Chorus

GEWISS

CE

KNX

4 channel push-button panel

GW 10 782
GW 12 782
GW 14 782

Technical Manual

Summary

1 Introduction

This manual describes the functions of the device named GW1x782 "**4 channel push-button panel**" and how to use the ETS configuration software to change the settings and configurations.

2 Application

The EIB 4 channel push-button panel is 2 DIN module input device to be fitted inside flush-mounting boxes which allows the system to send bus commands using the four normally open push-buttons on the front of the panel.
The device performs various functions and two combined channels are used to manage them, for instance to control a shutter with an UP button and a DOWN button and others where only one button is needed.
Generally speaking, the device can perform the following functions:

- load activation /deactivation commands (ON/OFF)
- alarm management (wind, rain)
- forced positioning management
- Dimmer management (with single or double push-button)
- Awing/shutter management (with single or double push-button)
- scene management
- pulse counter
- sequence of commands
- commands to the thermal regulation system
- Management of LEDs regardless of the function performed by the channels.

The combined input pairs are preset and respectively: channel 1 with channel 2 and channel 3 with channel 4.

2.1 Limits to the associations

The maximum number of logical associations that the device is able to memorize is 70; this means that the maximum number of logical connections between communication objects and group addresses is 70.
The maximum number of group addresses that the device is able to memorize is 70; this means that it is possible to associate the communication objects to a maximum of 70 group addresses.

3 “Main” Menu

The ***Main*** menu lists all the parameters needed to configure the behaviour of the device buttons; Diag. 3.1 shows the complete ***Main*** menu screen shot with the relative configurable parameters.

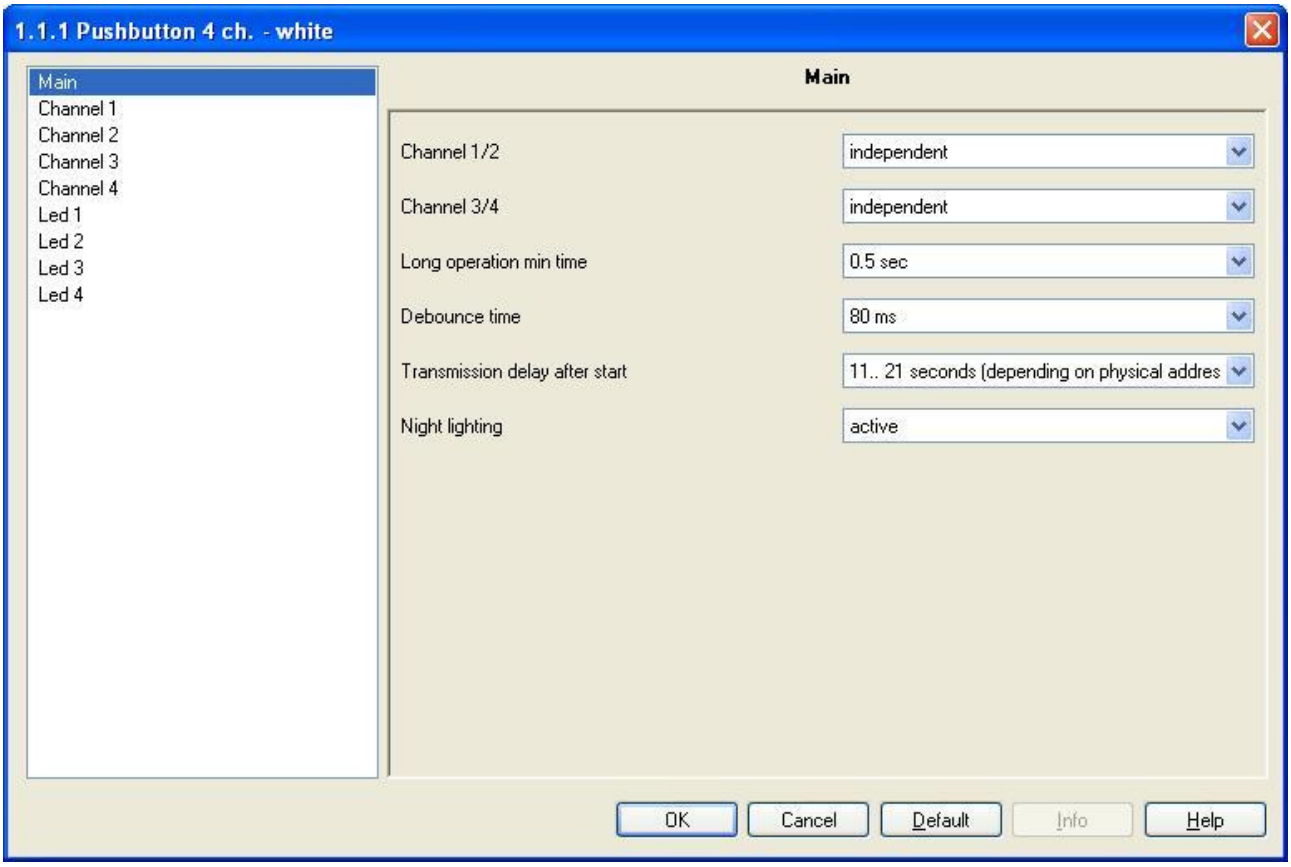


Fig. 3.1

3.1 Parameters

➢ *3.1.1 Channel 1/2*

The first item on the ***Main*** menu is ***Channel 1/2*** that determines the management of the channels (push-buttons) 1 and 2; the settings are:

- ***independent***

It is possible to manage the two push-buttons in a totally independent manner, setting different functions for each channel.

- ***coupled***

It is possible to manage a function that foresees the use of both channels; each push-button will be associated to a different command, but they will both act on the same communication objects to achieve the configured function.

➢ *3.1.2 Channel 3/4*

The same applies to channels 3 and 4 (see ***3.1.1***)

➢ *3.1.3 Long operation min time*

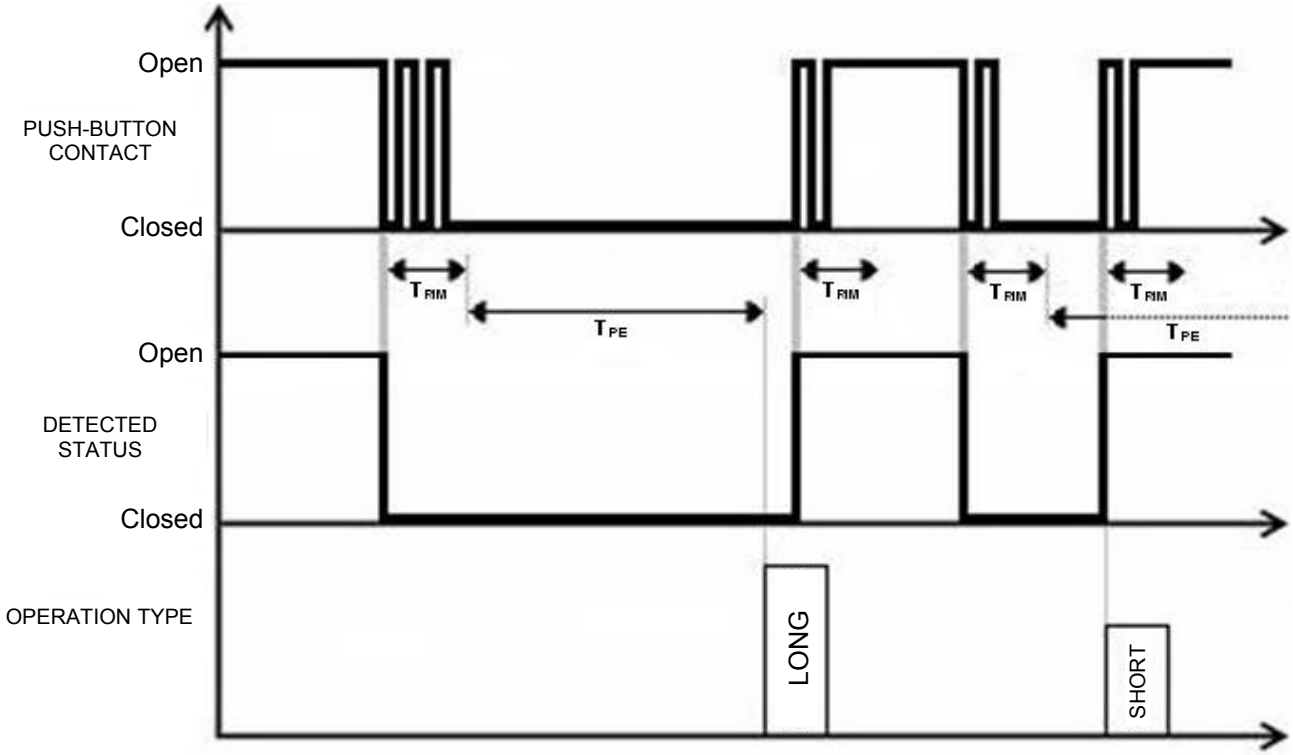
This determines the minimum time used to distinguish between a press and release command and a press and hold command.
This value determines the minimum time that the button must be pressed to distinguish between a press and hold command and a press and release command. Using the default value of ***0.5 sec*** as reference,

if the contact is pressed for at least 0.5 seconds, the device will interpret this as a press and hold command; on the contrary it will be interpreted as a press and release command. The settings range is provided in the drop-down menu and vary within an interval from 0.3 to 7 seconds).

3.1.4 Debounce time

This determines the time for which the device ignores any changes in status on the push-button contacts; the settings range are provided in the drop-down menu and vary within an interval of from 50 ms to 150 ms).

When an electro-mechanical device, for instance a push-button, is pressed, a series of short bounces occur (rapid succession of opening and closing of the contact) before the contact reaches the final closed or open position; if no adequate precautions are taken, these bounces could be detected by the software and interpreted as multiple activations of the command, and cause a device malfunction.
Given that the duration of these bounces depends on the type of device being used, to prevent this inconvenience the device software has a special function that allows you to eliminate this disturbance; this function basically consists in entering a delay time between the push-button contact status readings so that once a change on the contact has been detected, a certain period of time must pass before the device can read another change. The time that the device uses is the time set under the ***Debounce Time*** option.
The diagram below summarises the ***Long operation min time*** and ***Debounce Time*** concepts illustrated above.



