CHORUS

GEWISS

KNX Actuator 8 channels 10AX

GWA9108

Technical Manual

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1 Introduction

The 8 channel actuator from DIN rail is fitted with 8 independent relays that permit the switching control of 8 x 230 V AC loads. The device has 8 front push-buttons for directly activating the relays that control the load and 8 green LEDs that indicate the activation status of the output.
For simplicity of reading, all the parameters and communication objects implemented by the device are grouped in different paragraphs, each of which represents the relative configuration menu in the ETS database.

2 Application

The actuator is configured with the ETS software, to perform the following functions that can be activated on each channel:

ON/OFF switching
-The NO/NC contact setting, sending status information, relay status in the case of BUS voltage failure/recovery
Delayed activation/deactivation
- Relay activation or deactivation delay setting
Stair raiser lights
- Timed switching with setting of a “stair raiser lights” time with possible switch-off pre-warning
Blinking
- Flashing cyclic switching with settable activation and deactivation time
Scenes
- Configuration of up to 8 scenes for each channel, with possible enabling of learning via BUS
Logic function
- Logic operation AND/NAND/OR/NOR with command object and result object of logic operation
- Logic operations AND/NAND/OR/NOR/XOR/XNOR up to 8 logic inputs
- Setting the NOT operation on the 8 inputs
Safety
- Object monitoring function via BUS for safety applications (e.g. sensors with cyclical transmission)
Priority command (forcing)
Setting the relay status after forcing
- Setting the forcing status upon BUS voltage recovery
Block function
- Parametrisation of the block activation value, behaviour when block is active, and behaviour when block is deactivated
- Setting the block object value upon download and upon BUS voltage recovery
Counter
- Count of operating period (contact open or closed) and number of relay operations
- Sending value on BUS on demand or on change
Other functions
- Parametrisation of the operation of the local button keys on the actuator
- Switching object at the same time of all channels (ideal for centralised commands)
- Setting of delay time between switching on and first transmission
- Possibility of configuring all channels at the same time by grouping them (e.g. if they have the same functions)

2.1 Association limits

Maximum number of group addresses:	254
Maximum number of associations:	254

This means that up to 254 group addresses can be defined, and up to 254 associations can be made (communication objects and group addresses).

3 *"Main"* menu

The **Main** menu contains only those parameters that allow you to enable and configure the operating parameters of each of the 8 output channels.

The basic structure of the menu is as follows:

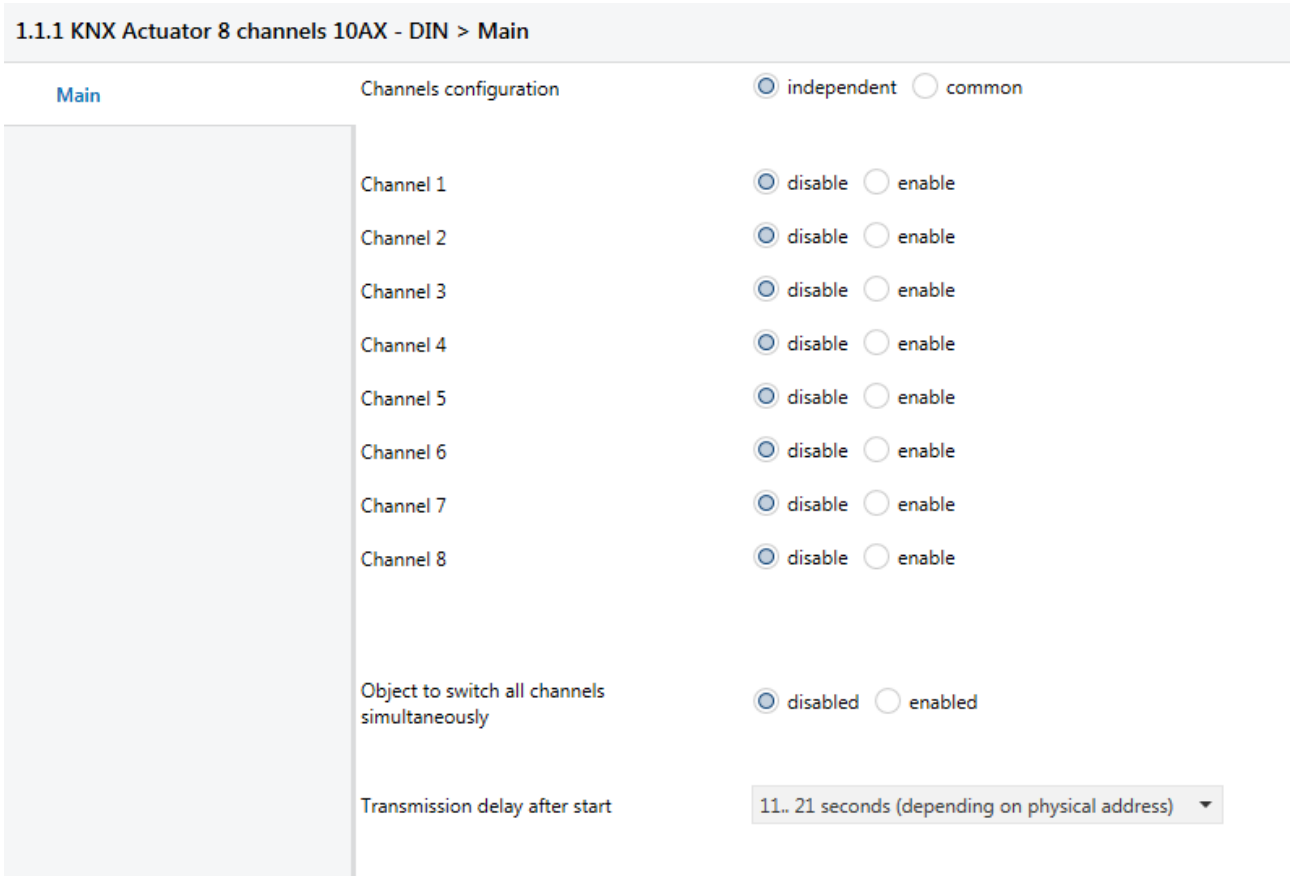


Fig. 3.1

3.1 Parameters

3.1.1 Channels configuration

Often the configuration of the actuator channels is the same for all of them. To make installation easier, it is possible to define if you want to programme the 8 channels independently, or make a single configuration that is valid for all 8 channels using the **"Channels configuration"** parameter.
The parameter may assume the following values:

- **independent** **(default value)**
- common

Selecting **independent**, displays the parameters **"Channel 1"**, **"Channel 2"**, **"Channel 3"**, **"Channel 4"** , **"Channel 5"** , **"Channel 6"** , **"Channel 7"** and **"Channel 8** and each channel must be configured independently of the others.

Selecting **common**, displays the menu **Channels 1..8** and the parameter **Channel 1..8 settings** which makes it possible to make a single configuration that will be applied to all eight channels.

the parameters **"Channel 1"**, **"Channel 2"**, **"Channel 3"** , **"Channel 4"** , **"Channel 5"** , **"Channel 6"** , **"Channel 7"** and **"Channel 8"** make it possible to view and configure all the operating parameters of the relative channels grouped in the menus **Channel 1 settings**, **Channel 2 settings**, **Channel 3 settings**, **Channel 4 settings**, **Channel 5 settings**, **Channel 6 settings**, **Channel 7 settings** and **Channel 8 settings**. The values that can be set for these parameters are:

- **disable (default value)**
- enable

setting the value **enable** displays the corresponding configuration menus and the parameters **"Channel 1 local key function"**, **"Channel 2 local key function"**, **"Channel 3 local key function"** , **"Channel 4 local key function"** , **"Channel 5 local key function"** , **"Channel 6 local key function"** , **Channel 7 local key function"** and **"Channel 8 local key function"**, depending on which channel was enabled.

On the front of the device there are 8 local push-buttons that can be used to directly control the load connected to the relay, without the interaction of the commands received via the KNX BUS.
the parameters **"Channel x local key function"**, or **"Channels 1..8 local key function"** (in the case of the common configuration of all channels) make it possible to define the behaviour of the local button key X associated with the relative output when the KNX BUS voltage is enabled.
The values that can be set for these parameters are:

- **on/off switching (default value)**
- stairs light
- scene
- forced positioning
- block
- on/off test

The difference between the values **on/off switching** and **on/off test** is that the first acts as a command received from the BUS on the ***Ch.x - Switch*** object (so it has a lower priority than the safety, forcing and block functions), whereas the second directly switches the relay, ignoring any active function (whose activation status is not changed in any way).

Selecting any value other than **scene**, displays the parameters **"Sending on pression detection"** and **"Sending on release detection"** and the relative values change depending on the value set for the parameter in question.
The parameter **"Sending on pression detection"** is used to set the command to be sent after the pressing of the push-button associated with the channel has been detected.
The parameter **"Sending on release detection"** is used to set the command to be sent after the release of the push-button associated with the channel has been detected.

- If the control type is **on/off switching** or **on/off test** the values that can be set for the two parameters listed above are:

  - off
  - on
  - **cyclical switching (pressing default value)**
  - **no effect (release default value)**

- If the control type is **stairs light**, the values that can be set for the two parameters listed above are:

  - timing stop
  - **timing start (pressing default value)**
  - cyclical switching
  - **no effect (release default value)**

- If the control type is **forced positioning**, the values that can be set for the two parameters listed above are:

  - **active on forcing (pressing default value)**

- active off forcing
- disable forcing positioning
- cyclical switching forcing on/forcing off
- cyclical switching forcing on/deactivate forcing
- cyclical switching forcing off/deactivate forcing
- **no effect** **(release default value)**

- If the control type is **block**, the values that can be set for the two parameters listed above are:

  - deactivation
  - **activation** **(pressing default value)**
  - cyclical switching
  - **no effect** **(release default value)**

- If the control type is **scene**, the two parameters listed above are not displayed, but the parameter **"Scene number (0.. 63)"** and the parameter **"Scene storing on long operation"** are displayed.
  The parameter **"Scene number (0.. 63)"** is used to set the value of the scene to be recalled/stored; if this value does not coincide with what is associated with the relative parameters in the **Scenes** menu of the associated channel, no scene will be recalled/memorised. The possible values are:

  - from **0 (default value)** to 63, with steps of 1

  The parameter **"Scene storing on long operation"** enables the sending of a scene memorising command when a long operation is recognised. The values that can be set are:

  - disabled
  - **enabled** **(default value)**

  The device will send the scene storing command after a long operation is detected and only if the value **enabled** is selected; by selecting the value **disabled**, a long operation is not recognised and the long operation triggers the sending of the scene execution command (as for a short operation).

The parameter **"Object to switch all channels simultaneously"** is used to enable a communication object dedicated to the on/off switching of all 8 channels (if enabled). The values that can be set are:

- disabled
- **enabled** **(default value)**

selecting the value **enabled**, displays the communication object ***All channels switching - On/Off*** (Data Point Type: 1.001 DPT_Switch) with which the device switches all 8 channels ("ON→ NO contact closed/NC contact open" when it receives value "1", "OFF → NO contact open/NC contact closed" when it receives value "0"). The command is applied indiscriminately to each of the enabled channels. A possible extremely brief delay between the effective moments of channel switching is necessary for the correct switching of the device relays.

To ensure that, with multiple devices in the line, the telegrams sent by the various devices do not collide when the BUS voltage is recovered, it is possible to define the time that must pass after which the device may transmit the telegrams on the BUS following a drop/recovery of the BUS supply voltage. The parameter **"Transmission delay after start"** is used to set this delay. The values that can be set are:

- **11.. 21 seconds (depending on physical address)** **(default value)**
- 5.. 9 seconds
- 11 seconds
- 13 seconds
- 15 seconds
- 17 seconds
- 19 seconds
- 21 seconds
- no delay

Setting the values **11.. 21 seconds (depending on physical address)** and **5.. 9 seconds**, the device automatically calculates the transmission delay according to an algorithm that examines the physical address of the device itself; the presented values (11/21 or 5/9) indicate the extremes of the value interval that can be calculated.

4 *"Channel X settings"* menu

For the sake of simplicity, the items that make up the menus **Channel 1 settings**, **Channel 2 settings**, **Channel 3 settings**, **Channel 4 settings**, **Channel 5 settings**, **Channel 6 settings**, **Channel 7 settings** and **Channel 8 settings** will be described only once in the following chapters (in reference to the general **Channel x settings** menu) as all these menus contain the same items. In the case of the common configuration of the channels, the **Channels 1..8 settings** menu is displayed.
The **Channel X settings** menu contains the parameters that define the behaviour of the relay of the device associated with channel x, beyond the specific functions implemented by the channel.

The basic structure of the menu is as follows:

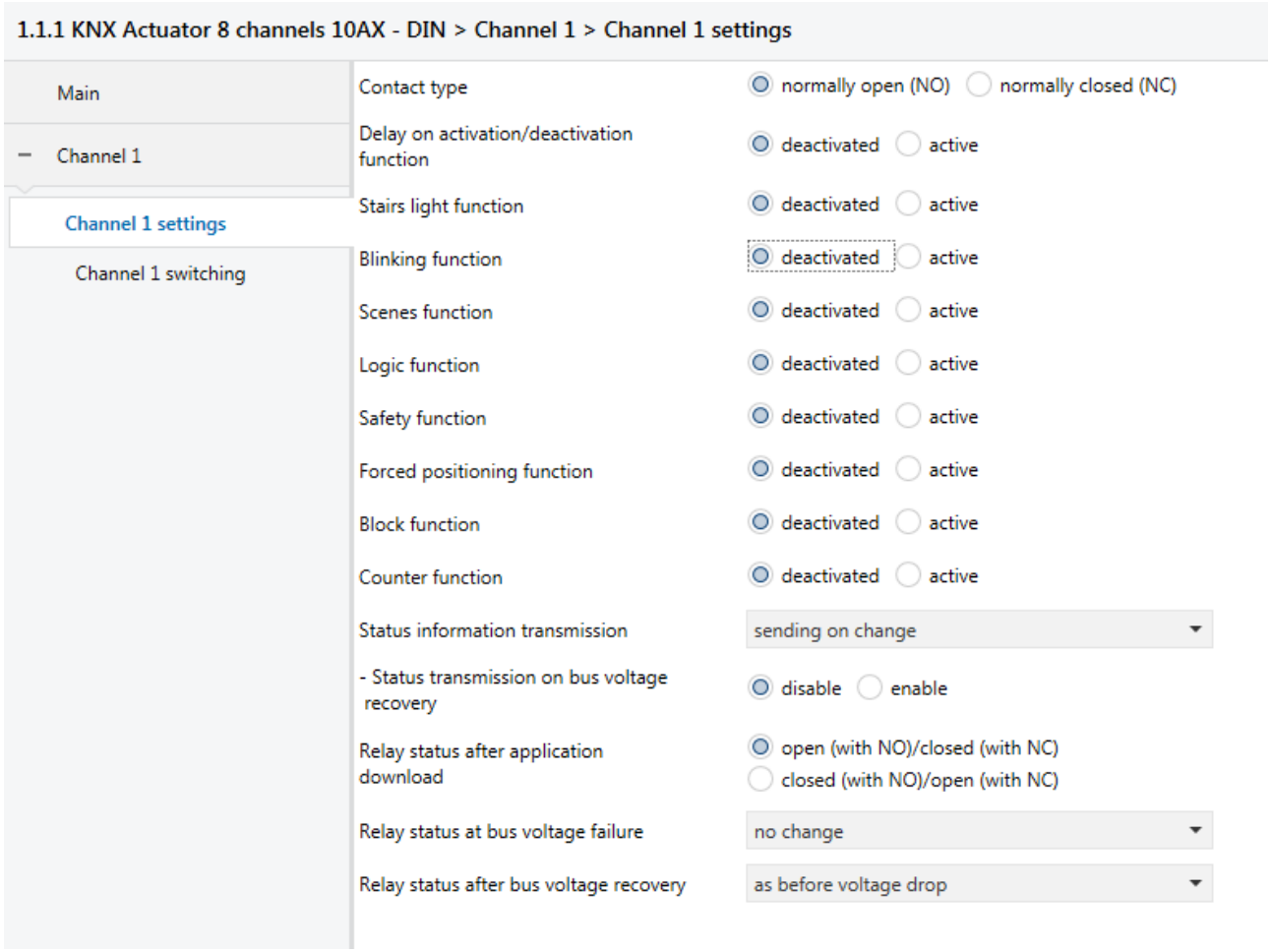


Fig. 4.1

4.1 Parameters

4.1.1 Contact type

Given that the relay that controls the load has an output with a NO (Normally Open) contact, in order to manage the loads with an NC contact the device must be aware of this type of relay functioning. The parameter **"Contact type"** is used to define the type of contact associated with the output that the device has to manage.
The values that can be set are:

- **normally open (NO)** **(default value)**
- normally closed (NC)

4.1.2 Function X

The device has various operating modes and different functions with different priorities.
The parameters **"Delay on activation/deactivation function"**, **"Stairs light function"**, **"Blinking function"**, **"Scenes function"**, **"Logic function"**, **"Safety function"**, **"Forced positioning function"**, **"Block function"** and **"Counter function"** are used to activate the functions and allow the operating parameters of those functions to be made visible and configurable, displaying the configuration menus **Channel x delay on activat./deactiv.**, **Channel x stairs light**, **Channel x blinking**, **Channel x scenes, Channel x Logic**, **Channel x safety**, **Channel x forced positioning**, **Channel x block** and **Channel x counter**. The values that can be set for the parameters listed above are:

- **deactivated** **(default value)**
- active

selecting **active**, displays the relative configuration menu.

