CHORUS

GEWISS

KNX 6-channel push-button panel

GW1x783A

Technical Manual

Contents

1 Introduction

This manual describes the functions for the device "**KNX 6-channel push-button panel**" (GW10783A, GW12783A, GW14783A) and how they are set and configured using the ETS configuration software.

2 Application

The flush-mounted KNX 6-channel push-button panel is a command device with 6 channels, which can be used individually or combined.
The device is also equipped with a temperature sensor for carrying out the temperature probe function and each channel has two light signalling LEDs, one amber and one green.
The device can perform the following functions:

- load ON / OFF commands
- timed commands
- dimmer management (single or double button)
- curtain / shutter management (single or double button)
- scene management

A function can be associated to each channel by means of a specific parameter, as described below.

2.1 Association limits

The maximum number of communication objects available is 139.
The maximum number of associations that the device can store is 212.
The maximum number of group addresses is 212.

3 *"Main"* menu

The **Main** menu contains the application parameters for all the input channels implemented by the device. The main operator parameters for the device (fig. 3.1).

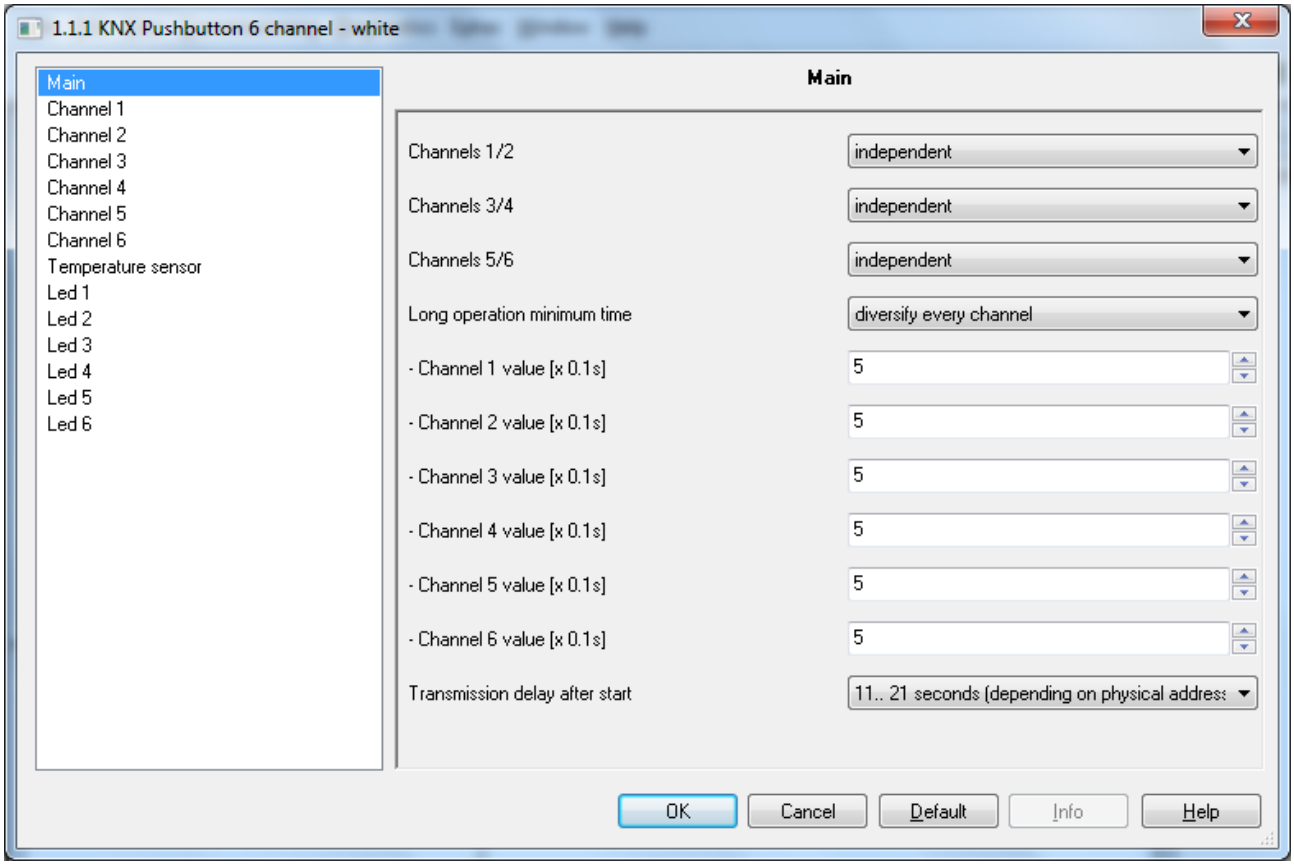


Fig. 3.1

3.1 Parameters

➢ *3.1.1. Channels X/Y*

Using these parameters, it is possible to select for each of the 6 input channels implemented by the push-button panel if they should carry out an independent function or if it should be combined two at a time to contribute towards carrying out a shared function. The values that can be set are:

- **independent (default value)**
- coupled

The database structure will vary depending on the values set for the above parameters: an independent setting menu for each channel if the set value is independent and a common menu if a combined value is set.

➢ *3.1.2 Long operation minimum time*

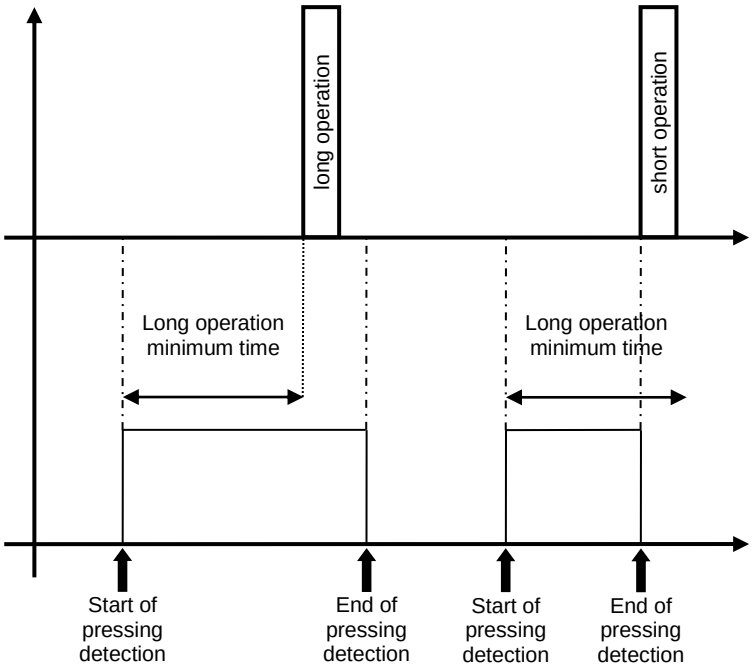
Many functions that the independent or combined channels can carry out foresee the differentiation between a short operation and a long operation. This parameter can be used to define a single time value for all channels or a different one for each of the channels; The values that can be set are:

- **the same for all channels (default value)**
- diversify every channel

The following parameters are displayed depending on the selected value: **"Value [x 0.1s]"** (if an identical value is set for all channels) or **"Channel 1 value [x 0.1s]", "Channel 2 value [x 0.1s]", "Channel 3 value [x 0.1s]", "Channel 4 value [x 0.1s]", "Channel 5 value [x 0.1s]" and "Channel 6 value [x 0.1s]"** (if a diversity value is set for each channel), which determine the minimum effective time during which the device must detect the pressing of the button to differentiate between the short operation and the long operation associated with the channel.
The possible values are:

- from 3 to 150 with step 1, **5 (default value)**

The following example shows the meaning of the above parameters



➢ *3.1.3 Transmission delay after start*

This parameter is used 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, to ensure that, with multiple devices in the line, the telegrams sent by the various devices do not collide when the bus voltage is restored.
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 the 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” menu (independent channels)

If channel operation is independent, a dedicated menu is shown for each channel called **Channel x** (x is the channel index). The menu structure changes based on the value set for the **“Matched function”** parameter. For the sake of simplicity, the parameters enabled according to the value set for the above parameter are listed in the following paragraphs.

Figure 4.1 shows the basic structure of the menu:

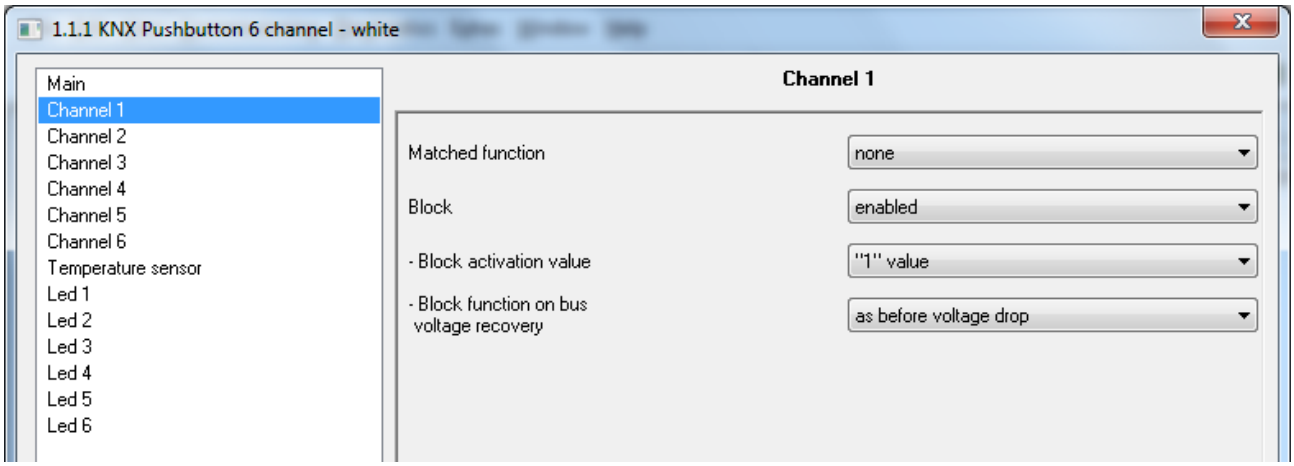


Fig .4.1

4.1 Parameters

➢ *4.1.1 Matched function*

This is used to define the function implemented by the channel; The values that can be set are:

- ***none (default value)***
- ***edges/sequence commands***
  See chapter 5 Function *“**edges/sequence commands**”*
- ***1 push button + stop dimmer***
  See chapter 6 Function *“**1 push button + stop dimmer**”*
- ***cyclic sending 1 push button dimmer***
  See chapter 7 Function *“**cyclic sending 1 push button dimmer**”*
- ***1 push button shutter control***
  See chapter 8 Function *“**1 push button shutter control**”*
- ***scene management***
  See chapter 9 Function *“**scene management**”*
- ***switching sequences***
  See chapter 10 Function *“**switching sequences**”*

4.1.2 Block

To inhibit the channel when sending commands associated with pressing/release the button, the block function must be activated: this function inhibits the detection of button pressing/releasing, preventing the device from sending the telegrams associated with these events on the bus; if activated, any change in status that occurs will not be interpreted until a block deactivation command is received.
This parameter is used to enable/disable the function and can have the following values:

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

Setting the value **enabled** displays the parameters **"Block activation value"** and **"Block function on bus voltage recovery"** and the communication object **Ch.x - Block** through which it is possible to activate the function via a bus command.