Starting from the top, the first diagram shows a simulation of the time pattern of a push-button status; the second diagram shows the time pattern of the push-button status detected by the device software, that filters the disturbances (bounces) on the contact for a time of $\mathbf{T_{RIM}}$ from the moment the first change is detected.
When the debounce time expires, the software re-reads the contact status and, if it is the same as the last reading and if the change is from status open to status closed (pressure on the push-button), it activates a $\mathbf{T_{PE}}$ timer whose starting value is set under the ***Long operation min time***; if the timer expires before the closed to open status change is detected, the software will interpret this as a press and hold command, on the contrary the time will stop and a press and release command is recognised, as seen in the third diagram.

➢ *3.1.5 Transmission delay after start*

This determines the time that must pass before the device can send telegrams to the bus after a loss/reinstatement of power to the bus; this time is important because, if there are many devices installed within the system, upon reinstatement of the bus power a large number of telegrams may be sent at the same time, creating collisions and hence the loss of some telegrams. The settings are:

- ***11.. 21 seconds (depending on physical address)***

On setting this value, this does not directly set the fixed time for the first transmission, which in this case is calculated by an algorithm using a random method, according to the physical address assigned to the device in question; the values 11 and 21 indicate the range limits that the algorithm can assign

- ***5.. 9 seconds***

As above, but with interval limits of 5 and 9 seconds.

- ***11 seconds***
- ***13 seconds***
- ***15 seconds***
- ***17 seconds***
- ***19 seconds***
- ***21 seconds***

- ***no delay***

On setting this value, no time is foreseen between the moment the device is powered up and when the device is allowed to send the first telegram; as soon as the device is rebooted, it is instantly able to send telegrams to the bus.

➢ *3.1.6 Night lighting*

This is to activate/deactivate the lighting function of the front yellow amber coloured LEDs; the settings are:

- ***deactivated***

The front yellow amber coloured LED will never be working, therefore when the led is deactivated the front indicator light will not be backlit.

- ***active***

The front yellow amber coloured LED is working when the led is deactivated; in this case the front indicator light is backlit by the yellow amber LED indicating that the led status is deactivated, in the case of lack of light in the environment where the device is installed, it also acts as a device localisation light.

3.2 Communication objects

There are no communication objects enabled by the ***Main*** menu***.***

For the sake of simplicity, the ***Channel 1, Channel 2, Channel 3 and Channel 4*** menu options, visible if the ***independent*** option is enabled for ***Channels 1/2*** and ***Channels 3/4***, in the following chapters, will be described once only (referring to the general menu ***Channel x***) as all menus carry the same options.

4 "*Channel x*" Menu (independent channels)

This chapter describes the parameters and the communication objects relative to channels 1, 2, 3 and 4 (hereinafter referred to generally as *channel x*) which operate as independent channels (Diag. 4.1).
The value set for the first option (***matched function***) determines the structure of the entire menu, except for the ***Block*** option (and consequently the other ***Block activation value*** and ***Block object start value*** options visible if the block is activated) that is always displayed.

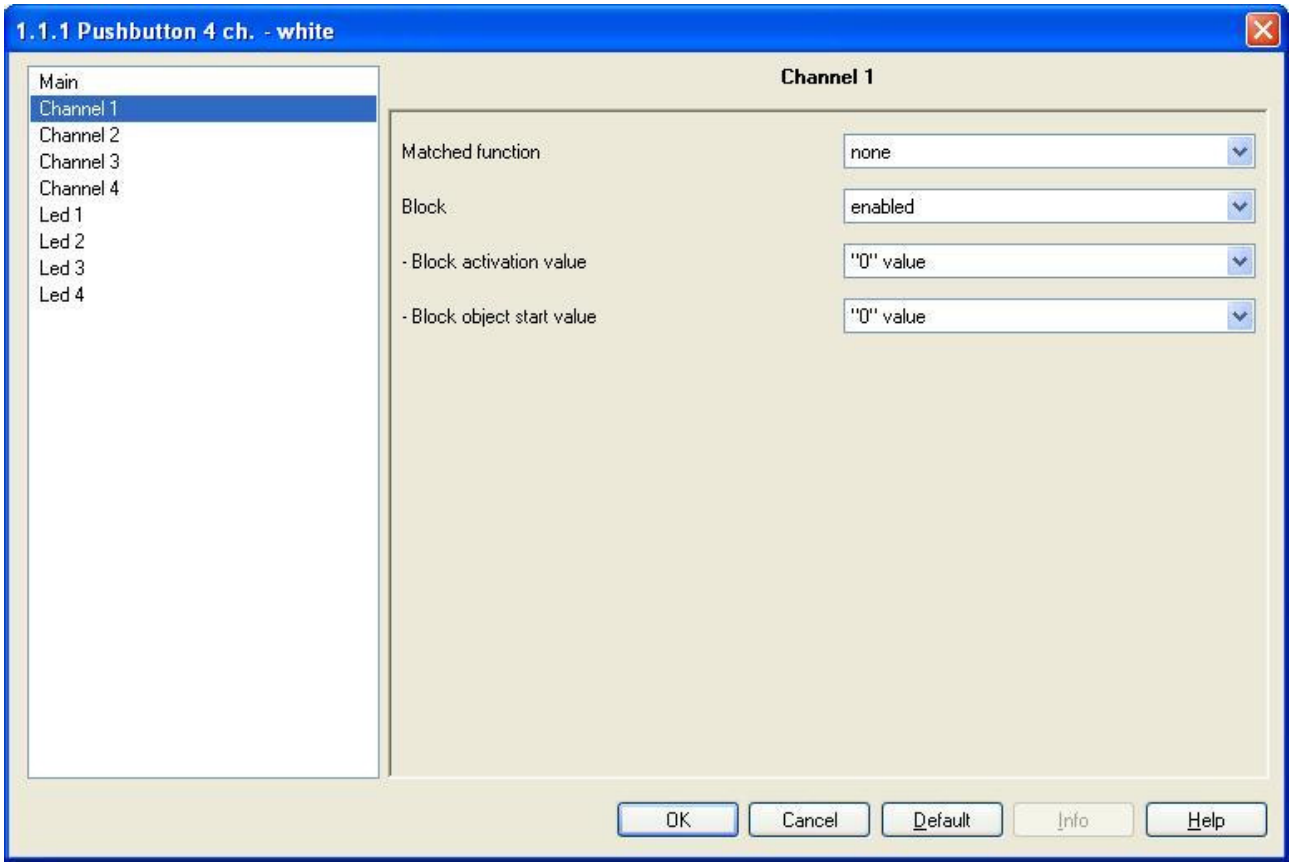


Fig. 4.1

4.1 Parameters

➢ 4.1.1 Matched function

This determines the function associated to the general channel x; according to the value of these settings, the ***Channel x*** menu will behave differently. The settings are:

- ***none***

No function is associated to the general channel x, consequently it will not be used.

- ***sequence command edges***

See Chapter 5 "**Sequence command edges function"**

- ***short / long operation***

See Chapter 6 "***short / long operation*** **function"**

- ***1 push button dimmer + stop***

See Chapter 7 "***1 push button dimmer + stop*** **function"**

- ***1 push button dimmer cyclic sending***

See Chapter 8 "***1 push button dimmer cyclic sending*** **function"**

- ***1 push button shutter control***

See Chapter 9 "***1 push button shutter control* function"**

- ***scene management***

See Chapter 10 "**Scene management function"**

- ***switching sequences***

See Chapter 11 "***Switching sequences function*"**

➢ *4.1.2 Block*

This allows you to enable the possibility to block the general channel on the device, that is it prevents the device from sending any commands associated to the changes in the contact status; the settings are:

- ***disabled***

The block function is not enabled and consequently the ***Block activation value*** and ***Block object start value*** options are not visible.

- ***enabled***

The block function is enabled by the ***Ch.x - Block*** communication object and it is possible to activate it using a bus command; when it is enabled, no changes in the status will be interpreted until the block cancellation command is received.
In this section you can also view the other ***Block activation value*** and ***Block object start value*** options and configure the relative function.

➢ *4.1.3 Block activation value*

This is used to set what logic value the bit in the bus telegram must indicate to activate the block function; the settings are:

- ***"0" value***

When the device receives a telegram from the bus with a "0" logic value, it activates the block function. When the device receives a telegram with a "1" logic value, it disables the block function; if it was already disabled the command is ignored***.***

- ***"1" value***

When the device receives a telegram from the bus with a "1" logic value, it activates the block function. When the device receives a telegram with a "0" logic value, it disables the block function; if it was already disabled the command is ignored***.***

➢ *4.1.4 Block object start value*

This is used to set what logic value the ***Ch.x - Block*** communication object must assume each time the bus power is reinstated; the settings are:

- ***"0" value***

Each time the bus power is reinstated (29 Volt SELV) the device, on completing the initialisation phase, sets the logic value on the ***Ch.x - Block*** communication object to "0"; if this is also the block activation value, once the bus power is reinstated the device is "blocked", if the block activation value is "1" the device will be "unblocked" and will behave normally.

- ***"1" value***

Each time the bus power is reinstated (29 Volt SELV) the device, on completing the initialisation phase, sets the logic value on the ***Ch.x - Block*** communication object to "1"; if this is also the block activation value, once the bus power is reinstated the device is "blocked", if the block activation value is "0" the device will be "unblocked" and will behave normally.

4.2 Communication objects enabled by the “Block” function

The ***Block*** option in the ***Channel x*** menu, if enabled, makes the following communication objects visible (See Diag. 4.2.)

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
0	Ch.1 - Block	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Enable	Low
6	Ch.2 - Block	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Enable	Low
12	Ch.3 - Block	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Enable	Low
18	Ch.4 - Block	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Enable	Low

Fig. 4.2

➢ *4.2.1 Ch.x - Block*

This communication object is only visible when the ***Block*** option is set to ***enabled.***
Using this communication object, the device is able to receive the block activation/deactivation commands from the bus.
The enabled flags are C (communication), W (written by bus), U (actualize the value).
The standard format of the object is *1.003 DPT_Enable*, so the size of the object is *1 bit* and the information it contains is *enabled/disabled*.

5 *"Sequence command edges"* function

Here you can configure the type and number of commands to send following a change in contact status (edge) up to a total of four commands per channel; it is possible to differentiate the type of command according to the edge that is detected (from contact open to contact closed and viceversa) and delay the sending of commands for a set time.
The ***Channel x*** menu, if the ***Command objects number*** is set to ***1***, appears as in Diag. 5.1 below. (the parameters relative to the ***Block*** functions were described in the general section.