4.1.3 Status information transmission

The status of the relay and as a result of the connected load can be transmitted on the BUS via specific communication object. The parameter used to enable transmitting this information is **"Status information transmission"**, which can have the following values:

- disabled
- on demand only
- **sending on change** **(default value)**

Selecting any value other than **disabled** displays the communication object ***Ch.x - Status*** (Data Point Type 1.001 DPT_Switch) that allows transmitting the status information, concerning the load connected to the device, on the BUS.
If the status signalling takes place **sending on change** , the communication object is sent spontaneously when the status switches from ON to OFF or vice versa; If the set value is **on demand only**, the status will never be sent spontaneously by the device. Only when a status reading request is received from the BUS, the device sends a response telegram with the current load status.
The communication object assumes a value of 1 (ON) if the NO (normally open) contact closes or if the NC (normally closed) contact opens, depending on the setting of the**"Type of contact"** parameter; in the same way, the communication object assumes a value of 0 (OFF) if the NO (normally open) contact opens or if the NC (normally closed) contact closes.

Selecting the value **sending on change**, also displays the parameter **"Status transmission on bus voltage recovery"**, which enables the transmission of the load status information when the BUS voltage is reset. This parameter may have the following values:

- disable
- **enable** **(default value)**

4.1.4 Relay status after application download

It is possible to set the status that the relay contact must assume once the application parameters have been downloaded from the ETC software via the parameter **"Relay status after application download"** which can have the following values:

- **open (with NO)/closed (with NC)** **(default value)**
- closed (with NO)/open (with NC)

4.1.5 Relay status at bus voltage failure

It is possible to define the status of the relay contact following a BUS voltage failure via the parameter **"Relay status at bus voltage failure"** which can assume the following values:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- **no change** **(default value)**

4.1.6 Relay status after bus voltage recovery

It is possible to define the status of the relay contact after BUS voltage recovery via the parameter **"Relay status after bus voltage recovery"** which can assume the following values:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- **as before voltage drop** **(default value)**

5 *"Channel X switching"* menu

One of the channel operating modes is on/off switching, which involves switching the relay status according to the received commands; From the BUS, this operating mode can be controlled via the communication object ***Ch.x - Switch*** (Data Point Type: 1.001 DPT_Switch) object.
This function has the same priority of the activation/deactivation delay, stair raiser light and flashing functions; this means that when one of the functions is activated while another is already active, it is executed, ending the previously active one.

The structure of the menu is as follows:

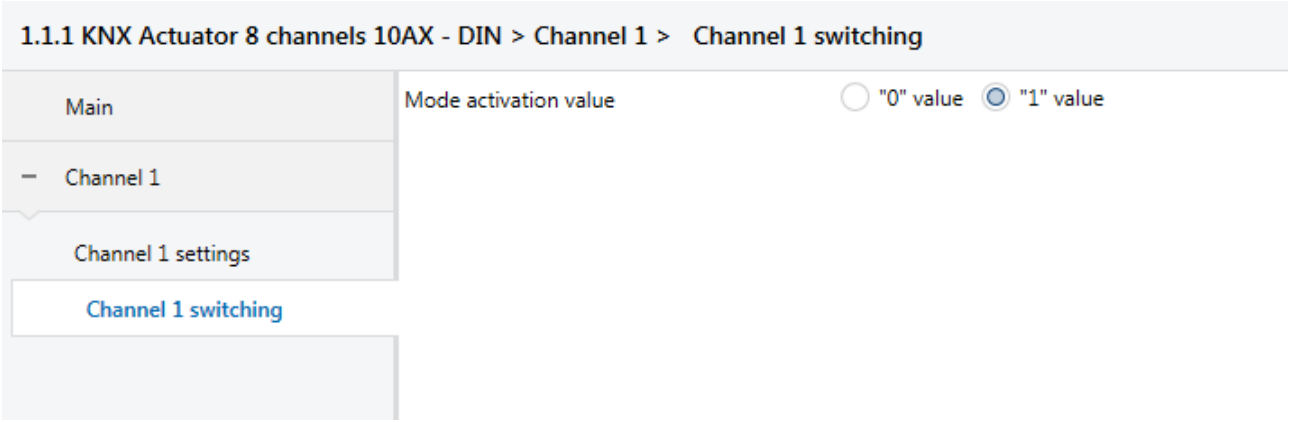


Fig. 5.1

5.1 Parameters

5.1.1 Mode activation value

The parameter **"Mode activation value"** determines which logic value received on the communication object ***Ch.x - Switch*** switches the relay to the ON status (NO contact closed/NC contact open); The possible values are:

- "0" value
- **"1" value** (default value)

If you select **value "0"**, then when the device receives (from the BUS) a telegram with a logic value equal to "0", it switches the relay to the status → NO contact closed/NC contact open; Vice versa, when the logic value "1" is received, the device shifts the contact to → NO contact open/NC contact closed.

See figures 5.2 and 5.3 below with the status diagram for more information.

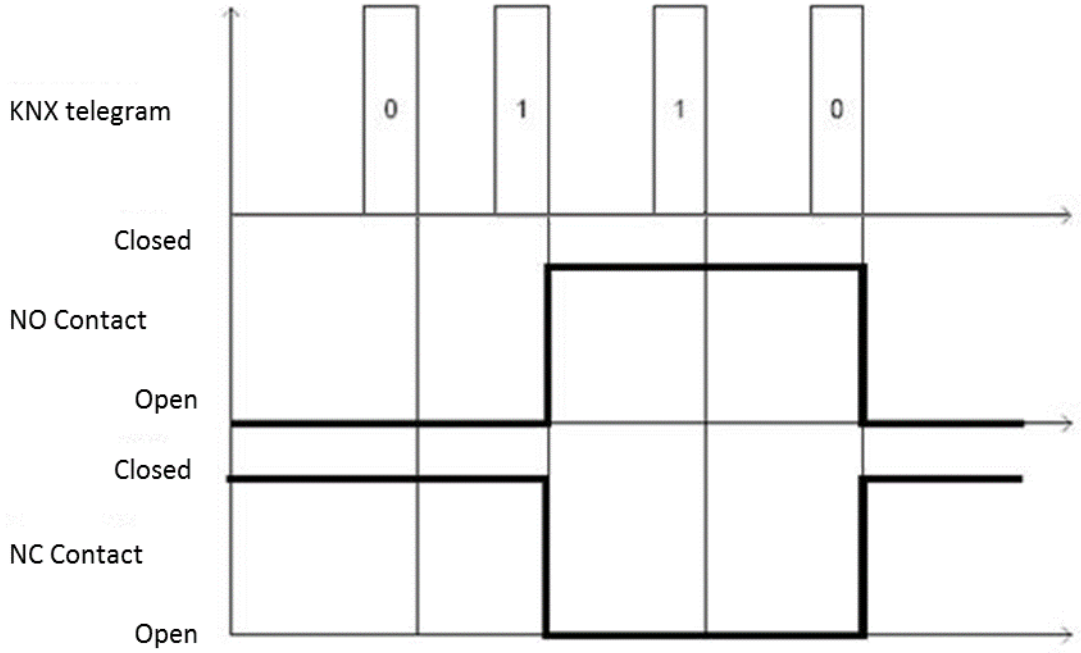


Fig. 5.2

If you select **value "1"**, then when the device receives (from the BUS) a telegram with a logic value equal to "1", it switches the relay to the status → NO contact closed/NC contact open; Vice versa, when the logic value "0" is received, the device shifts the contact to → NO contact open/NC contact closed. See figure below.

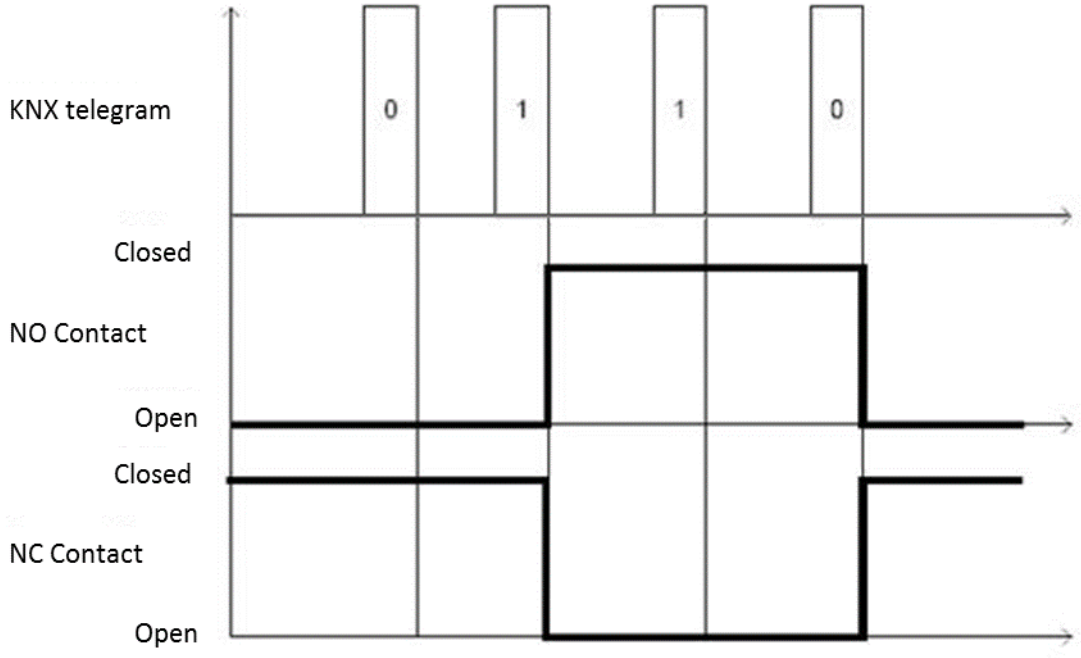


Fig. 5.3

6 *“Channel x delay on activat./deactiv.” or “Channels 1..8 delay on activat./deactiv.”* menu

One of the channel's operating modes is on/off switching with an activation/deactivation delay, which switches the relay status on the basis of the received commands, creating a delay between the moment of receiving the command and the effective moment in which the relay is switched over. From the BUS, this operating mode can be controlled via the communication object ***Ch.x - Delayed switching*** (Data Point Type: 1.001 DPT_Switch). This function has the same priority as the on/off switching, stair raiser light and blinking functions; this means that when one of the functions is activated while another is already active, it is executed, ending the previously active one.
The menu is visible if the parameter **“Delay on activation/deactivation function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

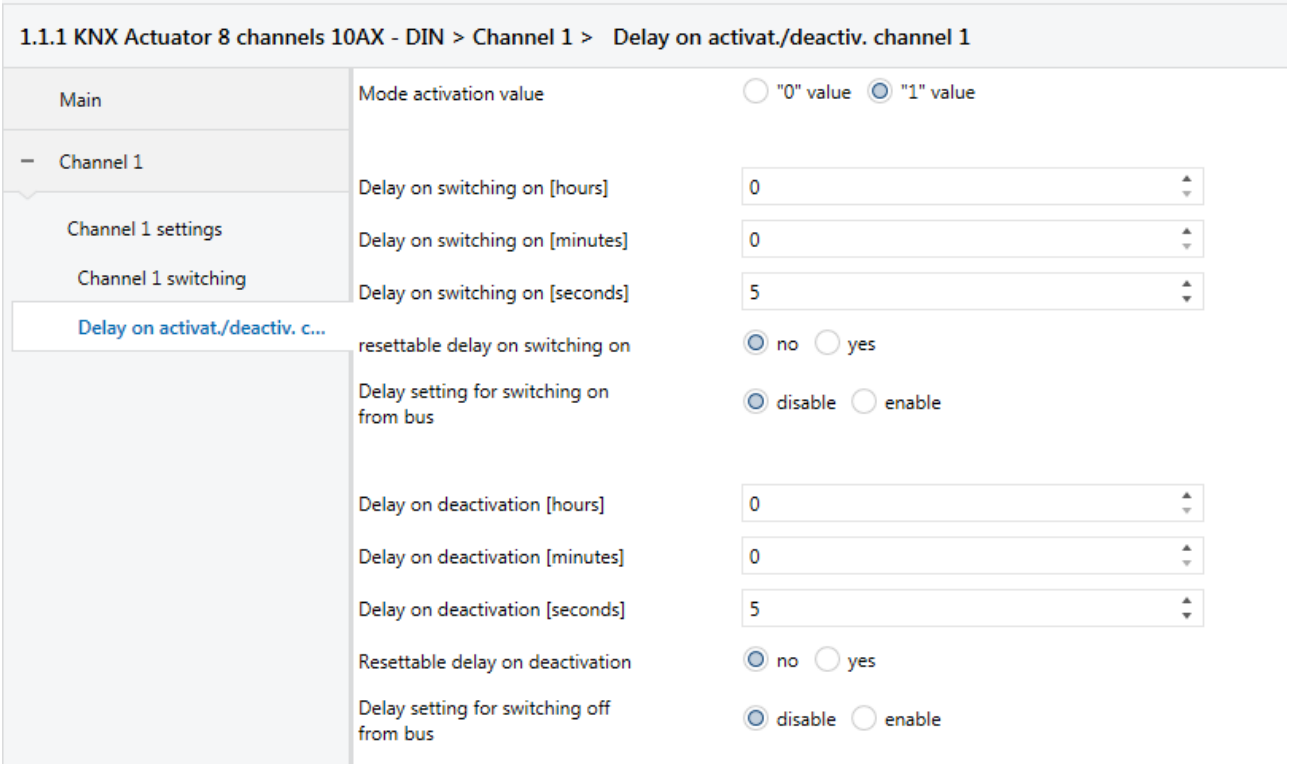


Fig. 6.1

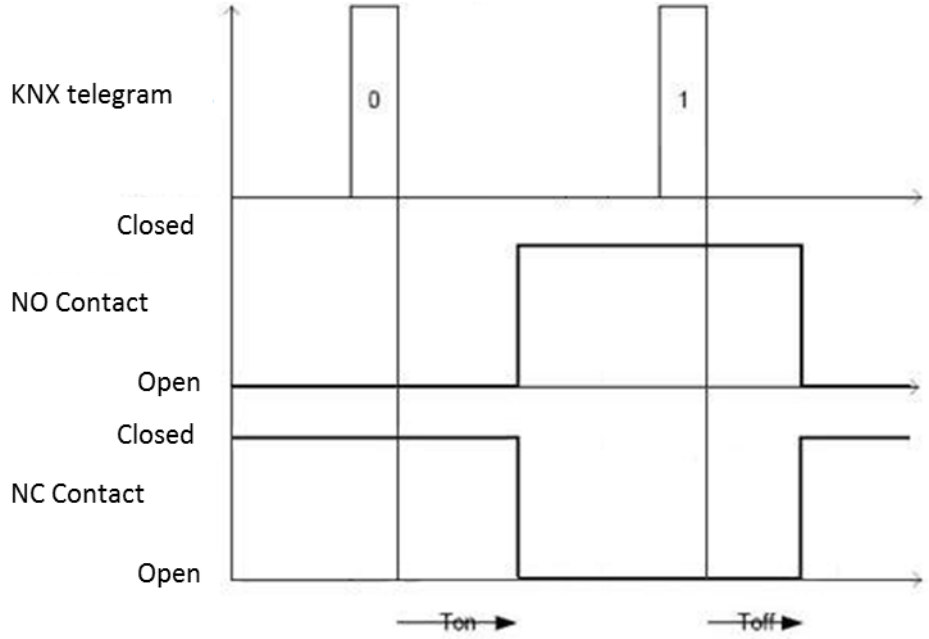
6.1 Parameters

6.1.1 Mode activation value

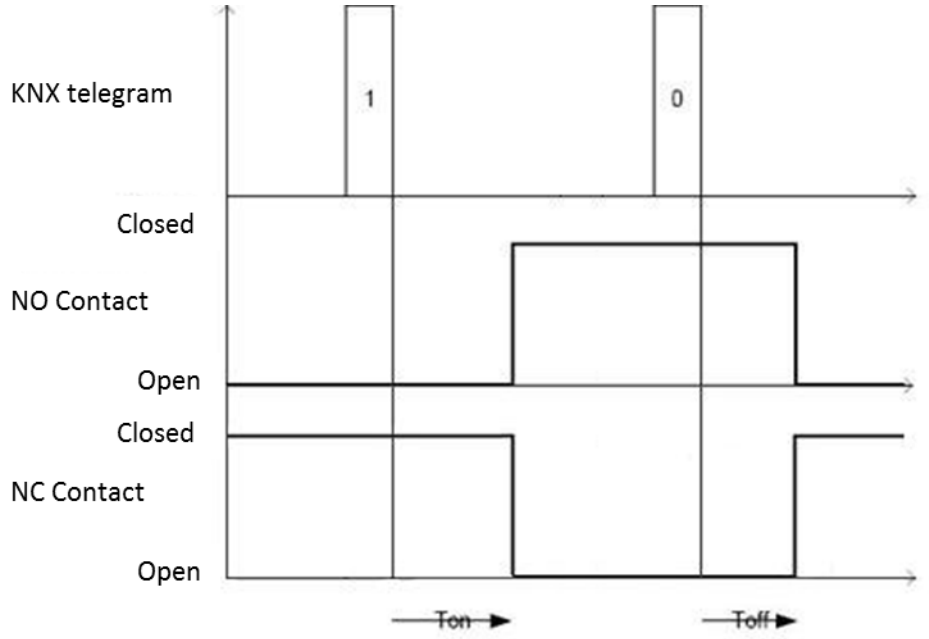
The parameter **“Mode activation value”** determines which logic value received on the communication object ***Ch.x – Delayed switching*** switches the relay to the ON status (NO contact closed/NC contact open); The possible values are:

- “0” value
- **“1” value** **(default value)**

Selecting **value “0”,** when the device receives a telegram from the BUS with a logic value equal to “0”, after the set activation delay time (Ton) has passed it switches the relay to the status → NO contact closed/NC contact open; Vice versa, when the logic value “1” is received, the device waits for the deactivation delay time (Toff) before switching the contact to → NO contact open/NC contact closed. See figure below.



