Three Channels Shutter Actuator
KNX 193K PRO

CONTENTS

SYMBOLS USED IN THE DOCUMENT

WARNING
IMPORTANT INFORMATION FOR CORRECT CONFIGURATION OF THE DEVICE OR REGARDING ITS OPERATION

INFORMATION
USEFUL INFORMATION REGARDING THE OPERATION OF THE DEVICE

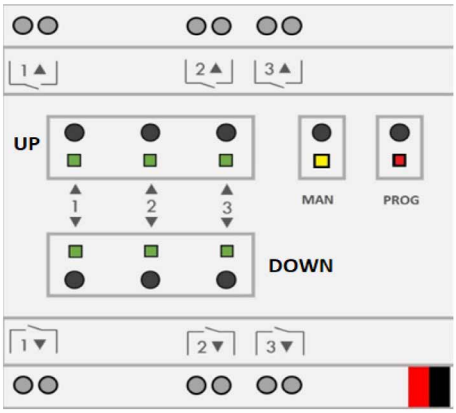
ALERT
VERY IMPORTANT INFORMATION FOR USING THE DEVICE OR REGARDING ITS OPERATION

DOCUMENT REVISION

DATE – REVISION	DESCRIPTION
12/02/2024 Rev 1.0	- The figures refer to the registered device database - Corrected the description of the behaviour with active alarm to comply with the KNX 7/50/2 specifications
15/02/2024 Rev 1.1	- Add warnaing information at paragraph 1.2

1.1 KEYS AND LEDS

PROG KEY: Enter/exit programming mode
red led switches on in programming mode)



MAN KEY

PRESSING TIME	ACTION
Long (≥ 4 seconds)	Yellow led starts flashing. Actuator switches from KNX mode to manual mode. KXN mode is stopped
Long (≥ 15 seconds)	Yellow led ends flashing and switches on until the key is released. The channels configured via ETS enter in installation/commissioning mode and are automatically piloted to put the shutters in the position selected by the parameter "**Position after Download All**". During this operation the leds of the movement in progress flash quickly. The installation sequence is Channel 1 – Channel 2 – Channel 3 separated by a delay set by the parameter "**Contemporary switch delay (s)**" (see 2.2.3) **ATTENTION** The KNX application is disabled as well as to enter in manual mode
Short (< 4 seconds)	Yellow led switches off. Actuator switches from manual mode and returns in KXN mode

CHANNELS keys

Keys 1,2,3 UP
based on the configuration of the channels downloaded via **ETS**, by pressing these keys allows you to implement the **MOVE UP** commands and eventually to adjust the slats position (in this case, depending by the parameter "**Stop UP(DOWN) movement by**" it could be necessary the use of the **DOWN** keys)

Keys 1,2,3 DOWN
based on the configuration of the channels downloaded via **ETS**, by pressing these keys allows you to implement the **MOVE DOWN** commands and eventually to adjust the slats position (in this case, depending by the parameter "**Stop UP(DOWN) movement by**" it could be necessary the use of the **UP** keys)

IMPORTANT
See also **NOTE 4** at paragraph 3.3.9

CHANNELS Leds

UP	DOWN	STATE
ON	OFF	The shutter is in its final position at the top (fully raised)
OFF	ON	The shutter is in the final position at the bottom (fully lowered)
OFF	OFF	The shutter is stopped in intermediate position
BLINK 2Hz	OFF	The shutter is moving up
OFF	BLINK 2Hz	The shutter is moving down

1.2 TYPE OF SHUTTERS COMPATIBLE WITH THE 193K ACTUATOR

ATTENTION

The roller shutter motor must be equipped with a calibrated limit switch to intervene when the upper and lower final positions are reached

1.2.1 SHUTTERS WITH STOP BY DIRECT MOVEMENT CONTROL

In this type of roller shutter, with or without adjustable slats, the stop action occurs by releasing the button that commanded the movement.
The movements are controlled by the continuous and mutually exclusive pressure of dedicated buttons: by keeping the up button pressed the roller shutter rises, releasing it stops; the same for the button that controls the descent movement.
The buttons must not be pressed simultaneously to avoid overloading the roller shutter motor.

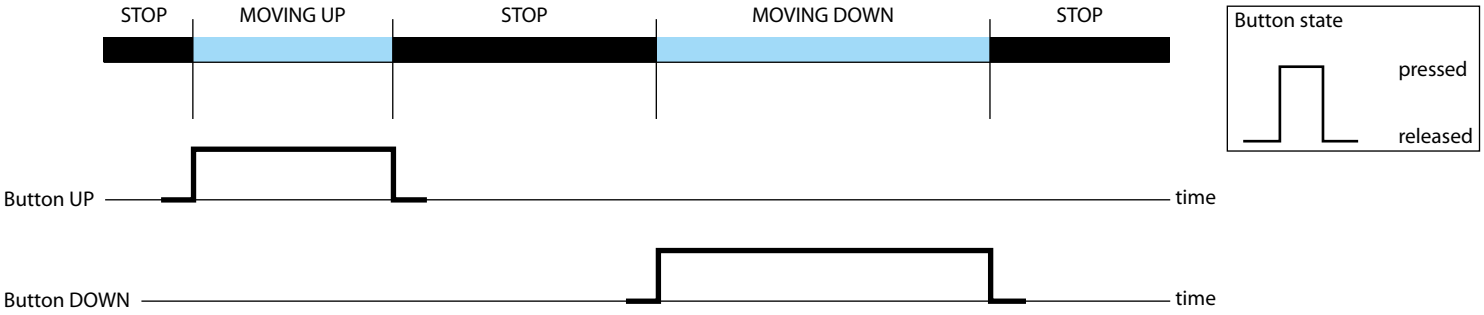


Figure 1

1.2.2 SHUTTERS WITH STOP BY OPPOSITE MOVEMENT CONTROL

In this type of roller shutter, with or without adjustable slats, the movement starts by pressing and releasing a button as well as keeping pressed the button itself.
The stop action occurs by pressing the button that commands the opposite movement to the one in progress, regardless of the state of the button that triggered the movement.

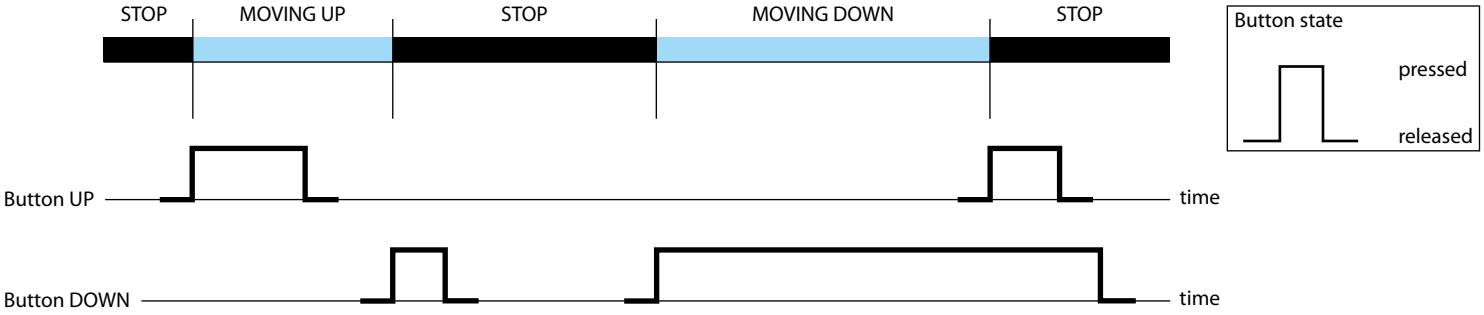


Figure 2

1.2.3 SHUTTERS WITH STOP BY PULSE ON UP OR DOWN CONTROL

In this type of roller shutter, with or without adjustable slats, the movement occurs by pressing a button for an appropriate time, called impulse time. After this interval the movement continues regardless of the state of the button that started it, which can be kept pressed or released. The stop can happen in two ways:

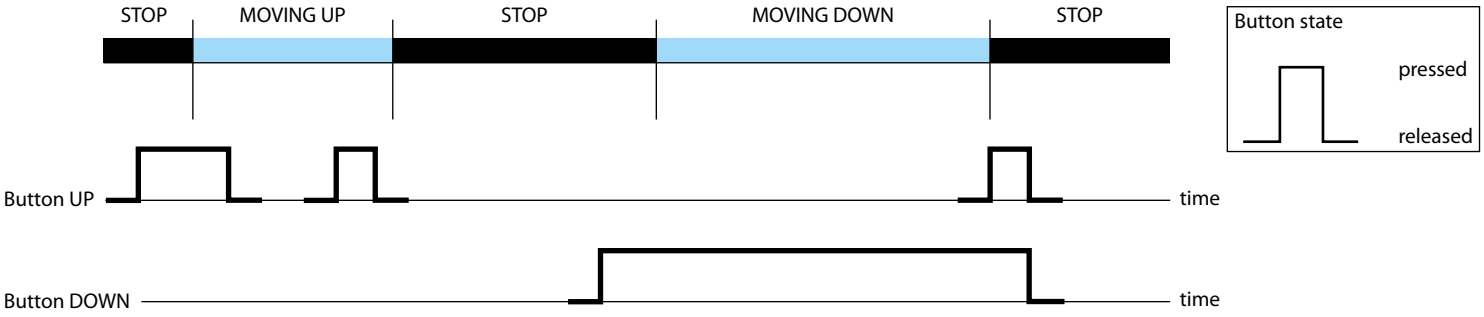


Figure 3

Sometimes, for this kind of shutters with adjustable slats, pressing the buttons the shutter carries out a small step for the positioning of the slats before starting the movement, as shown Figure 4.