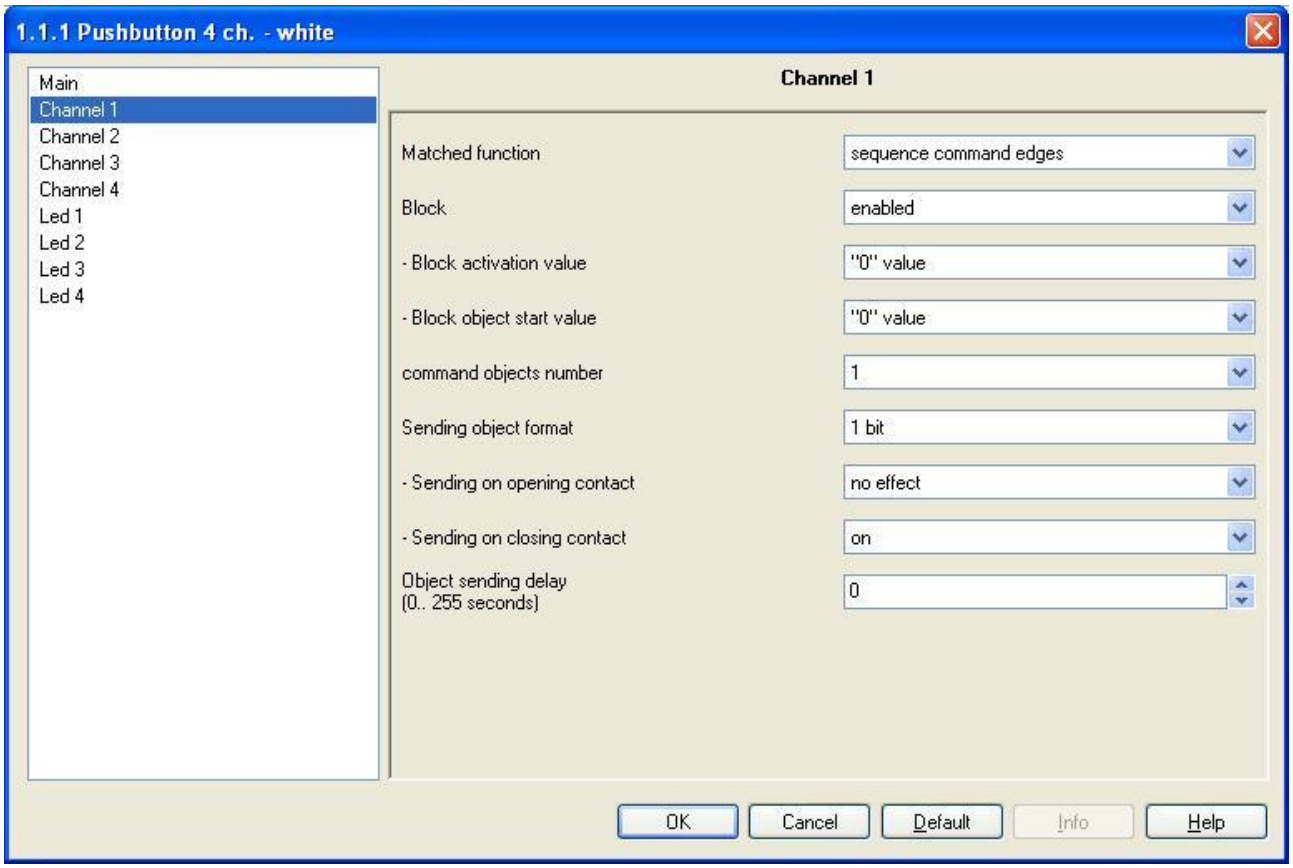


Fig. 5.1

5.1 Parameters

➢ *5.1.1 Command objects number*

Here you can set the number of commands to be sent following a change in status on the channel in question; it is not possible to differentiate the number of commands to be sent according to the edge detected.
According to the value set for this item, different options will be visible for ***Channel.x.*** The settings are:

- ***1***

The number of commands that the device will send following a change in the contact status is 1; the ***Channel x*** menu is displayed as seen in Diag. 5.1.

- ***2***

The number of commands that the device will send following a change in the contact status is 2; the ***Channel x*** menu is displayed as seen in Diag. 5.2.

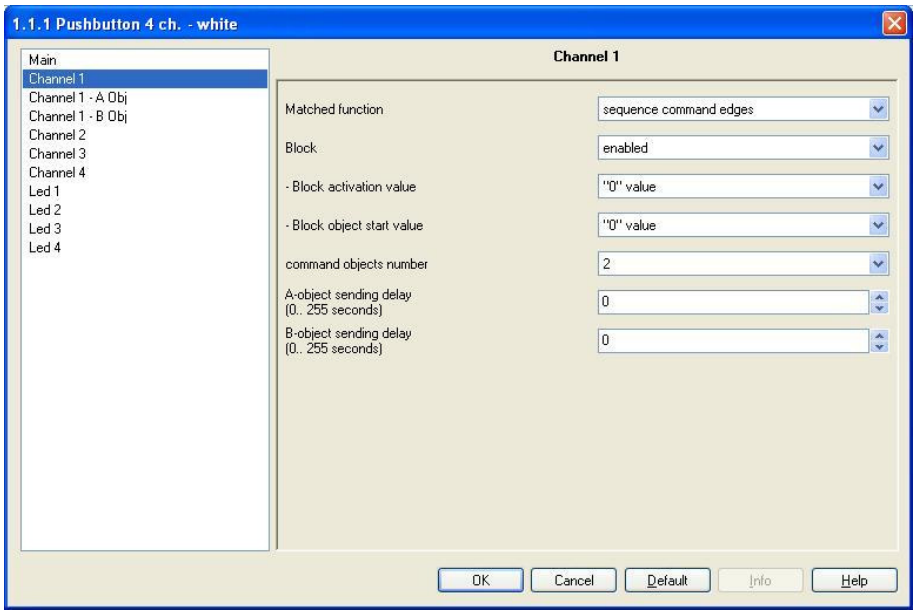


Fig. 5.2

As you can see, ***the Sending object format, Sending on opening contact*** and ***Sending on closing contact*** options are no longer visible and the ***B-object sending delay (0.. 255 seconds)*** appears; you will note that below the ***Channel x*** menu you can now see the ***Channel x - A Obj*** and ***Channel x - B Obj*** menus which have the options, listed above, that disappeared from the ***Channel x*** menu.

- ***3***

The description is the same as for the 2 commands, with the addition of a third channel and the ***Channel x – C Obj*** object.

- ***4***

The description is the same as for the 2 and 3 commands, with the addition of a third channel and the ***Channel x – D Obj*** object.

The structure of the ***Channel x - A Obj***, ***Channel x – B Obj***, ***Channel x – C Obj*** and ***Channel x – D Obj*** menus is the same as that seen in Diag. 5.3, so we will analyse the menu relative to one command only.

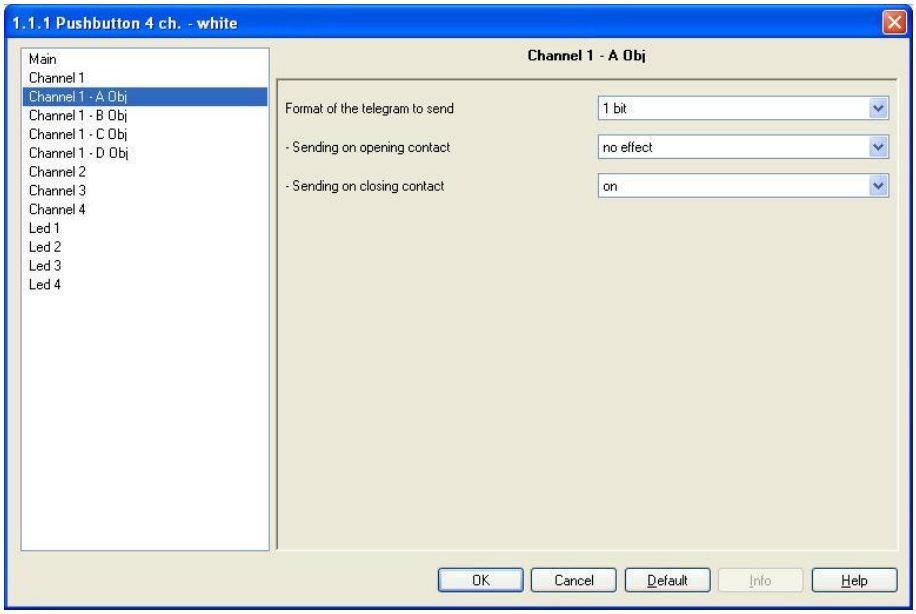


Fig. 5.3

➢ *5.1.2 Format of the telegram to send*

Here you can configure the format/s of the bus telegram/s which will be sent by the device.
According to the value set for this item, different options will be visible for the ***Sending on opening contact*** and ***Sending on closing contact*** options. The settings are:

- ***1 bit***

The command format that the device will send following a change in the push-button contact status is 1 bit, so the information will have a "1" or "0" logic value that, according to how it is used, could for instance perform an on/off command, an up/down command or a true/false Boolean value command.

- ***2 bit***

The command format is 2 bit, so the information will be an on/down forced positioning command, and off/up forced positioning command or a forced positioning deactivated command.

- ***1 byte***

The command format is 1 byte, so the information will be an unsigned value, a percentage value or an operating mode command for the thermal regulation devices.

- ***2 byte***

The command format is 2 byte, so the information will be an unsigned value, a signed value or a floating point value (e.g. temperature).

➢ *5.1.3 Sending on opening contact*

Here you can configure the command or the value to be sent following a change in the contact status from closed to open.
According to the value set under the ***Format of the telegram to send*** option, different values will be available, so we will divide the various values according to the format of the object to be sent by the communication object being used (between ***Ch.x – Priority command***, ***Ch.x – Priority command A***, ***Ch.x – Priority command B***, ***Ch.x – Priority command C*** or ***Ch.x – Priority command D,*** according to which menu enables the object).

– If the format of the object to be sent is ***1 bit***, the values to be configured under the ***Sending on opening contact*** option are:

- ***off***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a "0" logic value.

- ***on***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a "1" logic value.

- ***cycle switching***

When a change in the contact from closed to open is detected, when it opens the device will send a telegram to the bus with an opposite logic value to the last one sent;
if the last telegram sent had a "0" value, it will send a "1" value, and vice versa.
The use of this value is to allow for a change of the command status each time the contact status changes between open and closed.
If this value is configured, a new option ***Status feedback object*** will appear under the ***Sending on contact closing*** option.