Selecting **value "1",** when the device receives a telegram from the BUS with a logic value equal to "1", after the set activation delay time (Ton) has passed it switches the relay to the status → NO contact closed/NC contact open; Vice versa, when the logic value "0" is received, the device waits for the deactivation delay time (Toff) before switching the contact to → NO contact open/NC contact closed. See figure below.



6.1.2 Delay on switching on [hours] / [minutes] / [seconds]

The parameter **"Delay on switching on [hours]"** is used to set the first of the three values (hours) that make up the activation delay time (hours, minutes, seconds); The values that can be set are:

- from **0 (default value)** to 24, with steps of 1

The parameter **"Delay on switching on [minutes]"** is used to set the second of the three values (minutes) that make up the activation delay time (hours, minutes, seconds); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

The parameter **"Delay on switching on [seconds]"** is used to set the last of the three values (seconds) that make up the activation delay time (hours, minutes, seconds); The values that can be set are:

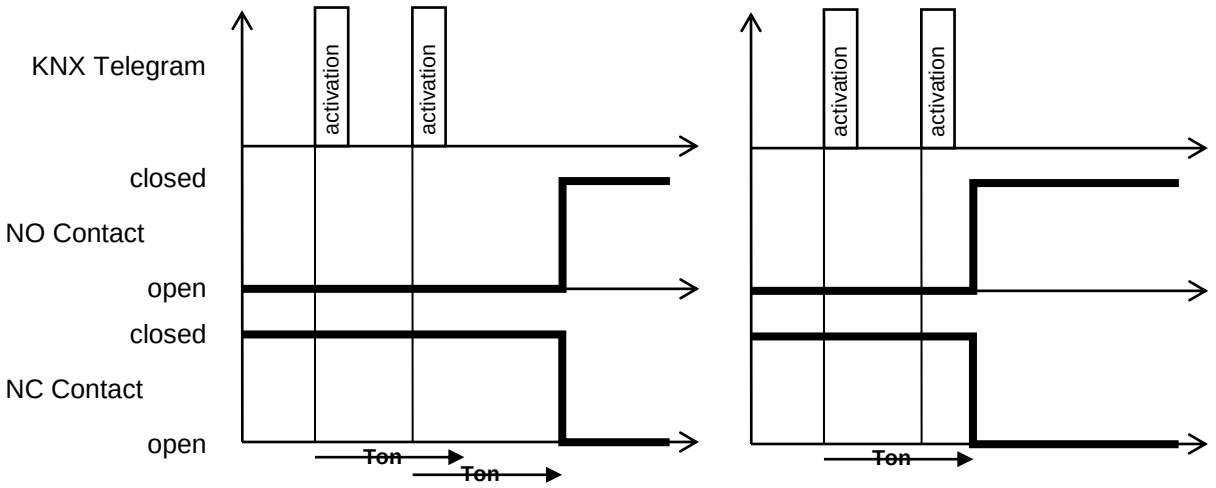
- from 0 to 59 in steps of 1, **5 (default value)**

6.1.3 Retriggerable delay on activation

The parameter **"Retriggerable delay on activation"** is used to enable the reset of the activation delay time each time that a delayed activation BUS telegram is received with the delay count already active. The values that can be set are:

- **no** **(default value)**
- yes

By selecting **yes**, if a new delayed activation telegram is received during the activation delay count, the counter is reinitialised; otherwise, the count continues without changes. See figure below (to the left with reset enabled, to the right without reset).



6.1.4 Delay setting for switching on from bus

The parameter **"Delay setting for switching on from bus"** is used to enable the communication object through which a new activation delay value is received, which overwrites the one configured in ETS; The values that can be set are:

- **disable** **(default value)**
- enable

selecting the value **enable**, displays the communication object ***Ch.x – Delay on activation*** (Data Point Type: 7.005 DPT_TimePeriodSec) which is used to receive the value of the activation delay from the BUS.
If the new value is received while an activation delay time count is already in progress, it will become operative when the subsequent activation command is received.

6.1.5 Delay on deactivation [hours] / [minutes] / [seconds]

The parameter **"Delay on deactivation [hours]"** is used to set the first of the three values (hours) that make up the deactivation delay time (hours, minutes, seconds); The values that can be set are:

- from **0 (default value)** to 24, with steps of 1

The parameter **"Delay on deactivation [minutes]"** is used to set the second of the three values (minutes) that make up the deactivation delay time (hours, minutes, seconds); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

The parameter **"Delay on deactivation [seconds]"** is used to set the last of the three values (seconds) that make up the deactivation delay time (hours, minutes, seconds); The values that can be set are:

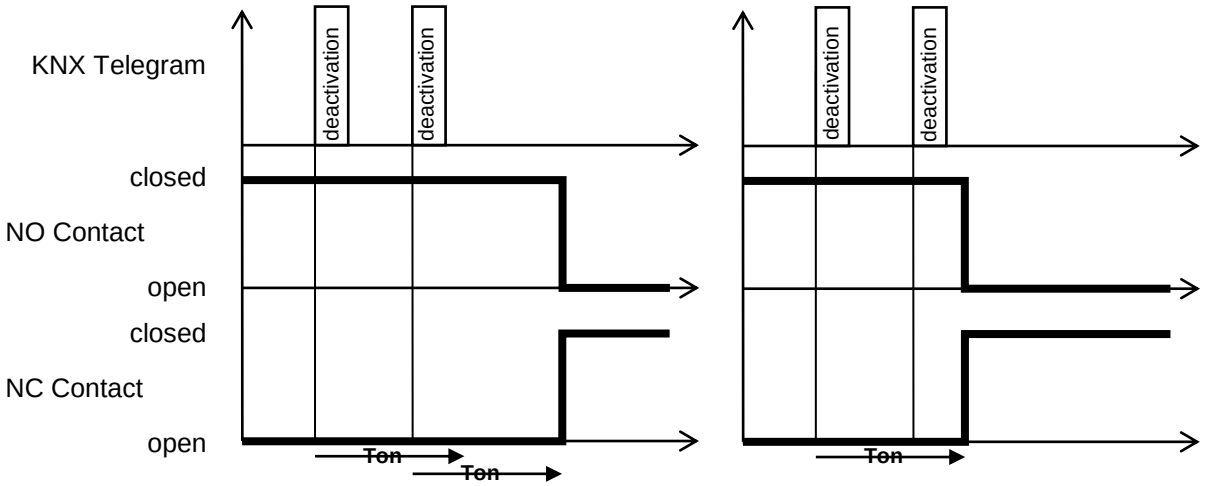
- from 0 to 59 in steps of 1, **5 (default value)**

6.1.6 Retriggerable delay on deactivation

The parameter **"Retriggerable delay on deactivation"** is used to enable the reset of the deactivation delay time each time that a delayed activation BUS telegram is received with the delay count already active. The values that can be set are:

- **no** **(default value)**
- yes

By selecting **yes**, if a new delayed deactivation telegram is received during the deactivation delay count, the counter is reinitialised; otherwise, the count continues without changes. See figure below (to the left with reset enabled, to the right without reset).



6.1.7 Delay setting for switching off from bus

The parameter **"Delay setting for switching off from bus"** is used to enable the communication object through which a new deactivation delay value is received, which overwrites the one configured in ETS. The values that can be set are:

- **disable** **(default value)**
- enable

selecting the value **enable**, displays the communication object ***Ch.x – Delay on deactivation*** (Data Point Type: 7.005 DPT_TimePeriodSec) which is used to receive the value of the deactivation delay from the BUS. If the new value is received while a deactivation delay time count is already in progress, it will become operative when the subsequent deactivation command is received.

7 *“Channel X stairs light” or “Channels 1..8 stairs light”*

One of the channel operating modes is timed activation or stair raiser light function, which involves activating the load for a certain period of time and then deactivating it automatically without receiving a command. Furthermore, it is possible to enter a certain delay between the moment the timed start command is received and the effective instant in which the relay is switched; from the BUS, this operating mode can be controlled via the communication object ***Ch.x – Timed switch*** (Data Point Type: 1.010 DPT_Start).
This function has the same priority as the on/off switching, delayed activation/deactivation, and blinking functions; this means that when one of the functions is activated while another is already active, it is executed, ending the previously active one.
The menu is visible if the parameter **“Stairs light function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

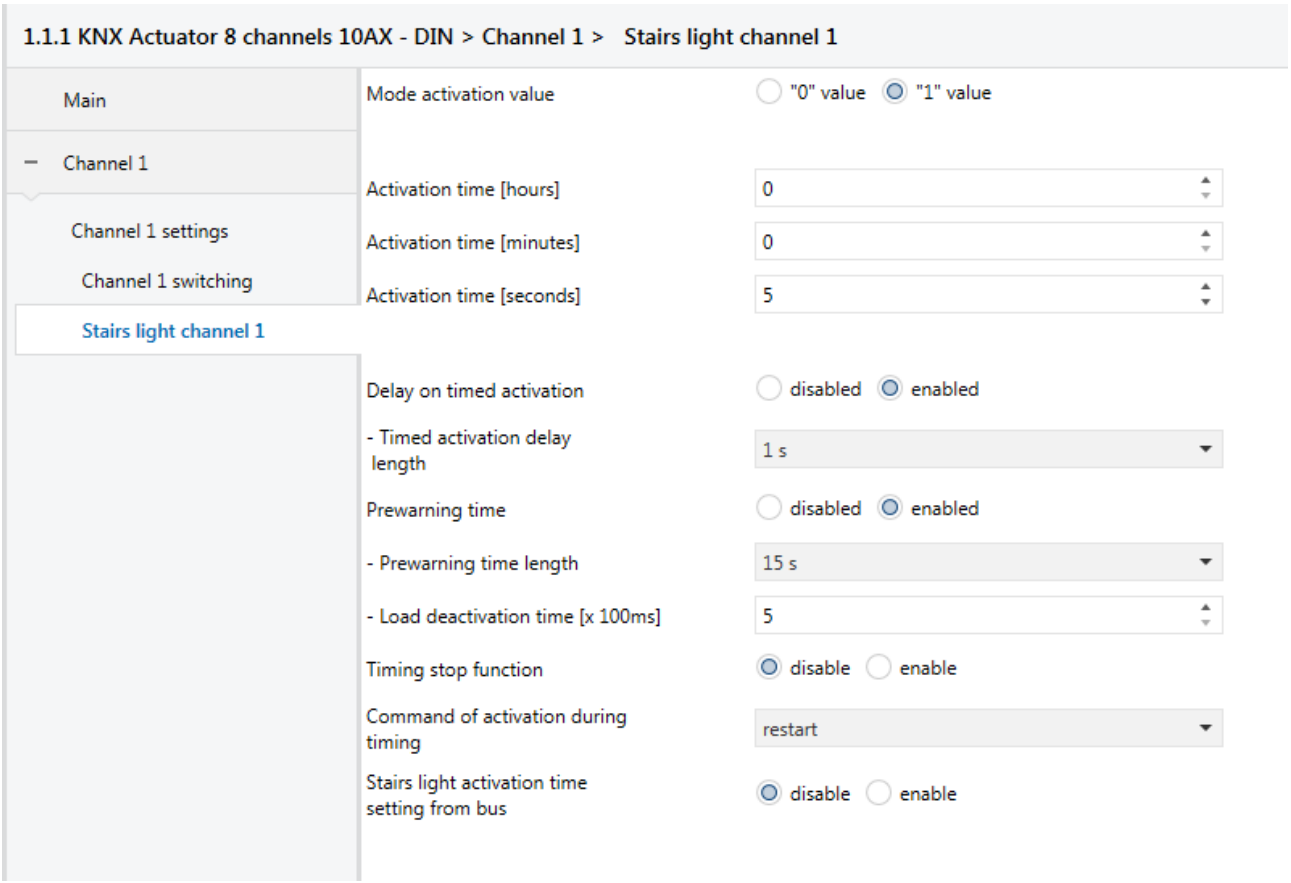


Fig. 7.1

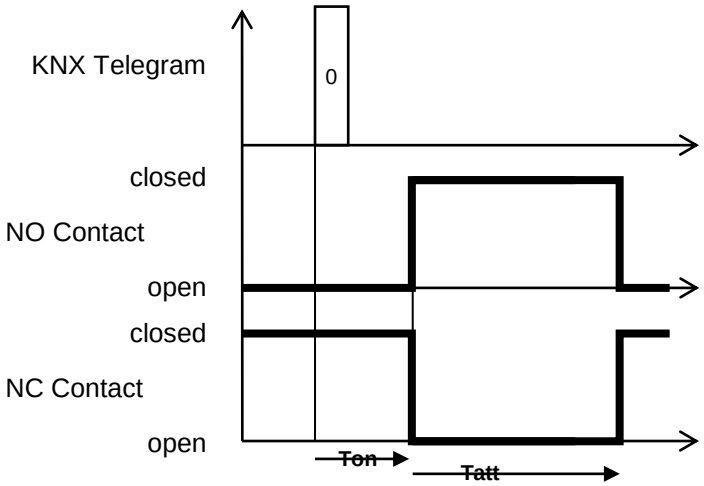
7.1 Parameters

7.1.1 Mode activation value

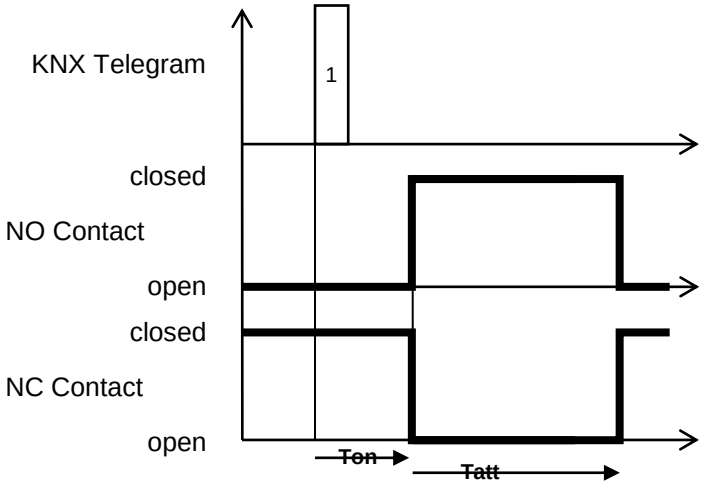
The parameter **“Mode activation value”** determines which logic value received on the communication object ***Ch.x – Timed switch*** switches the relay to the ON status (NO contact closed/NC contact open) and activates timing; The possible values are:

- “0” value
- **“1” value** **(default value)**

Selecting **“0” value**, when the device receives a telegram from the BUS with a logic value equal to “0”, after the set activation delay time (Ton) has passed it switches the relay to the status → NO contact closed/NC contact open and begins the activation time count. See figure below.



Selecting **“1” value**, when the device receives a telegram from the BUS with a logic value equal to “1”, after the set activation delay time (Ton) has passed it switches the relay to the status → NO contact closed/NC contact open. See figure below.



7.1.2 Activation time [hours] / [minutes] / [seconds]

The parameter **“Activation time [hours]”** is used to set the first of the three values (hours) that make up the load activation time (Tatt); The values that can be set are:

- from **0 (default value)** to 24, with steps of 1

The parameter **“Activation time [minutes]”** is used to set the second of the three values (minutes) that make up the load activation time (Tatt); The values that can be set are:

- from 0 to 59 with steps of 1, **(default value 1)**

The parameter **”Activation time [seconds]”** is used to set the last of the three values (seconds) that make up the load activation time (Tatt); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

7.1.3 Delay on time activation

The parameter **"Delay on time activation"** is used to enter a delay between the moment in which the communication object ***Ch.x – Timed switch*** is received and the moment when the command is actually executed (NO contact closing/NC contact opening); The possible values are:

- **disabled (default value)**
- enabled

If the delay is **enabled**, the **"Timed activation delay length"** parameter will be displayed. This is used to set the value of the delay in seconds. The parameter may have the following values:

- **1 s (default value)**, 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, 2 min, 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.

The activation delay cannot be reset.

7.1.4 Prewarning time

The **"Prewarning time"** parameter can be used to enable a signal when the load is about to be automatically switched off. This is done by deactivating and reactivating the load for a moment (blinking); the pre-warning time is applied after the expiration of the activation time. The parameter may assume the following values:

- **disabled (default value)**
- enabled

selecting the value **enabled**, displays the parameters **"Prewarning time length"** and **"Load deactivation time [x 100ms]"**.

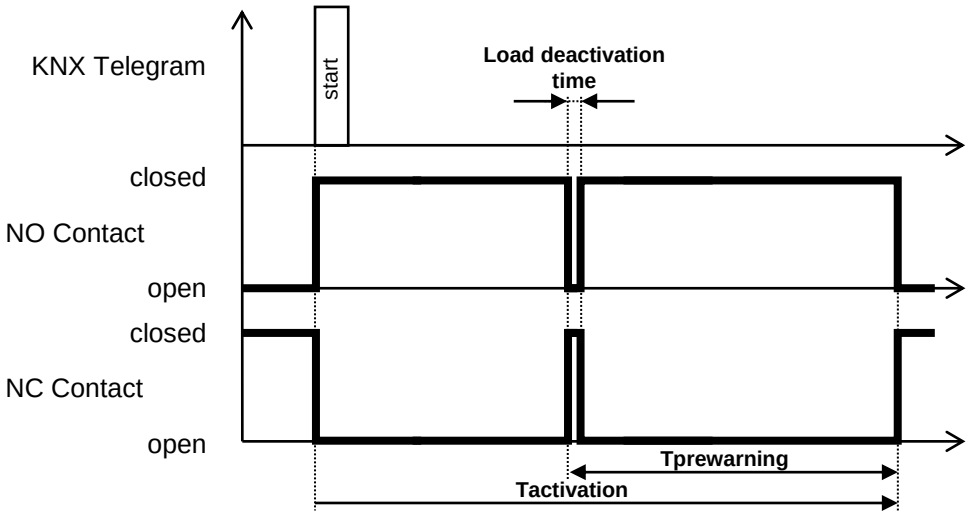
The parameter **"Prewarning time length"** is used to set the time that passes between the signalling that the deactivation will take place soon and the deactivation itself of the load; The possible values are:

- **15 s (default value)**, 30 s, 1 min.