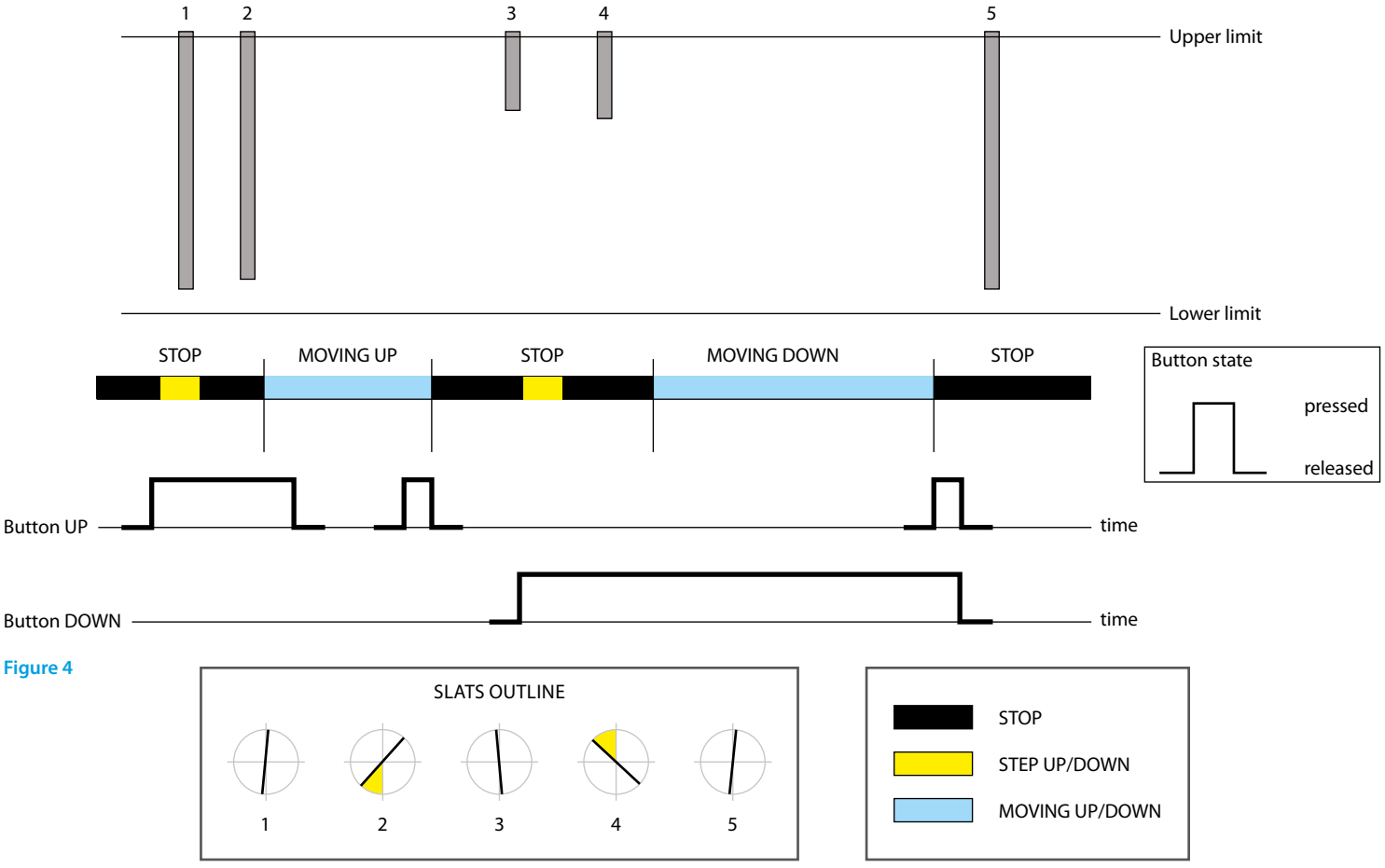


Figure 4

Starting from shutter stopped and slats fully closed (100%) (1), by pressing the up button the shutter initially performs a little step up (2). Once the pulse time has elapsed from button pressed, the upward movement begins. Then the button is released. By pressing the button again and then releasing it, the movement stops and slats are fully open (0%) (3). Stop is executed with the same button that triggered the movement.
The step down (4) starts from shutter stopped by pressing the down button. Downward movement starts after the pulse time has elapsed. It stops immediately by pressing the up button.
Stop is executed with the button that performs the opposite movement to the one in progress.

2 PARAMETER CONFIGURATION PAGES

2.1 CONFIGURATION

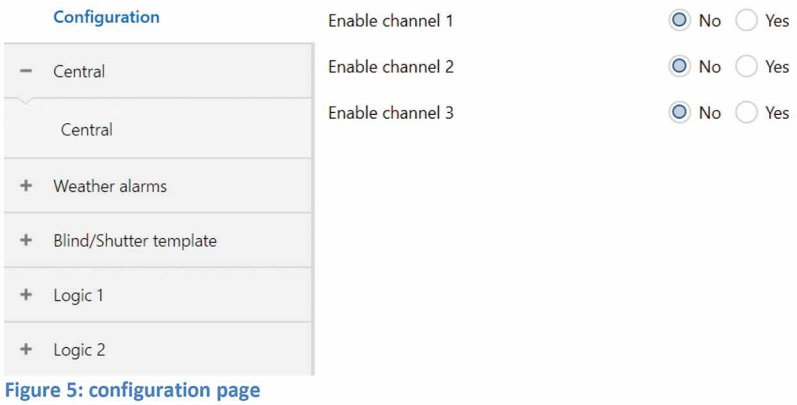


Figure 5: configuration page

2.1.1 ENABLE CHANNEL X (X=1,2,3)

Enables or disables channel X

2.2 CENTRAL

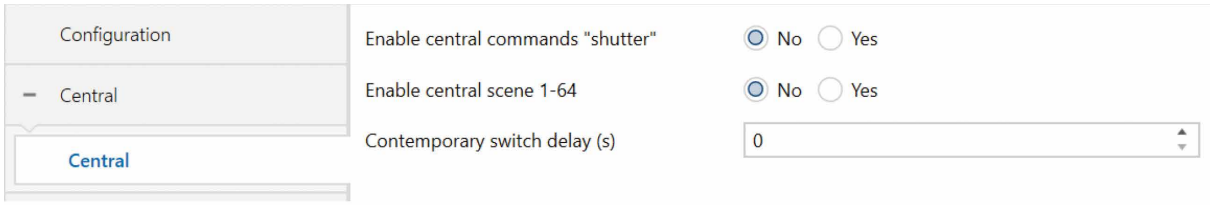


Figure 6: central page

2.2.1 ENABLE CENTRAL COMMANDS "SHUTTER"

This parameter enables or disables centralized shutter commands:
- Central – Stop Up/Down – Adjustment slats
- Central – Move Up/Down
- Central – Set height position
- Central – Set slats position

ATTENTION

These commands will not have any effect if the parameter "**Link channel to central command**" is set to No.
The command 'Set slats position' will not have any effect if the parameter "**Blind/shutter with slats adjustment?**" is set to No

2.2.2 ENABLE CENTRAL SCENE

This parameter enables/disables central scene.

ATTENTION

The centralized scene control will not have any effect if the channel scenarios have not been enabled and configured, either via the template page or individually on the enabled channel.
Moreover, the parameter "**Link channel to central scene**" must be set to Yes

2.2.3 CONTEMPORARY SWITCH DELAY (S)

Sets the delay in seconds between the execution of centralized commands or centralized scene when two or three channels are enabled. If only one channel is enabled or value 0 is set, no delay will be implemented. The execution sequence follows the order of the channel index: channel 1 – channel 2 – channel 3.

- If all channels are enabled the delayed execution of a centralized telegram will affect only channel 2 and channel 3
- if channel 1 and channel 3 are enabled, or channel 2 and channel 3 are enabled, the delayed execution of a centralized telegram will affect only channel 3

ATTENTION

The execution sequence always starts again when a new centralized telegram is received.

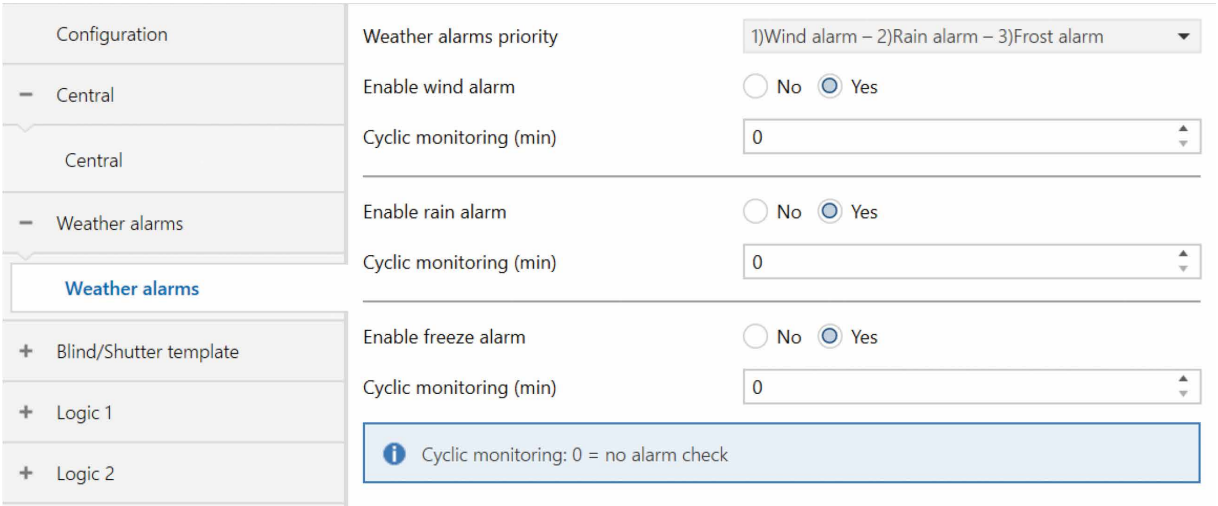


Figure 7: weather alarm page

2.3 WEATHER ALARM

2.3.1 WEATHER ALARMS PRIORITY

This parameter set the alarms priority, when more than one alarm is enabled.
There are three level of priority: 1) = High 2) = Medium and 3) = Low. In case of multiple alarms, the operation associated with the alarm with the highest priority will be performed.

2.3.2 ENABLE WIND/RAIN/FREEZE ALARM

These parameters are used to enable/disable the weather alarms which will then be configured in the shutter channels by setting the general parameter "Weather alarms enabled" to Yes.

2.3.3 CYCLIC MONITORING (min)

By this parameter it is possible to set a monitoring time for receiving the alarm communication object, such as heart bit time (0=no monitoring). If the alarm communication object is not received within the set time, the configured actions will be carried out as if the value 'alarm' had been received.

2.4 BLIND/SHUTTER TEMPLATE

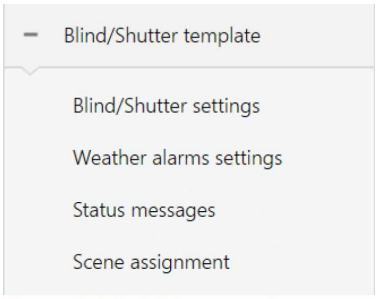


Figure 8: blind/shutter subpages

The subpages contained in the template allow you to set the same configuration that will be used for different channels once, without having to repeat it for each channel. To do this, simply choose the 'Apply from template' option for the first parameter of the configuration sub-pages of a channel, instead of 'Individual'.