The parameter **"Block activation value"** makes it possible to set which logic value the bit received via bus telegram should assume to activate the block function; The values that can be set are:

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

The parameter **"Block function on bus voltage recovery"** is used to set the status of the block function on recovery; The values that can be set are:

- disabled
- enabled
- **as before voltage drop (default value)**

5 Function *"edges/sequence commands"*

This function is used to set the type and number of commands to send after a status change has been detected, for up to a total of eight commands per channel; it is possible to differentiate the type of command depending on the event that is detected (pressing and releasing) and delay the sending of the commands with a fixed settable time.
The basic structure of the menu is as follows (Fig. 5.1):

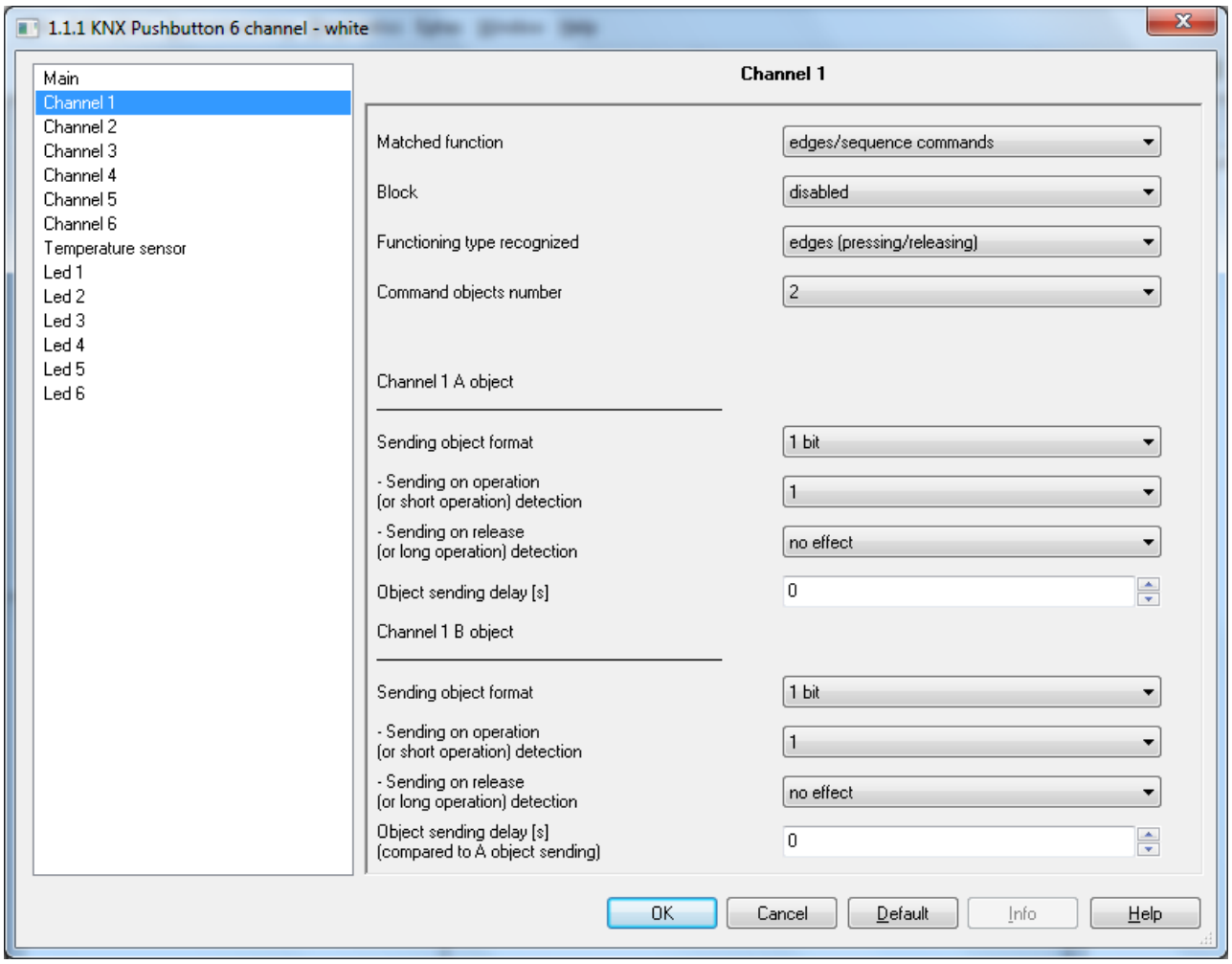


Fig. 5.1

5.1 Parameters

➢ *5.1.1 Functioning type recognized*

This is used to define which type of button operation generates the sending of the sequence commands; the values that can be set are:

- **edges (pressing/releasing)** **(default value)**
- short operation/long operation

➢ *5.1.2 Command objects number*

This is used to define how many communication objects are managed by the channel in question; The values that can be set are:

- **1 (default value)**, 2, …, 8

Depending on the set value, the following parameters appear for each of the selected object **"Sending object format"**, **"Sending on operation (or short operation) detection"**, **"Sending on release (or long operation) detection"** and **"Object sending delay [s]"** grouped in the subset **Channel x z object** (z is the index of the object associated with the channel, between **A** and **H)**.

The parameter **"Sending object format"** makes it possible to set the format and code of the bus telegram that will be sent by the device. The values that can be set are:

- **1 bit** **(default value)**
- 2 bits
- 1 byte unsigned value
- 1 byte signed value
- 1 byte percentage value
- 1 byte HVAC mode
- 2 bytes unsigned value
- 2 bytes signed value
- 4 bytes unsigned value
- 4 bytes signed value
- 14 bytes

The value set for this item will change as a result the values set for the parameters **"Sending on operation (or short operation) detection"** and **"Sending on release (or long operation) detection"**.
The parameter **"Sending on operation (or short operation) detection"** is used to set the command or the value to send when pressing of the button associated with the channel is detected.
The parameter **"Sending on release (or long operation) detection"** is used to set the command or the value to send when the release of the button associated with the channel is detected.

– If the format of the object to send is **1 bit**, the communication object ***Ch.x - z object 1 bit value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect** **(release detection default value)**
  - 0
  - **1** **(pressing detection default value)**
  - cyclic switching

  Selecting the value **cyclic switching**, the parameter **"Status feedback object"** will be shown, which makes it possible to enable and display the communication object ***Ch.x - z object status feedback***; by enabling this object, when the status feedback telegram is received for the object in question, the command that the push-button panel will send (via the object ***Ch.x - z object 1 bit value***) when the event associated with the cyclic sending is detected will be the opposite of the value generated by the most recent event between the bus value received on object ***Ch.x - z object status feedback*** and the last sent value (via the object ***Ch.x - z object 1 bit value***).

  The **"Status feedback object"** may have the following values:

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

  Selecting the value **enabled** displays the communication object ***Ch.x - z object status feedback***. Each time bus voltage is reset, the device sends a status reading command for this object to update the push-button panel about the status of the connected devices.

– If the format of the object to send is **2 bits**, the communication object ***Ch.x - z object 2 bits value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect** **(release default value)**
  - **activate on (down) forcing** **(default pressing value)**
  - activate off (up) forcing
  - disable forced positioning
  - cyclical switching forcing on/forcing off
  - cyclical switching forcing on/deactivate forcing

- cyclical switching forcing off/deactivate forcing

By selecting **cyclical switching**, in this case no communication object will be displayed as the device is always updated about the function activation status.

– If the format of the object to send is **1 byte unsigned**, the communication object ***Ch.x - z object 1 byte value*** will be visible and the values that can be set for the two above parameters are:

- **no effect (release default value)**
- **value sending (pressing default value)**

By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (0 .. 255)"** which can assume the following values:

- from **0 (default value)** to 255

– If the format of the object to send is **1 byte signed**, the communication object ***Ch.x - z object 1 byte value*** will be visible and the values that can be set for the two above parameters are:

- **no effect (release default value)**
- **value sending (pressing default value)**

By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (-128 .. 127)"** which can assume the following values:

- from -128 to 127, **0 (default value)**

– If the format of the object to send is **1 byte percentage**, the communication object ***Ch.x - z object 1 byte value*** will be visible and the values that can be set for the two above parameters are:

- **no effect (release default value)**
- **value sending (pressing default value)**

By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (0% .. 100%)"** which can assume the following values:

- from **0 (default value)** to 100

– If the format of the object to send is **1 byte HVAC mode**, the communication object ***Ch.x - z object 1 byte value*** will be visible and the values that can be set for the two above parameters are:

- **no effect** **(release default value)**
- auto
- **comfort** **(pressing default value)**
- precomfort
- economy
- off (building protection)
- cyclical switching (thermostat)
- cyclical switching (chronothermostat)

By selecting **cyclical switching**, in this case no communication object will be displayed as the device is always updated about the function activation status.

By selecting the value **cyclical switching (thermostat)**, each time the associated event is detected (pressing/releasing) the device sends a new thermoregulation mode (HVAC), following the order *Comfort→ Precomfort→ Economy→ Off→ Comfort* …; By selecting the value **cyclical switching (chronothermostat),** each time the associated event is detected (pressing/releasing) the device sends a new thermoregulation mode (HVAC), following the order *Comfort→ Precomfort→ Economy→ Off→ Auto→ Comfort* …

– If the format of the object to send is **2 bytes unsigned**, the communication object ***Ch.x - z object 2 bytes value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect (release detection default value)**
  - **value sending (pressing detection default value)**

  By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (0 .. 65535)"** which can assume the following values:

  - from **0 (default value)** to 65535

– If the format of the object to send is **2 bytes signed**, the communication object ***Ch.x - z object 2 bytes value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect (release detection default value)**
  - **value sending (pressing detection default value)**

  By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (-32768 .. +32767)"** which can assume the following values:

  - from -32768 to +32767, **0 (default value)**

– If the format of the object to send is **4 bytes unsigned**, the communication object ***Ch.x - z object 4 bytes value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect (release detection default value)**
  - **value sending (pressing detection default value)**

  By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (0 .. 4294967295)"** which can assume the following values:

  - from **0 (default value)** to 4294967295

– If the format of the object to send is **4 bytes signed**, the communication object ***Ch.x - z object 4 bytes value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect (release detection default value)**
  - **value sending (pressing detection default value)**

  By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (-2147483648 .. 2147483647)"** which can assume the following values:

  - from -2147483648 to 2147483647, **0 (default value)**

– If the format of the object to send is **14 bytes**, the communication object ***Ch.x - z object 14 bytes value*** will be visible and the values that can be set for the two above parameters are:

  - **no effect (release detection default value)**
  - **value sending (pressing detection default value)**

  By setting **value sending**, it is possible to define the value to be sent via the new displayed parameter **"Value (ISO characters 8859-1)"** which can assume the following values:

  - 14 alphanumeric characters with ISO/IEC coding 8859-1

5.1.3 Object sending delay [s] (0..255 seconds)

This is used to set the delay between the detection of the event associated with sending the command and the effective sending of the command on the bus.
With regard to the objects that range from index B to index H, this parameter indicates the delay between sending the command/value associated with the object with the previous index (z-1) and sending the command/value associated with the object to which the parameter refers; The delay to which reference is made in these cases is calculated from the moment in which the command/value is sent that is associated with the object with the previous index (z-1) and not from the moment in which the event that generates sending is detected (pressing/releasing or short operation).
The set delay will only be executed if the event in progress, associated to the object to which the parameter refers, is associated with any value other than **no effect**; otherwise, the delay is ignored.
The parameter may assume the following values:

- from **0 (default value)** to 255 seconds

NOTE : If a command sequence is being sent with delays, activated by the detection of a certain event (pressing/releasing), the detection of the opposite event will stop the sending of the sequence only if at least one of the actions associated with the detection of the last event is different than **no effect**; otherwise, the command/value sequence will be continue to be sent until the last command/value is sent.

6 Function *"1 push button + stop dimmer"*

This is used to configure the channel to control a dimmer with a single button, increasing and decreasing dimmer brightness always using the same button.
For sending on/off telegrams and brightness control telegrams.
As there is only one button to manage the On/Off and brightness control functions, the operation is managed by differentiating between short operations and long operations:

- a long operation is transformed into a brightness control command. When released, an adjustment stop telegram is sent to stop the brightness increase/decrease operation for the dimmer and to fix the brightness value reached at the moment the stop control command was received.
- a short operation is transformed into an on/off command.

Using this type of function, brightness control depends on the so-called brightness control characteristic curve, which varies from actuator to actuator, based on how the manufacturer designed the curve that regulates power, and as a result brightness. This means that the speed with which brightness reaches its maximum and minimum value does not depend on the commands sent from the push-button panel, but the latter regulates the brightness itself by stopping its increase/decrease based on the desired value. The communication objects that this function enables are ***Ch.x - Switching*** and ***Ch.x - Brightness dimming***.