The parameter **"Load deactivation time [x 100ms]"** is used to set the time interval during which the load is deactivated to perform the prewarning function; The values that can be set are:

- from **5 (default value)** to 15, with steps of 1

The below figure shows the operating principle of the pre-warning function.



7.1.5 Timing stop function

The parameter **"Timing stop function"** is used to enable the possibility of ending the timed activation by via a BUS command on the communication object ***Ch.x – Timed switch*** with the opposite value to the one set in the previously analysed **"Mode activation value"**. The possible values are:

- **disable** **(default value)**
- enable

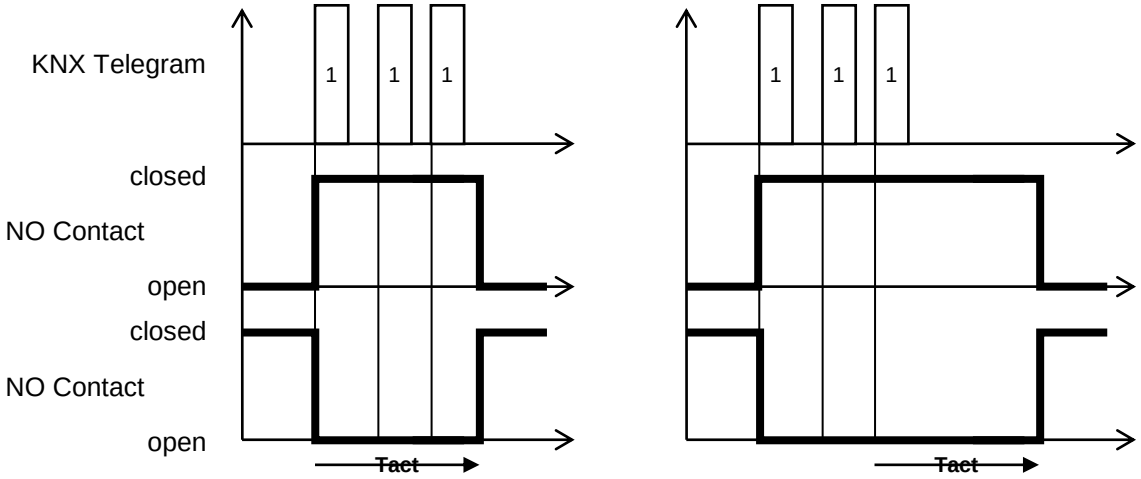
If the function is enabled, when the value opposite to the mode activation value is received, the device ends the timing and deactivates the load.

7.1.6 Command of activation during timing

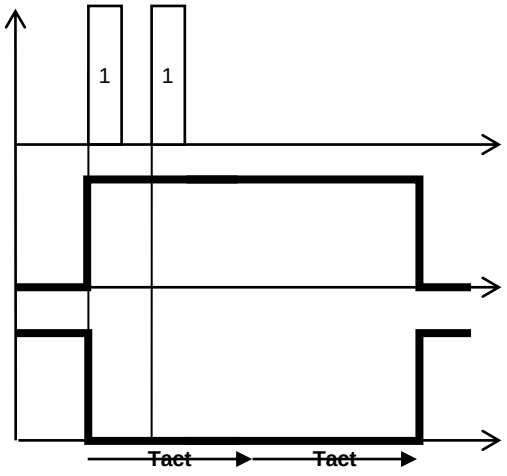
The parameter **"Command of activation during timing"** is used to define the behaviour of the device when a timed activation command is received while it is already in progress; The possible values are:

- no effect
- **restart** **(default value)**
- extension (multiply by factor)

By selecting **no effect**, the subsequent commands are ignored; by selecting **reset**, each timed activation command received during the activation time count causes the count to reinitialise. By selecting **extension (multiply by factor)**, each received command results in an extension equal to the count activation time. The below figure shows an example of each of the three configurations.



no effect *restart*



extension

If the value **extension** is selected, it is possible to set a maximum number of consecutive extensions of the activation time via the new displayed parameter **"Multiplicative factor maximum value"**. The parameter may have the following values;

- from 2 to **5 (default value)** with steps of 1

7.1.7 Stairs light activation time setting from bus

The parameter **"Stairs light activation time setting from bus"** displays the input communication object ***Ch.x – Stairs light activation time*** (Data Point Type: 7.005 DPT_TimePeriodSec) which can be used to receive the activation time of the stair raiser light function via the BUS communication object; The possible values are:

- **disable** **(default value)**
- enable

As the activation time is between 0h:0min:1sec and 24h:59min:59sec, when the BUS receives a value that lies outside this interval, the value set for the deactivation delay time is the limit value of the interval that is closest to the received value.

If a new activation time value is received, this becomes the new stair raiser light time, overwriting the old value, which will be deleted; if the new value is received while the timing is already active, it will become operative upon the subsequent activation of the timing.

8 *“Channel X blinking” or “Channels 1..8 blinking”* menu

One of the relay output operating modes is the blinking mode, which activates the load for a specific period of time, then deactivates it and repeats the process until the deactivation command is received. From the BUS, this operating mode can be controlled via the communication object ***Ch.x - Blinking*** (Data Point Type: 1.001 DPT_Switch). This function has the same priority as the on/off switching, delayed activation/deactivation, and timed activation functions; this means that when one of the functions is activated while another is already active, it is executed, ending the previously active one.
The menu is visible if the parameter **“Blinking function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

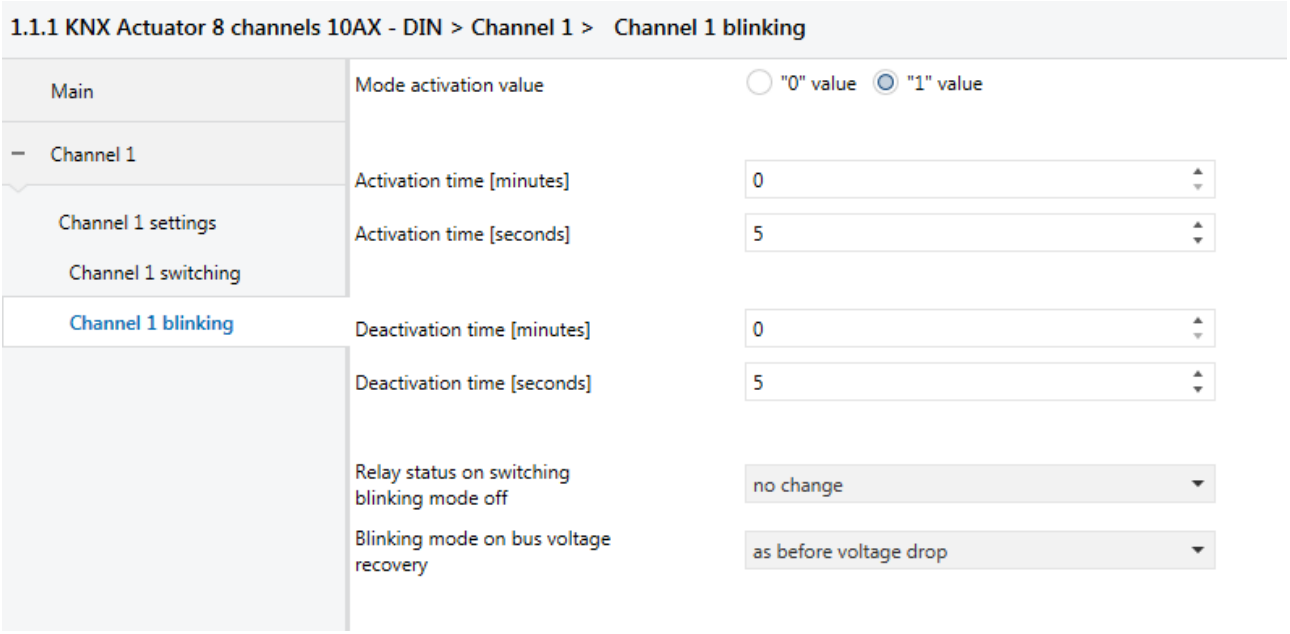


Fig. 8.1

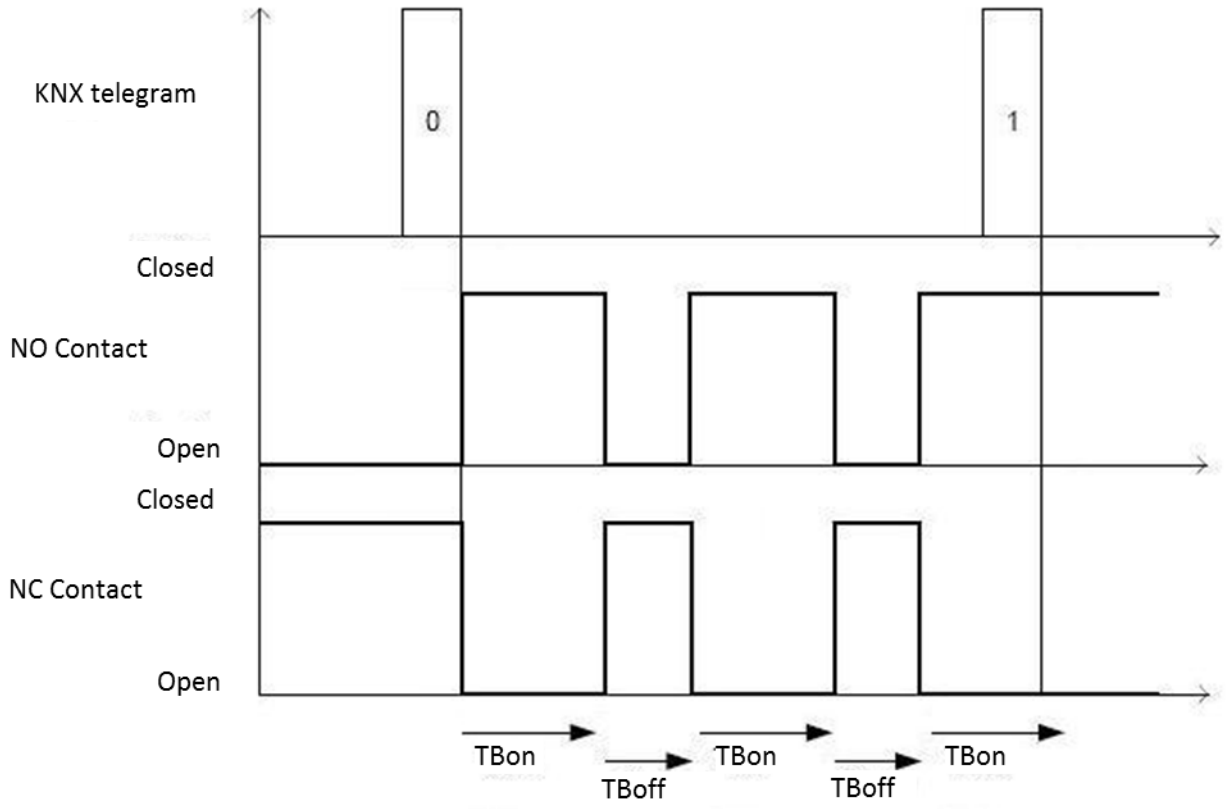
8.1 Parameters

8.1.1 Mode activation value

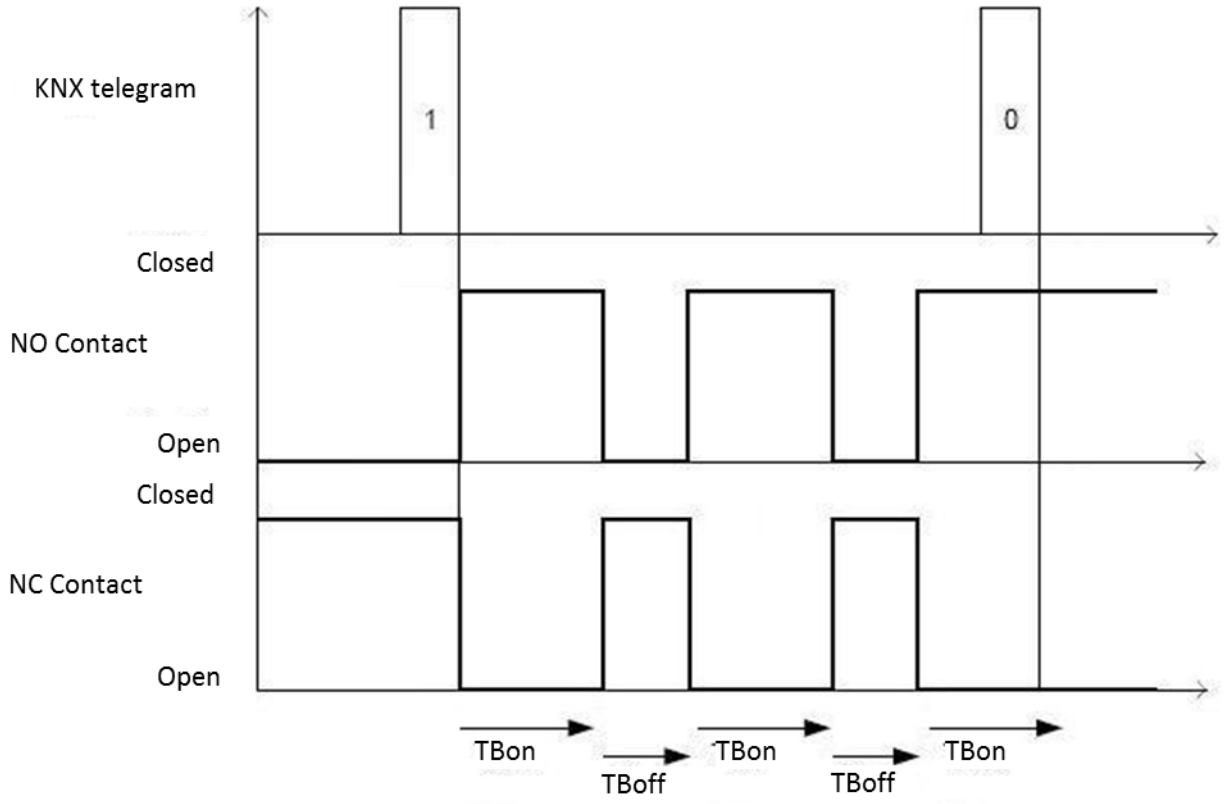
The parameter **“Mode activation value”** determines which logic value received on the communication object ***Ch.x - Blinking*** activates the load activation/deactivation process; The possible values are:

- “0” value
- **“1” value** **(default value)**

If you select **value “0”**, then when the device receives a telegram from the BUS with a logic value equal to “0”, it switches the relay to the status → NO contact closed/NC contact open, and begins the activation time count; at the end of the activation time, the device deactivates the load (NO contact open/NC contact closed) for a period of time equal to the deactivation time, and then reactivates the load and restarts the process. See the following figure for more information.



If you select **“1” value**, then when the device receives a telegram from the BUS with a logic value equal to “1”, it switches the relay to the status → NO contact closed/NC contact open, and begins the activation time count; at the end of the activation time, the device deactivates the load (NO contact open/NC contact closed) for a period of time equal to the deactivation time, and then reactivates the load and restarts the process. See the following figure for more information.



8.1.2 Activation/Deactivation time [minutes] / [seconds]

The parameter **"Activation time [minutes]"** is used to set the first of the two values (minutes) that make up the load activation time (TLon); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

The parameter **"Activation time [seconds]"** is used to set the last of the two values (seconds) that make up the load activation time (TLon); The values that can be set are:

- from 0 to 59 in steps of 1, **5 (default value)**

The parameter **"Deactivation time [minutes]"** is used to set the first of the two values (minutes) that make up the load deactivation time (TLoff); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

The parameter **"Deactivation time [seconds]"** is used to set the last of the two values (seconds) that make up the load deactivation time (TLoff); The values that can be set are:

- from 0 to 59 in steps of 1, **5 (default value)**

8.1.3 Relay status on switching blinking mode off

It is possible to define the status of the relay contact upon receiving the blinking mode deactivation command via the parameter **"Relay status on switching blinking mode off"** which can have the following values:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- **no change** **(default value)**

By selecting **no change**, the status of the contact remains the one assumed when the mode deactivation command was received.

8.1.4 Blinking mode on bus voltage recovery

The parameter **"Blinking mode on bus voltage recovery"** is used to define the status of the blinking mode on BUS voltage recovery; The values that can be set are:

- deactivated
- active
- **as before voltage drop** **(default value)**

By selecting **active**, if no function with a higher priority than the blinking mode is active, the device will start the blinking phase, ignoring the value set for the **"Relay status after bus voltage recovery"** item in the **Channel x settings** menu.