2.5 SHUTTER CHANNEL X (X=1,2,3) – GENERAL SETTINGS

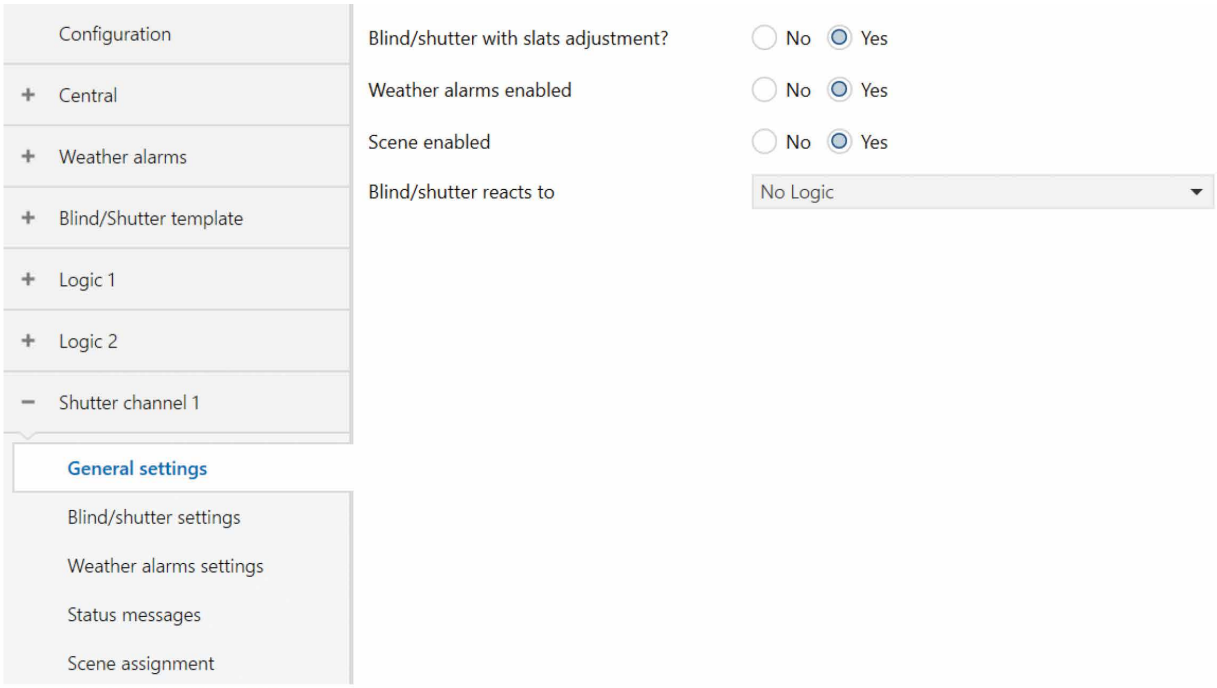


Figure 9: general settings page

2.5.1 BLIND/SHUTTER WITH SLATS ADJUSTMENT?

Selects if the shutter is equipped or not with slats adjustment.

2.5.2 WEATHER ALARMS ENABLED

Enables/disables the weather alarms that have been configured in the weather alarm page.
The action in case of alarms active must be set in the Weather alarms setting.

ATTENTION

If every kind of alarm in the Weather alarms page is disabled, this setting has no effect and the device operates as if the parameter had been set to 'No'

2.5.3 SCENE ENABLED

Enables/disables the configuration of the scenarios by the parameter page Scene assignment.

2.5.4 BLIND/SHUTTER REACTS TO LOGIC

This parameter allows to set whether or not the shutter reacts to the boolean gate output set on the Logic 1 or Logic 2 parameter pages. selecting Logic X Gate (x = 1 or 2), the parameters to set the actions for the two logical values 'true' and 'false' will also appear (Figure 5)

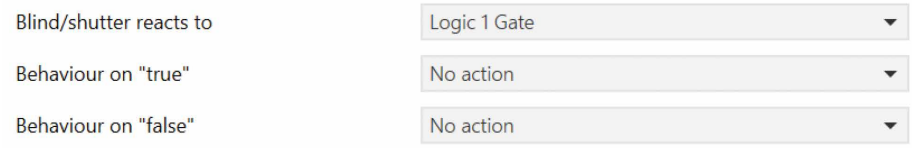


Figure 10

The parameter **Behaviour on "true"** and **Behaviour on "false"** can be set with the values shown below:

Figure 11

By selecting 'Set position' the parameters to set height "**Height position on true (false)**" and "**Slats position on true (false)**" also appear.

2.6 SHUTTER CHANNEL X (X=1,2,3) – BLIND/SHUTTER SETTINGS SETUP PARAMETER

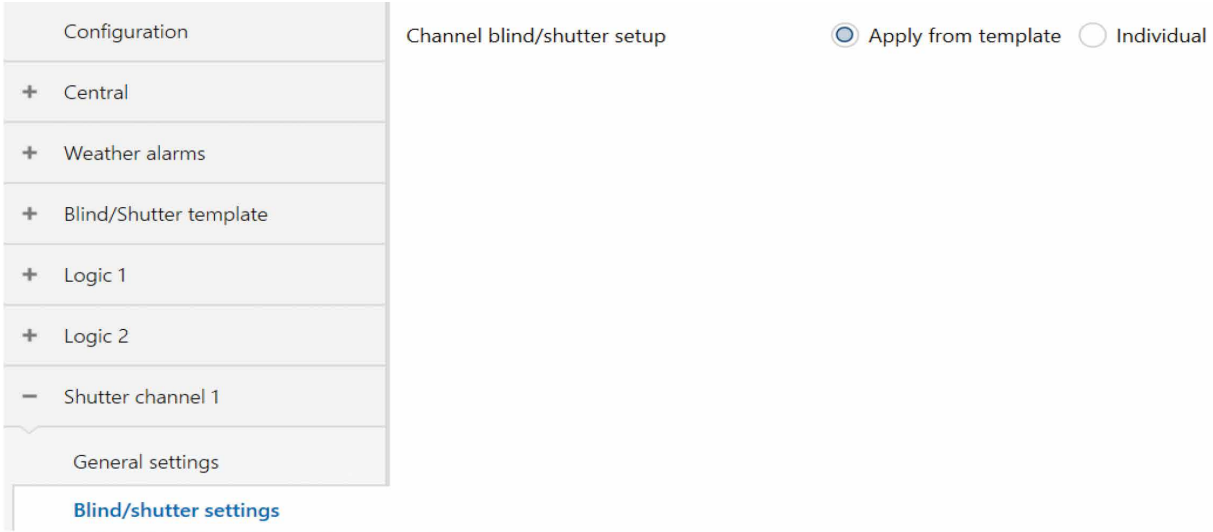


Figure 12: blind/shutter settings setup parameter

2.6.1 CHANNEL BLIND/SHUTTER SETUP

Allows you to choose whether the shutter channel should be configured via the template settings or individually.
By selecting individual setup all the parameters contained in the template 'Blind/shutter settings' subpage will also appear.

2.7 SHUTTER CHANNEL X (X=1,2,3) – BLIND/SHUTTER SETTINGS INDIVIDUAL SETUP

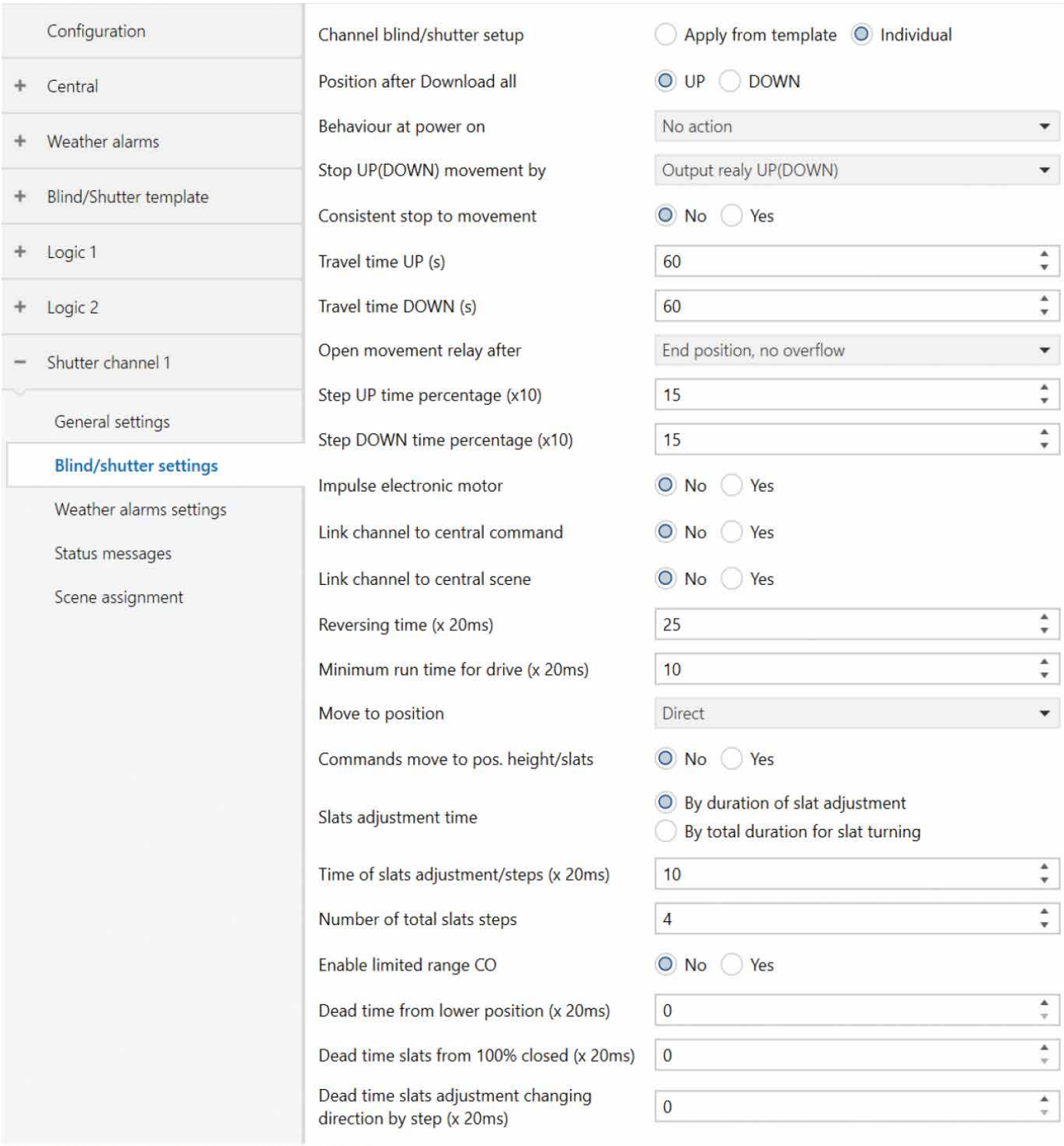


Figure 13: blind/shutter settings individual setup

2.7.1 POSITION AFTER DOWNLOAD ALL

This parameter selects the position of the shutter during installation/commissioning mode.
Once this operation has been carried out, the actuator will be able to position the height and slats of the shutter according to the commands received on the bus.