The basic structure of the menu is as follows (Fig. 6.1):

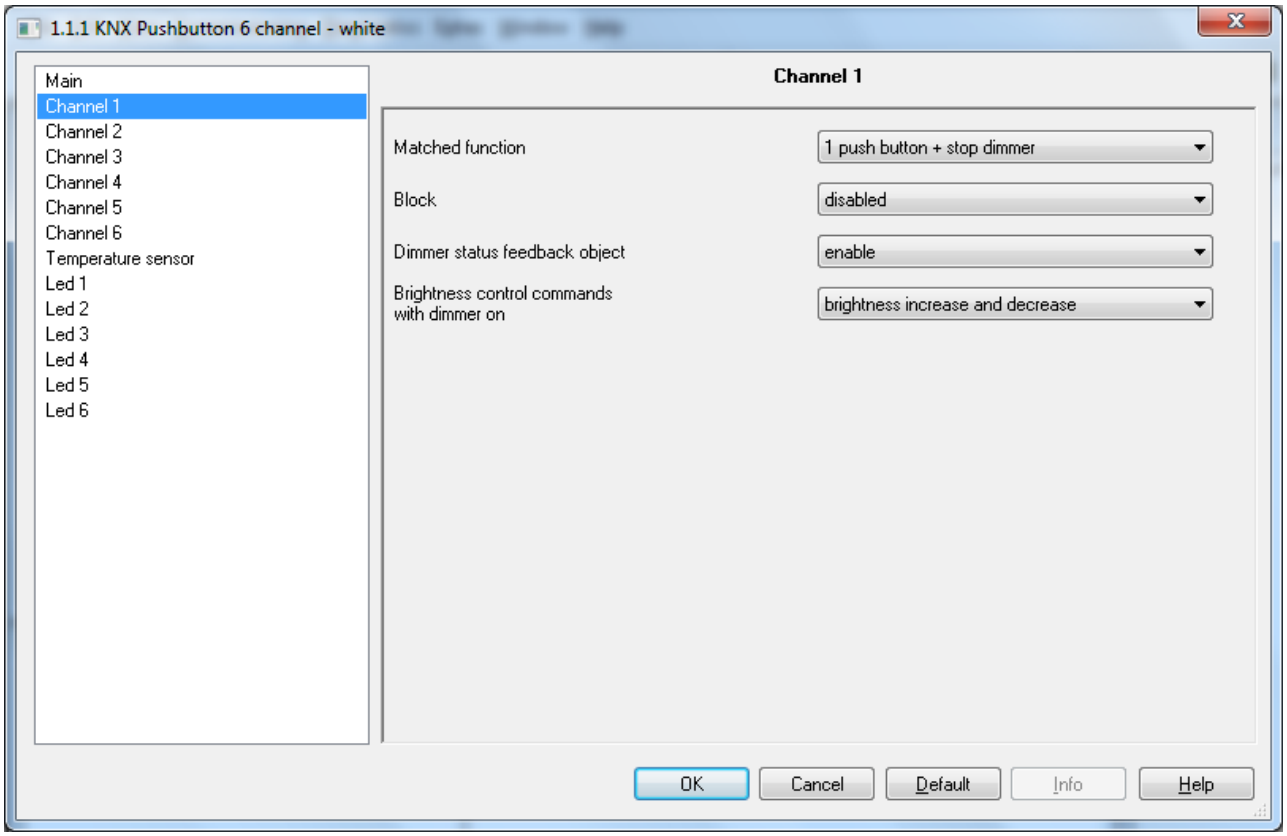


Fig. 6.1

The push-button panel makes sure that the command to be sent is the opposite of the last command that was sent, which results as:

- long operation: if the last sent command was an off command or a decrease brightness command, the new command will be an increase brightness command; vice versa, if the last sent command was an on command or an increase brightness command, the new command will be a decrease brightness command. In both cases, when released, an adjustment stop telegram is sent to stop the brightness increase/decrease operation for the dimmer and to fix the brightness value reached at the moment the stop control command was received.
- short operation: if the last sent command was an on command, the new command will be an off command; vice versa, if the last sent command was an off command, the new command will be an on

command; the brightness increase/decrease control commands in this case do not determine the value of the last command sent to distinguish the value of the new command to be sent.

This behaviour is changed if the user enables the communication object ***Ch.x - Dimmer status feedback***, via the parameter **"Dimmer status feedback object"**; this parameter may have the following values:

- **disabled (default value)**
- enable

Selecting the value **enable** displays the parameter **"Brightness control commands with dimmer on"** and the communication object ***Ch.x - Dimmer status feedback***, which makes it possible to receive status feedback from the controlled dimmer actuator; the behaviour of the push-button panel is modified as follows:

– long operation: the command that the push-button panel sends depend on the parameter **"Brightness control commands with dimmer on"**, which can assume the following values:

  - only brightness increase
  - only brightness decrease
  - **brightness increase and decrease (default value)**

  By setting **brightness increase and decrease**, if the value of the last two events "last sent command" and "dimmer status feedback" is ON, the new brightness control command to be sent will be the opposite of the last sent command; when released, an adjustment stop telegram is sent to stop the brightness increase/decrease operation for the dimmer and to fix the brightness value reached at the moment the stop control command was received; if the value of the last of the two events "last sent command" and "dimmer status feedback" is OFF, the first command to be sent is increase brightness value, followed by sending the command opposite of the last one sent.

– short operation: if the value of the last of the two events "last sent command" and "dimmer status feedback" is ON, the new command will be an off command; vice versa, if the value of the last of the two events "last sent command" and "dimmer status feedback" is OFF, the new command will be an on command.

If the feedback object is enabled, each time bus voltage is reset, the device sends a status reading command for this object to update the push-button panel about the status of the connected devices.

7 Function *"cyclic sending 1 push button dimmer"*

This is used to configure the channel to control a dimmer with a single button, increasing and decreasing dimmer brightness always using the same button, with defined and settable control steps.
As there is only one button to manage the On/Off and brightness control functions, the operation is managed so that each time the button is pressed the opposite command is sent in comparison to the last sent command and by differentiating between short operations and long operations:

- a long operation is transformed into a brightness control command. No telegram is sent when released.
- a short operation is transformed into an on/off command.

Unlike the function ***1 push button + stop dimmer***, it is possible to define both the brightness various steps as well as the time that passes between sending different commands, if the long operation continues over time; therefore the sending of the control stop telegram is not necessary when releasing the button, even though the control follows the power/brightness characteristic curve, as it is the command that is sent from the push-button panel that determines the percentage variation. The communication objects that this function enables are ***Ch.x - Switching*** and ***Ch.x - Brightness dimming***.

The structure of the menu is as follows (Fig. 7.1):

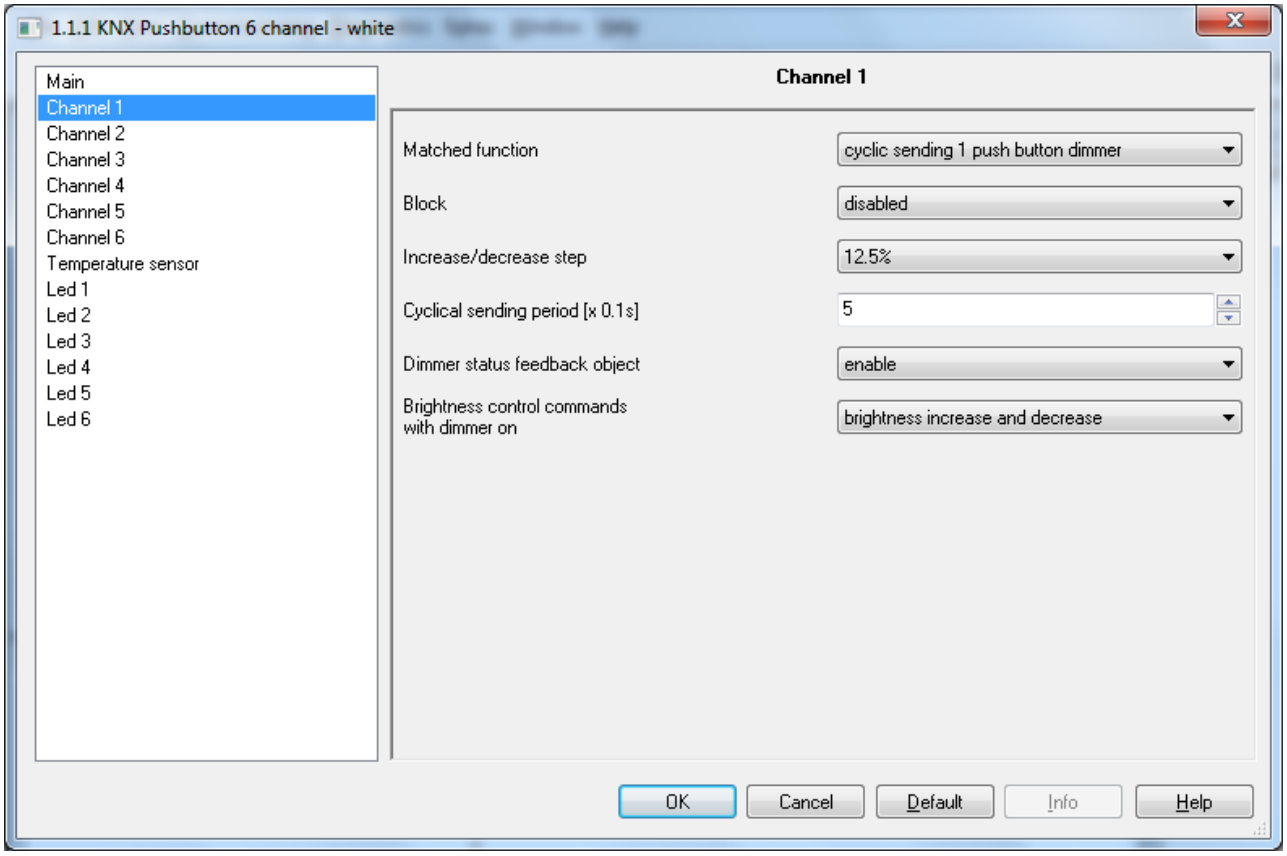


Fig. 7.1

7.1 Parameters

➢ 7.1.1 Increase/decrease step

This is used to set the percentage value of the brightness variation associated with the brightness increase/decrease commands. In this way, as soon as a long operation is detected, the device sends the first increase/decrease command with the set percentage; The values that can be set are:

- 100%
- 50%
- 25%
- **12.5%** **(default value)**
- 6.25%
- 3.125%
- 1.56%

If pressing is maintained, the device will cyclically send the command until release is detected.

➢ 7.1.2 Cyclical sending period [x 0.1s]

This is used to set the time that passes between sending subsequent increase/decrease commands if pressing is maintained. When released, no telegram is sent but only the cyclical sending of the brightness control commands is stopped.
The values that can be set are:

- from 3 to 50, **5 (default value)**

In summary, if a long operation is detected, the device sends the first increase/decrease command with the set percentage and, if the pressing is maintained, it will cyclically send the command until release is detected.

EXAMPLE: for example, if the value for item **Long operation minimum time** in the ***Main*** menu is set to ***0.5 sec***, the parameter **Increase/decrease step** is set to **12.5%** and parameter **Cyclical sending period [x 0.1s]** is set to **3** (0.3 sec) and pressing is detected:

- 0.5 seconds after detecting the pressing of the button, a long operation is recognised and as a result the first 12.5% brightness increase/decrease telegram is sent
- from this moment, for every 0.3 seconds that pressing is continued, the device will send a new 12.5% brightness increase/decrease command until the release of the button is detected
- when released, no telegram is sent but the cyclical sending is stopped

➢ 7.1.3 Dimmer status feedback object

Refer to chapter 6 for the settings of this parameter

8 Function *“1 push button shutter control”*

This is used to configure the channel to control a shutter with a single button, regulating the upward and downward travel of the shutter and, depending on the device version, controlling louvres opening/closing.
As only one button manages the louvres up/down and control functions, the operation is managed so that each time the button is pressed, a command is sent that is the opposite of the last movement signal received by the actuator that manages the shutter; a differentiation is made between short and long operations:

- a long operation is transformed into an up/down movement command. If the last received movement signal was “up”, the new command will be a down command, and vice versa.
- a short operation is transformed into a louvres control command. If the last received movement signal was “up”, the new command will be a closing louvres control command; however, if the last received movement signal was “down”, the new command will be an opening louvres control command. If the shutter is moving, the louvres control command will only stop the shutter up/down movement.