▪ ***5.1.3.1 Status feedback object***

This allows you to enable or disable the ***Ch.x – Status feedback*** communication object that the device uses to detect, for instance, the status of an actuator so that the next command that the push-button panel sends will be the opposite of the current device status. This means that, if the actuator status has changed after the execution of a scene, through the above mentioned communication object, the push-button panel is still able to detect the actuator status so that the device is immediately able to send to the correct command without having to realign with the actuator status (generating a no-load pressure).

The settings are:

- ***disabled***
  The communication object is not visible and the command sent by the push-button panel will always be the negative value of the last command it sent.

- ***enabled***
  The communication object is visible and the command sent by the push-button panel will be the negative value of the last command received by the ***Ch.x – Status feedback*** communication object or the negative of the last command it sent, according to which event occurred last.

- ***no effect***

When a change in the push-button contact from closed to open is detected, the device will not send a telegram to the bus.

– If the format of the object to be sent is ***2 bit***, the values to be configured under the ***Sending on opening contact*** option are:

- ***enable forced positioning***

On setting this value, when a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with an ON/OFF forced positioning enabled command.
If this value is configured, a new option ***Forced positioning value*** will appear under the ***Sending on opening contact*** option (for further details see ***5.1.4***).

- ***disable forced positioning***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “forced positioning disabled” command.

- ***no effect***

When a change in the push-button contact from closed to open is detected, the device will not send a telegram to the bus.

– If the format of the object to be sent is ***1 byte***, the values to be configured under the ***Sending on opening contact*** option are:

- ***Auto***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “thermal regulation operating mode AUTO” command.

- ***Comfort***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “thermal regulation operating mode COMFORT” command.

- ***Standby***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “thermal regulation operating mode STANDBY” command (for the GEWISS thermal regulation devices this is the PRECOMFORT mode).

- ***Economy***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “thermal regulation operating mode ECONOMY” command.

- ***Building protection***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a “thermal regulation operating mode BUILDING PROTECTION” command (for the GEWISS thermal regulation devices this is the OFF mode).

- ***1 Byte value (format: 0.. 255)***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with an unsigned value (fixed and settable).
Under the ***Sending on opening contact*** option, a new item will appear, ***Value :*** (for further details see ***5.1.4)***.

- ***1 Byte value (format: 0%.. 100%)***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a percentage value (fixed and settable).
Under the ***Sending on opening contact*** option, a new item will appear, ***Value :*** (for further details see ***5.1.4)***.

- ***no effect***

When a change in the push-button contact from closed to open is detected, the device will not send a telegram to the bus.

– If the format of the object to be sent is ***2 byte***, the values to be configured under the ***Sending on opening contact*** option are:

- ***2 Byte value (signed: -32768.. +32767)***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a signed value (fixed and settable).
Under the ***Sending on opening contact*** option, a new item will appear, ***Value :*** (for further details see ***5.1.4)***.

- ***2 Byte value (unsigned: 0.. 65535)***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with an unsigned value (fixed and settable).
Under the ***Sending on opening contact*** option, a new item will appear, ***Value :*** (for further details see ***5.1.4)***.

- ***2 Byte value (floating point)***

When a change in the push-button contact from closed to open is detected, the device will send a telegram to the bus with a floating point value (fixed and settable).
Under the ***Sending on opening contact*** option, a new item will appear, ***Value :*** (for further details see ***5.1.4)***.

- ***no effect***

When a change in the push-button contact from closed to open is detected, the device will not send a telegram to the bus.

➢ *5.1.4 Forced positioning value && Value :*

According to the value set for the ***Sending on opening contact*** option (and likewise for the ***Sending on closing contact***) a new menu item will appear ***Value :*** or ***Forced positioning value***; this is used to configure the command value to be sent.

– If the value of the command to be sent is ***activate forced positioning***, the values to be configured under the ***Forced positioning value*** option are:

- ***off/up***

The command the device will send to the bus through the ***Ch.x - Priority command*** communication object will be an *activate off/up forced positioning* command.

- ***on/down***

The command the device will send to the bus through the ***Ch.x - Priority command*** communication object will be an *activate on/down forced positioning* command.

– If the command value to be sent is ***1 Byte value (format: 0.. 255)***, the settings under the item ***Value :*** range from 0 to 255 and determine the value that will be sent to the bus through the ***Ch.x – Value*** object.

- If the command value to be sent is ***1 Byte value (format: 0%.. 100%)***, the settings under the item ***Value :*** range from 0% to 100% (5% pitch) and determine the value that will be sent to the bus through the ***Ch.x – Value*** object.

- If the command value to be sent is ***2 Byte value (signed: -32768.. +32767)***, the settings under the item ***Value :*** range from -32768 to +32768 and determine the value that will be sent to the bus through the ***Ch.x – Value*** object.

- If the command value to be sent is ***2 Byte value (unsigned: 0.. 65535)***, the settings under the item ***Value :*** range from 0 to 65535 and determine the value that will be sent to the bus through the ***Ch.x – Value*** object.

- If the value of the command to be sent is ***2 Byte value (floating point),*** the values to be configured under the ***Value :*** *option* range from -100.0 to +100.0 and determine the value that will be sent to the bus through the ***Ch.x – Value*** object.

➢ *5.1.5 Sending on closing contact*

Here you can configure the command or the value to be sent following a change in the contact status from open to closed.
For further details please see ***5.1.3 Sending on opening contact***, where the difference is that the actions are performed when the contact status changes from open to closed.

ATTENTION: If the format of the message to be sent is ***1 byte*** or ***2 byte***, it is important to set values under the items ***Sending on opening contact*** and ***Sending on closing contact*** that are coded in the same way, that is of the same DPT (Datapoint type) format. If, for instance, you enter a ***2 Byte value (unsigned: 0.. 65535)*** for one of the options, and for the other a ***2 Byte value (floating point)*** this would cause the relative device to malfunction as it would receive, according to the edges, two differently coded values.
It is highly recommended to comply with this restriction at all times, even though these settings are admissible during the configuration phases of the relative options. In order to make sure you configure the device correctly, check the ***DPT*** formats on each of the values, as seen in paragraph ***5.2 Communication objects***

➢ *5.1.6 Object sending delay (0.. 255 seconds)*

This allows you to set the delay between the change in the contact and when the command or the value associated to the detected edge is actually sent to the bus, at intervals of from 0 to 255 seconds.

➢ *5.1.7 A-object sending delay (0.. 255 seconds)*

This allows you to set the delay between the change in the contact and when the first command or the first value (A Object) associated to the detected edge is actually sent to the bus, at intervals of from 0 to 255 seconds.

➢ *5.1.8 B-object sending delay (0.. 255 seconds)*

Here you can set the delay between when the first command/value (A Object) is sent and when the second command/value (B Object) associated to the detected edge is sent; this delay is calculated starting from the moment when the first command/value (A Object) is sent and not from the moment in which the edge is detected, at intervals of from 0 to 255 seconds.

➢ *5.1.9 C-object sending delay (0.. 255 seconds)*

What illustrated above (***5.1.8***) applies in this case, but it refers to the delay between the second command/value (B Object) and the third (C Object).

➢ *5.1.10 D-object sending delay (0.. 255 seconds)*

What illustrated above (***6.1.7***) applies in this case, but it refers to the delay between the third command/value (C Object) and the fourth (D Object).

NB: When a sequence of commands with delay is being sent, activated by the detection of a specific edge, the detection of the opposite edge causes the sequence sending to terminate only if at least one of the actions associated to the detection of this edge has been configured with settings other than ***no effect***; on the contrary, the sequence of commands/values will continue to be sent until the last command/value has been sent.

5.2 Communication objects

According to the settings under the ***Format of the telegram to send*** option, the following communication objects are visible:

➢ *5.2.1 Ch.x – Switch*

If the object format is ***1 bit*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 5.4.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 5.4

The device sends telegrams to the bus through these communication objects following a change in a push-button contact status, according to the values set under the **Channel x** menu. The sending of the telegram through the above mentioned communication object can be delayed in relation to the moment in which the edge associated to the command is detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *ON/OFF* or more generally *1/0.*

➢ *5.2.2 Ch.x – A switch*

If the object format is ***1 bit*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 5.5.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
2	Ch.1 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
8	Ch.2 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
14	Ch.3 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
20	Ch.4 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
3	Ch.1 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
9	Ch.2 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
15	Ch.3 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
21	Ch.4 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT Switch	Low
4	Ch.1 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
10	Ch.2 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
16	Ch.3 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
22	Ch.4 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 5.5

The same description illustrated above for the individual object (5.2.1) applies to the following objects: ***Ch.x – A switch***, ***Ch.x – B switch***, ***Ch.x – C switch*** and ***Ch.x – D switch*** .

➢ *5.2.3 Ch.x – Priority command*

If the object format is ***2 bit*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 5.6.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
7	Ch.2 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
13	Ch.3 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
19	Ch.4 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low

Fig. 5.6

The device sends telegrams to the bus through these communication objects following a change in a push-button contact status, according to the values set under the **Channel x** menu. The sending of the telegram through the above mentioned communication object can be delayed in relation to the moment in which the edge associated to the command is detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *2.001 DPT_Switch_Control*, so the size of the object is 2 *bit* and the command it sends is *On/off forced positioning enabled, forced positioning disabled*.

➢ *5.2.4 Ch.x – A priority command*

If the object format is ***2 bit*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 5.7.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
7	Ch.2 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
13	Ch.3 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
19	Ch.4 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
2	Ch.1 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
8	Ch.2 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
14	Ch.3 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
20	Ch.4 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
3	Ch.1 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
9	Ch.2 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
15	Ch.3 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
21	Ch.4 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
4	Ch.1 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
10	Ch.2 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
16	Ch.3 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
22	Ch.4 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low

Fig. 5.7

The same description illustrated above for the individual object (5.2.3) applies to the following objects: ***Ch.x – A priority command***, ***Ch.x – B priority command***, ***Ch.x – C priority command*** and ***Ch.x – D priority command***.

➢ *5.2.5 Ch.x – Value*

If the object format is ***1 byte*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 5.8.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Value	Value sending	1 Byte	C	R	W	T	U		Low
7	Ch.2 - Value	Value sending	1 Byte	C	R	W	T	U		Low
13	Ch.3 - Value	Value sending	1 Byte	C	R	W	T	U		Low
19	Ch.4 - Value	Value sending	1 Byte	C	R	W	T	U		Low

Fig. 5.8

The device sends telegrams to the bus through these communication objects following a change in a push-button contact status, according to the values set under the **Channel x** menu. The sending of the telegram through the above mentioned communication object can be delayed in relation to the moment in which the edge associated to the command is detected.

Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object depends in turn on the settings for the ***Sending on opening contact and Sending on closing contact*** option:

i. If the values set are ***Auto***, ***Economy***, ***Standby***, ***Comfort*** or ***Building protection***, the standard format of the object is *20.102 DPT_HVAC_Mode*, so the size of the object is 1 *byte* and the command it sends is *thermal regulation mode - Auto, Economy, Standby, Comfort or Building protection*.

ii. If the value settings are ***1 Byte value (format: 0.. 255)***, the standard format of the object is *5.010 DPT_Value_1_Ucount,* so the size of the object is 1 *byte* and the command it sends is a binary coded value of between 0 and 255.

iii. If the value settings are ***1 Byte value (format: 0%.. 100%)***, the standard format of the object is *5.001 DPT_Scaling,* so the size of the object is 1 *byte* and the command it sends is a percentage value of between 0% and 100%.

➢ *5.2.6 Ch.x – A Value*

If the object format is ***1 byte*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 5.9.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A value	Value sending	1 Byte	C	R	W	T	U		Low
7	Ch.2 - A value	Value sending	1 Byte	C	R	W	T	U		Low
13	Ch.3 - A value	Value sending	1 Byte	C	R	W	T	U		Low
19	Ch.4 - A value	Value sending	1 Byte	C	R	W	T	U		Low
2	Ch.1 - B value	Value sending	1 Byte	C	R	W	T	U		Low
8	Ch.2 - B value	Value sending	1 Byte	C	R	W	T	U		Low
14	Ch.3 - B value	Value sending	1 Byte	C	R	W	T	U		Low
20	Ch.4 - B value	Value sending	1 Byte	C	R	W	T	U		Low
3	Ch.1 - C value	Value sending	1 Byte	C	R	W	T	U		Low
9	Ch.2 - C value	Value sending	1 Byte	C	R	W	T	U		Low
15	Ch.3 - C value	Value sending	1 Byte	C	R	W	T	U		Low
21	Ch.4 - C value	Value sending	1 Byte	C	R	W	T	U		Low
4	Ch.1 - D value	Value sending	1 Byte	C	R	W	T	U		Low
10	Ch.2 - D value	Value sending	1 Byte	C	R	W	T	U		Low
16	Ch.3 - D value	Value sending	1 Byte	C	R	W	T	U		Low
22	Ch.4 - D value	Value sending	1 Byte	C	R	W	T	U		Low

Fig. 5.9

The same description illustrated above for the individual object (***5.2.5***) applies to the following objects: ***Ch.x – A value***, ***Ch.x – B value***, ***Ch.x – C value*** and ***Ch.x – D value***.

➢ *5.2.7 Ch.x – Value*

If the object format is ***2 byte*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 5.10.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Value	Value sending	2 Byte	C	R	W	T	U		Low
7	Ch.2 - Value	Value sending	2 Byte	C	R	W	T	U		Low
13	Ch.3 - Value	Value sending	2 Byte	C	R	W	T	U		Low
19	Ch.4 - Value	Value sending	2 Byte	C	R	W	T	U		Low

Fig. 5.10

The device sends telegrams to the bus through these communication objects following a change in a push-button contact status, according to the values set under the **Channel x** menu. The sending of the telegram through the above mentioned communication object can be delayed in relation to the moment in which the edge associated to the command is detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object depends in turn on the settings for the ***Sending on opening contact*** and ***Sending on closing contact*** option:

i. If the value settings are ***2 Byte value (signed: -32768.. +32767***), the standard format of the object is *8.001 DPT_Value_2_count,* so the size of the object is 2 *byte* and the command it sends is a value of between -32768 and +32767 in pairs.

ii. If the value settings are ***2 Byte value (unsigned: 0.. 65535***), the standard format of the object is *7.001 DPT_Value_2_Ucount,* so the size of the object is 2 *byte* and the command it sends is a binary coded value of between 0 and 65535.

iii. If the value settings are ***2 Byte value (floating point):*** the standard format of the object is *9.001 DPT_Value_Temp,* so the size of the object is 2 *byte* and the command it sends is a floating point value of between -100 and 100.

➢ *5.2.8 Ch.x – A value*

If the object format is ***2 byte*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 5.11.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A value	Value sending	2 Byte	C	R	W	T	U		Low
7	Ch.2 - A value	Value sending	2 Byte	C	R	W	T	U		Low
13	Ch.3 - A value	Value sending	2 Byte	C	R	W	T	U		Low
19	Ch.4 - A value	Value sending	2 Byte	C	R	W	T	U		Low
2	Ch.1 - B value	Value sending	2 Byte	C	R	W	T	U		Low
8	Ch.2 - B value	Value sending	2 Byte	C	R	W	T	U		Low
14	Ch.3 - B value	Value sending	2 Byte	C	R	W	T	U		Low
20	Ch.4 - B value	Value sending	2 Byte	C	R	W	T	U		Low
3	Ch.1 - C value	Value sending	2 Byte	C	R	W	T	U		Low
9	Ch.2 - C value	Value sending	2 Byte	C	R	W	T	U		Low
15	Ch.3 - C value	Value sending	2 Byte	C	R	W	T	U		Low
21	Ch.4 - C value	Value sending	2 Byte	C	R	W	T	U		Low
4	Ch.1 - D value	Value sending	2 Byte	C	R	W	T	U		Low
10	Ch.2 - D value	Value sending	2 Byte	C	R	W	T	U		Low
16	Ch.3 - D value	Value sending	2 Byte	C	R	W	T	U		Low
22	Ch.4 - D value	Value sending	2 Byte	C	R	W	T	U		Low

Diag. 5.11

The same description illustrated above for the individual object (***5.2.7***) applies to the following objects: ***Ch.x – A value***, ***Ch.x – B value***, ***Ch.x – C value*** and ***Ch.x – D value***.

6 "*Short / long operation*" function

Here you can configure the type and number of commands to send following a short, press and release, or prolonged, press and hold action on the push-button contact for up to a total of four commands per channel; it is possible to differentiate the type of command according to the type of activation that is detected (short / long) and delay the sending of commands for a set time.
The recognition of a short / long operation is defined according to the time that the contact remains closed, as its default idle position is '*normally open*'.
The ***Channel x*** menu, if the ***Command objects number*** is set to ***1***, appears as in Diag. 6.1.

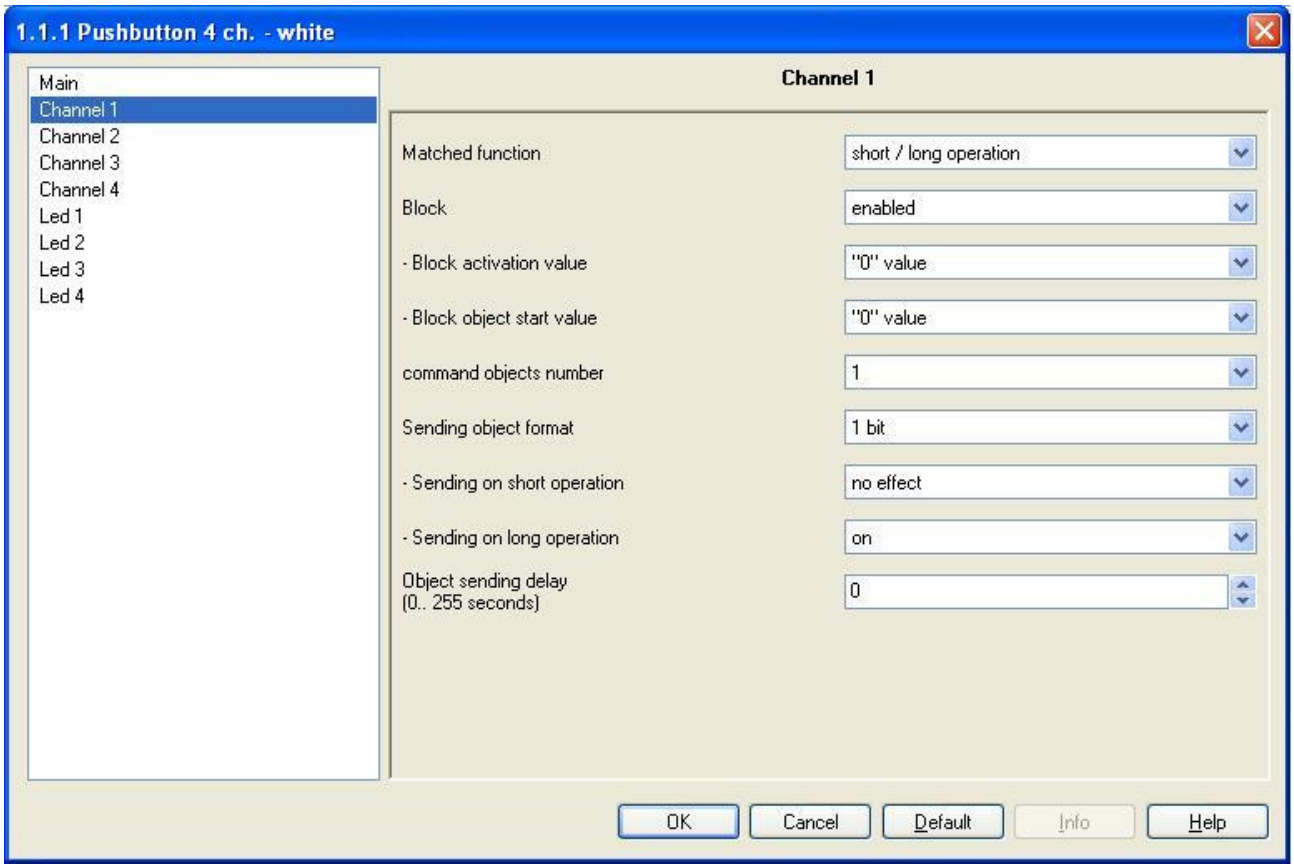


Fig. 6.1

6.1 Parameters

➢ *6.1.1 Command objects number*

Here you can set the number of commands to be sent following a short or prolonged activation of the contact for the channel in question; it is not possible to differentiate the number of commands to be sent according to the action detected.
According to the value set for this item, different options will be visible for ***Channel x.*** The settings are:

- ***1***

The number of commands that the device will send following a short / long operation of the contact is 1; the ***Channel x*** menu is displayed as seen in Diag. 6.1.

- ***2***

The number of commands that the device will send following a short / long operation of the contact is 2; the ***Channel x*** menu is displayed as seen in Diag. 6.2.

