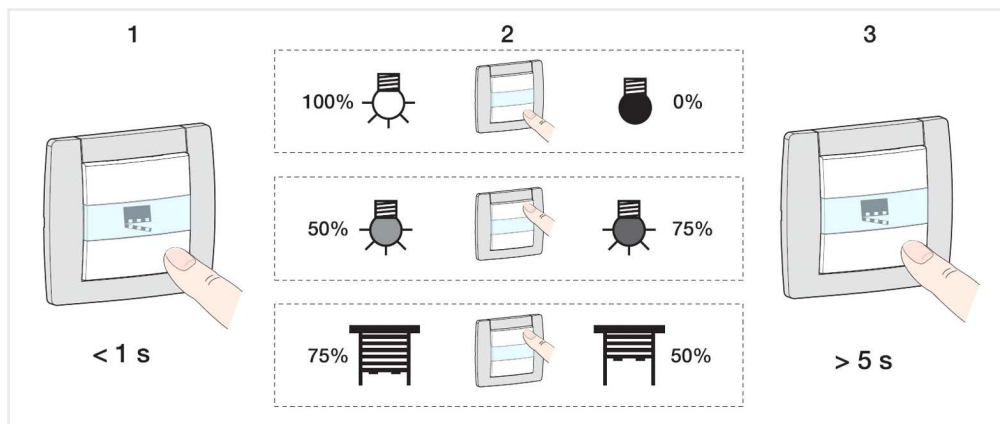
This process is used to change and store a scene. For example, by locally pressing the key in the room or by emission of the values from a visualization.

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

| Scene number | Access scene<br>(Object value: 1 byte) | Store scene<br>(Object value: 1 byte) |
|--------------|--|---------------------------------------|
| 1-64         | = Scene number - 1                     | = Scene number + 128                  |
| Examples     |  |                                       |
| 1            | 0                                      | 128                                   |
| 2            | 1                                      | 129                                   |
| 3            | 2                                      | 130                                   |
| ...          | ...                                    |                                       |
| 64           | 63                                     | 191                                   |

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

- Activate scene by briefly pressing the transmitter that starts it.
- 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 outputs with a press greater than 5 seconds long on the transmitter that starts the scene. The memorisation can be displayed by short-term activation of the outputs.



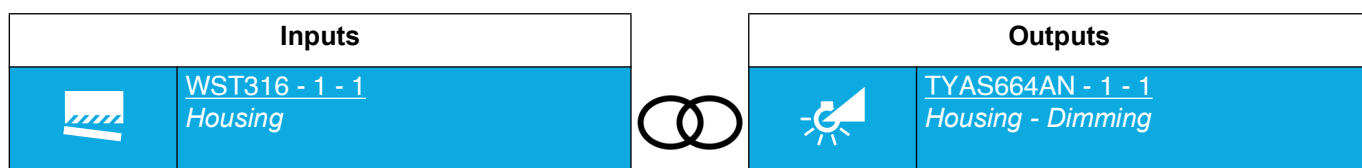
## Product learning and memorisation

This procedure allows modifying a scene using a local action on the push buttons located on the front side of the product.

- Activate the scene using a short press on the ambiance push button, which triggers the scene,
- Set the dimmer to Manual mode and set the outputs to the desired setting by pressing the appropriate output push-buttons,
- Return to Auto mode,
- Save the scene using a long push for more than 5 seconds on the push-button that triggers the scene,
- Memorisation is signalled by the inversion of the concerned output status for 3 sec.

## Links

- **Scene:** the scene is activated by pressing the push-button.



Closing input contact: scene activation

Opening input contact: no action

*Note: at the time the connection is made, the scene number must be defined for the closing input contact.*

Select function

×

Outputs selected : 1

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Scene

1

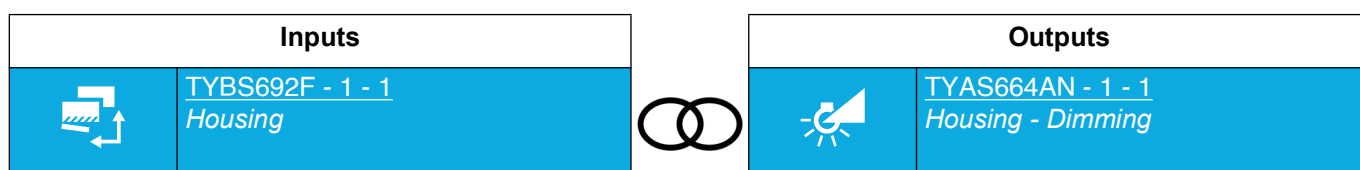
Scene number

1: 1

Link

Cancel

- **Scene switch:** the scene is activated according to the closing or opening input contact.




Closing input contact: scene activation 1


Opening input contact: scene activation 2

*Note: at the time the connection is made, the scene number must be defined for the closing and opening input contact.*


Select function

×

Outputs selected : 1 

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Scene switch

1 

Scene number 1: 1

Scene number 2: 2

Link

Cancel

## 4. Appendix

### 4.1 Specifications

#### TYAS664AN

KNX Medium  
Supply voltage KNX  
Current consumption KNX  
Supply voltage via network

TP1-256  
21...32 V  $\overline{\text{SELV}}$   
typ. 2,4 mA  
230 V $\sim$  +10/-15%; 50/60 Hz  
240 V $\sim$  +/-6%; 50/60 Hz  
2,4W  
10 A  
4 kV  
max. 2000 m  
2  
-5° ... +45 °C  
8 TE, 8 x 17.5 mm

Max. power dissipation  
Miniature circuit breake  
Surge voltage  
Operating altitude  
Degree of contamination  
Operating temperature  
Dimension

### 4.2 Characteristics

| Device                         | TYAS664AN |
|--------------------------------|-----------|
| Max. number of group addresses | 254       |
| Max. number of allocations     | 255       |
| Objects                        | 56        |



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