The communication objects this function enables are ***Ch.x - Shutter movement***, ***Ch.x - Shutter stop/Louvres control and Ch.x - Movement feedback***.
The structure of the menu is as follows (fig. 8.1):

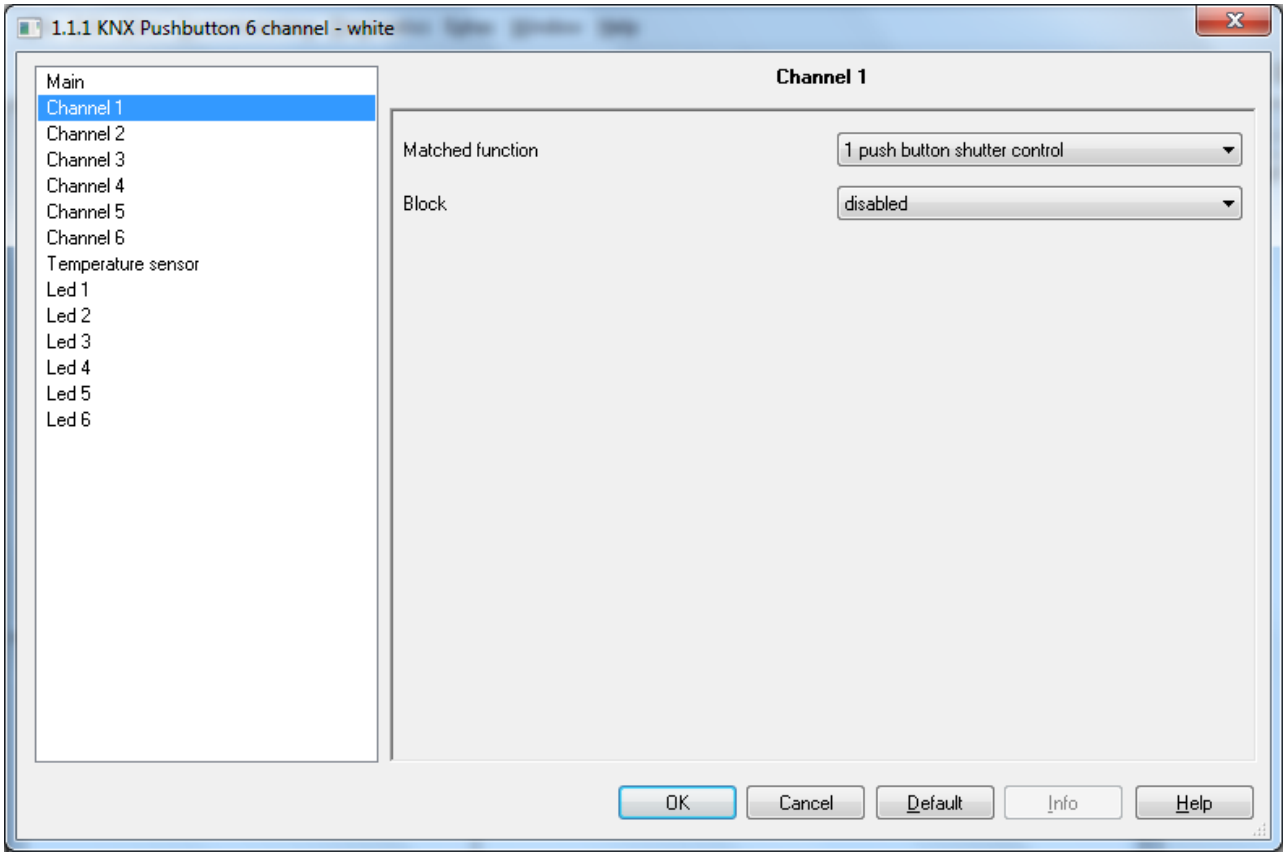


Fig. 8.1

9 Function *"scene management"*

This is used to configure the channel to send scene memorising and execution commands, with the possibility of sending the scene memorising command following a command received from the bus. Only one scene can be managed for each channel.
A differentiation is made between short and long operations:

- a long operation is transformed into a scene storing command.
- a long operation is transformed into a scene execution command.

The communication objects that this function enables are ***Ch.x - Scene*** and ***Ch.x - Scene storing trigger***.
When a long operation is recognised, to provide the user with a visual confirmation that the scene storing command was sent, night signalling will be deactivated for a brief period (blink). If night signalling is disabled, when the long operation is detected, a light signalling (blink) is briefly activated with the currently selected color; this effect has priority over all the light effects activated by the bus (see chapter 13 "Led X menu").
The structure of the menu is as follows (fig. 9.1):

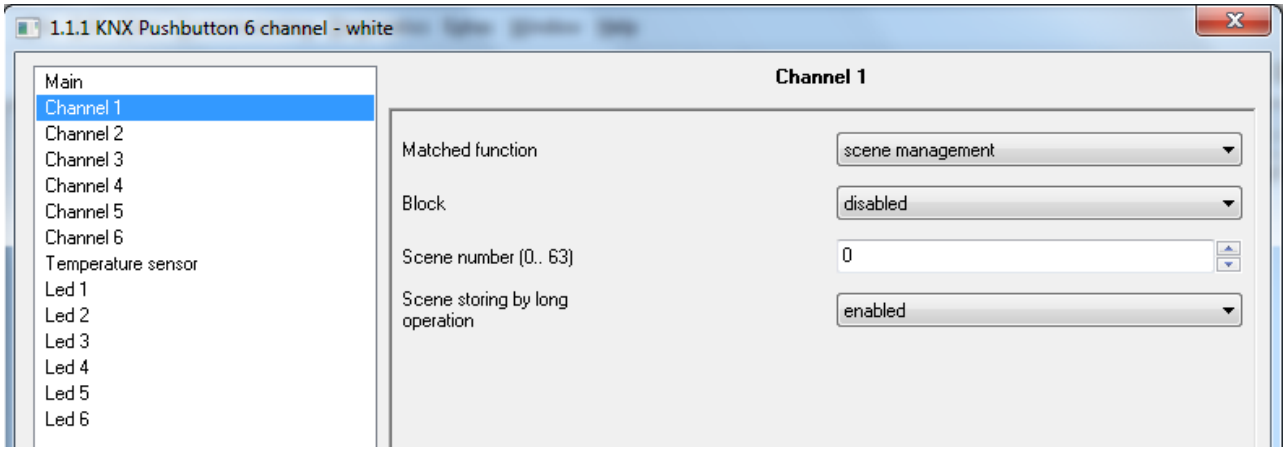


Fig. 9.1

9.1 Parameters

➢ *9.1.1 Scene number (0..63)*

This is used to set the value of the scene to be recalled/stored and as a result the relative values that are sent via the object ***Ch.x - Scene***. The possible values are:

- from **0 (default value)** to 63

➢ *9.1.2 Scene storing by long operation*

This 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 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).
Independently of the value set for the above parameter, it is possible to indirectly generate the sending of the scene memorising command after receiving a bus telegram on the object ***Ch.x - Scene storing trigger*** (both with value "1" as well as with value "0"); each time the device receives a telegram on that object, a scene memorisation telegram will be sent immediately.

10 Function *"switching sequences"*

This is used to send a command sequence after a certain pressing has been detected.
The structure of the menu is as follows (fig. 10.1):

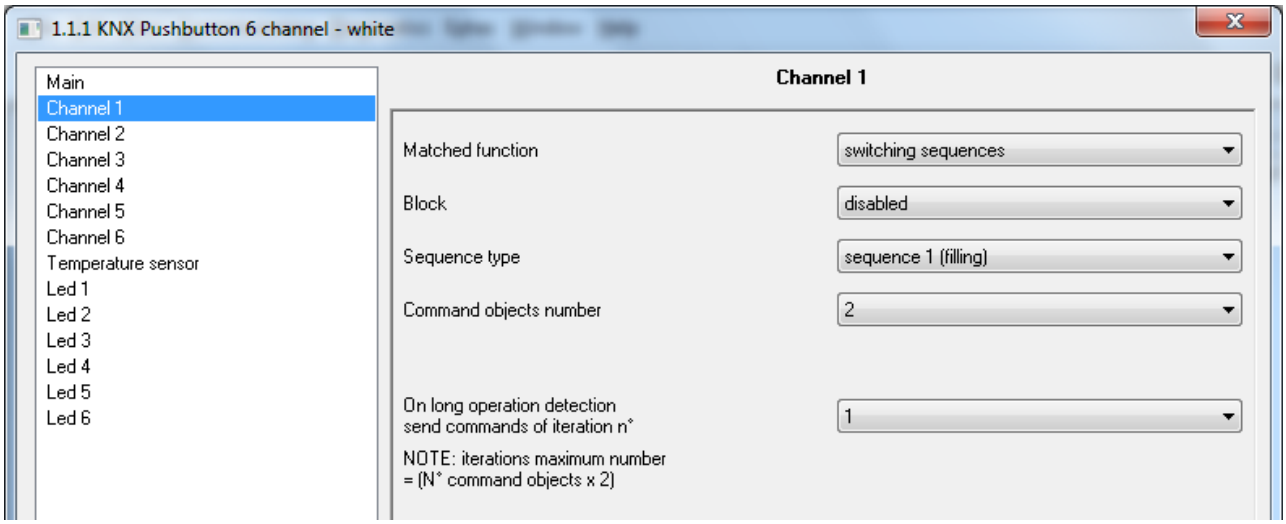


Fig. 10.1

10.1 Parameters

➢ *10.1.1 Command objects number*

This is used to set the number of commands that make up the sequence itself; based on the value set for this item, the communication objects ***Ch.x - Sequence z*** are enabled (with **z** between A and H).
The values that can be set are:

- from **2 (default value)** to 8

➢ *10.1.2 Sequence type*

This is used to set the type of sequence to be sent.
The values that can be set are:

- **sequence 1 (filling) (default value)**
- sequence 2 (sum)
- sequence 3 (random)

Sequence 1 (filling) consists in: each time pressing is detected (edge) the device sends a sequence that follows the filling progress on the communication objects. This sequence consists in activating one communication object a time, in cascade, until all the objects have the logical value "1" and in deactivating the objects in cascade until they again have the logical value "0". Taking into consideration a sequence that includes 3 commands, at each iteration, the sent commands will be:

Edge no.	Value sent on ***Ch.x - C sequence***	Value sent on ***Ch.x - B sequence***	Value sent on ***Ch.x - A sequence***
1st edge	0	0	1
2nd edge	0	1	1
3rd edge	1	1	1
4th edge	0	1	1
5th edge	0	0	1
6th edge	0	0	0

Once the 6th edge is detected, the sequence will start from the beginning

The table shows how, considering the increasing/decreasing trend of the sequence, the most significant bit of the sequence, in this particular case, is the one for the communication object ***Ch.x - C sequence*** whereas the least significant is always the one for the object ***Ch.x - A sequence***.

Sequence 2 (sum) consists in: each time pressing is detected (edge) the device sends a sequence that follows the sum progress on the communication objects. This sequence consists in counting the detected edges and converting this value into a binary format, distributing it on the enabled communication objects.
Taking into consideration a sequence that includes 3 commands, at each iteration, the sent commands will be:

Edge no.	Value sent on ***Ch.x - C sequence***	Value sent on ***Ch.x - B sequence***	Value sent on ***Ch.x - A sequence***
1st edge	0	0	1
2nd edge	0	1	0
3rd edge	0	1	1
4th edge	1	0	0
5th edge	1	0	1
6th edge	1	1	0
7th edge	1	1	1
8th edge	0	0	0

Once the 8th edge is detected, the sequence will start from the beginning

The table shows how the trend of the sent commands depends on the count of the detected edge; in fact it starts with the binary coding of value 1 up to, in this specific case, the coding of value 7 and then the counting starts again for the next edge. Also in this case, the most significant bit in the sequence is the one for the communication object ***Ch.x - C sequence*** whereas the least significant is always the one for object ***Ch.x - A sequence***.