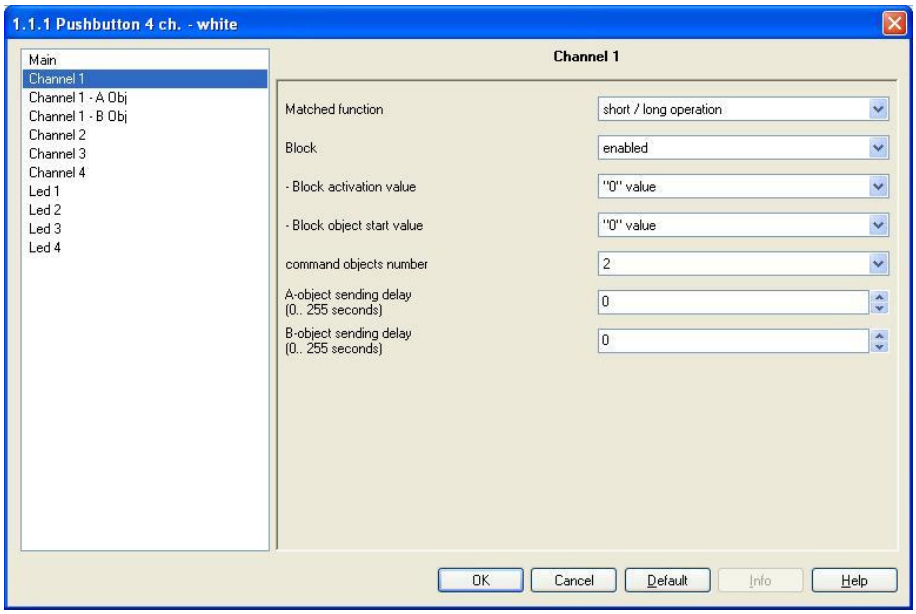


Fig. 6.2

As you can see, ***the Sending object format, Sending on short operation*** and ***Sending on long operation*** options are no longer visible and the ***B-object sending delay (0.. 255 seconds)*** appears; below the ***Channel x*** menu you can now see the ***Channel x - A Obj*** and ***Channel x - B Obj*** menus which have the options, listed above, that disappeared from the ***Channel x*** menu.

- ***3***

The number of commands that the device will send following a short / long operation of the contact is 3; as per the example above, the ***Channel x*** menu now displays the ***C-object sending delay (0.. 255 seconds)*** option and the ***Channel x - C Obj*** menu.

- ***4***

The number of commands that the device will send following a short / long operation of the contact is 4; as per the example above, the ***Channel x*** menu now displays the ***D-object sending delay (0.. 255 seconds)*** option and the ***Channel x D Obj*** menu.

The structure of the ***Channel x - A Obj***, ***Channel x - B Obj***, ***Channel x - C Obj*** and ***Channel x - D Obj*** menus is the same as that seen in Diag. 6.3, so we will analyse the menu relative to one command only.

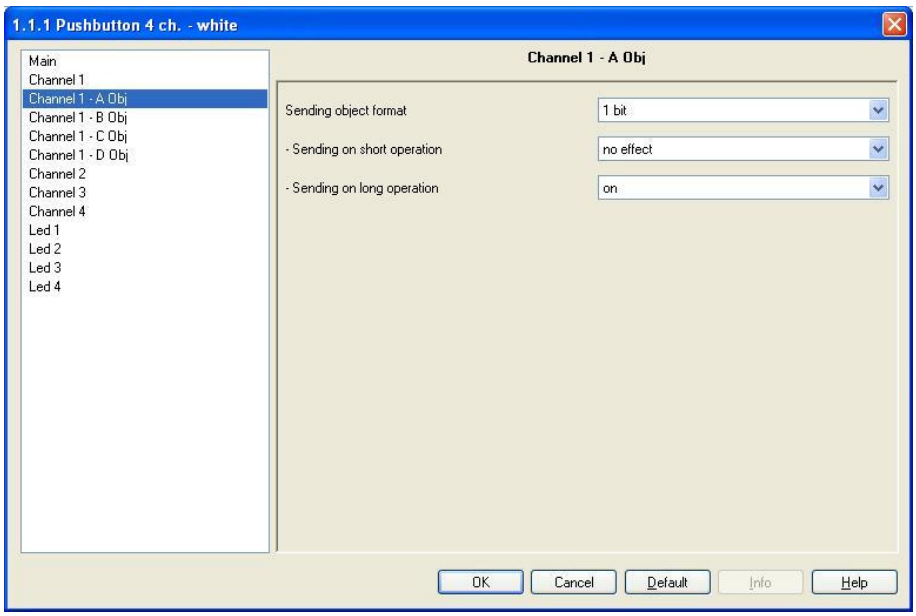


Fig. 6.3

➢ *6.1.2 Sending object format*

Here you can configure the format/s of the bus telegram/s which will be sent by the device.
According to the value set for this item, different value options will be visible for the ***Sending on short operation*** and ***Sending on long operation*** items. The settings, their features and functions are the same as those indicated in Chapter ***5.1.2***, so please refer to ***5.1.2 Sending object format*** for further information.

➢ *6.1.3 Sending on short operation*

Here you can configure the command or the value to be sent following a short activation of the push-button contact.
The settings, their features and functions are the same as those indicated in Chapter ***5.1.3***, so please refer to ***5.1.3 Sending on opening contact*** for further information, the difference being that all the actions refer to a short activation of the contact.

➢ *6.1.4 Sending on long operation*

Here you can configure the command or the value to be sent following a prolonged activation of the push-button contact.
The settings, their features and functions are the same as those indicated in Chapter ***6.1.3***, so please refer to ***5.1.3 Sending on opening contact*** for further information, the difference being that all the actions refer to a prolonged activation of the contact.

ATTENTION: if the format of the message to be sent is ***1 byte*** or ***2 byte***, it is important to set values under the items ***Sending on short operation*** and ***Sending on long operation*** that are coded in the same way, that is of the same ***DPT (Datapoint type)*** format. If, for instance, you enter a ***2 Byte value (unsigned: 0.. 65535)*** for one of the options, and for the other a ***2 Byte value (floating point)*** this would cause the relative device to malfunction as it would receive, according to the type of activation, two differently coded values.
It is highly recommended to comply with this restriction at all times, even though these settings are admissible during the configuration phases of the relative options. In order to make sure you configure the device correctly, check the ***DPT*** formats on each of the values, as seen in paragraph ***6.2 Communication objects.***

➢ *6.1.5 Object sending delay (0.. 255 seconds)*

This allows you to set the delay between the moment the activation is detected and when the command or the value associated to the detected edge is actually sent to the bus, at intervals of from 0 to 255 seconds.

➢ *6.1.6 A object sending delay (0.. 255 seconds)*

This allows you to set the delay between the moment the activation is detected and when the first command or first value (A Object) associated to the detected activation is actually sent to the bus, at intervals of from 0 to 255 seconds.

➢ *6.1.7 B object sending delay (0.. 255 seconds)*

Here you can set the delay between when the first command/value (A Object) is sent and when the second command/value (B Object) associated to the detected activation is sent (this delay is calculated starting from the moment when the first command/value is sent), at intervals of from 0 to 255 seconds.

➢ *6.1.8 C object sending delay (0.. 255 seconds)*

What illustrated above (***6.1.7***) applies in this case, but it refers to the delay between the second command/value (B Object) and the third (C Object).

➢ *6.1.9 D object sending delay (0.. 255 seconds)*

What illustrated above (***6.1.7***) applies in this case, but it refers to the delay between the third command/value (C Object) and the fourth (D Object).

NB: When a sequence of commands with delay is being sent, activated by the detection of a specific edge, the detection of the opposite activation causes the sequence sending to terminate only if at least one of the actions associated to the detection of this activation has been configured with settings other than ***no effect***; on the contrary, the sequence of commands/values will continue to be sent until the last command/value has been sent.

6.2 Communication objects

According to the settings under the ***Sending object format*** option, the following communication objects are visible:

➢ *6.2.1 Ch.x – Switch*

If the object format is ***1 bit*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 6.4.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 6.4

The device sends telegrams to the bus through these communication objects following short / long operation of the push-button contacts, according to the values set under the ***Channel x*** menu option association to the ***short / long operation*** function. The sending of the telegram through the above mentioned communication object can be delayed compared to the moment in which the activation associated to the command is actually detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *ON/OFF* or more generally *1/0.*

➢ *6.2.2 Ch.x – A switch*

If the object format is ***1 bit*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 6.5.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - A switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
2	Ch.1 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
8	Ch.2 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
14	Ch.3 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
20	Ch.4 - B switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
3	Ch.1 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
9	Ch.2 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
15	Ch.3 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
21	Ch.4 - C switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
4	Ch.1 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
10	Ch.2 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
16	Ch.3 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
22	Ch.4 - D switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 6.5

The same description illustrated above for the individual object (***6.2.1***) applies to the following objects: ***Ch.x – A switch***, ***Ch.x – B switch***, ***Ch.x – C switch*** and ***Ch.x – D switch*** .

➢ *6.2.3 Ch.x – Priority command*

If the object format is ***2 bit*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 6.6.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
7	Ch.2 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
13	Ch.3 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
19	Ch.4 - Priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low

Fig. 6.6

The device sends telegrams to the bus through these communication objects following short / long operation activation of the push-button contacts, according to the values set under the ***Channel x*** menu option association to the ***short / long operation*** function. The sending of the telegram through the above mentioned communication object can be delayed compared to the moment in which the activation associated to the command is actually detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *2.001 DPT_Switch_Control*, so the size of the object is 2 *bit* and the commands it sends is *On/off forced positioning enabled, forced positioning disabled*.

➢ *6.2.4 Ch.x – A priority command*

If the object format is ***2 bit*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 6.7.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
7	Ch.2 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
13	Ch.3 - A priority command	Switching on/off	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
19	Ch.4 - A priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
2	Ch.1 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
8	Ch.2 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
14	Ch.3 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
20	Ch.4 - B priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
3	Ch.1 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
9	Ch.2 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
15	Ch.3 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
21	Ch.4 - C priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
4	Ch.1 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
10	Ch.2 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
16	Ch.3 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low
22	Ch.4 - D priority command	On/Off forced positioning	2 bit	C	R	W	T	U	1 bit controlled DPT_Switch_Control	Low

Diag. 6.7

The same description illustrated above for the individual object (***6.2.3***) applies to the following objects: ***Ch.x – A priority command***, ***Ch.x – B priority command***, ***Ch.x – C priority command*** and ***Ch.x – D priority command*** .