9 *“Channel x scenes” or “Channels 1..8 scenes”* menu

The scenes function is used to replicate a certain pre-set or previously memorised status upon receipt of the scene execution command; from the BUS, this function can be controlled via the communication object ***OUT.x - Scene*** (Data Point Type 18.001 DPT_SceneControl). The device is able to memorise and execute 8 scenes.
The menu is visible if the parameter **“Scenes function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

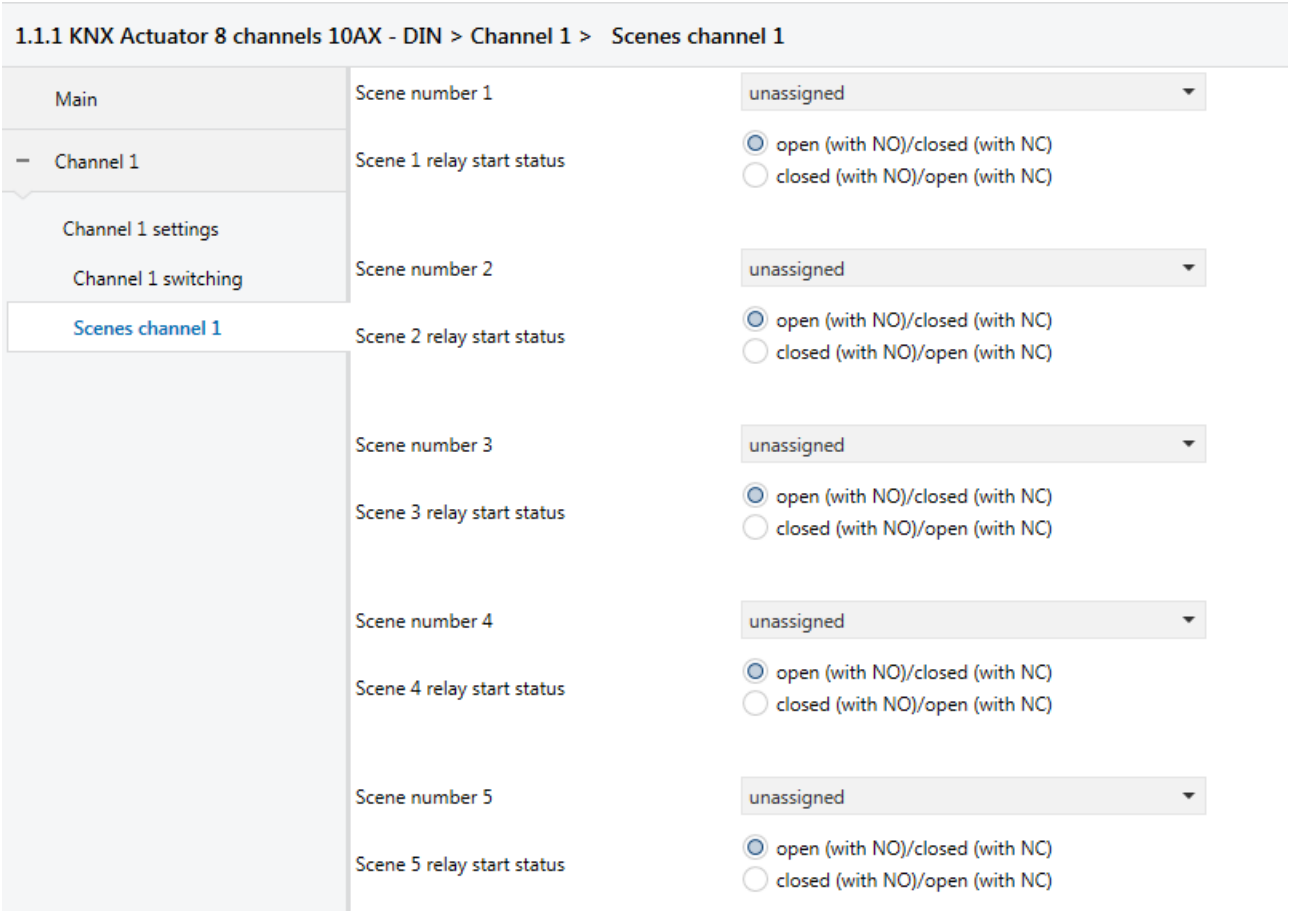


Fig. 9.1

9.1 Parameters

9.1.1 Scene number i

With the **“Scene number i”** (1 ≤ i ≤ 8) parameters, it is possible to set the numerical value for identifying and therefore executing/memorising the i-th scene. The possible values are:

- **unassigned** **(default value)**
- 0, 1.. 63

9.1.2 Scene i relay start status

The parameters **"Scene i relay start status"** (1 ≤ i ≤ 8) are used to preset the status of the contact that the device must replicate after receiving a telegram for the execution of the i-th scene. The possible values are:

- **open (with NO)/closed (with NC)** **(default value)**
- closed (with NO)/open (with NC)

9.1.3 Scenes storing enabling

The parameter **"Scene storing enabling"** makes it possible to enable/disable the possibility of scene learning via the communication object ***Ch. x - Scene.*** The parameter may assume the following values:

- disable
- **enable** **(default value)**

selecting the value **enable**, displays the communication object ***Ch.x – Scene storing enabling*** (Data Point Type: 1.003 DPT_Enable) which enables or disables (via BUS) the possibility of scene learning via the communication object ***Ch.x - Scene***.

10 *“Channel x Logic” or “Channels 1..8 Logic”* menu

Load activation/deactivation can be subordinated on the basis of the results of logic operations whose inputs are their communication objects. The menu is visible if the parameter **“Logic function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

If it is enabled, the following menu structure appears:

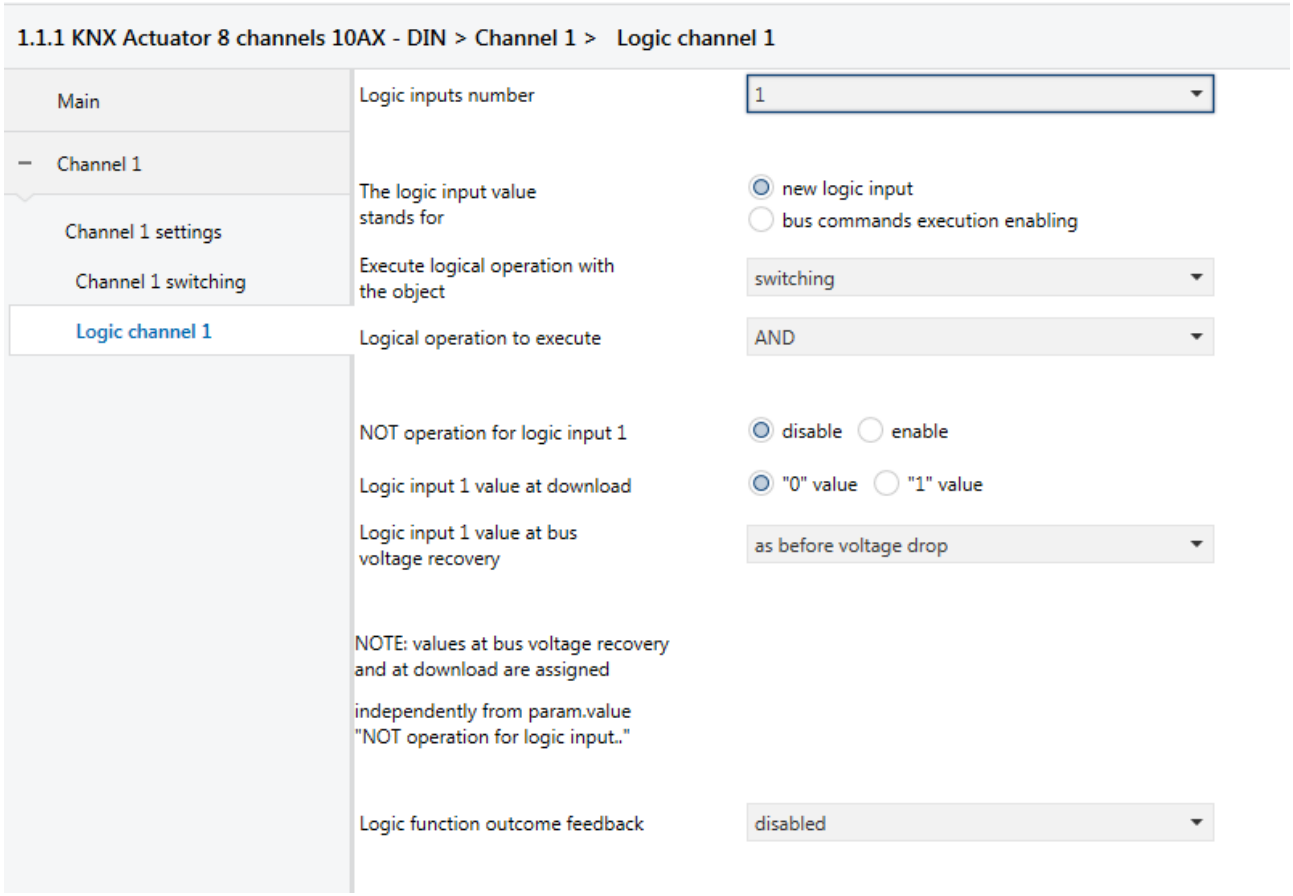


Fig. 10.1

10.1 Parameters

10.1.1 Logic inputs number

It is possible to set the number of logic inputs via the parameter **”Logic inputs number”** which can assume the following values:

- **1** (default value), 2, 3, 4, 5, 6, 7, 8

Based on the selected value, the following communication objects are made available ***Ch.x – Logic input 1***, ***Ch.x - Logic input 2***, ***Ch.x - Logic input 3***, ***Ch.x - Logic input 4***, ***Ch.x - Logic input 5***, ***Ch.x - Logic input 6***, ***Ch.x - Logic input 7*** and ***Ch.x - Logic input 8***.

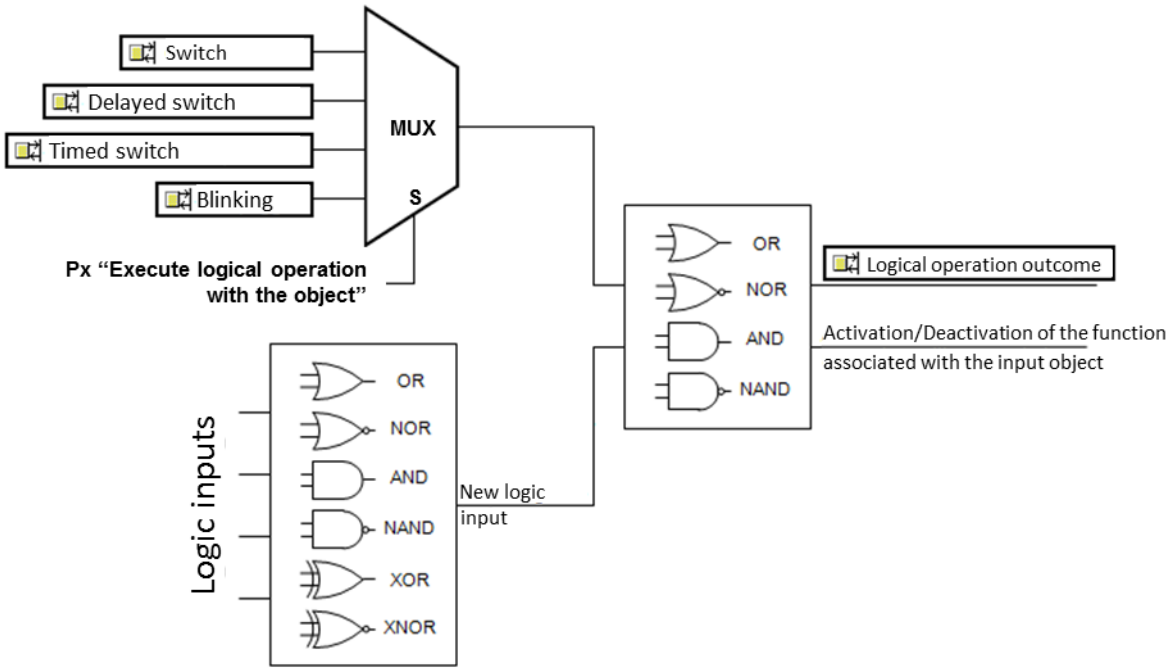
10.1.2 Operation between logic inputs

If the set value is not **1**, it is possible to set the logic operation to be executed between the logic inputs. The operation is selected using the **"Operation between logic inputs"** parameter, which can assume the following values:

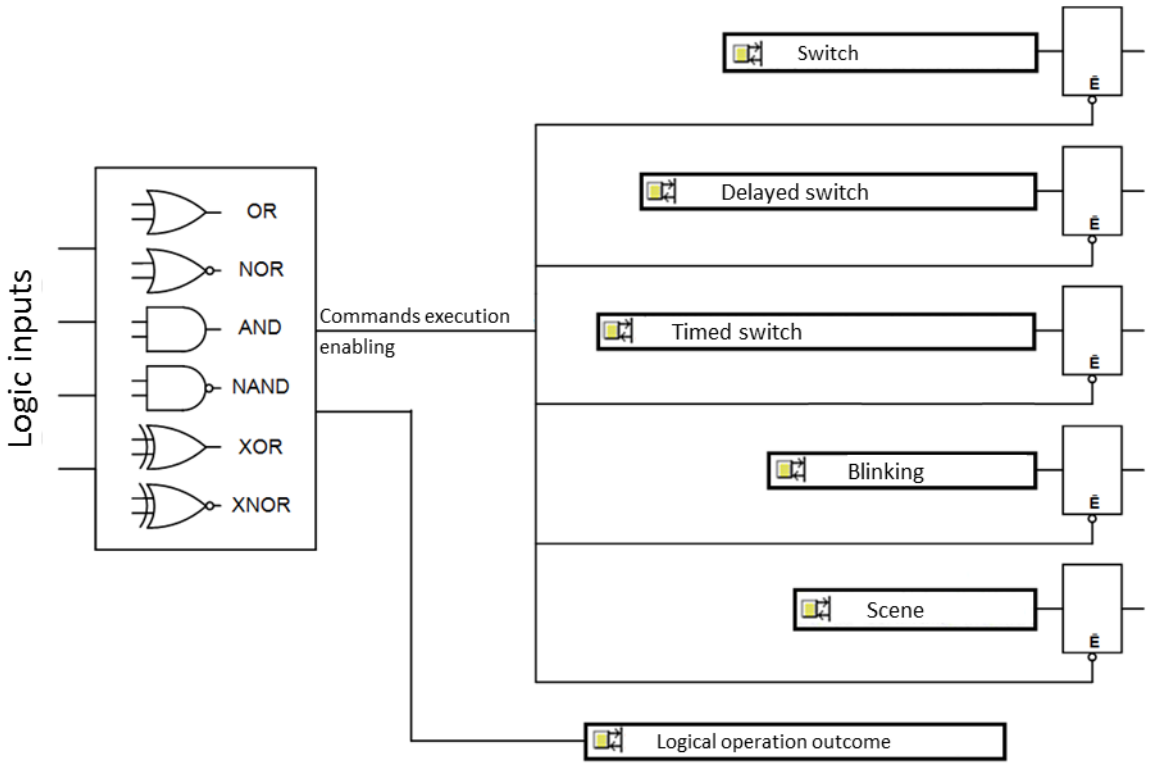
- **AND** **(default value)**
- OR
- NAND
- NOR
- XOR
- XNOR

The outcome of the operations between logic inputs (or the value of the individual logic input, if only one logic input was set) can be used as follows:

1 as the input of another logic operation, executed with one of the following objects ***Ch.x - Switch***, ***Ch.x – Timed switch***, ***Ch.x – Delayed switch*** and ***Ch.x - Blinking***



2 to enable the execution of commands received via the BUS on the ***Ch.x - Switch***, ***Ch.x – Timed switch***, ***Ch.x – Delayed switch, Ch.x - Blinking*** and ***Ch.x - Scene*** objects



10.1.3 The outcome of the operation with logic inputs stands for

The parameter for selecting the function of the result of the operation between logic inputs is **"The outcome of the operation with logic inputs stands for"**, in the case of a single logic input, this is replaced by the parameter **"The logic input value stands for"**; These parameters can assume the following values:

- **new logic input** **(default value)**
- bus commands execution enabling

If the value **new logic input** was selected (case 1), it is possible to define which object should be used to execute the new logic operation via the parameter **"Execute logical operation with the object"** and the logic operation to execute with the selected object via the parameter **"Logical operation to execute"**.

10.1.4 Execute logical operation with the object

The parameter **"Execute logical operation with the object"** can assume the following values:

- **switching** **(default value)**
- delayed switching
- timed switch
- flashing

The function matched with the selected object will be activated/deactivated depending on the result of the logic. EXAMPLE: selecting the "blinking" object and the function has been enabled in ETS, when the logic is true, then the blinking function is activated, whereas if the logic is false, blinking is stopped.
if the function is not activated, the logic will not have any effect on the load connected to the output.