Sequence 3 (random) allows the user to directly set the value for each command for each set edge; this setting enables the parameter **"Number of sequence iterations"** and the configuration menu **z object channel x** (one for each enabled command). The parameter **"Number of sequence iterations"** allows to set the number of iterations (edges) that make up the sequence; The values that can be set are:

- from **2 (default value)** to 16

Based on the value set for this item, the **Channel x z object** menu will display or hide the parameters **"Iteration 1 object value"**, **"Iteration 2 object value"**, **"Iteration 3 object value"**, **"Iteration 4 object value"**, **"Iteration 5 object value"**, **"Iteration 6 object value"**, **"Iteration 7 object value"**, **"Iteration 8 object value"**, **"Iteration 9 object value"**, **"Iteration 10 object value"**, **"Iteration 11 object value"**, **"Iteration 12 object value"**, **"Iteration 13 object value"**, **"Iteration 14 object value"**, **"Iteration 15 object value"** and **"Iteration 16 object value"**, which can assume the following values:

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

The structure of the menu **Channel x z object** is as follows(fig. 10.2):

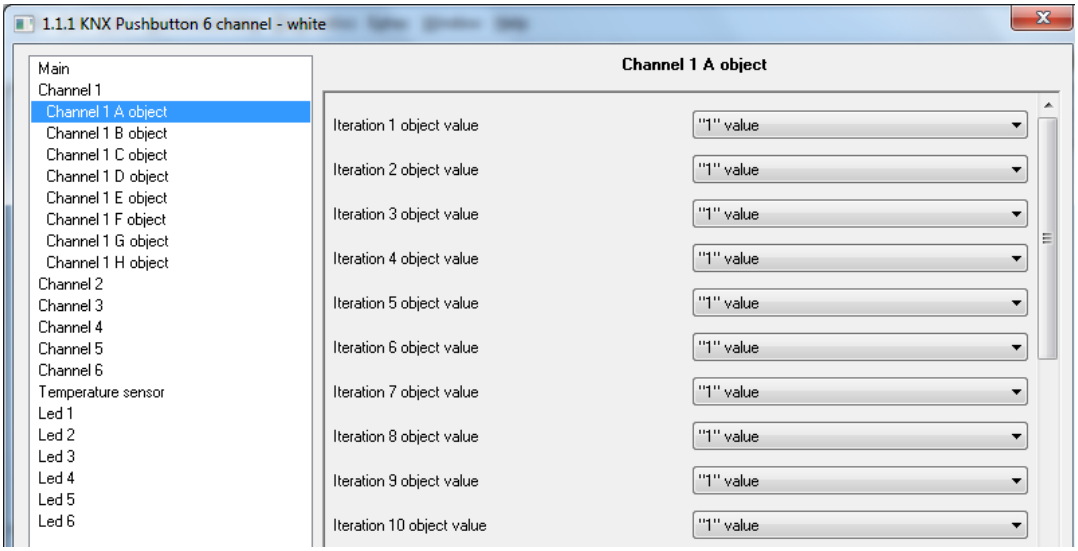


Fig. 10.2

➢ *10.1.3 On long operation detection, send commands of iteration n°*

This is used to define which iteration of the sequence is to be sent when a long operation is detected; The values that can be set are:

- from 1 to 256, **1 (default value)**

EXAMPLE: with reference to the previous table, supposing that the value set by the user is **3**, when a long operation is detected the device will send:

Edge no.	Value sent on ***Ch.x - C sequence***	Value sent on ***Ch.x - B sequence***	Value sent on ***Ch.x - A sequence***
1st edge	0	0	1
2nd edge	0	1	1
3rd edge	1	1	1
4th edge	0	1	1
5th edge	0	0	1
6th edge	0	0	0

"Filling" sequence

Edge no.	Value sent on ***Ch.x - C sequence***	Value sent on ***Ch.x - B sequence***	Value sent on ***Ch.x - A sequence***
1st edge	0	0	1
2nd edge	0	1	0
3rd edge	0	1	1
4th edge	1	0	0
5th edge	1	0	1
6th edge	1	1	0
7th edge	1	1	1
8th edge	0	0	0

"Sum" sequence

Once the long operation is detected and the sequence relative to the set iteration is sent, the next time a short operation is detected the sequence related to the iteration following the one associated with the long operation will be sent (in this example, the sequence association with iteration 4 will be sent).
In summary, the value set for the parameter **"On long operation detection, send commands of iteration n°"** defines both the sequence to be sent as well as the value with which the iteration counter should start when a long operation is detected.

11 *“Channel X/Y” (coupled channels)* menu

If the channel operation is matched, a dedicated menu is displayed for each channel pair, called **Channel x/y**. The menu structure changes based on the value set for the **“Matched function”** parameter. For the sake of simplicity, the parameters enabled according to the value set for the above parameter are listed in the following paragraphs.
The basic structure of the menu is as follows (Fig. 11.1):

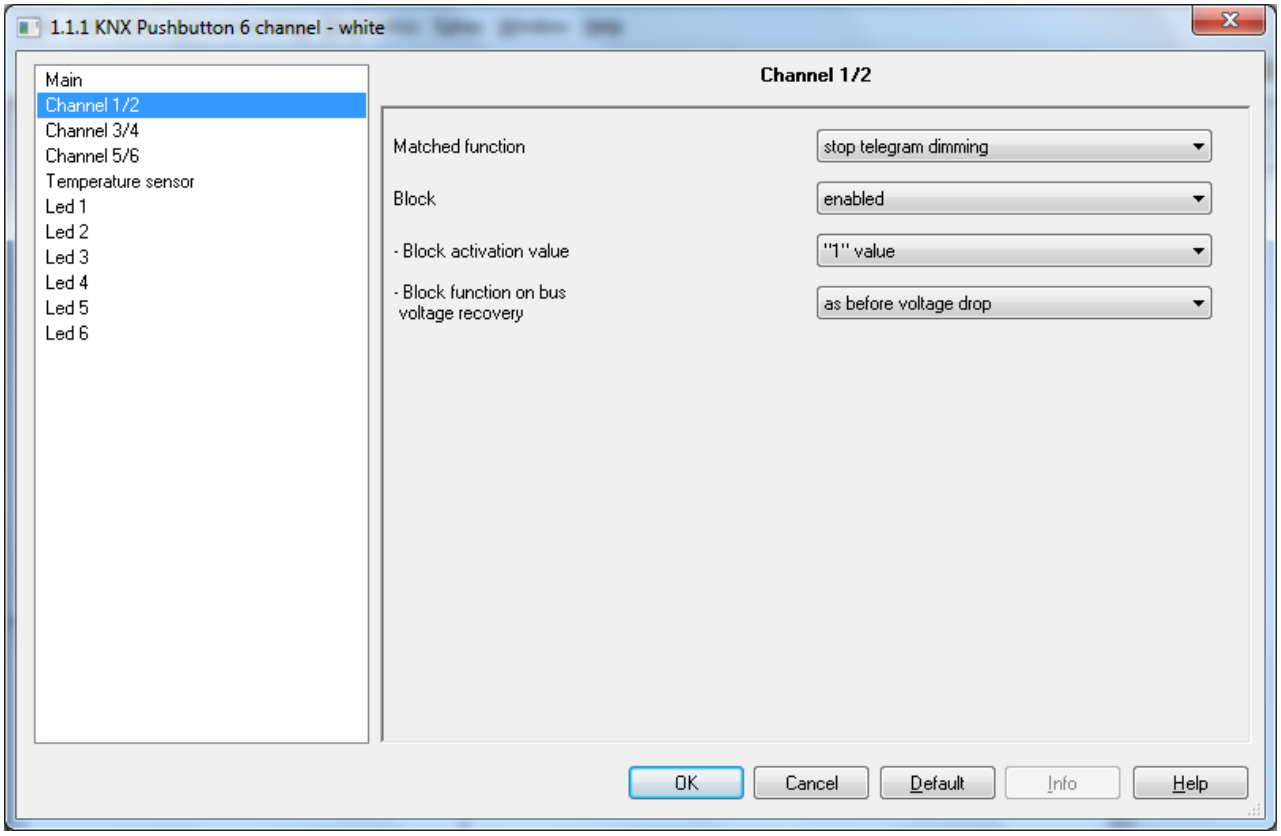


Fig. 11.1

11.1 Parameters

➢ *11.1.1 Matched function*

This is used to define the function implemented by the combined channels; The values that can be set are:

- **stop telegram dimming (default value)**
  (See chapter 6 Function “1 push button + STOP dimmer”)

  cyclic telegram dimming
  (See chapter 7 Function “cyclic sending 1 push button dimmer”)

- shutter control
  (See paragraph 8 Function “1 push button shutter control”)

➢ *11.1.2 Block*

Refer to paragraph 4.1.2 for the settings of this parameter

12 *"Temperature sensor"* menu

This is used to enable and set the conditions for sending the temperature value measured by the sensor located inside the device.
The basic structure of the menu is as follows (fig. 12.1):

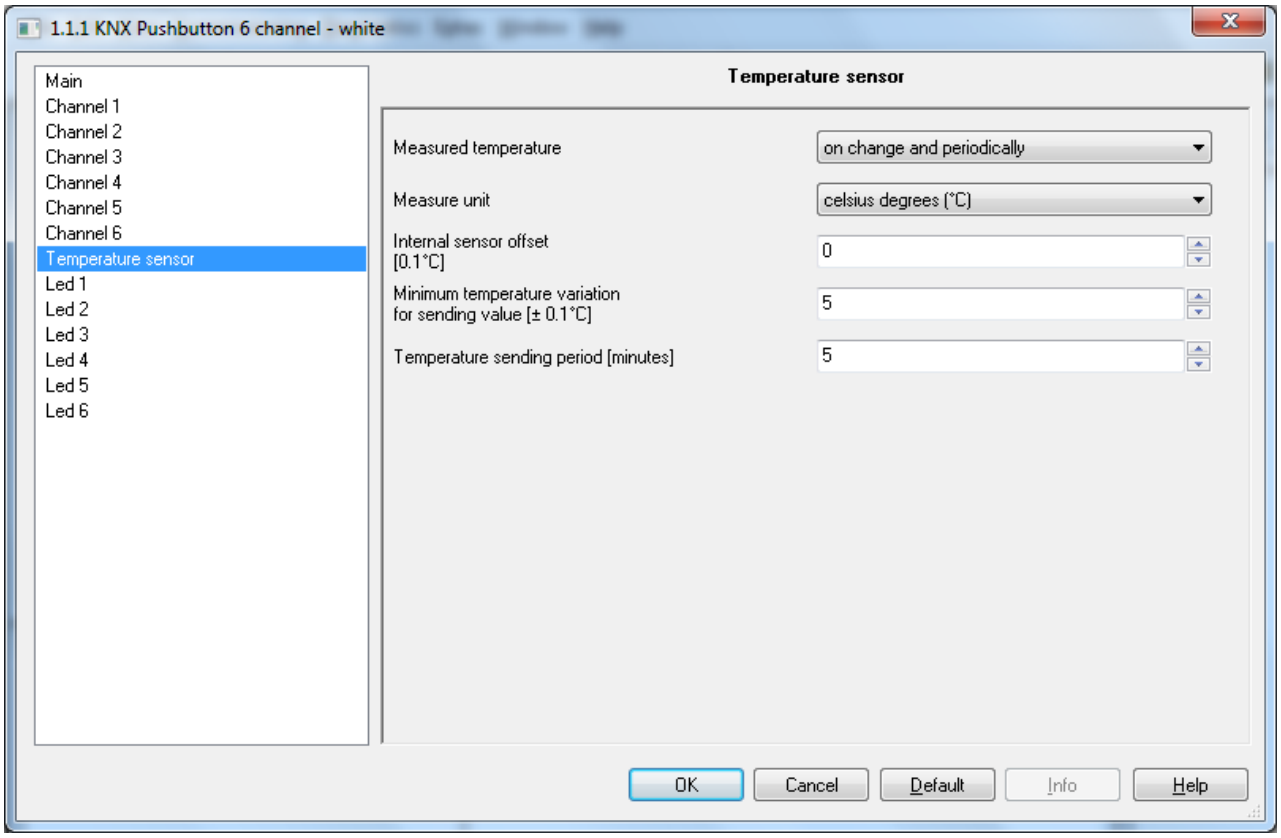


Fig. 12.1

12.1 Parameters

➢ *12.1.1 Measured temperature*

This is used to define the conditions for sending the value of the temperature measured by the probe; The values that can be set are:

- **do not send** **(default value)**
- send on demand only
- send in case of change
- send periodically
- on change and periodically

By selecting the value **do not send**, no new parameter or communication object will be visible; by selecting any other value, the communication object ***Temperature sensor*** and the parameters **"Measure unit"** and **"Internal sensor offset factor [0.1°C]"** will be displayed. Selecting the value **send in case of change** or **on change and periodically**, also the parameter **"Minimum temperature variation for sending value [± 0.1°C]"** will be visible, whereas by selecting **send periodically** or **on change and periodically** the parameter **"Temperature sending period [minutes]"** will be visible.
Selecting the value **send on demand only**, no new parameter will be enabled, as the temperature value is not sent spontaneously by the device; in the case of a status reading request, it sends the requester a telegram in response to the received command, which includes information about the measured temperature value.

➢ *12.1.2 Measure unit*

This is used to set the measure unit with which the information will be coded and sent via the communication object ***Temperature sensor***; The values that can be set are:

- **degrees Celsius (°C) (default value)**
- degrees Kelvin (°K)

The value set for this parameter changes the coding of the communication object ***Temperature sensor***.