2.7.2 BEHAVIOUR AT POWER ON

This parameter selects the position of the shutter at power on (after a bus failure) once the installation commissioning operation has been carried out.

2.7.3 STOP UP (DOWN) MOVEMENT BY

Selects the relay used to stop the movement. Select values according to the following table:

Output relay UP(DOWN)	Shutters with stop via direct movement control, see 1.2.1
OUTPUT RELAY DOWN(UP)	Shutters with stop via opposite movement control, see 1.2.2
OUTPUT RELAY UP OR DOWN	Shutter with stop via pulse on up or down control, see 1.2.3

2.7.4 CONSISTENT STOP TO MOVEMENT

Selecting 'Yes', the shutter stops only when the communication object used to stop (datapoint type 1.007) is consistent (has the same value) as the Move Up/Down communication object (datapoint type 1.008) that should be used to produce the movement in progress. So upward movement are stopped by value 0 on the Stop Up/Down communication objects, while downward movement are stopped with the value 1.
Selecting 'No' every value received on Stop Up/Down communication objects stops the movement in progress.

2.7.5 TRAVEL TIME UP/DOWN (S)

Set the excursion time from the lower to the upper final position and vice versa.
Usually these values are the same.

2.7.6 OPEN MOVEMENT RELAY AFTER

Sets the delay time when the upper and lower final positions are reached, before opening the channel's relay that triggered the movement, in order to deactivate the output that is driving the shutter.
The minimum output drive time, represented by the "**Minimum run time for drive (20ms)**" parameter, must be added to this delay to obtain the total overflow delay.

2.7.7 STEP UP/DOWN TIME PERCENTAGE (x10)

These parameters, which generally have the same value, are useful for the correct management of shutters with adjustable slats such as the one described in paragraph 1.2.3 (Figure 4), which make a small step upwards or downwards before starting the movement. If this value is not known, it can be calculated in two ways.

2.7.7.1 Calculation of the step UP/DOWN time percentage from the slat adjustment times

From the value of the "**Time of slat adjustment/step (x 20ms)**" parameter, let's say Tstep, the percentages can be calculated with the formulas:

Step UP time percentage = (Tstep x 20) / Travel time UP
Step DOWN time percentage = (Tstep x 20) / Travel time DOWN

EXAMPLE
Tstep = 13 (means that slats step is 13*20=260ms)
Travel time UP/DOWN (s) = 13
Step UP/DOWN time percentage = 20

2.7.7.2 Calculation of the step UP/DOWN time percentage from shutter length

From the value of the "**Time of slat adjustment/step (x 20ms)**" is unknown, an approximate method is based on measuring the length of the roller shutter. Let's say L this value. A certain number N of steps upwards can be performed. Each time the variation in length of the shutter is measured. Let's say Delta_nL that value ($1 \leq n \leq N$).
The step UP time percentage can be calculated by the formula:

Step UP time percentage = (ΣDelta_nL)/NxL

where (ΣDelta_nL)/N is the average of the step lengths.
The step DOWN can be calculated with the same procedure by N steps downward.

2.7.8 IMPULSE ELECTRONIC MOTOR

This parameter is used to distinguish shutter with stop by direct or opposite movement control from shutter with stop by pulse on up or down control (see 1.2).
Select 'Yes' for shutters with behaviour similar to that described in paragraph 1.2.3.

2.7.9 MINIMUM UP/DOWN PULSE WIDTH (x 20ms)

For shutters with impulsive electronic control, it defines the minimum time interval to switch from the step condition to the movement condition (see 1.2.3).

2.7.10 LINK CHANNEL TO CENTRAL COMMAND/SCENE

These parameters allow you to select whether the channel reacts to centralized commands or centralized scenarios.

ATTENTION

Centralized command and scenarios must be enabled (see Central page).

2.7.11 REVERSING TIME (x 20ms)

Sets the pause (in quanta of 20 milliseconds) during a change in direction of the shutter movement.

NOTE

The reversing time represents the waiting time between a movement in progress (upward or downward) and the start of the movement in the opposite direction. During this time interval in which the shutter is stopped the actuator outputs are de-energized (relays are open).
The communication objects Height status and Slats status (see 3.3.7 and 3.3.8) will not be sent while the reversal pause is in progress unless a stop command is received to set shutter motion completed.

ATTENTION

An inversion pause that is too short can lead to overloading or damage to the shutter motor and cause a malfunction of the device in the management of the shutters.
The minimum value for this parameter is 15 (300 ms).
The value must be greater or equal to the parameter 'Minimum run time for drive' (see 2.7.12).

NOTE

For shutters with impulsive electronic control (see 1.2.3), the inversion pause is carried out by the minimum pulse time. This parameter could be left at the minimum value (15 = 300ms)

2.7.12 MINIMUM RUN TIME FOR DRIVE (x 20ms)

Each motorized roller shutter has a minimum button pressing time. Releasing the button too quickly after pressing may have no effect on the movement of the shutter.
This parameter allows you to calibrate the minimum reaction time of the shutter motor.

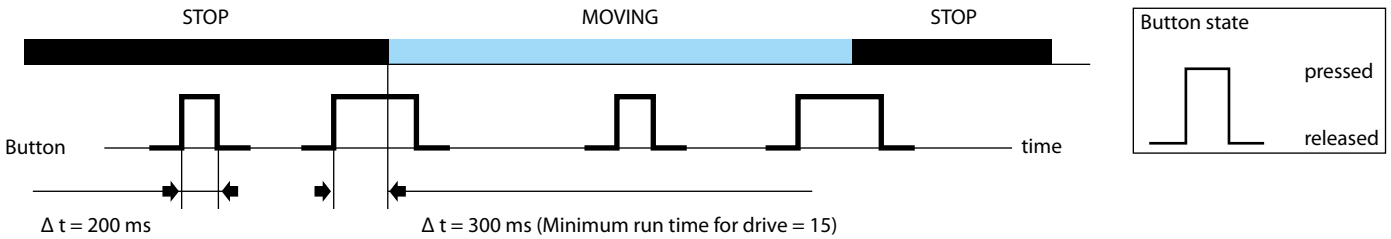


Figure 14

NOTE

Typical values are 15/20 (300/400 milliseconds) for the most roller shutter motors.
Please refer to the specifications of the roller shutter motor.

2.7.13 MOVE TO POSITION

Sets whether a certain height position should be reached directly or indirectly via the upper or lower limits.

2.7.14 COMMAND MOVE TO POS. HEIGHT/SLATS

It enables/disables the communication objects to set the height and slat position (ChannelX – set height position, ChannelX – Set slats position, X=1,2,3)

2.7.15 SLATS ADJUSTMENT TIME

It sets the type of slat movement time. It can be the step time 'By duration of slats adjustment' or the complete rotation of the slats 'By total duration of slat turning'.

NOTE

If the setting values are not known, they can be derived by timing (step time is the complete time rotation divided by the number of total steps.

2.7.16 TIME OF SLATS ADJUSTMENT/STEPS (x 20ms)

This parameter set the time of a single step (in quanta of 20 milliseconds).
It appears when the slats adjustment time is set to time 'By duration of slats adjustment'.

2.7.17 GLOBAL SLATS TURNING TIME (x 20ms)

This parameter set the time of a global rotation of the slats (in quanta of 20 milliseconds).
It appears when the slats adjustment time is set to time 'By total duration of slat turning'.

2.7.18 NUMBER OF TOTAL SLATS STEPS

It sets the number of steps related to a complete turning.
The default value 4 is the best solution for most roller shutters or venetian blinds.

2.7.19 ENABLE LIMITED RANGE CO

It enables/disables the communication object ChannelX – Move Up/Down limited, X=1,2,3.
If enabled the parameters to set upper/lower limit also appear.

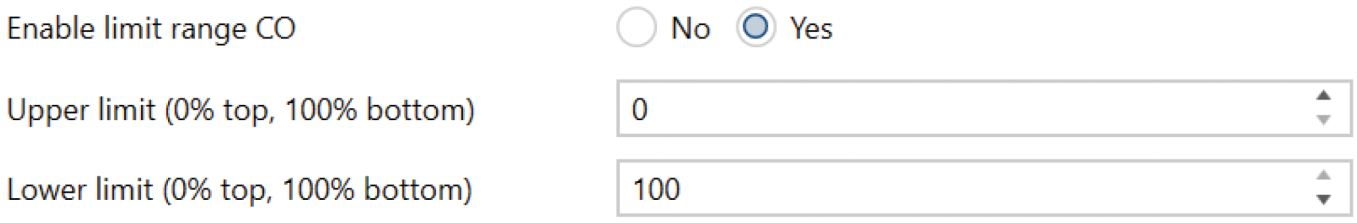


Figure 15

2.7.20 APPLY LIMITS TO DIRECT COMMAND?

When limited range is enabled, this parameter selects whether to apply the range also to manual commands.

2.7.21 DEAD TIME FROM LOWER POSITION (x 20ms)

With this parameter it is possible to set the dead time compensation for opening the shutter from the "**fully lowered**" position.
This time is the interval between receiving the up command and the real start of opening the shutter.

EXAMPLE

I. The roller shutter is in the lower end position (= 100%)

II. The command Set height position 50% is given.
The motor starts to rotate.
The roller shutter remains unchanged in the lower final position due to the dead time

III. The visible upward movement of the shutter begins at the end of the dead time

IV. The shutter does not reach the desired position at 50%, since the up time does not include the dead time, and stops at for example at 40%

Due to the set compensation, the motor at point IV runs longer and the shutter moves to the desired position at 50%.