➢ *6.2.5 Ch.x – Value*

If the object format is ***1 byte*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 6.8.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Value	Value sending	1 Byte	C	R	W	T	U		Low
7	Ch.2 - Value	Value sending	1 Byte	C	R	W	T	U		Low
13	Ch.3 - Value	Value sending	1 Byte	C	R	W	T	U		Low
19	Ch.4 - Value	Value sending	1 Byte	C	R	W	T	U		Low

Fig. 6.8

The device sends telegrams to the bus through these communication objects following short / long operation of the push-button contacts, according to the values set under the ***Channel x*** menu option association to the ***short / long operation*** function. The sending of the telegram through the above

mentioned communication object can be delayed compared to the moment in which the activation associated to the command is actually detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object depends in turn on the settings for the ***Sending on short operation and Sending on long operation*** option:

i. If the values set are ***Auto***, ***Economy***, ***Standby***, ***Comfort*** or ***Building protection***, the standard format of the object is *20.102 DPT_HVAC_Mode*, so the size of the object is 1 *byte* and the command it sends is *thermal regulation mode - Auto, Economy, Standby, Comfort o Building protection*.

ii. If the value settings are ***1 Byte value (format: 0..*** 255), the standard format of the object is *5.010 DPT_Value_1_Ucount,* so the size of the object is 1 *byte* and the command it sends is a binary coded value of between 0 and 255.

iii. If the value settings are ***1 Byte value (format: 0%..*** 100%), the standard format of the object is *5.001 DPT_Scaling,* so the size of the object is 1 *byte* and the command it sends is a percentage value of between 0% and 100%.

➢ *6.2.6 Ch.x – A value*

If the object format is ***1 byte*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 6.9.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A value	Value sending	1 Byte	C	R	W	T	U		Low
7	Ch.2 - A value	Value sending	1 Byte	C	R	W	T	U		Low
13	Ch.3 - A value	Value sending	1 Byte	C	R	W	T	U		Low
19	Ch.4 - A value	Value sending	1 Byte	C	R	W	T	U		Low
2	Ch.1 - B value	Value sending	1 Byte	C	R	W	T	U		Low
8	Ch.2 - B value	Value sending	1 Byte	C	R	W	T	U		Low
14	Ch.3 - B value	Value sending	1 Byte	C	R	W	T	U		Low
20	Ch.4 - B value	Value sending	1 Byte	C	R	W	T	U		Low
3	Ch.1 - C value	Value sending	1 Byte	C	R	W	T	U		Low
9	Ch.2 - C value	Value sending	1 Byte	C	R	W	T	U		Low
15	Ch.3 - C value	Value sending	1 Byte	C	R	W	T	U		Low
21	Ch.4 - C value	Value sending	1 Byte	C	R	W	T	U		Low
4	Ch.1 - D value	Value sending	1 Byte	C	R	W	T	U		Low
10	Ch.2 - D value	Value sending	1 Byte	C	R	W	T	U		Low
16	Ch.3 - D value	Value sending	1 Byte	C	R	W	T	U		Low
22	Ch.4 - D value	Value sending	1 Byte	C	R	W	T	U		Low

Diag. 6.9

The same description illustrated above for the individual object (***6.2.5***) applies to the following objects: ***Ch.x – A value***, ***Ch.x – B value***, ***Ch.x – C value*** and ***Ch.x – D value*** .

➢ *6.2.7 Ch.x – Value*

If the object format is ***2 byte*** and the number of command objects is ***1***, the objects visible are those seen in Diag. 6.10.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Value	Value sending	2 Byte	C	R	W	T	U		Low
7	Ch.2 - Value	Value sending	2 Byte	C	R	W	T	U		Low
13	Ch.3 - Value	Value sending	2 Byte	C	R	W	T	U		Low
19	Ch.4 - Value	Value sending	2 Byte	C	R	W	T	U		Low

Fig. 6.10

The device sends telegrams to the bus through these communication objects following short / long operation of the push-button contacts, according to the values set under the ***Channel x*** menu option association to the ***short / long operation*** function. The sending of the telegram through the above mentioned communication object can be delayed compared to the moment in which the activation associated to the command is actually detected.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).

The standard format of the object depends in turn on the settings for the ***Sending on short operation and Sending on long operation*** option:

i. If the value settings are ***2 Byte value (signed: -32768.. +32767***), the standard format of the object is *8.001 DPT_Value_2_count,* so the size of the object is 2 *byte* and the command it sends is a value of between -32768 and +32767 in pairs.

ii. If the value settings are ***2 Byte value (unsigned: 0.. 65535***), the standard format of the object is *7.001 DPT_Value_2_Ucount,* so the size of the object is 2 *byte* and the command it sends is a binary coded value of between 0 and 65535.

iii. If the value settings are ***2 Byte value (floating point):*** the standard format of the object is *9.001 DPT_Value_Temp,* so the size of the object is 2 *byte* and the command it sends is a floating point value of between -100 and 100.

➢ *6.2.8 Ch.x – A value*

If the object format is ***2 byte*** and the number of command objects is higher than ***1***, the objects visible are those seen in Diag. 6.11.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A value	Value sending	2 Byte	C	R	W	T	U		Low
7	Ch.2 - A value	Value sending	2 Byte	C	R	W	T	U		Low
13	Ch.3 - A value	Value sending	2 Byte	C	R	W	T	U		Low
19	Ch.4 - A value	Value sending	2 Byte	C	R	W	T	U		Low
2	Ch.1 - B value	Value sending	2 Byte	C	R	W	T	U		Low
8	Ch.2 - B value	Value sending	2 Byte	C	R	W	T	U		Low
14	Ch.3 - B value	Value sending	2 Byte	C	R	W	T	U		Low
20	Ch.4 - B value	Value sending	2 Byte	C	R	W	T	U		Low
3	Ch.1 - C value	Value sending	2 Byte	C	R	W	T	U		Low
9	Ch.2 - C value	Value sending	2 Byte	C	R	W	T	U		Low
15	Ch.3 - C value	Value sending	2 Byte	C	R	W	T	U		Low
21	Ch.4 - C value	Value sending	2 Byte	C	R	W	T	U		Low
4	Ch.1 - D value	Value sending	2 Byte	C	R	W	T	U		Low
10	Ch.2 - D value	Value sending	2 Byte	C	R	W	T	U		Low
16	Ch.3 - D value	Value sending	2 Byte	C	R	W	T	U		Low
22	Ch.4 - D value	Value sending	2 Byte	C	R	W	T	U		Low

Fig. 6.11

The same description illustrated above for the individual object (***6.2.7***) applies to the following objects: ***Ch.x – A value***, ***Ch.x – B value***, ***Ch.x – C value*** and ***Ch.x – D value*** .

7 "*1 push button dimmer + stop*" function

Here it is possible to configure the channel to control a dimmer with one button, regulating the increase and decrease in brightness on the dimmer using the same button.
It is possible to send ON/OFF telegrams and brightness dimming telegrams.
As just one button manages the ON/OFF and brightness dimming functions, it is configured so that each time it is pressed it will send the opposite command compared to the previous command, and it will differentiate between short (press and release) pressures and prolonged (press and hold) pressures:

- If the contact remains closed for a time which is longer than the value set for the ***Long operation min time*** a prolonged pressure is recognised that, in this case, is interpreted as a brightness dimming command. If the last command sent is an OFF command or a *decrease brightness* command, the new command will increase the brightness; vice versa, if the last command sent was an ON command or an *increase brightness* command, the new command will be a *decrease brightness* command. In both cases, when the contact is re-opened, a stop regulation telegram is sent, to terminate the dimmer increase/decrease brightness operation and it sets the brightness value reached at the moment that the stop regulation command is received.
- If the contact remains closed for a time which is shorter than the value set for the ***Long operation min time*** a short pressure is recognised that, in this case, is interpreted as an ON/OFF command. If the last command sent is an ON command, the new command will be an OFF command; vice versa, if the last command sent was an OFF command the new command will be an ON command; the *increase/decrease brightness* commands in this case do not determine the value of the last command sent to discriminate the value of the future command that will be sent.

Using this type of function, the brightness dimming depends on the so-called brightness dimming characteristic curve that varies from device to device, according to how the manufacturer has designed the curve that regulates output and consequently brightness. This means that the speed at which the brightness reaches maximum and minimum levels does not depend on the commands sent by the 4-channel push-button panel, as the latter regulates the brightness by blocking the increase/decrease according to the desired value.

The ***Channel x*** menu can be seen in Diag.7.1 below.

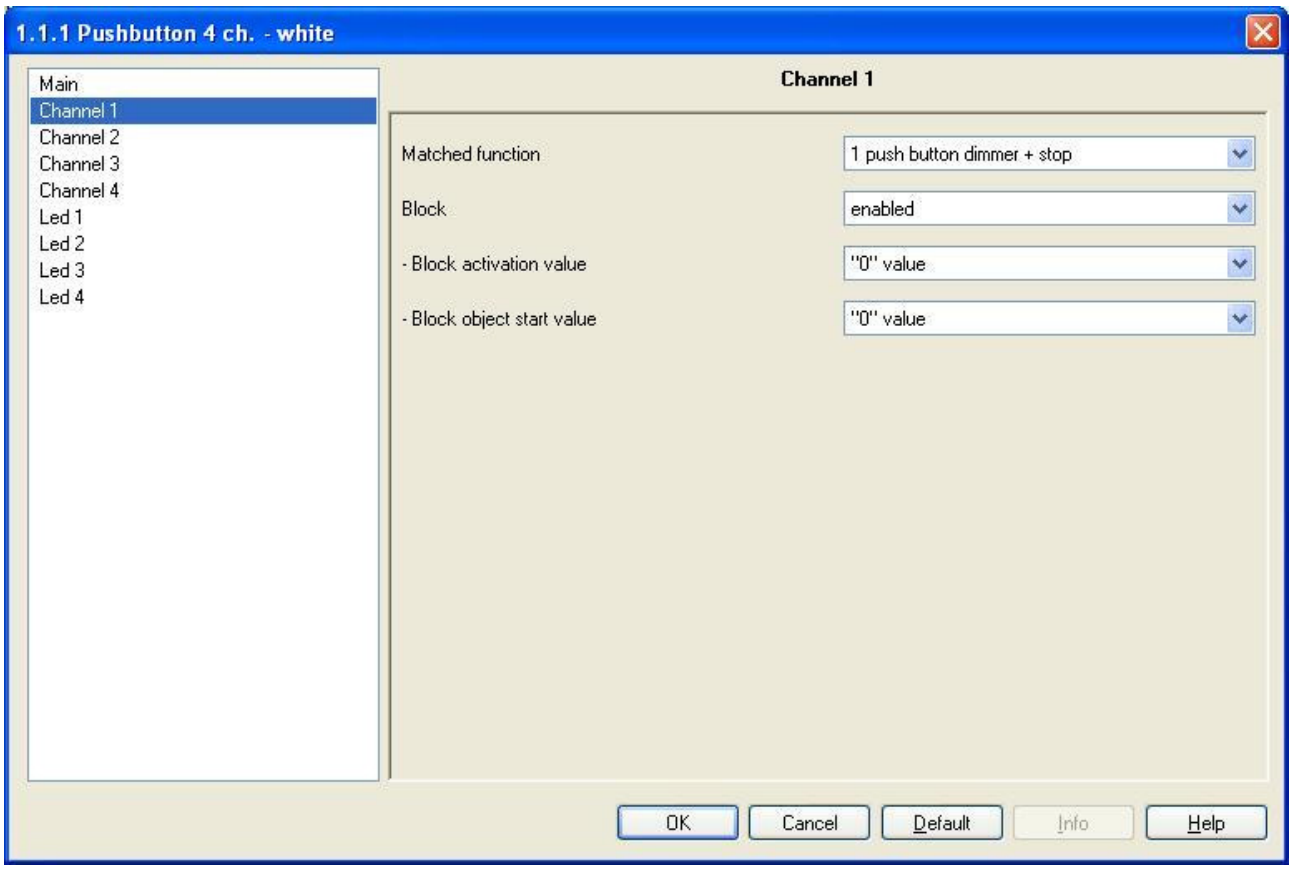


Fig. 7.1

7.1 Parameters

There are no parameters to be configured for this function.