➢ *12.1.3 Internal sensor offset [0.1 °C]*

This is used to set the correction factor to be applied to the temperature value measured by the probe, to eliminate the contribution of heat generated by the device or the site of installation; The values that can be set are:

from -20 to + 20, **0 (default value)**

➢ *12.1.4 Minimum temperature variation for sending value [± 0.1 °C]*

This is visible if the temperature is sent on change, and is used to define the minimum temperature variation, with respect to the last sent temperature value, which causes the new measured value to be spontaneously sent; The values that can be set are:

- from 1 to 10, **5 (default value)**

➢ *12.1.5 Temperature sending period [minutes]*

This is visible if the temperature is sent periodically, and is used to define the period after which the measured temperature indication telegrams are sent spontaneously; The values that can be set are:

from 1 to 255, **5 (default value)**

13 *"Led X"* menu

This is used to define and personalize the operation of the signalling LEDs associated with the channel.
The signalling LED can assume an amber or green color, one of them can be used for the night lighting function or signalling of motor control actuator movement in progress or both can be independently managed via the relative communication objects. The communication objects enabled by this function are ***Led x - Effect 1***, ***Led x - Effect 2***, ***Led x - Effect 3***, ***Led x - Effect 4*** and ***Led x - Effect 5***.
The basic structure of the menu is as follows (fig. 13.1):

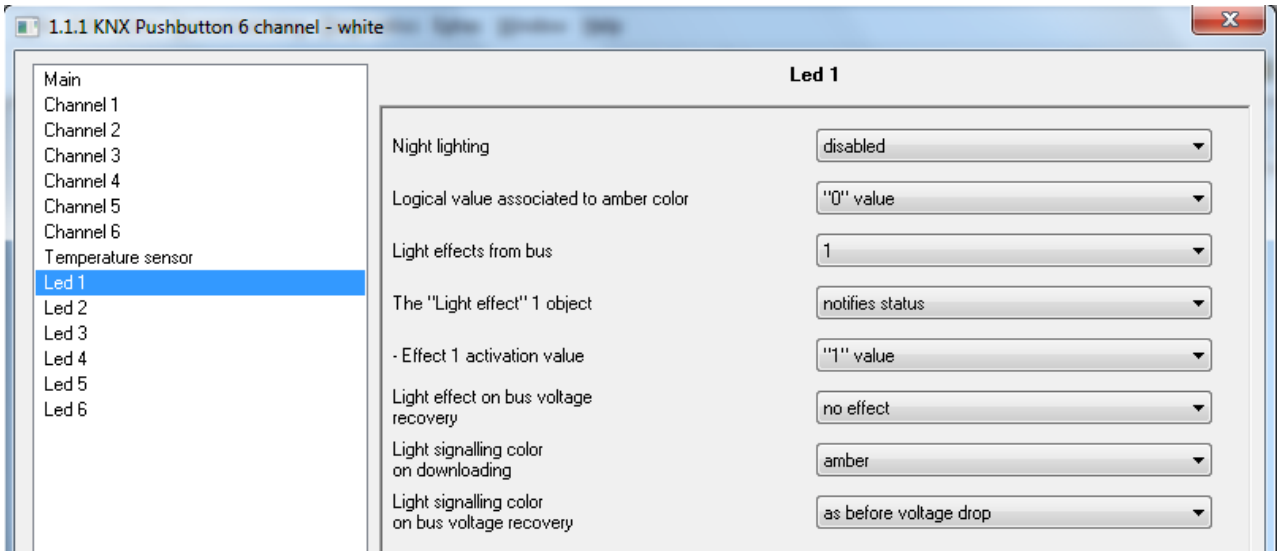
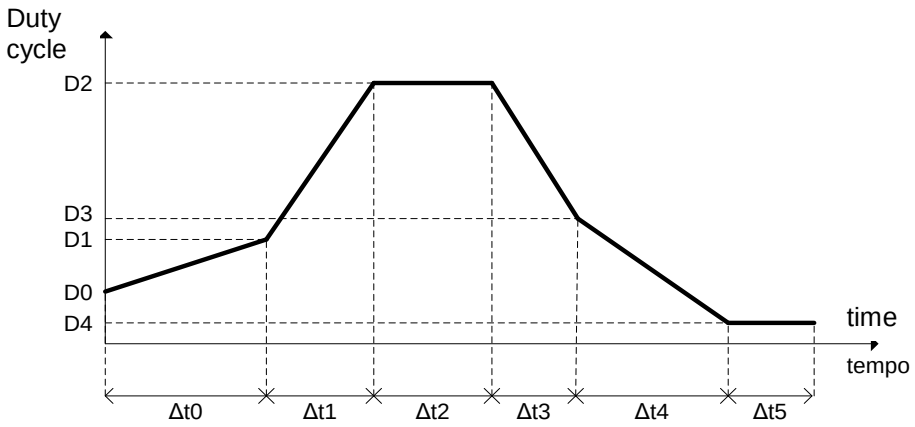


Fig. 13.1

Given how complex it is for the final user to understand all the parameters that are theoretically configurable to obtain the desired light effect (see figure below), a predefined set of light effects is defined, limiting as far as possible the number of parameters that can be configured for each effect.



13.1 Parameters

➢ 13.1.1 Night lighting

This is used to enable and define the night signalling color associated with channel x; The values that can be set are:

- disabled
- **enable amber signalling (default value)**
- enable green signalling

Selecting the value **disabled**, displays the communication object ***Led x - color choice*** that allows to change from the bus the signalling LED color and the parameters **"Logical value associated to amber color"**, **"Light signalling color on downloading"** and **"Light signalling color on bus voltage recovery"**.
Selecting a value other than **disabled** displays the parameter **"LED brightness percentage value for night signalling"**.

➢ 13.1.2 Logical value associated to amber color

This defines which logical value received on the communication object ***Led x - color choice*** is associated with the amber color; as a result, the opposite logical value is associated with the green color. The values that can be set are:

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

➢ 13.1.3 LED brightness percentage value for night lighting

This is used to define the LED brightness intensity percentage with the night signalling function; The values that can be set are:

from 5% to **100% (default value)**

➢ 13.1.4 Light effects from bus

This is used to enable various communication objects for the activation of the light signalling via bus telegram; The values that can be set are:

- **none (default value)**
- 1
- 2
- 3
- 4
- 5

Based on the number of selected effects, this will display the parameters **"The "Light effect" 1 object"**, **"Effect 1 activation value"**, **"The "Light effect" 2 object"**, **"Effect 2 activation value"**, **"The "Light effect" 3 object"**, **"Effect 3 activation value"**, **"The "Light effect" 4 object"**, **"Effect 4 activation value"** and **"The "Light effect" 5 object"**, **"Effect 5 activation value"**.

Parameters **"The "Light effect" 1 object"**, **"The "Light effect" 2 object"**, **"The "Light effect" 3 object"**, **"The "Light effect" 4 object"** and **"The "Light effect" 5 object"** are used to associate the luminous effect to display via the bus communication objects Led ***x - Effect 1***, ***Led x - Effect 2***, ***Led x - Effect 3***, ***Led x - Effect 4*** and ***Led x - Effect 5***; via these communication objects, it is possible to activate/deactivate the set light signalling from the bus. The values that can be set for this parameter are:

- **notifies status** **(default value)**
- switching night signalling off (visible only if green/amber signalling is enabled)
- activate fast cyclic blinking
- activate slow cyclic blinking
- executes down ramp
- executes heartbeat 1
- executes heartbeat 2
- executes jellyfish

- executes blinking
- executes heartbeat 3
- executes heartbeat 4
- executes fast blinking
- executes slow blinking
- executes very slow blinking
- executes 3 blinkings
- executes personalized effect

If the selected value is **personalized effect**, this will display the new configuration menu **Personalized effect y**, with 1≤Y≤5 (see paragraph 13.2)

The parameters **"Effect 1 activation value"**, **"Effect 2 activation value"**, **"Effect 3 activation value"**, **"Effect 4 activation value"** and **"Effect 5 activation value"** are used to define which logical value received via the objects ***Led x - Effect 1***, ***Led x - Effect 2***, ***Led x - Effect 3***, ***Led x - Effect 4*** and ***Led x - Effect 5*** activates the associated light signalling. The values that can be set for this parameter are:

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

Via the communication objects ***Led x - Effect 1*****,** ***Led x - Effect 2*****,** ***Led x - Effect 3*****,** ***Led x - Effect 4*** **and** ***Led x - Effect 5***, it is possible to activate/deactivate the associated light effect via bus commands; by activating a light effect that is different than the one already active, the new effect will be implemented and the old effect will be deactivated. This means that only one effect may be active and, once it is deactivated, the signalling led will deactivate and the night signalling will activate without having to deactivate the previously activated light effects; to deactivate the led, the active light effect must be deactivated.

➢ *13.1.5 Light effect on bus voltage recovery*

Makes it possible to set the light signalling effect that is activated with the bus voltage is recovered. The values that can be set are:

- no effect
- light effect 1
- light effect 2
- light effect 3
- light effect 4
- light effect 5
- **as before voltage drop (default value)**

Selecting the value **no effect**, if night signalling is activate, when bus voltage is recovered the night signalling will be activated. By selecting any value other than **no effect**, if night signalling is active, the selected effect will be replicated when the bus voltage is recovered with coloring that is NOT dedicated to night signalling.

➢ *13.1.6 Light signalling color on downloading*

This is visible if night lighting is disabled, and is used to present the color of the light signalling color on downloading the application parameters via ETS.
The values that can be set are:

- **amber (default value)**
- green

➢ *13.1.7 Light signalling color on bus voltage recovery*

This is visible if night lighting is disabled, and is used to present the color of the light signalling color on bus voltage recovery. The values that can be set are:

- amber
- green
- **as before voltage drop (default value)**

In summary, if night signalling is active, the coloring of the light effects activated by the bus command (via objects ***Led x - Effect 1*** etc.) is associated to a LED not used for signalling; vice versa, if night signalling is disabled, the coloring of these effects depends on the communication object ***Led x - color choice*** and on the parameter value **"Light signalling color on bus voltage recovery"**.

13.2 "Personalize effect y" menu

This menu is displayed if the value for parameter **""Light effect" y object"** in menu **Led x** is set to **execute personalized effect**.
In this menu, all the parameters used for creating the light effects are visible and configurable; in this way, the user can create a personalized light effect. These light effects are activated/deactivated by the objects ***Led x - Effect y***.

The basic structure of the menu is as follows (fig. 13.2):

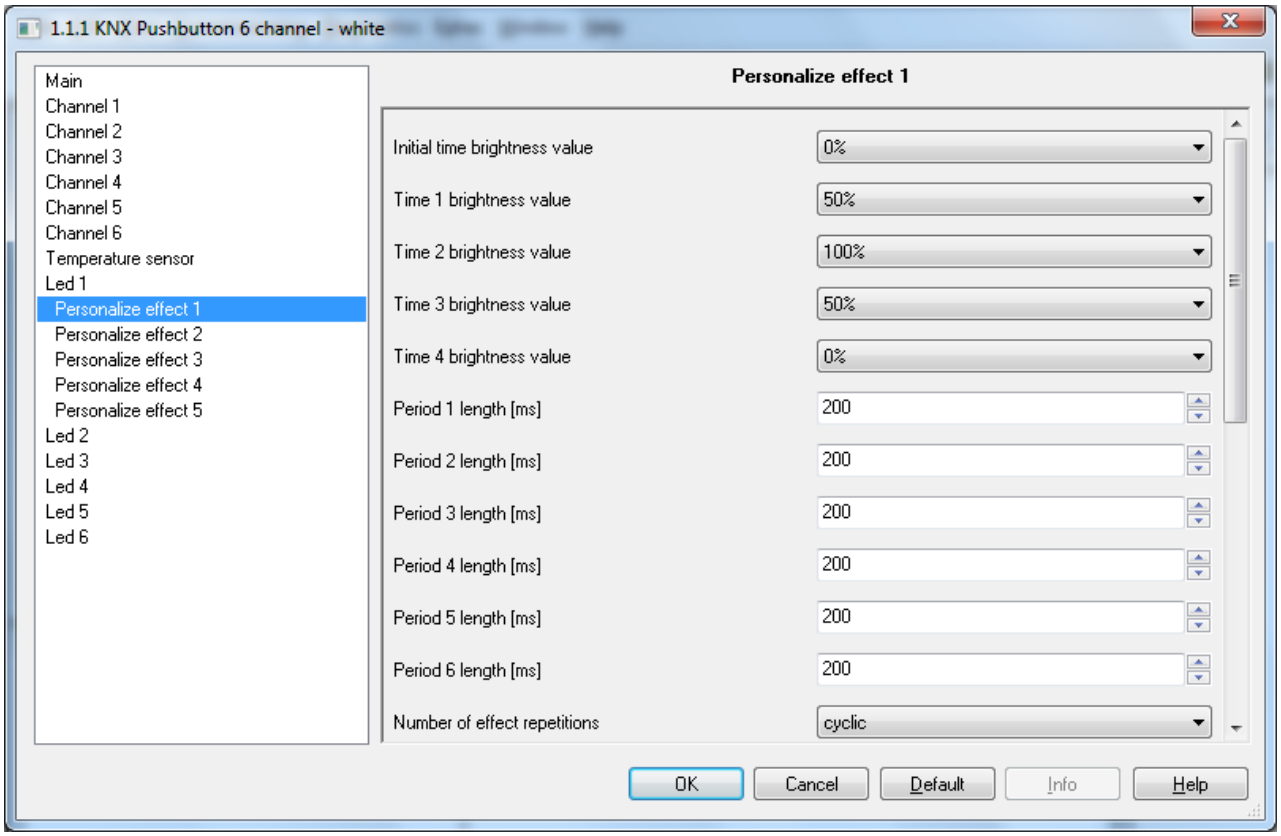
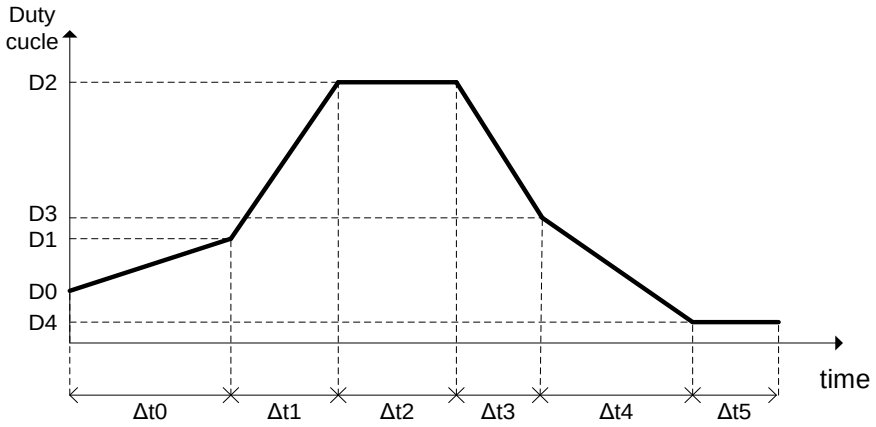