2.7.22 DEAD TIME SLATS FROM 100% CLOSED (x 20ms)

This parameter appears only for shutter with slats (see 2.5.1). With this parameter it is possible to set the dead time compensation (in quanta of 20 milliseconds) for the opening of slats from the closed position (100%). The "slat opening" dead time describes the time between reception of the command and the real start of the opening. It works in a very similar way to compensating the dead time of the shutter from the fully lowered position.

2.7.23 DEAD TIME SLATS ADJUSTMENT CHANGING DIRECTION BY STEP (x 20ms)

For shutters with impulsive electronic control (see 1.2.3) this parameter is irrelevant. It can be leave at the default value 0. This parameter appears only for shutter with slats (see 2.5.1). It only concerns shutters equipped with electric motor and stop by direct or opposite movement control (see 1.2), in which the step movement is continuous and not impulsive.
Some shutters need a stop pause when they receive a step command that changes the orientation of the slats when another one is in progress, in order not to overload the roller shutter motor. This parameter allows you to set (in quanta of 20 milliseconds) the delay between the stop command which interrupts the orientation movement of the slats in progress and the start of the reverse one. This compensation is useful for knowing the real position of the slats after the inversion command.

Example for total number of slats step = 4

I. Shutter slats are at 50%

II. Command step decrease is received

III. Slats motor starts to rotate to put slats at 25%

IV. Command step increase is received while step decrease is in progress

V. Slats real final position is 25% due to the stop pause of the shutter motor, but for the actuator the slats have been returned at 50%

NOTE

I For shutters that do not have a behaviour similar to that described above, changing the direction of the slats during a step movement can lead to a misalignment between the values of the real positions of the shutter and those recorded by the actuator.

2.8 SHUTTER CHANNEL X (X=1,2,3) – WEATHER ALARMS SETTINGS SETUP PARAMETER

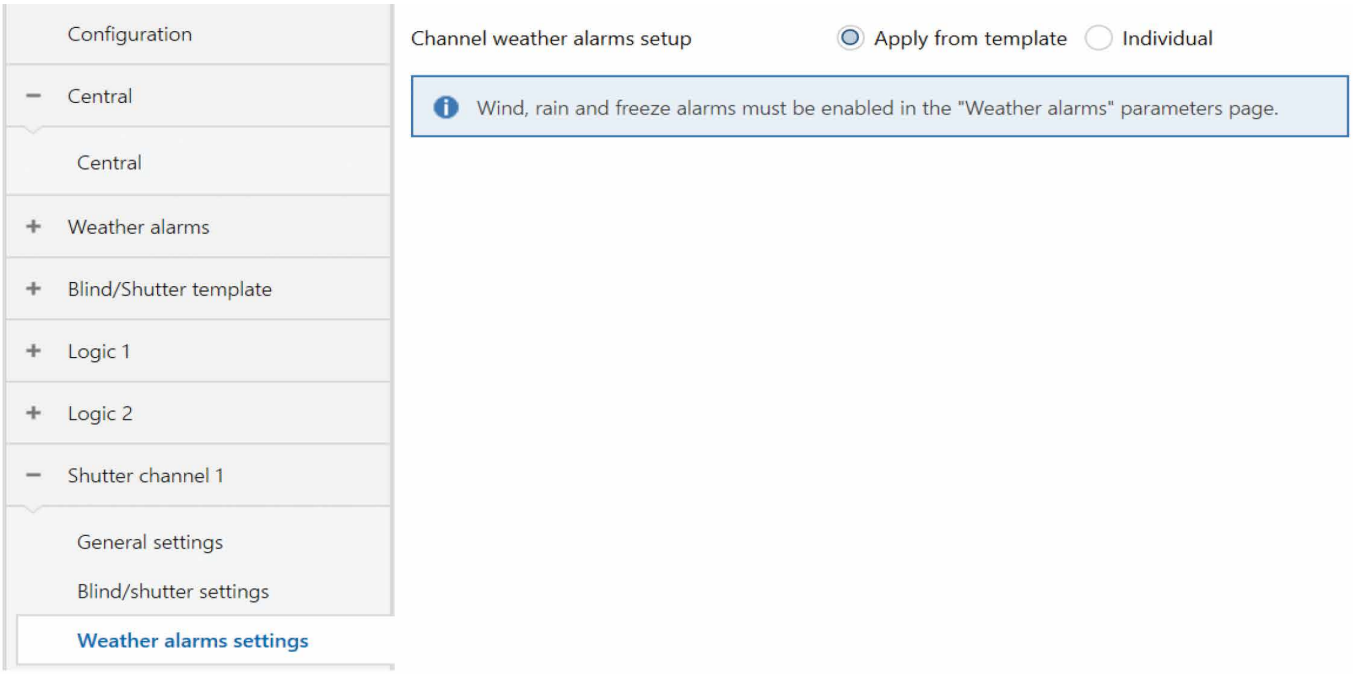


Figure 16: weather alarms settings setup parameter

2.8.1 CHANNEL WEATHER ALARMS SETUP

Allows you to choose if the weather alarms are configured via the template settings or individually. By selecting individual setup all the parameters contained in the template '**Weather alarms settings**' subpage will also appear.

2.9 SHUTTER CHANNEL X (X=1,2,3) – WEATHER ALARMS SETTINGS INDIVIDUAL SETUP

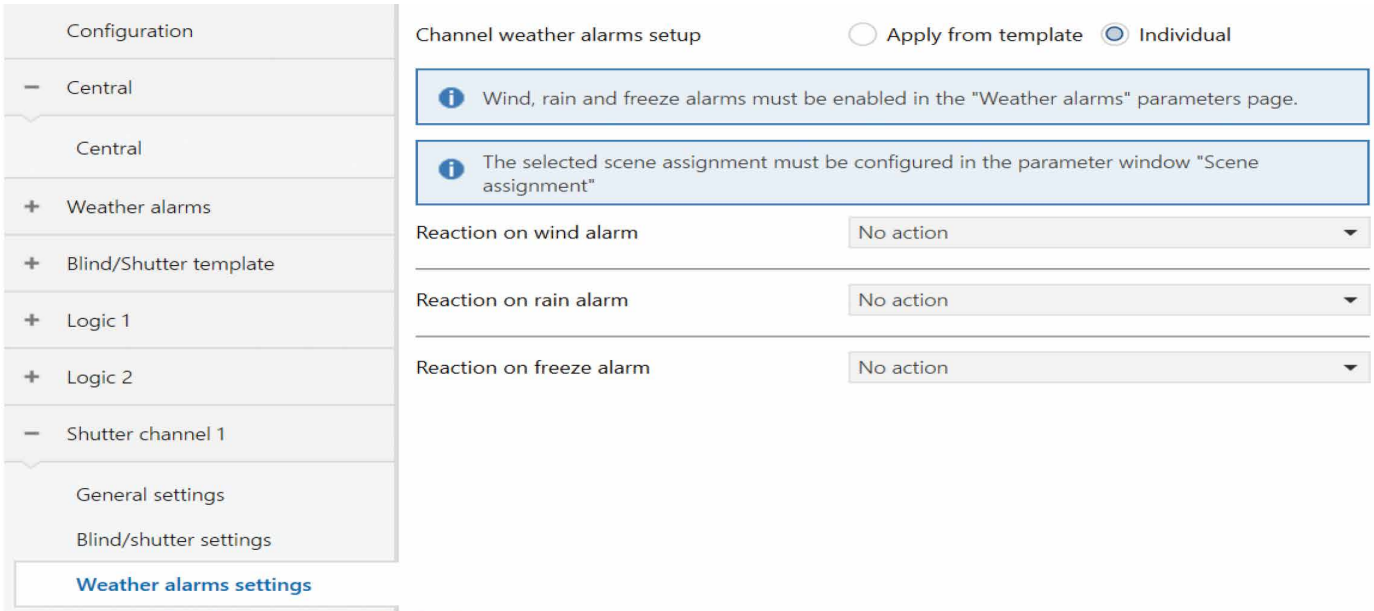


Figure 17: weather alarm settings individual page

2.9.1 REACTION ON WIND/RAIN/FREEZE ALARM

Using these parameters, it is possible to set the action to be performed in the event of an active alarm.
The possible values are: - No action - Up - Down - Scene assignment - Set position
Choosing the scene assignment option, the parameter to select the scenario will also appear.
NOTE
Scenes must be enabled in the General settings page.
The selected scenario must be configured in the Scene assignment page.
Choosing the set position option, the parameters to set height and slats positions also appear.

2.10 SHUTTER CHANNEL X (X=1,2,3) – STATUS MESSAGES SETUP PARAMETER

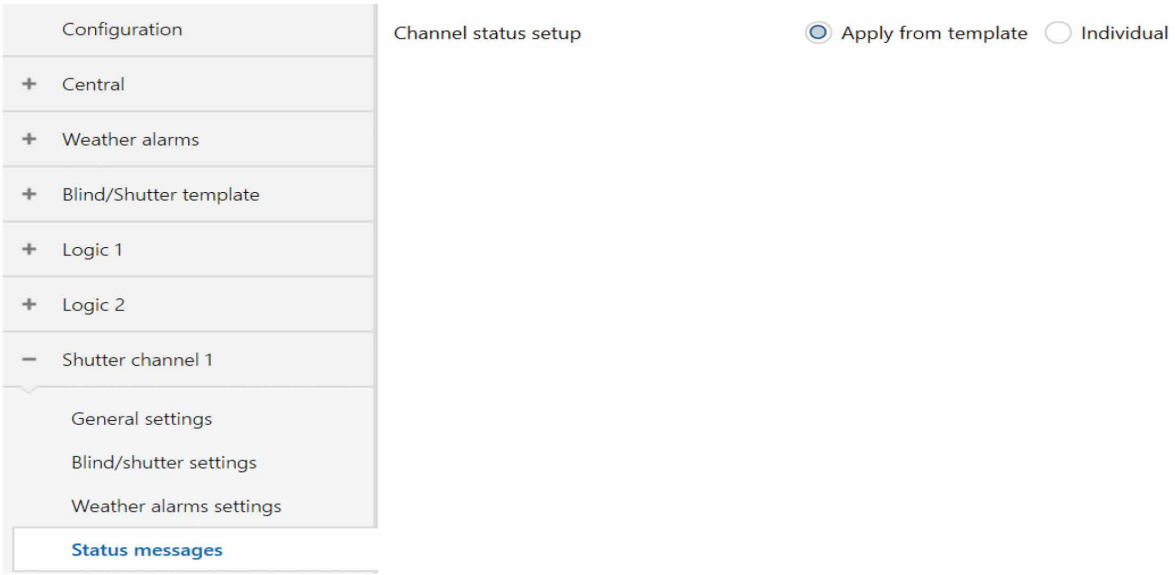


Figure 18: Status messages setup parameter

2.10.1 CHANNEL STATUS SETUP

Allows you to choose if the status telegrams are configured via the template settings or individually.
By selecting individual setup all the parameters contained in the template 'Status messages' subpage will also appear.