10.1.5 Logical operation to execute

The parameter **“Logical operation to execute”** can assume the following values:

- **AND (default value)**
- OR
- NAND
- NOR

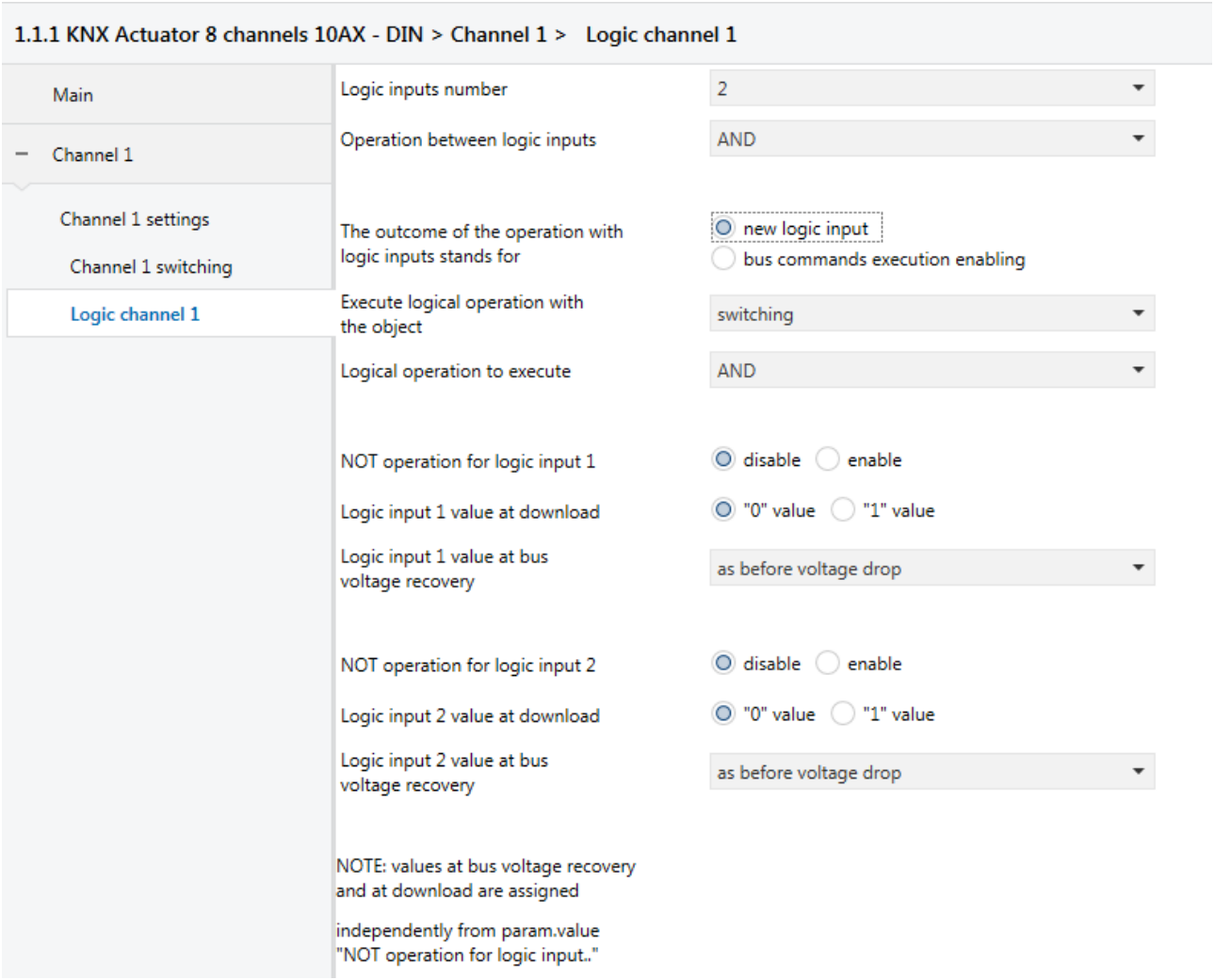


Fig. 10.2: Section “Channel x” - “Logical channel x” menu - case 1

If the value **bus command execution enabling** is selected (case 2), a series of parameters appear that are used to set which commands received from the BUS require enabling to be executed; the parameters in question are **“Switching (on/off) commands”**, **“Delayed switching commands”**, **“Timed activation commands”**, **“Blinking switching on/off commands”** and **“Scene commands”**, which can assume the following values:

- **independent from logic function** **(default value)**
- enabled by logic function

The commands enabled by the logic function are only executed if the outcome of the logic operation is true. If the outcome of the logic operation changes from false to true, the commands received after the status

change will be executed. The commands received when the outcome of the logic function is false are ignored.

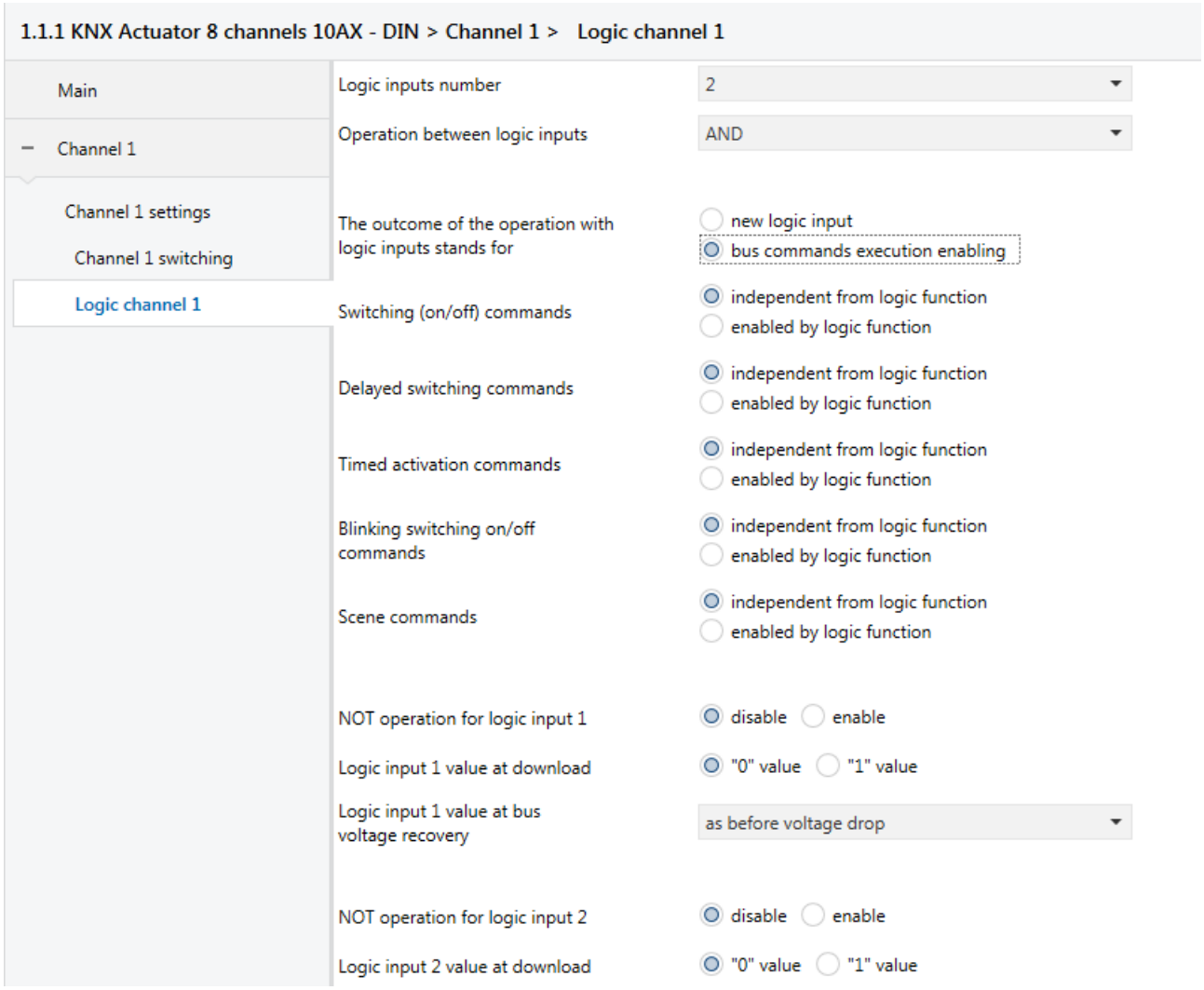


Fig. 10.3: Section “Channel x” - “Logical channel x” menu - case 2

10.1.6 NOT operation for logic input X

It is possible to refuse the value received from the BUS on the communication objects associated with the logic inputs via the parameters **“NOT operation for logic input X”** (displayed or not, depending on the number of enabled logic inputs), which can have the following values:

- **disable** **(default value)**
- enable

10.1.7 Logic input X value at download

It is possible to set the value of the logic inputs at ETS download via the parameters **"Logic input X value at download** (displayed depending on the number of enabled logic inputs), which can have the following values:

- **"0" value** (**default value)**
- "1" value

10.1.8 Logic input X value at bus voltage recovery

It is possible to set the value of the logic inputs in the case of BUS power supply voltage recovery via the parameters **"Logic X input value at bus voltage recovery"** (displayed depending on the number of enabled logic inputs), which can have the following values:

- "0" value
- "1" value
- **as before voltage drop (default value)**

selecting the value **as before voltage drop**, the device restores the values that were present prior to the voltage drop and sends the read request on the objects ***Ch.x – Logic input 1***, ***Ch.x - Logic input 2***, ***Ch.x - Logic input 3***, ***Ch.x - Logic input 4***, ***Ch.x - Logic input 5***, ***Ch.x - Logic input 6***, ***Ch.x - Logic input 7*** and ***Ch.x - Logic input 8*** to be updated with the field.

NOTE: The values at BUS voltage recovery and downloading are assigned to logic objects independently of the value of the parameters **"NOT operation for logic input i"** (1<i<8).

10.1.9 Logic function outcome feedback

Finally, it is possible to enable the sending of the outcome of the logic function on the BUS, and specify whether this information should always be sent when an input changes, or only if the outcome of the logic function changes via the **"Logic function outcome warning"**parameter, which can have the following values:

- **disabled (default value)**
- only if outcome changes
- even if outcome doesn't change

Setting a value other than **disabled**, displays the output communication object ***Ch.x – Logical operation outcome*** (Data Point Type: 1.002 DPT_Bool).
The value transmitted on the BUS is:

a) the result of the operation between the outcome of the operation with logic inputs and the object selected in the parameter **"Execute logical operation with the object"** if the value of the parameter **"The outcome of the operation with logic inputs stands for"** is **new logic input**

b) the result of the operation between logic inputs if the value of the parameter is **bus commands execution enabling.**

11 *"Channel x safety" or "Channels 1..8 safety"* menu

The safety function allows the output to function under normal conditions until certain set conditions occur (no periodic reception, reception of particular data from the BUS), after which the device forces the status of the relay to a specific condition; to deactivate the safety function, the normal operation conditions must be reset. Any command that is received (excluding the block activation and forcing activation command) during a period when the safety is activated will not be executed as it has priority over any other BUS command, with the exception of the block and forcing functions.
The communication object used to monitor the operating conditions is the **Ch.x - Safety** object.
The device signals the activation status of the safety function via the communication object ***Ch.x - Safety*** regardless of whether or not functions with a higher priority are active. The communication object is sent on request, when the BUS voltage is recovered, and spontaneously on change of the function activation status.
The ***Ch.x – Safety*** object is therefore an input/output object. With KNX technology, a communication object is sent to a single destination group address, so if this object is associated with more than one group address, the device will send the BUS telegram to the group address where the object has the "S" (sending) flag. Vice versa, the device will update its value when a BUS telegram is received on any group address associated with the object, regardless of the "S" flag.

The menu is visible if the parameter **"Safety function"** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

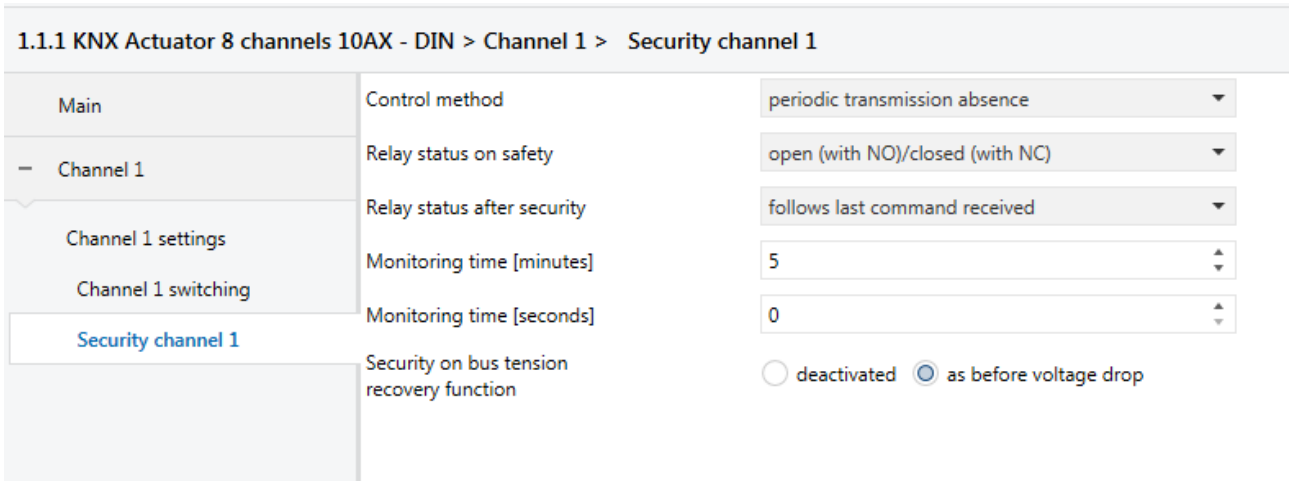


Fig. 11.1

11.1 Parameters

11.1.1 Control method

The parameter **"Control method"** is used to define the conditions for which the device activates the safety function; unlike the process for the ***Block*** and ***Forced positioning*** functions, which are activated via a BUS command, the safety function is enabled by the device when the conditions set in the reference parameter occur. The values that can be set are:

- "1" value or periodic transmission absence
- "0" value or periodic transmission absence
- **periodic transmission absence (default value)**

By selecting **value "1" or periodic transmission absence**, the safety function is activated following two events:

- the ***Ch.x - Safety*** communication object no longer receives the telegram with logic value “0” (no periodic transmission) for a period equal to the time represented by the values set in the parameters **“Monitoring time [minutes]”** and **“Monitoring time [seconds]”**.
- if the ***Ch.x - Safety*** communication object receives a telegram with the logic value “1” (value “1” received).

In both cases, the safety function is deactivated when the communication object ***Ch.x - Safety*** receives a telegram with logic value “0”; once safety is deactivated, the monitoring time is restarted.

By selecting **value “0” or periodic transmission absence**, the safety function is activated following two events:

- the ***Ch.x - Safety*** communication object no longer receives the telegram with logic value “1” (no periodic transmission) for a period equal to the time represented by the values set in the parameters **“Monitoring time [minutes]”** and **“Monitoring time [seconds]”**.
- if the ***Ch.x - Safety*** communication object receives a telegram with the logic value “0” (value “0” received).

In both cases, the safety function is deactivated when the communication object ***Ch.x - Safety*** receives a telegram with logic value “1”; once safety is deactivated, the monitoring time is restarted.

Selecting the value **periodic transmission absence**, the safety function is only activated when the communication object ***Ch.x - Safety*** no longer receives a telegram for a period of time equal to the time represented by the values set in the parameters **“Monitoring time [minutes]”** and **“Monitoring time [seconds]”**, regardless of the value of the telegram itself.
The safety function is deactivated when the communication object ***Ch.x - Safety*** receives a telegram with logic value “0” or "1"; once safety is deactivated, the monitoring time is restarted.

11.1.2 Relay status on safety

The parameter **“Relay status on safety”** is used to set the status of the contact when the safety function is active. The values that can be set are:

- **open (with NO)/closed (with NC)** **(default value)**
- closed (with NO)/open (with NC)
- no change

11.1.3 Relay status after safety

When normal operating conditions are restored (safety deactivation), the status to which the actuator switches the relay is defined by the parameter **“Relay status after security”**. The possible values are:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- no change
- **follows last command received** **(default value)**
- as before safety activation

By selecting the value **follows last command received**, the output follows the dynamics determined by the last command, as if the execution of the command was initiated at the moment in which it was effectively received. Essentially, the command is executed in the background and is applied to the output in the moment in which safety is ended. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of safety deactivation or commands with delayed activation/deactivation.

11.1.4 Monitoring time [minutes] / [seconds]

The parameter **“Monitoring time [minutes]”** is used to set the first of the two values (minutes) that make up the time that must pass after which the device will activate the safety if it does not receive the expected telegram (no periodic transmission); The values that can be set are:

- from 0 to 59 in steps of 1, **5 (default value)**

The parameter **"Monitoring time [seconds]"** is used to set the second of the two values (seconds) that make up the time that must pass after which the device will activate the safety if it does not receive the expected telegram (no periodic transmission); The values that can be set are:

- from **0 (default value)** to 59, with steps of 1

NOTE: Setting a monitoring time equal to **0 minutes** and **0 seconds**, the monitoring of the object ***Ch.X*** - ***Safety*** is not performed and the lack of periodic transmission on the object does not activate the function.

11.1.5 Safety on bus tension recovery function

The parameter **"Safety on bus tension recovery function"** is used to determine the status of the security function on BUS voltage recovery. This parameter is useful if the function is active when the BUS voltage drops and you want to have the output behaviour not to be changed after voltage failure. The parameter may assume the following values:

- deactivated
- **as before voltage drop** **(default value)**

If the value **deactivated** is selected (and safety was activated before the BUS voltage drop), when the BUS voltage is recovered the safety function will be deactivated and the relay will take on the value determined by the parameter **"Relay status after safety"**. If the value set for this last parameter is **follows last command received**, the output will execute the last command received before the BUS voltage drop that, as a result, must be stored to the non-volatile memory. If the last command received before voltage drop is a timed activation or activation delay command, when the BUS voltage is recovered the command will not be executed and the relay will switch to the open (with NO)/closed (with NC) status.
If the **as before voltage drop** value is selected (and the safety was activated before the BUS voltage drop), when the BUS voltage is reset the safety function will be reactivated and the relay will switch to the conditions set by the parameter **"Relay status on safety"**.