Fig. 13.2

Using the figure shown below as a reference, all the variables that create the light effect can be set by the user in this configuration menu.

Duty
cycle



The available variables are:

- 6 parameters Δ_t0, Δ_t1, Δ_t2, Δ_t3, Δ_t4, Δ_t5 expressed in ms (0-65535) that define the duration of the brightness control ramp between the value $\Delta_t(n)$ and $\Delta_t(n+1)$ or, in this case Δ_t2, the interval for which the brightness D2 will be maintained
- 5 parameters D0, D1, D2, D3, D4 (0-255) that define LED brightness values (duty-cycle). The values that can be set for these parameters will be displayed to the user as a percentage value between 0% and 100%, according to the proportion D(n)= Parameter*255/100
- 1 parameter that defines the number of cycles for **repeating** the effect (1 .. 254);

The parameters used to define the brightness values to reproduce are **"Initial time brightness value"** (D0), **"Time 1 brightness value"** (D1), **"Time 2 brightness value"** (D2), **"Time 3 brightness value"** (D3) and **"Time 4 brightness value"** (D4), which may be assigned the following values:

- from 0% to 100%, **0 % (default value D0-D4)**, **50% (default value D1-D3)** and **100% (default value D2)**

The parameters used to define the duration of the control ramp between a brightness value and the next are **"Period 1 length [ms]"** (Δ_t0), **"Period 2 length [ms]"** (Δ_t1), **"Period 3 length [ms]"** (Δ_t2), **"Period 4 length [ms]"** (Δ_t3), **"Period 5 length [ms]"** (Δ_t4) and **"Period 6 length [ms]"** (Δ_t5), which can assume the following values:

from 0 to 65535, **200 (default value)**

➢ *13.2.1 Number of effect repetitions*

This defines how many times the set light effect must be repeated when an activation command is received from the bus; The values that can be set are:

- 1, 2, .. 254, **cyclic (default value)**

14 Communication objects

The communication objects are listed in the following table (this example shows only general objects and those relative to channel 1 and 1/2) (Fig. 14.1):

Number	Name	Object Function	Leng...	C	R	W	T	U	Data Type	Priority
0	Ch.1 - Block	Switching On/Off	1 bit	C	-	W	-	-		Low
0	Ch.1/2 - Block	Switching On/Off	1 bit	C	-	W	-	-		Low
1	Ch.1 - A Sequence	On/Off	1 bit	C	R	-	T	-		Low
1	Ch.1 - Shutter movement	Up/Down	1 bit	C	R	-	T	-		Low
1	Ch.1 - Switch	On/Off	1 bit	C	R	-	T	-		Low
1	Ch.1/2 - Switch	On/Off	1 bit	C	R	-	T	-		Low
1	Ch.1/2 - Shutter movement	Up/Down	1 bit	C	R	-	T	-		Low
1	Ch.1 - Scene	Execute/Store	1 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 14 bytes value	Characters ISO 8859-1	14 B...	C	R	-	T	-		Low
1	Ch.1 - A object 4 bytes value	Signed value	4 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 4 bytes value	Unsigned value	4 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 2 bytes value	Signed value	2 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 2 bytes value	Unsigned value	2 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 1 byte value	HVAC mode	1 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 1 byte value	% Value	1 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 1 byte value	Signed value	1 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 1 byte value	Unsigned value	1 Byte	C	R	-	T	-		Low
1	Ch.1 - A object 2 bits value	On/Off forced positioning	2 bit	C	R	-	T	-		Low
1	Ch.1 - A object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
1	Ch.1 - A Sequence	On/Off	1 bit	C	R	-	T	-		Low
2	Ch.1 - Shutter stop/Louvres control	Stop/step	1 bit	C	R	-	T	-		Low
2	Ch.1 - Brightness dimming	Increase/Decrease	4 bit	C	R	-	T	-		Low
2	Ch.1/2 - Shutter stop/Louvres control	Stop/step	1 bit	C	R	-	T	-		Low
2	Ch.1/2 - Brightness dimming	Increase/Decrease	4 bit	C	R	-	T	-		Low
2	Ch.1 - Scene storing trigger	Store	1 bit	C	-	W	-	-		Low
2	Ch.1 - B object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
2	Ch.1 - B sequence	On/Off	1 bit	C	R	-	T	-		Low
3	Ch.1 - C object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
3	Ch.1 - C sequence	On/Off	1 bit	C	R	-	T	-		Low
4	Ch.1 - D object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
4	Ch.1 - D sequence	On/Off	1 bit	C	R	-	T	-		Low
5	Ch.1 - E object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
5	Ch.1 - E sequence	On/Off	1 bit	C	R	-	T	-		Low
6	Ch.1 - F object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
6	Ch.1 - F sequence	On/Off	1 bit	C	R	-	T	-		Low
7	Ch.1 - G object 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
7	Ch.1 - G sequence	On/Off	1 bit	C	R	-	T	-		Low
8	Ch.1 - Hobject 1 bit value	1/0 value	1 bit	C	R	-	T	-		Low
8	Ch.1 - H sequence	On/Off	1 bit	C	R	-	T	-		Low
9	Ch.1 - Movement feedback	Increase/Decrease	1 bit	C	-	W	-	-		Low
9	Ch.1 - Dimmer status feedback	On/Off status	1 bit	C	-	W	T	U		Low
9	Ch.1 - A object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
10	Ch.1 - B object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
11	Ch.1 - C object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
12	Ch.1 - D object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
13	Ch.1 - E object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
14	Ch.1 - F object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
15	Ch.1 - G object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
16	Ch.1 - H object status feedback	On/Off status	1 bit	C	-	W	T	U		Low
102	Led 1 - Effect 1	Switching On/Off	1 bit	C	-	W	-	U		Low
102	Led 1 - Effect 1	Switching On/Off	1 bit	C	-	W	-	U		Low
103	Led 1 - Effect 2	Switching On/Off	1 bit	C	-	W	-	U		Low
104	Led 1 - Effect 3	Switching On/Off	1 bit	C	-	W	-	U		Low
105	Led 1 - Effect 4	Switching On/Off	1 bit	C	-	W	-	U		Low
106	Led 1 - Effect 5	Switching On/Off	1 bit	C	-	W	-	U		Low
107	Led 1 - Color choice	1=green/0=amber	1 bit	C	-	W	-	-		Low
138	Temperature sensor	Measured value (°C)	2 Byte	C	R	-	T	-		Low

Fig. 14.1

14.1 Communication object table

The following tables summarise all the communication objects with their ID number, the name and function displayed in ETS, plus a brief description of the function performed and the type of Datapoint used.

➢ 14.1.1 Communication objects with input functions

The following table contains all the objects with an input function:

Communication object no.						Object name	Object function	Description	Datapoint type
Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6				
0	17	34	51	68	85	Ch.x - Block	Switching On /Off	Used to activate/deactivate the block function	1.003 DPT_Enable
0	0	34	34	68	68	Ch.x/y - Block	Switching On /Off	Used to activate/deactivate the block function	1.003 DPT_Enable
2	19	36	53	70	87	Ch.x - Scene storing trigger	Store	Receives the request (trigger) to send a scene storing message	1.017 DPT_Trigger
9	26	43	60	77	94	Ch.x - Dimmer status feedback	On/Off status	Receives the dimmer status feedback	1.001 DPT_Switch
9	26	43	60	77	94	Ch.x - A status feedback	On/Off status	Receives the actuator status feedback for A object cyclic switching	1.001 DPT_Switch
9	26	43	60	77	94	Ch.x - Movement feedback	Increase/Decrease	Receives the feedback about the current movement direction of the motor command actuator	1.008 DPT_UpDown
10	27	44	61	78	95	Ch.x - B status feedback	On/Off status	Receives the actuator status feedback for B object cyclic switching	1.001 DPT_Switch

11	28	45	62	79	96	Ch.x - C status feedback	On/Off status	Receives the actuator status feedback for C object cyclic switching	1.001 DPT_Switch
12	29	46	63	80	97	Ch.x - D status feedback	On/Off status	Receives the actuator status feedback for D object cyclic switching	1.001 DPT_Switch
13	30	47	64	81	98	Ch.x - E status feedback	On/Off status	Receives the actuator status feedback for E object cyclic switching	1.001 DPT_Switch
14	31	48	65	82	99	Ch.x - F status feedback	On/Off status	Receives the actuator status feedback for F object cyclic switching	1.001 DPT_Switch
15	32	49	66	83	100	Ch.x - G status feedback	On/Off status	Receives the actuator status feedback for G object cyclic switching	1.001 DPT_Switch
16	33	50	67	84	101	Ch.x - H status feedback	On/Off status	Receives the actuator status feedback for H object cyclic switching	1.001 DPT_Switch
102						Led 1 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
103						Led 1 - Effect 2	Switching On /Off	Switching On /Off light effect 2	1.001 DPT_Switch
104						Led 1 - Effect 3	Switching On /Off	Switching On /Off light effect 3	1.001 DPT_Switch

105	Led 1 - Effect 4	Switching On /Off	Switching On /Off light effect 4	1.001 DPT_Switch
106	Led 1 - Effect 5	Switching On /Off	Switching On /Off light effect 5	1.001 DPT_Switch
108	Led 2 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
109	Led 2 - Effect 2	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
110	Led 2 - Effect 3	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
111	Led 2 - Effect 4	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
112	Led 2 - Effect 5	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
114	Led 3 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
115	Led 3 - Effect 2	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
116	Led 3 - Effect 3	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
117	Led 3 - Effect 4	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
118	Led 3 - Effect 5	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
120	Led 4 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
121	Led 4 - Effect 2	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
122	Led 4 - Effect 3	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
123	Led 4 - Effect 4	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
124	Led 4 - Effect 5	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
126	Led 5 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch

127	Led 5 - Effect 2	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
128	Led 5 - Effect 3	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
129	Led 5 - Effect 4	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
130	Led 5 - Effect 5	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
132	Led 6 - Effect 1	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
133	Led 6 - Effect 2	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
134	Led 6 - Effect 3	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
135	Led 6 - Effect 4	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
136	Led 6 - Effect 5	Switching On /Off	Switching On /Off light effect 1	1.001 DPT_Switch
107	Led 1 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch
113	Led 2 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch
119	Led 3 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch
125	Led 4 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch
131	Led 5 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch
137	Led 6 - color choice	1=green/0=amber	Selects the light signalling color	1.001 DPT_Switch

➢ *14.1.2 Communication objects with output functions*

The following table contains all the objects with an output function:

Communication object no.						Object name	Object function	Description	Datapoint type
Ch.1	Ch.2	Ch.3	Ch.4	Ch.5	Ch.6				
1	18	35	52	69	86	Ch.x - Switching	On/Off	Sends dimmer on/off commands	1.001 DPT_Switch
1	1	35	35	69	69	Ch.x/y - Switching	On/Off	Sends dimmer on/off commands	1.001 DPT_Switch
1	18	35	52	69	86	Ch.x - Shutter movement	Up/down	Sends shutter up/down movement commands	1.008 DPT_UpDown
1	1	35	35	69	69	Ch.x/y - Shutter movement	Up/down	Sends shutter up/down movement commands	1.008 DPT_UpDown
1	18	35	52	69	86	Ch.x - Scene	Execute/Store	Sends scene memorising/execution commands	18.001 DPT_SceneControl
1	18	35	52	69	86	Ch.x - A Sequence	On/Off	Sends On/Off commands associated with A object of the sequence	1.001 DPT_Switch
1	18	35	52	69	86	Ch.x - A object 1 bit value	1/0 value	Sends values 1/0 associated with A object	1.002 DPT_Bool
1	18	35	52	69	86	Ch.x - A object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with A object	2.001 DPT_Switch_Control
1	18	35	52	69	86	Ch.x - A object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with A object	5.010 DPT_Value_1_Ucount
1	18	35	52	69	86	Ch.x - A object 1 byte value	Signed value	Sends signed values (-128..127) associated with A object	6.010 DPT_Value_1_Count
1	18	35	52	69	86	Ch.x - A object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with A object	5.001 DPT_Scaling
1	18	35	52	69	86	Ch.x - A object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
1	18	35	52	69	86	Ch.x - A object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with A object	7.001 DPT_Value_2_Ucount

1	18	35	52	69	86	Ch.x - A object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with A object	8.001 DPT_Value_2_Count
1	18	35	52	69	86	Ch.x - A object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with A object	12.001 DPT_Value_4_Ucount
1	18	35	52	69	86	Ch.x - A object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with A object	13.001 DPT_Value_4_Count
1	18	35	52	69	86	Ch.x - A object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
2	19	36	53	70	87	Ch.x - Brightness dimming	Increase/decrease	Sends brightness dimming commands	3.007 DPT_Control_Dimming
2	2	36	36	70	70	Ch.x/y - Brightness dimming	Increase/decrease	Sends brightness dimming commands	3.007 DPT_Control_Dimming
2	19	36	53	70	87	Ch.x - Shutter stop/Louvres control	Stop/Step	Sends stop movement/louvres control commands	1.007 DPT_Step
2	2	36	36	70	70	Ch.x/y - Shutter stop/Louvres control	Stop/Step	Sends stop movement/louvres control commands	1.007 DPT_Step
2	19	36	53	70	87	Ch.x - B sequence	On/Off	Sends On/Off commands associated with B object of the sequence	1.001 DPT_Switch
2	19	36	53	70	87	Ch.x - B object 1 bit value	1/0 value	Sends values 1/0 associated with B object	1.002 DPT_Bool
2	19	36	53	70	87	Ch.x - B object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with B object	2.001 DPT_Switch_Control
2	19	36	53	70	87	Ch.x - B object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with B object	5.010 DPT_Value_1_Ucount
2	19	36	53	70	87	Ch.x - B object 1 byte value	Signed value	Sends signed values (-128..127) associated with B object	6.010 DPT_Value_1_Count
2	19	36	53	70	87	Ch.x - B object 1 byte value	% Value	Sends the percentage values	5.001 DPT_Scaling

								(0%..100%) associated with B object	
2	19	36	53	70	87	Ch.x - B object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
2	19	36	53	70	87	Ch.x - B object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with B object	7.001 DPT_Value_2_Ucount
2	19	36	53	70	87	Ch.x - B object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with B object	8.001 DPT_Value_2_Count
2	19	36	53	70	87	Ch.x - B object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with B object	12.001 DPT_Value_4_Ucount
2	19	36	53	70	87	Ch.x - B object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with B object	13.001 DPT_Value_4_Count
2	19	36	53	70	87	Ch.x - B object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
3	20	37	54	71	88	Ch.x - C sequence	On/Off	Sends On/Off commands associated with C object of the sequence	1.001 DPT_Switch
3	20	37	54	71	88	Ch.x - C object 1 bit value	1/0 value	Sends values 1/0 associated with C object	1.002 DPT_Bool
3	20	37	54	71	88	Ch.x - C object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with C object	2.001 DPT_Switch_Control
3	20	37	54	71	88	Ch.x - C object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with C object	5.010 DPT_Value_1_Ucount
3	20	37	54	71	88	Ch.x - C object 1 byte value	Signed value	Sends signed values (-128..127) associated with C object	6.010 DPT_Value_1_Count
3	20	37	54	71	88	Ch.x - C object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with C object	5.001 DPT_Scaling

3	20	37	54	71	88	Ch.x - C object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
3	20	37	54	71	88	Ch.x - C object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with C object	7.001 DPT_Value_2_Ucount
3	20	37	54	71	88	Ch.x - C object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with C object	8.001 DPT_Value_2_Count
3	20	37	54	71	88	Ch.x - C object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with C object	12.001 DPT_Value_4_Ucount
3	20	37	54	71	88	Ch.x - C object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with C object	13.001 DPT_Value_4_Count
3	20	37	54	71	88	Ch.x - C object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
4	21	38	55	72	89	Ch.x - D sequence	On/Off	Sends On/Off commands associated with D object of the sequence	1.001 DPT_Switch
4	21	38	55	72	89	Ch.x - D object 1 bit value	1/0 value	Sends values 1/0 associated with object D	1.002 DPT_Bool
4	21	38	55	72	89	Ch.x - D object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with object D	2.001 DPT_Switch_Control
4	21	38	55	72	89	Ch.x - D object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with D object	5.010 DPT_Value_1_Ucount
4	21	38	55	72	89	Ch.x - D object 1 byte value	Signed value	Sends signed values (-128..127) associated with D object	6.010 DPT_Value_1_Count
4	21	38	55	72	89	Ch.x - D object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with D object	5.001 DPT_Scaling

4	21	38	55	72	89	Ch.x - D object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
4	21	38	55	72	89	Ch.x - D object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with D object	7.001 DPT_Value_2_Ucount
4	21	38	55	72	89	Ch.x - D object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with D object	8.001 DPT_Value_2_Count
4	21	38	55	72	89	Ch.x - D object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with D object	12.001 DPT_Value_4_Ucount
4	21	38	55	72	89	Ch.x - D object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with D object	13.001 DPT_Value_4_Count
4	21	38	55	72	89	Ch.x - D object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
5	22	39	56	73	90	Ch.x - E sequence	On/Off	Sends On/Off commands associated with E object of the sequence	1.001 DPT_Switch
5	22	39	56	73	90	Ch.x - E object 1 bit value	1/0 value	Sends values 1/0 associated with E object	1.002 DPT_Bool
5	22	39	56	73	90	Ch.x - E object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with E object	2.001 DPT_Switch_Control
5	22	39	56	73	90	Ch.x - E object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with E object	5.010 DPT_Value_1_Ucount
5	22	39	56	73	90	Ch.x - E object 1 byte value	Signed value	Sends signed values (-128..127) associated with E object	6.010 DPT_Value_1_Count
5	22	39	56	73	90	Ch.x - E object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with E object	5.001 DPT_Scaling

5	22	39	56	73	90	Ch.x - E object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
5	22	39	56	73	90	Ch.x - E object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with E object	7.001 DPT_Value_2_Ucount
5	22	39	56	73	90	Ch.x - E object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with E object	8.001 DPT_Value_2_Count
5	22	39	56	73	90	Ch.x - E object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with E object	12.001 DPT_Value_4_Ucount
5	22	39	56	73	90	Ch.x - E object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with E object	13.001 DPT_Value_4_Count
5	22	39	56	73	90	Ch.x - E object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
6	23	40	57	74	91	Ch.x - F sequence	On/Off	Sends On/Off commands associated with F object of the sequence	1.001 DPT_Switch
6	23	40	57	74	91	Ch.x - F object 1 bit value	1/0 value	Sends values 1/0 associated with F object	1.002 DPT_Bool
6	23	40	57	74	91	Ch.x - F object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with F object	2.001 DPT_Switch_Control
6	23	40	57	74	91	Ch.x - F object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with F object	5.010 DPT_Value_1_Ucount
6	23	40	57	74	91	Ch.x - F object 1 byte value	Signed value	Sends signed values (-128..127) associated with F object	6.010 DPT_Value_1_Count
6	23	40	57	74	91	Ch.x - F object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with F object	5.001 DPT_Scaling

6	23	40	57	74	91	Ch.x - F object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
6	23	40	57	74	91	Ch.x - F object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with F object	7.001 DPT_Value_2_Ucount
6	23	40	57	74	91	Ch.x - F object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with F object	8.001 DPT_Value_2_Count
6	23	40	57	74	91	Ch.x - F object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with F object	12.001 DPT_Value_4_Ucount
6	23	40	57	74	91	Ch.x - F object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with F object	13.001 DPT_Value_4_Count
6	23	40	57	74	91	Ch.x - F object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
7	24	41	58	75	92	Ch.x - G sequence	On/Off	Sends On/Off commands associated with G object of the sequence	1.001 DPT_Switch
7	24	41	58	75	92	Ch.x - G object 1 bit value	1/0 value	Sends values 1/0 associated with G object	1.002 DPT_Bool
7	24	41	58	75	92	Ch.x - G object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with G object	2.001 DPT_Switch_Control
7	24	41	58	75	92	Ch.x - G object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with G object	5.010 DPT_Value_1_Ucount
7	24	41	58	75	92	Ch.x - G object 1 byte value	Signed value	Sends signed values (-128..127) associated with G object	6.010 DPT_Value_1_Count
7	24	41	58	75	92	Ch.x - G object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with G object	5.001 DPT_Scaling

7	24	41	58	75	92	Ch.x - G object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
7	24	41	58	75	92	Ch.x - G object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with G object	7.001 DPT_Value_2_Ucount
7	24	41	58	75	92	Ch.x - G object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with G object	8.001 DPT_Value_2_Count
7	24	41	58	75	92	Ch.x - G object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with G object	12.001 DPT_Value_4_Ucount
7	24	41	58	75	92	Ch.x - G object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with G object	13.001 DPT_Value_4_Count
7	24	41	58	75	92	Ch.x - G object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
8	25	42	59	76	93	Ch.x - H sequence	On/Off	Sends On/Off commands associated with H Object of the sequence	1.001 DPT_Switch
8	25	42	59	76	93	Ch.x - H object 1 bit value	1/0 value	Sends values 1/0 associated with H object	1.002 DPT_Bool
8	25	42	59	76	93	Ch.x - H object 2 bits value	On/Off forced positioning	Sends values 1/0 associated with H object	2.001 DPT_Switch_Control
8	25	42	59	76	93	Ch.x - H object 1 byte value	Unsigned value	Sends unsigned values (0..255) associated with H object	5.010 DPT_Value_1_Ucount
8	25	42	59	76	93	Ch.x - H object 1 byte value	Signed value	Sends signed values (-128..127) associated with H object	6.010 DPT_Value_1_Count
8	25	42	59	76	93	Ch.x - H object 1 byte value	% Value	Sends the percentage values (0%..100%) associated with H object	5.001 DPT_Scaling

8	25	42	59	76	93	Ch.x - H object 1 byte value	HVAC mode	Sends the HVAC modes (auto/comfort/precomfort /economy/off)	20.102 DPT_HVACMode
8	25	42	59	76	93	Ch.x - H object 2 bytes value	Unsigned value	Sends unsigned values (0..65535) associated with H object	7.001 DPT_Value_2_Ucount
8	25	42	59	76	93	Ch.x - H object 2 bytes value	Signed value	Sends signed values (-32768..32767) associated with H object	8.001 DPT_Value_2_Count
8	25	42	59	76	93	Ch.x - H object 4 bytes value	Unsigned value	Sends unsigned values (0.. 4294967295) associated with H object	12.001 DPT_Value_4_Ucount
8	25	42	59	76	93	Ch.x - H object 4 bytes value	Signed value	Sends signed values (-2147483648.. 2147483647) associated with H object	13.001 DPT_Value_4_Count
8	25	42	59	76	93	Ch.x - H object 14 bytes value	ISO 8859-1 characters	Sends characters codified with ISO 8859-1 standard	16.001 DPT_String_8859_1
138						Temperature sensor	Measured value (°C)	Sends value measured in °C	9.001 DPT_Value_Temp
138						Temperature sensor	Measured value (°K)	Sends value measured in °K	9.002 DPT_Value_Tempd

code 7.01.9.229.9

LAST REVISION 10/2018

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