2.11 SHUTTER CHANNEL X (X=1,2,3) – STATUS MESSAGES INDIVIDUAL SETUP

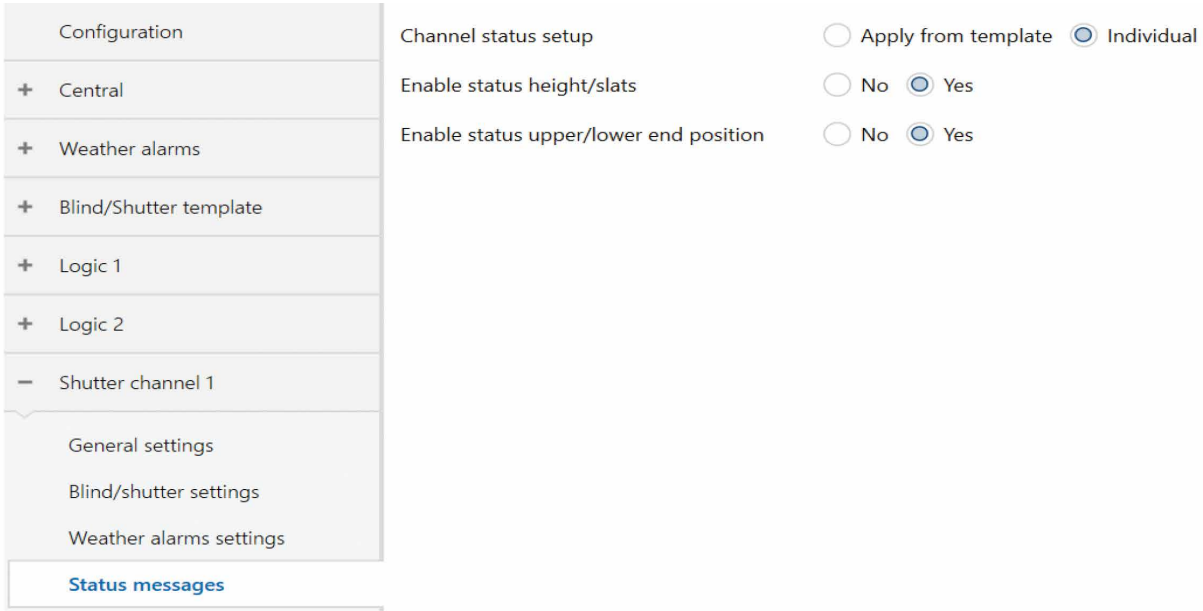


Figure 19: status messages individual page

2.11.1 ENABLE STATUS HEIGHT/SLATS

Enables/disables the sending of telegrams percentage height status (ChannelX – Height status) and percentage slat orientation status (ChannelX – Slats status) telegrams (X=1,2,3).

2.11.2 ENABLE STATUS HEIGHT/SLATS

Enables/disables the sending of fully raised position (ChannelX – Upper position) and fully lowered position (ChannelX – Lower position) (X=1,2,3).

2.12 SHUTTER CHANNEL X (X=1,2,3) – SCENE ASSIGNMENT SETUP PARAMETER

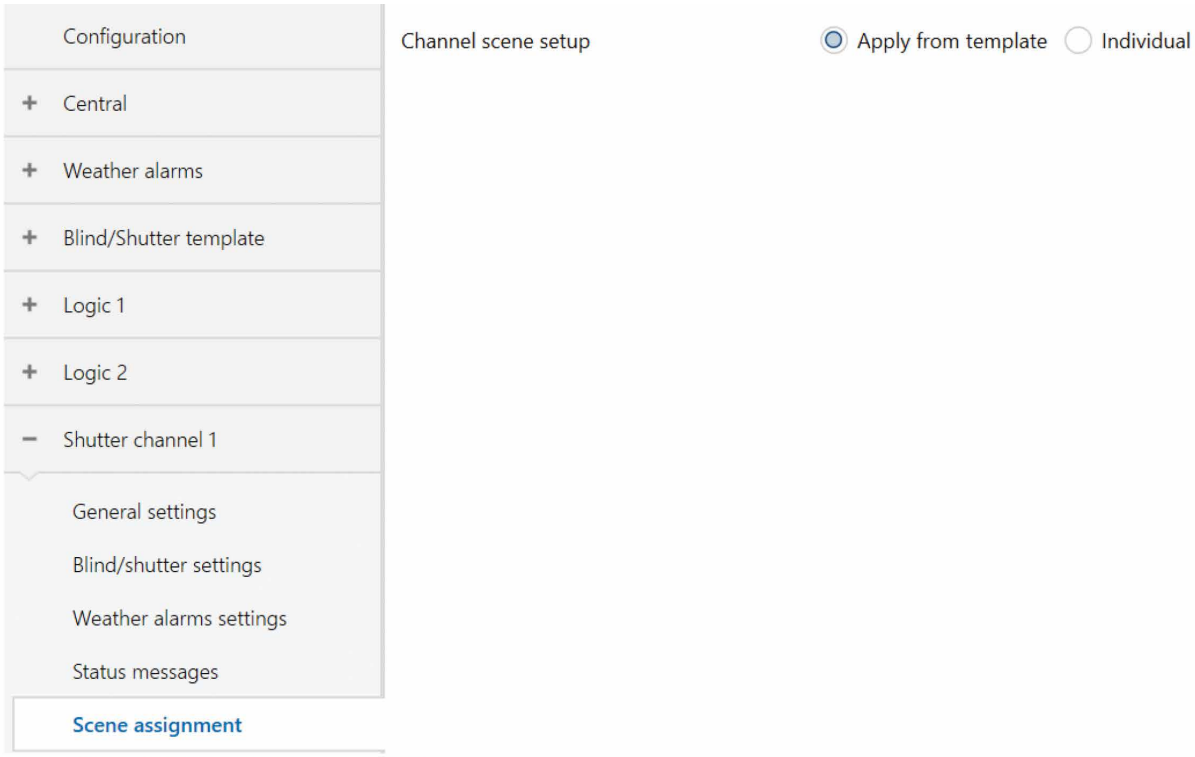


Figure 20: scene assignment setup parameter

2.12.1 CHANNEL SCENE SETUP

Allows you to choose if the scenes are configured via the template settings or individually. By selecting individual setup all the parameters contained in the template 'Status assignment' subpage will also appear.

2.13 SHUTTER CHANNEL X (X=1,2,3) – SCENE ASSIGNMENT INDIVIDUAL SETUP

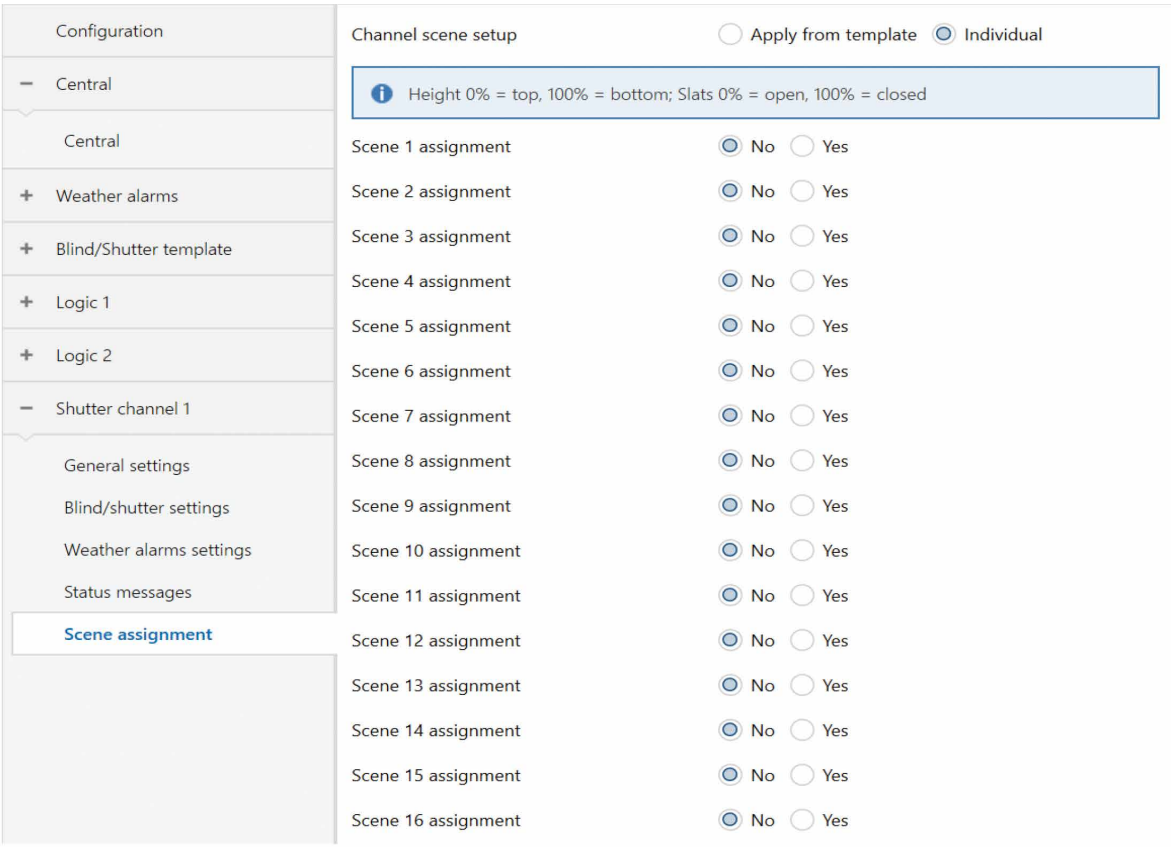


Figure 21: scene assignment page

2.13.1 SCENE N ASSIGNMENT (1≤N≤16)

This parameter allows to assign scenario N to the channel X.
Selecting 'Yes' the parameters to set scene number (from 1 to 64), height position and slats position also appear.
Figure 10 shown an example for Scene 1.