12 *“Channel X forced positioning” or “Channels 1..8 forced positioning” (Priority command)* menu

It is possible to force the relay status in a certain (settable) condition after receiving the communication object ***Ch. x - Priority command*** (Data Point Type: 2.001 DPT_Switch_Control) which activates the forced positioning function; until this is deactivated, any command received on all other input communication objects will not be executed (with the exception of commands received on the ***Ch.x - Block*** object). The forcing function has the highest priority over all others with the exception of the Block function.
The device signals the activation status of the forcing function via the communication object ***Ch.x - Priority command*** regardless of whether or not functions with a higher priority are active. The communication object is sent on request, when the BUS voltage is recovered, and spontaneously. It is sent spontaneously when the status passes from "activate forcing ON" to "activate forcing OFF" or "deactivate forcing", and vice versa.
The ***Ch.x – Priority command*** object is therefore an input/output object. With KNX technology, a communication object is sent to a single destination group address, so if this object is associated with more than one group address, the device will send the BUS telegram to the group address where the object has the “S” (sending) flag. Vice versa, the device will update its value when a BUS telegram is received on any group address associated with the object, regardless of the “S” flag.

The menu is visible if the parameter **“Forced positioning function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

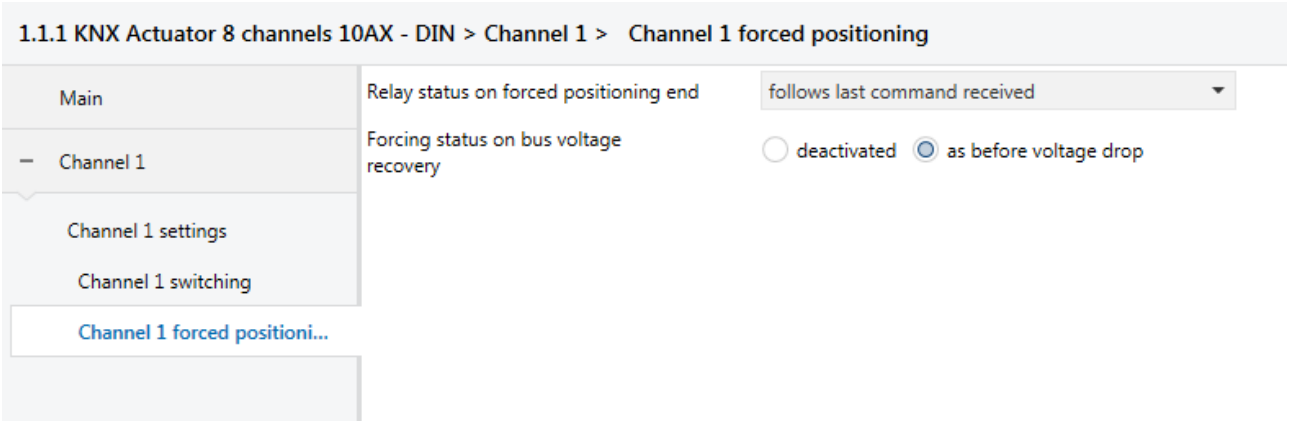


Fig. 12.1

The semantics of the command received from the BUS (via the 2 bit object ***Ch.x – Priority command”)*** follow what is shown in the table below:

bit 1	bit 0	
0	0	Forcing deactivation
0	1	Forcing deactivation
1	0	Forcing OFF
1	1	Forcing ON

When a priority command is received with the forcing activation ON value, the actuator switches the relay, closing the NO contact or opening the NC contact. Vice versa, when a priority command is received with the forcing activation OFF value, the actuator switches the relay, opening the NO contact or closing the NC contact.

12.1 Parameters

12.1.1 Relay status on forced positioning end

Upon receipt of the forcing deactivation command, the status to which the output switches the relay is defined by the parameter **"Relay status on forced positioning end"**. The possible values are:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- no change
- **follows last command received** **(default value)**
- as before forcing activation

If the parameter assumes the value **follow last command received**, the output follows the dynamics determined by the last command as if the execution of the command was initiated at the moment in which it was effectively received. Essentially, the command is executed in the background and is applied to the output in the moment in which forcing is ended. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of forcing deactivation or commands with delayed activation/deactivation.

12.1.2 Forcing status on bus voltage recovery

The parameter **"Forcing status on bus voltage recovery"** is used to determine the status of the forcing function on BUS voltage recovery. This parameter is useful if the function is active when the BUS voltage drops and you want to have the output behaviour not to be changed after voltage failure.
The parameter may assume the following values:

- deactivated
- **as before voltage drop** **(default value)**

If the **deactivated** value is selected (and the forcing was activated before the BUS voltage drop), when the BUS voltage is reset the forcing function will be deactivated and the relay will take on the value determined by the **"Relay status on forced positioning end"** parameter. If the value set for this last parameter is **follows last command received**, the actuator will execute the last command received before the BUS voltage drop that, as a result, must be stored to the non-volatile memory. If the last command received before voltage drop is a timed activation or activation delay command, when the BUS voltage is recovered the command will not be executed and the relay will switch to the open (with NO)/closed (with NC) status.
If the value **as before voltage drop** is selected (and forcing was activated before BUS voltage drop), when the BUS voltage is recovered the forcing function is reactivated and the relay switches to the status prior to the voltage drop.

If a forcing deactivation command is received and the **Relay status on forced positioning end"** parameter assumes the value **follows last command received**, the actuator executes the last command received before the BUS voltage drop (which, as a result, must be stored in the non-volatile memory). If the last command received before voltage drop is a timed activation or activation delay command, when the BUS voltage is recovered the command will not be executed and the relay will switch to the open (with NO)/closed (with NC) status.

13 *“Channel X block” or “Channels 1..8 block”* menu

It is possible to block the device in a certain (settable) condition after receiving the communication ***Ch. x - Block*** (Data Point Type: 1.003 DPT_Enable) which activates the block function; until it is deactivated, any command received on all other input communication objects will not be executed. The block function is the function with the highest priority.
The device always signals the activation status of the block function via the communication object ***Ch.x - Block***. The communication object is sent on request, when the BUS voltage is recovered, and spontaneously on change of the function activation status.
The ***Ch.x – Block*** object is therefore an input/output object. With KNX technology, a communication object is sent to a single destination group address, so if this object is associated with more than one group address, the device will send the BUS telegram to the group address where the object has the “S” (sending) flag. Vice versa, the device will update its value when a BUS telegram is received on any group address associated with the object, regardless of the “S” flag.

The menu is visible if the parameter **“*Block function*”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

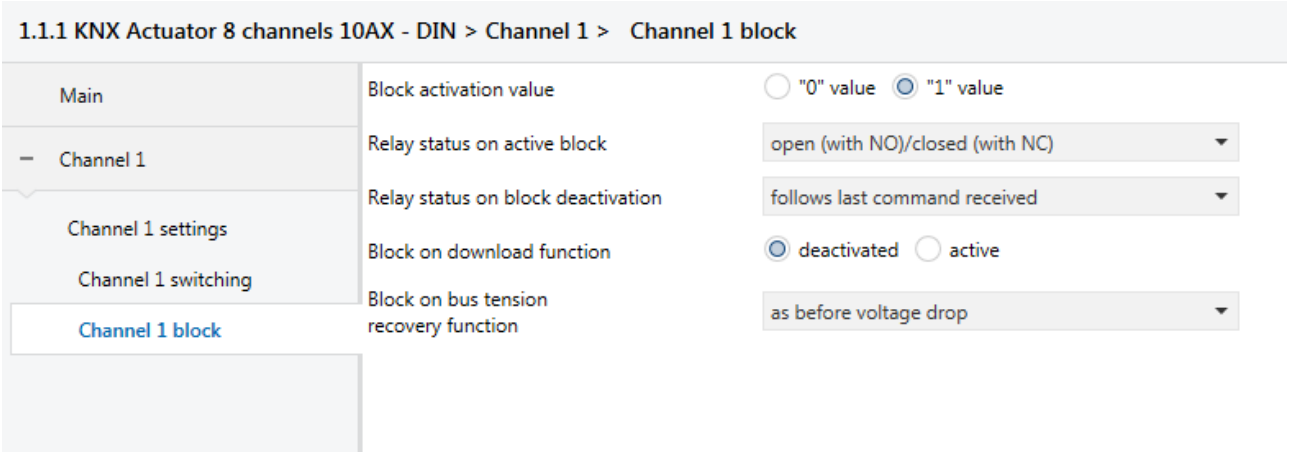


Fig. 13.1

13.1 Parameters

13.1.1 Block activation value

The parameter **“Block activation value”** determines which logic value activates the actuator block function. The possible values are:

- “0” value
- **“1” value** **(default value)**

13.1.2 Relay status on active block

The parameter **“Relay status on active block”** is used to set the status that the contact must assume when the block function is activated The possible values are:

- **open (with NO)/closed (with NC)**
- closed (with NO)/open (with NC)

- no change

13.1.3 Relay status on block deactivation

The parameter **"Relay status on block deactivation"** is used to set the status that the contact must assume after the deactivation of the block function, the possible values are:

- open (with NO)/closed (with NC)
- closed (with NO)/open (with NC)
- no change
- **follows last command received** **(default value)**
- as before block activation

If the parameter assumes the value **follows last command received**, the output follows the dynamics determined by the last command as if the execution of the command was initiated at the moment in which it was effectively received. Essentially, the command is executed in the background and is applied to the output in the moment in which the block is deactivated. This behaviour applies, for example, to timed actuation commands with timing that has a duration that goes beyond the moment of block deactivation or commands with delayed activation/deactivation.

13.1.4 Block on download function

The parameter **"Block on download function"** sets the block function status after downloading the application from ETS. The possible values are:

- **deactivated** **(default value)**
- active

13.1.5 Block on bus tension recovery function

The parameter **"Block on bus tension recovery function"** is used to set the status of the block function after the BUS power supply voltage is recovered. The possible values are:

- deactivated
- active
- **as before voltage drop** **(default value)**

If the **deactivated** value is selected (and the block function was activated before the BUS voltage drop), when the BUS voltage is reset the block function will be deactivated and the relay will take on the value determined by the **"Relay status on block deactivation"** parameter. If the value set for this last parameter is **follows last command received**, the output will execute the last command received before the BUS voltage drop that, as a result, must be stored to the non-volatile memory. If the last command received before voltage drop is a timed activation or activation delay command, when the BUS voltage is recovered the command will not be executed and the relay will switch to the open (with NO)/closed (with NC) status.
If the **as before voltage drop** value is selected (and the block function was activated before the BUS voltage drop), when the BUS voltage is reset the block function will be reactivated and the relay will switch to the conditions set by the parameter **"Relay status on active block"**.

14 *“Channel X counters” or “Channels 1..8 counters”* menu

This is used to enable the count of the operating time (closing or opening) and the number of operations of the relay associated with the channel by setting the count parameters.
The menu is visible if the parameter **“Counter function”** of the menu **Channel x settings** (or **Channels 1..8 settings** in the case of the common configuration of the channels) is set to **active**.

The structure of the menu is as follows:

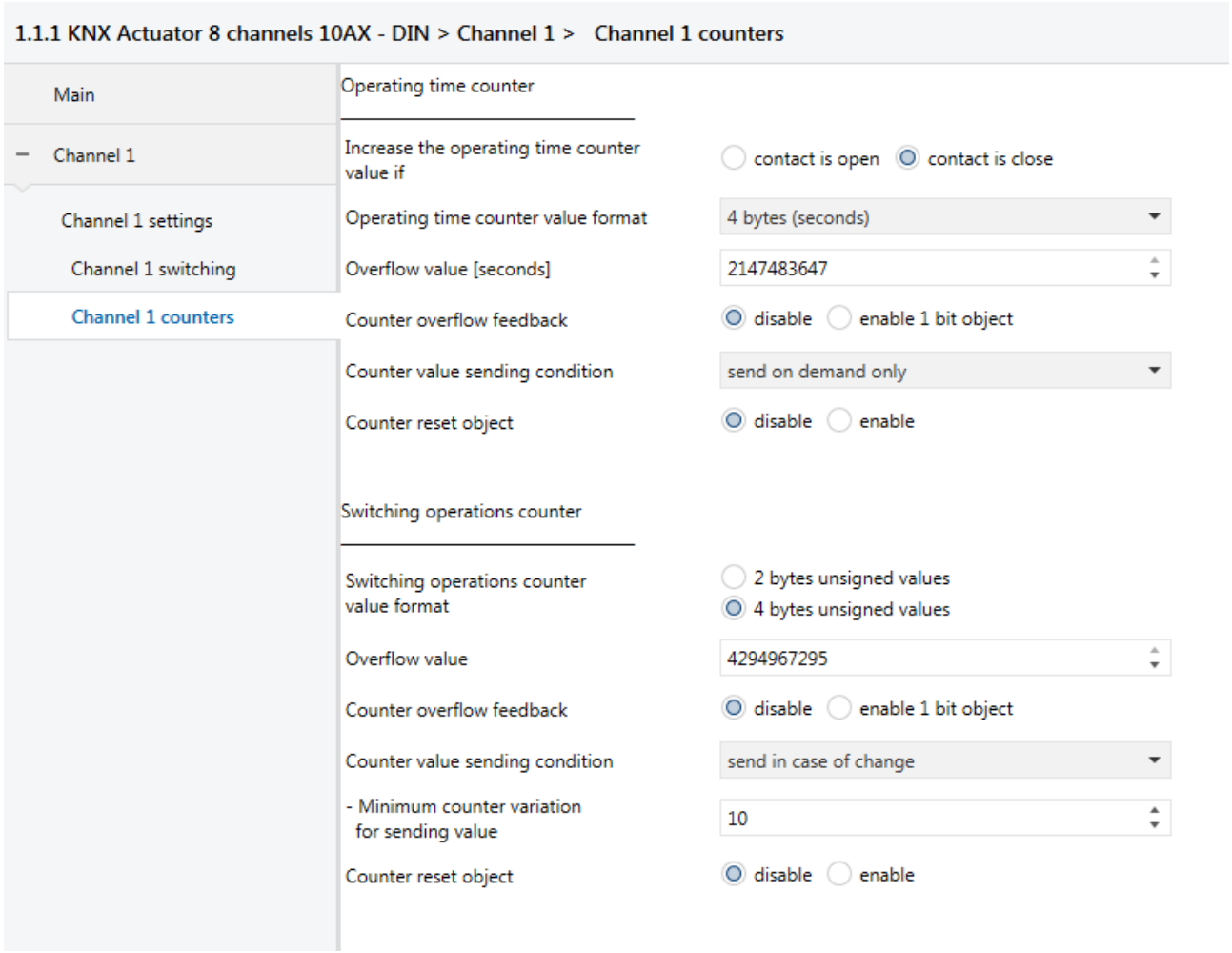


Fig. 14.1

14.1 “Operating time counter” menu parameters

The device is able to signal the count of the total operating time (closing or opening) of the relay; The count is based on the detection of the status of the relay associated with the output. Two statuses can be detected: closed contact and open contact.

14.1.1 Increase the operating time counter value if

The parameter **“Increase the operating time counter value if”** is used to set the status of the contact that is considered for increasing the counter. The values that can be set are:

- contact is open
- **contact is closed (default value)**

The count takes place only if BUS voltage is present; otherwise, the counter is not increased.

14.1.2 Operating time counter value format

The counter that is used for the count can have different units of measure depending on the format selected for transmitting the value on the KNX BUS; therefore, with the parameter **"Operating time counter value format"** it is possible to define the size and code of the communication object used to communicate the counter value and as a result the unit of measure of the counter. The values that can be set are:

- **4 byte (seconds)** **(default value)**
- 2 bytes (minutes)
- 2 bytes (hours)

The value set in this item will change, as a result, the values set for the parameter **"Overflow value"** and the format of the communication object ***Ch.x – Operating time counter***; The initial value is always 0, regardless of the format selected.

14.1.3 Overflow value [seconds]

The parameter **"Overflow value"** is used to set the maximum value of the operating time counter; in fact, it is possible to set the maximum counter value - i.e. the value beyond which the counter is in an overflow condition.
Depending on the value set for the parameter **"Operating time counter value format"** the values that can be set for this item will be different:

- If the counter format is **4 byte (seconds)**, this displays the communication object ***Ch.x – Operating time counter*** (Data Point Type: 13.100 DPT_LongDeltaTimeSec) and the values that can be set for the above parameter are:
  - from 0 to **2147483647 (default value, ≈ 68 years)** with steps of 1
- If the counter format is **2 byte (minutes)**, this displays the communication object ***Ch.x – Operating time counter*** (Data Point Type: 7.006 DPT_TimePeriodMin) and the values that can be set for the above parameter are:
  - from 0 to **65535 (default value, ≈ 45.5 days)** with steps of 1
- If the counter format is **2 byte (hours)**, this displays the communication object ***Ch.x – Operating time counter*** (Data Point Type: 7.007 DPT_TimePeriodHrs) and the values that can be set for the above parameter are:
  - from 0 to **65535 (default value, ≈ 7.4 years)** with steps of 1

Once the maximum value has been reached, the counter restarts from 0.

14.1.4 Counter overflow feedback

The parameter **"Counter overflow feedback"** is used to enable the display, and therefore the use, of the communication objects that indicate when the operating time counter has exceeded its maximum value. The values that can be set are:

- **disable** **(default value)**
- enable 1 bit object

selecting the value **enable 1 bit object**, displays the communication object ***Ch.x – Operating time counter overflow*** (Data Point Type: 1.002 DPT_Bool) with which the device indicates the overflow of the operating time counter; When the overflow occurs, a value of “1” is sent; a value of “0” is never sent.