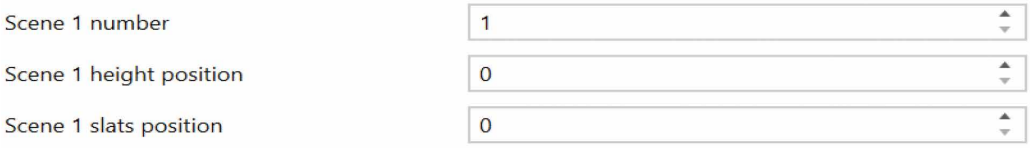


Figure 22

NOTE
If two scenarios have been set with the same scene number, will be performed the scenarios with the lower assignment number.

2.14 LOGIC X (X=1,2)

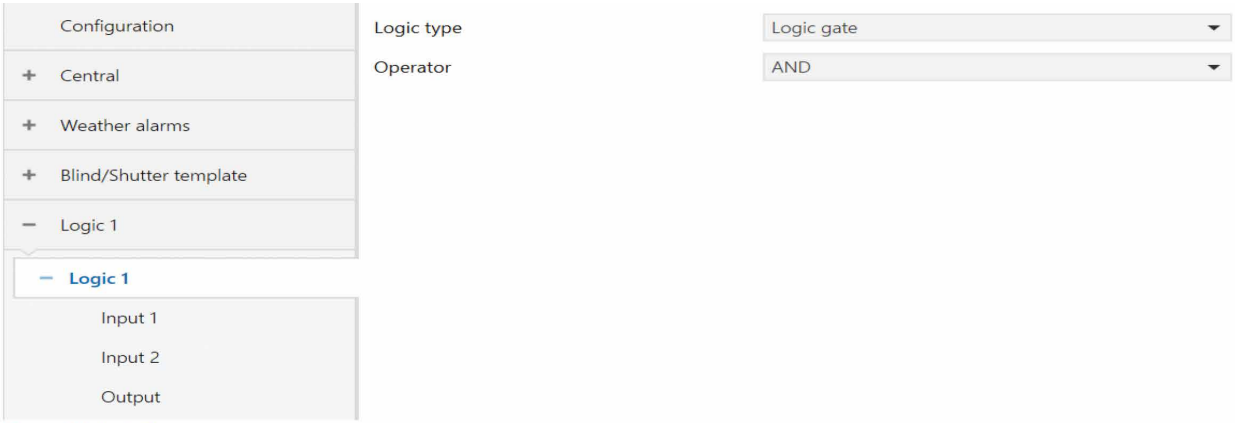


Figure 23: logic 1 page

2.14.1 LOGIC TYPE

Select the type of logic implemented. There are three options:

- Inactive: logic operations deactivated
- Logic gate
- Delay (with/without CO conversion)

Choosing 'Logic gate' also appear the subpages to configure the two logical inputs and the output.

2.15 PARAMETERS FOR LOGIC TYPE LOGIC GATE

2.15.1 OPERATOR

Sets the type of logic operator: - AND - OR - XOR - XNOR - NAND - NOR

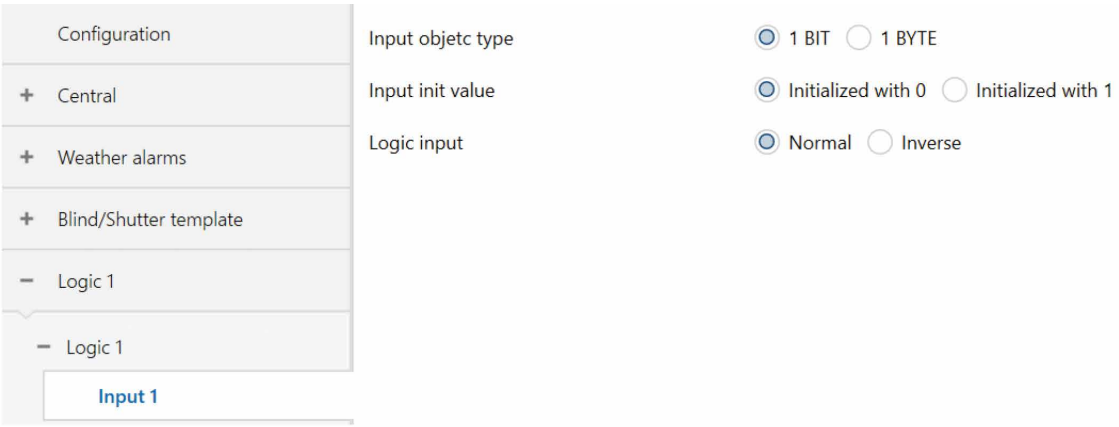


Figure 24: input 1 page

2.15.2 INPUT OBJECT TYPE

Set the type of communication object associated with the input, according to the following table:

SELECTION	OBJECT TYPE
1 BIT	1.001 switch
1 BYTE	5.010 counter pulses (0…255)

2.15.3 INPUT INITIAL VALUE

Sets the initial value of the input.

2.15.4 LOGIC OF THE INPUT

Sets the Boolean management of the input according to direct logic (1=True, 0=False) or inverse (1=False, 0=True).

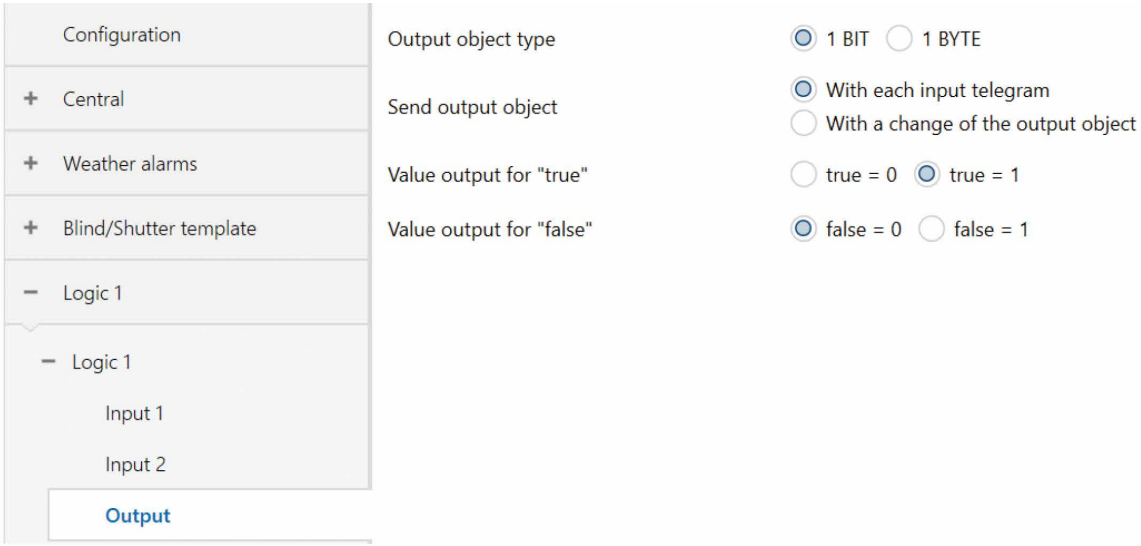


Figure 25: logic output page

2.15.5 OUTPUT OBJECT TYPE

Set the type of communication object associated with the output (see table 3).

2.15.6 SEND OUTPUT OBJECT

Set the mode to send the output object:

- With each input telegram
- With a change of the output object (see NOTE 1)

2.15.7 VALUE OUTPUT FOR TRUE

Sets the output value for the "**true**" condition.

2.15.8 VALUE OUTPUT FOR FALSE

Sets the output value for the "false" condition.

NOTE 1

Setting the same value to the output for the two logic conditions true/false , the logic output will be sent only at a power on/reset of the device.

2.16 PARAMETERS FOR LOGIC TYPE DELAY (WITH/WITHOUT CO CONVERSION)

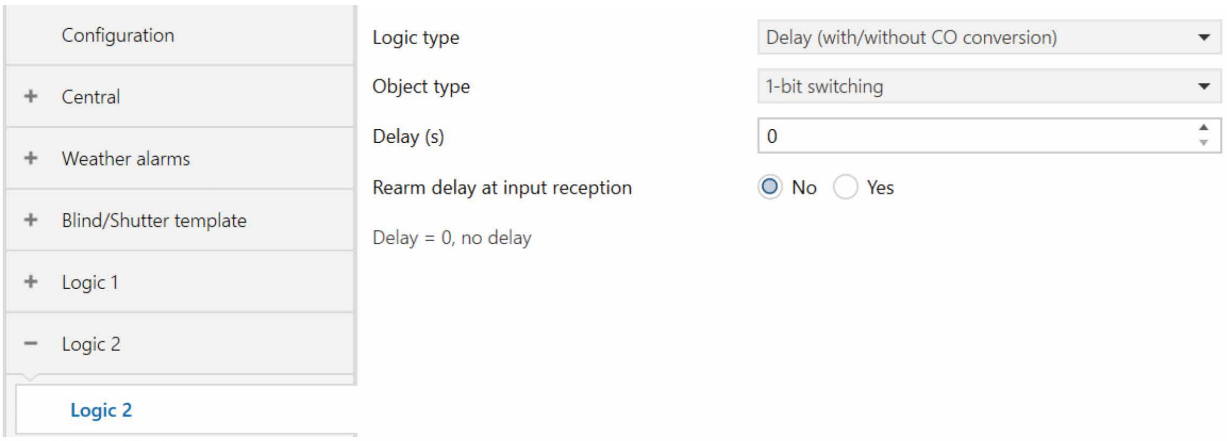


Figure 26: logic delay page

2.16.1 OBJECT TYPE

Set the type of communication object managed by the logic according to the following table:

SELECTION	OBJECT TYPE
1 BIT SWITCHING	1.001 switch
1 BIT UP/DOWN	1.008 up/down
1 BYTE 0...100%	5.001 percentage (0…100%)
1 BYTE 0...255	5.010 counter pulses (0…255)
SCENE NUMBER (1-64)	17.001 scene number
HVAC	20.102 HVAC mode
CONVERSION BIT A BYTE (1)	1.001 switch on input 5.010 counter pulses (0…255) on output
CONVERSION BYTE A BIT (1) (2)	5.010 counter pulses (0…255) on input 1.001 switch on output

Table 2

(1) Will be displayed also the parameters of the values to be assigned to the output for the logical conditions of the input

(2) By assigning the same logic value to the output in the two logic conditions of the input, the value will be sent only at a power on/reset of the device

2.16.2 DELAY (S)

Set the sending delay of the output at the input reception.
By assigning the value zero, the output will be sent immediately.

2.16.3 REARM DELAY AT INPUT RECEPTION

Allows to set how the delay will be triggered at the input reception:

- NO, the output is always sent after the delay independently by input change during the delay

- YES, the output is always sent after the delay starting from the last input change

3 COMMUNICATION OBJECTS

3.1 CENTRAL

3.1.1 CENTRAL STOP AND SLATS ADJUSTMENT (SSUD)

NUMBER	NAME	FUNCTION	TYPE
31	Central – Stop Up/Down Adjustment slats	Input	1.007

This object is used to command stops while upward/downward movements are in progress or start step movements for all the channels active and linked to centralized commands (see 2.6.11).

3.1.2 CENTRAL MOVE UP AND DOWN

NUMBER	NAME	FUNCTION	TYPE
32	Central – Move Up/Down	Input	1.008

This object is used to command upward/downward movements for all the channels active and linked to centralized commands (see 2.6.11)

3.1.3 CENTRAL SET HEIGHT

NUMBER	NAME	FUNCTION	TYPE
33	Central – Set height position	Input	5.001

This object allows to set a height percentage position for all the channels active and linked to centralized commands (see also 3.3.3).

3.1.4 CENTRAL SET SLATS

NUMBER	NAME	FUNCTION	TYPE
34	Central – Set slats position	Input	5.001

This object is used to set a slats percentage position for all the channels active and linked to centralized commands (see 2.6.11), depending on the total number of slats steps set (see 2.6.17 and 3.3.4).

3.1.5 CENTRAL SCENE

NUMBER	NAME	FUNCTION	TYPE
35	Central – Scene	Input	17.001

This object allows to set a scenario for all the channels active and linked to centralized scene (see 2.6.11).

3.2 WEATHER ALARMS

3.2.1 WIND/RAIN/FREEZE ALARM

NUMBER	NAME	FUNCTION	TYPE
36 | 37 | 38	Alarm Wind/Rain/Freeze	Input	1.005

These objects allow whether an alarm is active or no. Normal control could damage the roller shutter, which will be placed in a safety position set on the "reaction on wind/rain/freeze alarm" parameters. The safety position when an alarm becomes active will be actuated as soon as the shutter concludes the movement in progress and reaches the stop condition. The execution of any other command or programmed action by scene or reaction to logic shall not be possible while an alarm is active so that the safety position cannot be override.

EXAMPLE

- Shutter is stopped at fully raised position (height = 0%)
- Wind alarm becomes active and action set is to move the shutter at lower position (100%)
- Shutter starts downward moving
- Stop command is received
- Shutter doesn't stops and reaching the lower final position

3.3 SHUTTER CHANNEL X (X=1,2,3)

3.3.1 STOP AND SLATS ADJUSTMENT (SSUD)

NUMBER	NAME	FUNCTION	TYPE
1 | 2 | 3	ChannelX – Stop Up/Down Adjustment slats	Input	1.007

This object is used to command stops while upward/downward movements are in progress or start step movements.

ATTENTION

The maximum execution frequency of a succession of step commands depends on the characteristics of the shutter motor. For example, for a roller shutter equipped with an electronically controlled impulse motor with a minimum impulse time Tp equal to 2 seconds, it could be one step every 500 milliseconds = Tp/4.
If the shutter is without slats adjustment (see 2.5.1) these communication objects take the name ChannelX – Stop Up/Down.

3.3.2 MOVE UP AND DOWN

NUMBER	NAME	FUNCTION	TYPE
4 | 5 | 6	ChannelX – Move Up/Down	Input	1.008

This object is used to command upward/downward movements.

3.3.3 SET HEIGHT

NUMBER	NAME	FUNCTION	TYPE
7 | 8 | 9	ChannelX – Set height position	Input	5.001

This object allows to set a height percentage position.

ATTENTION

The hysteresis for this command is 1%. positions that differ from the current one by +/- 1% will not be set.
The final value may be slightly different from the requested value, for example ± 1%. This difference can be greater if during the movement a command to set the slats position is received.

3.3.4 SET SLATS

NUMBER	NAME	FUNCTION	TYPE
10 | 11 | 12	ChannelX – Set slats position	Input	5.001

This object is used to set a slats percentage position.
The command is executed when the shutter is stopped or when the movement in progress is finished.

ATTENTION

The position of the slats changes if the requested percentage has an amplitude of at least one step, compared to the current position.

EXAMPLE

Total number of slats step = 4 (25%, 50%, 75%, 100%).
Starting from current slats position = 0%, the following table shows the changes in slats orientations.

COMMAND VALUE = x	POSITIONS OF THE SLATS
x < 25%	new slats position = current slats position = 0%
25% ≤ x < 50%	new slats position = 25% (position required is at least 1 step)
50% ≤ x < 75%	new slats position = 50% (position required is at least 2 step)
75% ≤ x < 100%	new slats position = 75% (position required is at least 3 step)
x = 100%	new slats position = 100% (position required is fully closed 4step)

NOTE 2

The execution of the command when the shutter is stopped can affect the percentage of the final height position required via other commands, when received while movement to reach a specified height position is in progress, for example 'Set Height Position' command.

EXAMPLE
Total time UP/DOWN = 24 [s].
Time of slats adjustment/step (x 20ms) = 24; height percentage changes of 2% each step executed.
Number of total slats step = 4.
Initial height position = 0% (shutter fully raised).

I. The command Set height position = 50% is received
II. Shutter starts downward movement
III. The command Set slats position = 50% is received
IV. Shutter reaches height = 50% (slats = 100% fully closed) and stops
V. Shutter starts upward movement to set slats at 50% (two steps decreasing)
VI. Slats reaches position = 50% and height = 46%

3.3.5 MOVE UP/DOWN LIMITED

NUMBER	NAME	FUNCTION	TYPE
13 | 14 | 15	ChannelX – Move Up/Down limited	Input	1.008

This object is used to command upward/downward movements in the limited range (see 2.6.20).

NOTE
Once the limits have been reached, it will always be possible to overcome them using step commands for roller shutters equipped with adjustable slats and using the Move up and down object (see 3.3.2)

3.3.6 SCENE

NUMBER	NAME	FUNCTION	TYPE
28 | 29 | 30	ChannelX – Scene	Input	17.001

This object is used to set height and slats positions according to the scene number received.
See also the Note 2 at 3.3.4)

3.3.7 HEIGHT STATUS (CURRENT ABSOLUTE POSITION BLINDS PERCENTAGE)

NUMBER	NAME	FUNCTION	TYPE
16 | 17 | 18	ChannelX – Height status	Output	5.001

This object is used to send the height percentage of the shutter on the bus. It is sent when the shutter has completed the commanded motion reaching the stopped state, if the value is different from the last position sent by the actuator (COV).

3.3.8 SLATS STATUS (CURRENT ABSOLUTE POSITION SLATS PERCENTAGE)

NUMBER	NAME	FUNCTION	TYPE
16 | 17 | 18	ChannelX – Height status	Output	5.001

This object is used to send slats percentage of the shutter on the bus. It is sent when the shutter has completed the commanded motion reaching the stopped state, if the value is different from the last position sent by the actuator (COV).

3.3.9 UPPER/LOWER POSITION

NUMBER	NAME	FUNCTION	TYPE
22 | 23 | 24 25 | 26 | 27	ChannelX – Upper/Lower position	Output	5.001

These objects are used to signal the reaching of the upper/lower final positions of the shutter.
They are sent on the bus when the shutter has completed the motion and enter in stopped state.

NOTE 3

Even once reached, it will always be possible to adjust the position of the limits in the direction of the last movement. This can be done in two ways:

MODE 1 For shutters equipped with adjustable slats by step movement (see 3.3.1): select decrease value for upper limit and increase value for lower limit. Mode 2 can be also used.

MODE 2 With the move up and down command (see 3.3.2): select value up for upper limit and down for lower limit. The command will be executed with a timeout of 1 second or Minimum pulse width for shutters equipped with electronic pulse motor (see 2.7.9).

NOTE 4

The adjustment of the position can be done also in manual mode once the limits have been reached: by pressing the keys UP/DOWN the command to overcome the limits shall be actuated with the same timeout of mode 2.

3.3.10 SCENE

NUMBER	NAME	FUNCTION	TYPE
28 | 29 | 30	ChannelX – Scene	Input	17.001

This object is used to send slats percentage of the shutter on the bus. It is sent when the shutter has completed the commanded motion reaching the stopped state, if the value is different from the last position sent by the actuator (COV).

3.4 LOGICS

3.4.1 LOGIC OUTPUT

NUMBER	NAME	FUNCTION	TYPE
43 | 44	Logic OUT 1/2	Output	1.001 1.008 5.001 5.010 17.001 20.102

These objects allow to send the logic outputs values.

3.4.2 LOGIC INPUT

NUMBER	NAME	FUNCTION	TYPE
39 | 40 | 41 | 42	Logic 1/2 input 1/2	Input	1.001 1.008 5.001 5.010 17.001 20.102

These objects allow to receive the logic inputs values.

4 INDICATIONS FOR PROGRAMMING THE DEVICE VIA ETS

WARNING 1
IT IS RECOMMENDED TO EXECUTE THE COMPLETE DOWNLOAD ON THE DEVICE (DOWNLOAD ALL) ONLY AT THE FIRST PROGRAMMING, EXCEPT STRICTLY NECESSARY CASES (I.E. CERTIFICATION TESTS).

WARNING 2
IF THE DEVICE NEEDS TO BE REPROGRAMMED DUE TO MODIFICATIONS OF THE APPLICATION DOWNLOADED THE FIRST TIME THAT DOES NOT CHANGE THE ADDRESS OF THE FIRST DOWNLOAD (WARNING 1), USE 'DOWNLOAD PARTIAL'

WARNING 3
IF IT IS NECESSARY TO REPROGRAM A NEW ADDRESS COMPARED TO THE ONE DOWNLOADED WITH THE FIRST PROGRAMMING (WARNING 1), USE 'DOWNLOAD INDIVIDUAL ADDRESS'

5 HOW THE DEVICE SAVE S THE SHUTTER POSITIONS

Memorization occurs when the shutters managed by the enabled channels are in stopped state at the same time.
The values (byte size) are saved one by one at intervals of approximately 1 second.
So, for three channels enabled, the memorization total time interval is 6-7 seconds long.
Each command received from the bus at the moment in which a value is being stored will not be acknowledged and will have to be sent back.

If a power off occurs during the memorization total time interval (6-7 seconds), or while the shutters are moving, the position of one or more shutters at the next power on may not be consistent with the one set by the device based on the 'Behaviour at power on' parameter.
To resolve this situation, press the MAN but.

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