14.1.5 Counter value sending condition

The parameter **“Counter value sending condition”** is used to define the sending conditions of the current operating time counter value. The values that can be set are:

- **send on demand only** **(default value)**
- send in case of change
- send periodically
- sends on change and periodically

Selecting a value other than **send on demand only**, displays the communication object ***Ch.x – Operating time counter trigger*** (Data Point Type: 1.017 DPT_Trigger). selecting the value **send in case of change** or **send on change and periodically** displays the parameter **“Minimum counter variation for sending value”** whereas selecting the value **send periodically** displays the parameter **“Counter sending period [seconds]”**.
Selecting the value **send on demand only**, no new parameter will be enabled because the operating time counter value is not sent spontaneously by the device; only in the case of a status read request will it send the user a telegram in response to the command received, giving information about the current value of the counter.
If the counter sending condition is different from **send on demand only**, there is the possibility to indirectly generate the sending of the current value of the operating time counter following receipt of a BUS telegram on the **Ch.x - Operating time counter trigger** object (with both a value of “1” and a value of “0”); each time the device receives a telegram on that object, it must immediately send the current value of the counter.
After a BUS voltage recovery, the value of the counter should be sent in order to update any connected devices.

The parameter **"Minimum counter variation for sending value"**, which is visible if the operating time counter value is sent on change, is used to define the minimum variation of the counter (in relation to the last value sent) that causes the new value to be spontaneously sent; The values that can be set are:

- from 1 to 100 with steps of 1, **10 (default value)**

The unit of measurement of the minimum variation is the same as what is set for the counter format.

The parameter **“Counter sending period [seconds]”**, which is visible if the operating time counter value is sent periodically, is used to define the period with which telegrams indicating the current counter value are spontaneously sent; The values that can be set are:

- from 1 to 255 with steps of 1, **15 (default value)**

14.1.6 Counter reset object

The parameter **“Counter reset object”** is used to enable the display and therefore the use of the communication object ***Ch.x – Operating time counter reset*** (Data Point Type: 1.017 DPT_Trigger), in order to receive, via BUS, the command to reset the operating time counter for resetting the value. The values that can be set are:

- **disable** **(default value)**
- enable

selecting the value **enable**, displays the communication object ***Ch.x – Operating time counter reset*** through which the device receives the command to reset the operating time counter; if a value “1” or “0” is received, the counter is reinitialised to 0.

In the event of a BUS voltage failure, the operating time counter value must be saved in a non-volatile memory and restored when the BUS voltage is recovered.

14.2 "Switching operations counter" menu parameters

The device is able to signal the count of the number of operations performed by the relay; The count is based on the detection of the change in status of the relay associated with the output. Any operations performed upon BUS resetting or failure or upon the download of the application by ETS are not counted.

14.2.1 Switching operations counter value format

The counter used for the count of the number of operations can have different units of measure depending on the format selected for transmitting the value on the KNX BUS; therefore, with the parameter **"Switching operations counter value format"** it is possible to define the size and code of the communication object used to communicate the counter value and as a result the unit of measure of the counter. The values that can be set are:

- 2 byte unsigned values
- **4 byte unsigned values (default value)**

The value set in this item will change, as a result, the values set for the parameter **"Overflow value"** and the format of the communication object ***Ch.x – Switching operation counter***; The initial value is always 0, regardless of the format selected.

14.2.2 Overflow value

The parameter **"Overflow value"** is used to set the maximum value of the operation number counter; in fact, it is possible to set the maximum counter value - i.e. the value beyond which the counter is in an overflow condition.
Depending on the value set for the parameter **"Switching operations counter value format"** the values that can be set for this item will be different:

- If the counter format is **2 byte unsigned values**, this displays the communication object ***Ch.x – Switching operation counter*** (Data Point Type: 7.001 DPT_Value_2_Ucount) and the values that can be set for the above parameter are:

  - from 0 to **65535 (default value)** with steps of 1

- If the counter format is **4 byte unsigned values**, this displays the communication object ***Ch.x - Switching operation counter*** (Data Point Type: 12.001 DPT_Value_4_Ucount) and the values that can be set for the above parameter are:

  - from 0 to **4294967295 (default value)** with steps of 1

Once the maximum value has been reached, the counter restarts from 0.

14.2.3 Counter overflow feedback

The parameter **"Counter overflow feedback"** is used to enable the display, and therefore the use, of the communication objects that indicate when the operation number counter has exceeded its maximum value. The values that can be set are:

- **disable (default value)**
- enable 1 bit object

selecting the value **enable 1 bit object**, displays the communication object ***Ch.x – Switching operation counter overflow*** (Data Point Type: 1.002 DPT_Bool) with which the device indicates the overflow of the operation number counter; When the overflow occurs, a value of “1” is sent; a value of “0” is never sent.

14.2.4 Counter value sending condition

The parameter **“Counter value sending condition”**, is used to define the sending conditions of the current operation number counter value; The values that can be set are:

- **send on demand only** **(default value)**
- send in case of change
- send periodically
- sends on change and periodically

Selecting a value other than **send on demand only**, displays the communication object ***Ch.x – Switching operation counter trigger*** (Data Point Type: 1.017 DPT_Trigger). Selecting the value **send in case of change** or **send in case of change and periodically** displays the parameter **“Minimum counter variation for sending value”** whereas selecting the value **send periodically** displays the parameter **“Counter sending period [seconds]”**.
Selecting the value **send on demand only**, no new parameter will be enabled because the operation number counter value is not sent spontaneously by the device; only in the case of a status read request will it send the user a telegram in response to the command received, giving information about the current value of the counter.
If the counter sending condition is different from **send on demand only**, there is the possibility to indirectly generate the sending of the current value of the operation number counter following receipt of a BUS telegram on the **Ch.x - Switching operation counter trigger** object (with both a value of “1” and a value of “0”); each time the device receives a telegram on that object, it must immediately send the current value of the counter.
After a BUS voltage recovery, the value of the counter should be sent in order to update any connected devices.

14.2.5 Minimum counter variation for sending value

The parameter **"Minimum counter variation for sending value"**, which is visible if the operation number counter value is sent on change, is used to define the minimum variation of the counter (in relation to the last value sent) that causes the new value to be spontaneously sent. The values that can be set are:

- from 1 to 100 with steps of 1, **10 (default value)**

The unit of measurement of the minimum variation is the same as what is set for the counter format.

The parameter **“Counter sending period [seconds]”**, which is visible if the operation number counter value is sent periodically, is used to define the period with which telegrams indicating the current counter value are spontaneously sent; The values that can be set are:

- from 1 to 255 with steps of 1, **15 (default value)**

14.2.6 Counter reset object

The parameter **"Counter reset object"** is used to enable the visualisation, and therefore the use, of the communication object ***Ch.x – Switching operation counter reset*** (Data Point Type: 1.017 DPT_Trigger), in order to receive, via BUS, the command to reset the operation number counter for resetting the value. The values that can be set are:

- **disable (default value)**
- enable

selecting the value **enable**, displays the communication object ***Ch.x – Switching operation counter reset***, through which the device receives the command to reset the operation number counter; if a value "1" or "0" is received, the counter is reinitialised to 0.

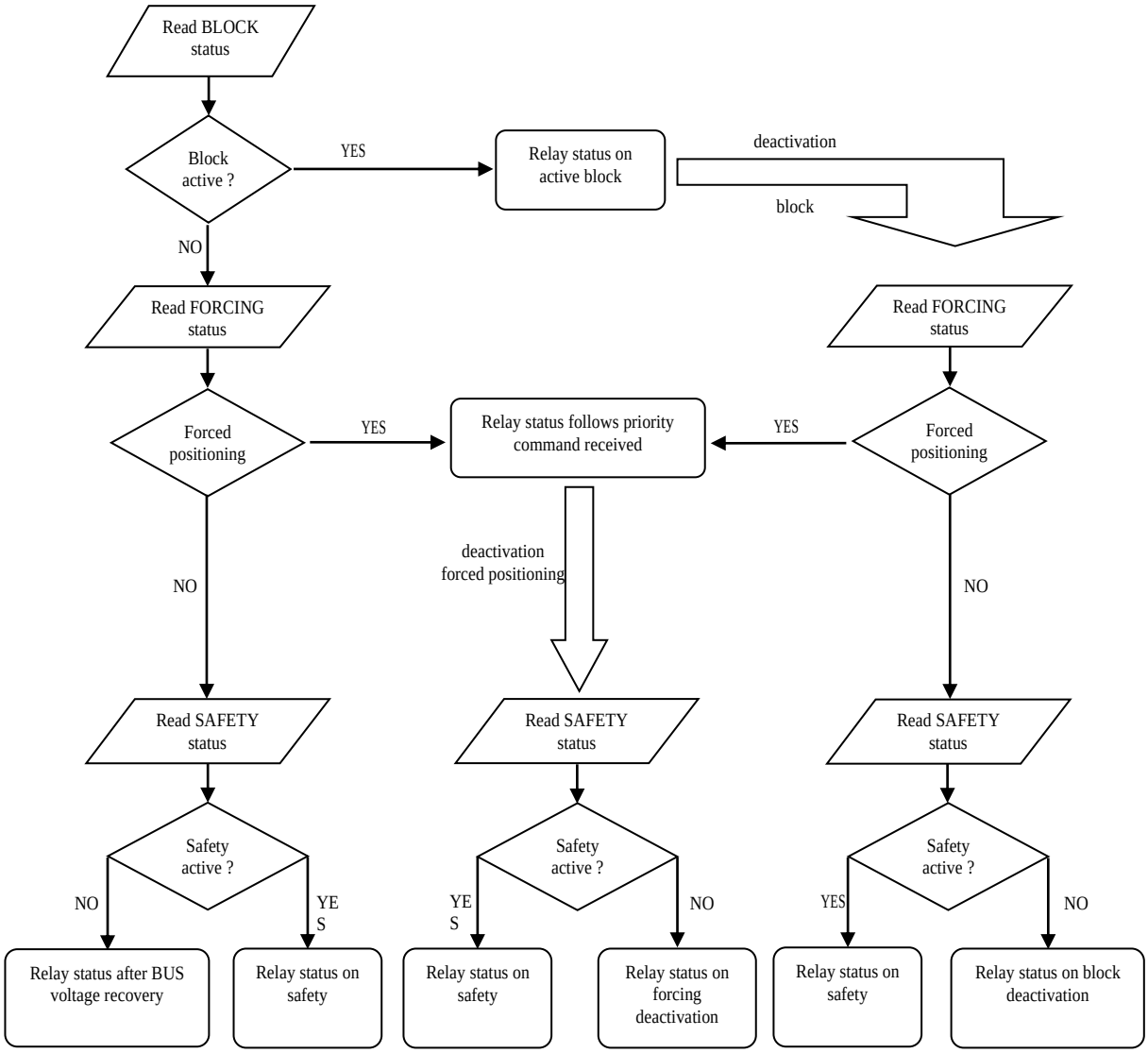
In the event of a BUS voltage failure, the operation number counter value must be saved in a non-volatile memory and restored when the BUS voltage is recovered.

15 Channel X function priority

The priority of the functions implemented by channel x is shown in the following table:

Function	Priority	
On/off switching	1	Low
Timed switching	1	
Delayed switching	1	
Blinking	1	
Scene	1	
Logic function (if used for enabling of commands)	2	
Relay status after safety time	3	
Relay status after forcing	4	
Relay status on block deactivation	5	
Relay status after BUS voltage recovery	6	
Safety status when BUS voltage is reset	7	
Blinking mode at BUS voltage recovery	8	
Forcing status at BUS voltage recovery	9	
Safety	10	
forced positioning	11	
Block	12	
Local push-button (“test on/off” function)	13	
Block function on downloading/BUS voltage recovery (if value = active)	14	
Relay status at BUS voltage failure	15	high

When the BUS voltage is restored, the device behaves as described in the following flow diagram:



16 Signalling of ETC download in progress/application deleted

During the download of the ETS application, the red physical address programming LED blinks cyclically approx. every 1.5 seconds. The LED is deactivated at the end of the download.

Following the “delete application” by ETS, the device switches to the “no configuration” status; also in this case, the red physical address programming LED blinks cyclically approx. every 1.5 seconds. The signalling is deactivated only after the ETS application is downloaded again.

17 Communication objects

The communication objects implemented in the device are shown in the following table:

Output objects:

#								Object name	Object function	Description	Datapoint type
Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8				
0	30	60	90	120	150	180	210	Ch.x - Status	On/Off status	Send status of the load connected to the channel	1.001 DPT_Switch
18	48	78	108	138	168	198	228	Ch.x - Logical operation outcome	Logic	Logic function output	1.002 DPT_Bool
19	49	79	109	139	169	199	229	Ch.x - Safety	Monitoring	Allow sensor monitoring for safety function	1.001 DPT_Switch
20	50	80	110	140	170	200	230	Ch.x - Priority command	On/Off forced positioning	Force load value to on/off value	2.001 DPT_Switch_Contrl
21	51	81	111	141	171	201	231	Ch.x - Block	Enable/Disable	Block load status in a settable condition	1.003 DPT_Enable
22	52	82	112	142	172	202	232	Ch.x - Operating time counter	Value 0 .. 2147483647 [s]	Sends the counter value in seconds	13.100 DPT_LongDeltaTimeSec
22	52	82	112	142	172	202	232	Ch.x - Operating time counter	Value 0 .. 65535 [min]	Sends the counter value in minutes	7.006 DPT_TimePeriodMin
22	52	82	112	142	172	202	232	Ch.x - Operating time counter	Value 0 .. 65535 [h]	Sends the counter value in hours	7.007 DPT_TimePeriodHrs
23	53	83	113	143	173	203	233	Ch.x – Operating time counter overflow	Overflow status	Sends counter overflow feedback	1.002 DPT_Bool
26	56	86	116	146	176	206	236	Ch.x – Switching operation counter	Value 0 .. 65535	Sends the counter value	7.001 DPT_Value_2_Ucount
26	56	86	116	146	176	206	236	Ch.x – Switching operation counter	Value 0 .. 4294967295	Sends the counter value	12.001 DPT_Value_4_Ucount
27	57	87	117	147	177	207	237	Ch.x – Switching operation counter overflow	Overflow status	Sends counter overflow feedback	1.002 DPT_Bool

Input objects:

#								Object name	Object function	Description	Datapoint type
Ch 1	Ch 2	Ch 3	Ch 4	Ch 5	Ch 6	Ch 7	Ch 8				
1	31	61	91	121	151	181	211	Ch.x - Switch	On/Off	Receive load on/off switching commands	1.001 DPT_Switch
2	32	62	92	122	152	182	212	Ch.x – Delayed switching	On/Off	Receive load delayed on/off switching commands	1.001 DPT_Switch
3	33	63	93	123	153	183	213	Ch.x – Delay on activation	Set value	Delay value on switching on	7.005 DPT_TimePeriodSec
4	34	64	94	124	154	184	214	Ch.x – Delay on deactivation	Set value	Delay value on switching off	7.005 DPT_TimePeriodSec
5	35	65	95	125	155	185	215	Ch.x - Timed switch	Start/Stop	Receive timed activation start/stop commands	1.010 DPT_Start
6	36	66	96	126	156	186	216	Ch.x - Stairs light activation time	Set value	Stairs light timing value	7.005 DPT_TimePeriodSec

7	37	67	97	127	157	187	217	Ch.x - Blinking	Switching On/Off	Receive load blinking mode on/off switching commands	1.001 DPT_Switch
8	38	68	98	128	158	188	218	Ch.x - Scene	Execute/Store	Allow scenes storing/execution	18.001 DPT_SceneControl
9	39	69	99	129	159	189	219	Ch.x - Scene storing enabling	Enable/Disable	Enable/disable scenes storing	1.003 DPT_Enable
10	40	70	100	130	160	190	220	Ch.x - Logic input 1	Logic function input	Logic function input	1.002 DPT_Bool
11	41	71	101	131	161	191	221	Ch.x - Logic input 2	Logic function input	Logic function input	1.002 DPT_Bool
12	42	72	102	132	162	192	222	Ch.x - Logic input 3	Logic function input	Logic function input	1.002 DPT_Bool
13	43	73	103	133	163	193	223	Ch.x - Logic input 4	Logic function input	Logic function input	1.002 DPT_Bool
14	44	74	104	134	164	194	224	Ch.x - Logic input 5	Logic function input	Logic function input	1.002 DPT_Bool
15	45	75	105	135	165	195	225	Ch.x - Logic input 6	Logic function input	Logic function input	1.002 DPT_Bool
16	46	76	106	136	166	196	226	Ch.x - Logic input 7	Logic function input	Logic function input	1.002 DPT_Bool
17	47	77	107	137	167	197	227	Ch.x - Logic input 8	Logic function input	Logic function input	1.002 DPT_Bool
19	49	79	109	139	169	199	229	Ch.x - Safety	Monitoring	Allow sensor monitoring for safety function	1.001 DPT_Switch
20	50	80	110	140	170	200	230	Ch.x - Priority command	On/Off forced positioning	Force load value to on/off value	2.001 DPT_Switch_Control
21	51	81	111	141	171	201	231	Ch.x - Block	Switching On/Off	Block load status in a settable condition	1.003 DPT_Enable
24	54	84	114	144	174	204	234	Ch.x – Operating time counter trigger	Counter value transmission	Receives counter value sending request (trigger)	1.017 DPT_Trigger
25	55	85	115	145	175	205	235	Ch.x – Operating time counter reset	Reset value	Receives counter value reset command	1.017 DPT_Trigger
28	58	88	118	148	178	208	238	Ch.x – Switching operation counter trigger	Counter value transmission	Receives counter value sending request (trigger)	1.017 DPT_Trigger
29	59	89	119	149	179	209	239	Ch.x – Switching operation counter reset	Reset value	Receives counter value reset command	1.017 DPT_Trigger
240								All channels switching	On/Off	Receive on/off switching commands of all 8 channels	1.001 DPT_Switch

code 7.01.8.660.6

Ai sensi delle Decisioni e delle Direttive Europee applicabili, si informa che il responsabile dell'immissione del prodotto sul mercato Comunitario è:
According to the applicable Decisions and European Directives, the responsible for placing the apparatus on the Community market is:
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