7.2 Communication objects

The communication objects used to manage the ***1 push button dimmer + stop*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x*** menu.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
28	Ch.1 - Dimmer status feedback	On/Off status	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
29	Ch.2 - Dimmer status feedback	On/Off status	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
30	Ch.3 - Dimmer status feedback	On/Off status	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
31	Ch.4 - Dimmer status feedback	On/Off status	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
2	Ch.1 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low
8	Ch.2 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low
14	Ch.3 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low
20	Ch.4 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low

Fig. 7.2

➢ 7.2.1 Ch.x – Switch

Using these communication objects, the device sends ON/OFF commands to the bus following short closings of the button contacts. The value sent through this object is always the opposite to the last command sent to this object or, as we will see in paragraph ***7.2.2 Ch.x – Dimmer status feedback***, the opposite value compared to the last value received on this object.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *ON/OFF*.

➢ 7.2.2 Ch.x – Dimmer status feedback

Using these communication objects, the device receives bus telegrams which notify the status of the loads controlled by the dimmer that will be managed through the general channel x.
The use of this object is not obligatory in order to be able to manage this function, as the device stores the last commands it sent in its memory; however, the status of the load controlled by the dimmer could change, for instance to perform a scene command, following a command received from other devices etc.. This said, it can be an advantage to use this object because, in this case, the value of the commands to be sent is the opposite to the last value sent or the value received by the object in question; in fact, both the value sent with the last command to the ***Ch.x – Switch*** object and the value received by the ***Ch.x – Dimmer status feedback*** object are saved in the same memory bank, so that one overwrites the other, and vice versa.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it receives is *ON/OFF status*.

➢ 7.2.3 Ch.x – Brightness dimming

Using these communication objects, the device sends increase/decrease brightness commands to the bus following prolonged closings of the button contacts. The value sent through this object is always the opposite to the last command sent to this object or, as mentioned in the introduction to the function, an increase command if the last command sent was an “OFF” command (or if the last value received by the ***Ch.x – Dimmer status feedback*** object, if used, is “OFF) and a decrease command if the last value sent was “ON” (or if the last value received by the ***Ch.x – Dimmer status feedback*** object, if used, is “ON”).

The coding of this type of command allows you to differentiate between increase and decrease, and also the percentage value of the same variation; in this specific case, when the button is pressed and held it sends “increase by 100%” (decrease by 100%) of the brightness value commands, when the button is released the stop regulation command is sent. This allows for a faster or slower dimmer action according to the device and the intrinsic output/brightness dimming characteristics for each device.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *3.007 DPT_Control_Dimming*, so the size of the object is *4 bit* and the information it contains is *increase/decrease by 100%, stop regulation.*

8 *"1 push button dimmer cyclic command"* function

Here it is possible to configure the channel to control a dimmer with one button, regulating the increase and decrease in brightness on the dimmer using the same button, with regulation steps that can be defined and set.
It is possible to send ON/OFF telegrams and brightness dimming telegrams.
As in this case, as above, just one button manages the ON/OFF and brightness dimming functions, it is configured so that each time it is pressed it will send the opposite command compared to the previous command sent, and it will differentiate between short (press and release) pressures and prolonged (press and hold) pressures (for further details see Chapter 7 "***1 push button dimmer + stop" function).***

Unlike the ***1 push button dimmer + stop" function***, it is possible to define the steps for the brightness changes and also the time between the sending of one command and another, in the case when the contact remains closed; it is therefore not necessary to send a stop regulation telegram when the contact is opened, as the regulation follows the output/brightness characteristic curve but it is the command that is sent by the 4 channel push-button panel that actually determines the percentage variation. The ***Channel x*** menu can be seen in Diag.8.1 below.

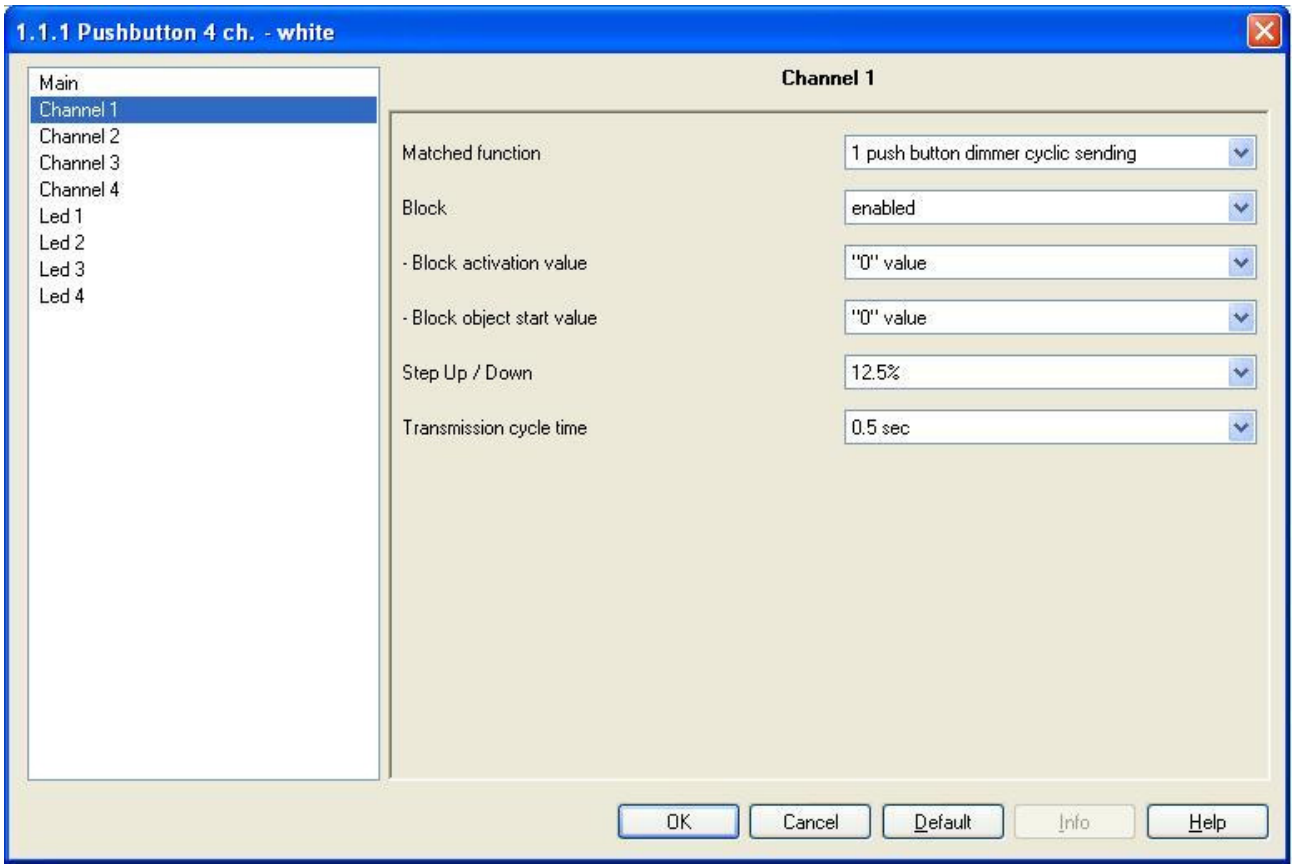


Fig. 8.1

8.1 Parameters

➢ *8.1.1 Step Up / Down*

Here you can set the percentage value for the variation in brightness associated to brightness increase/decrease commands.
In this manner, as soon as prolonged pressure on the button is detected (press and hold event), the device sends the first increase/decrease command with the set percentage; if the button is held for longer, the device will send cyclical commands until the button is released. The settings are:

- ***100%***

When prolonged pressure is detected, the device sends a 100% increase/decrease brightness command. When the button is released no telegram is sent, including a stop regulation telegram; this means that, with these settings, the brightness increase/decrease speed of the commanded device will depend on the output/brightness characteristic curve but the final value will always be equal to 100%, with no possibility to stop the regulation. This effect achieved by this function is a gradual and not instant ON/OFF command on the load.

- ***50%***

When prolonged pressure is detected, the device sends a 50% increase/decrease brightness command. When the button is released no telegram is sent, including a stop regulation telegram; this means that, with these settings, the brightness increase/decrease speed of the commanded device will depend on the output/brightness characteristic curve but the final value will always be 50% more or less (according to whether it is an increase or decrease command) of the value of the commanded device before each command sent.

The same applies for:

- ***25%***
- ***12.5%***
- ***6.25%***
- ***3.125%***
- ***1.56%***

➢ *8.1.3 Transmission cycle time*

Here you can set the time that must pass between the sending of one increase/decrease command and another in the case when the button is pressed and held; when the button is released no telegram is sent and the cyclical sending of brightness dimming commands is terminated.
As soon as prolonged pressure is detected (press and hold event), the device sends the first increase/decrease command with the set percentage and, if the button is held for longer, the device will send cyclical commands until the button is released. The settings are provided in the drop-down menu and vary within an interval of from 0.3 to 5 seconds.

To illustrate this concept more clearly, let's suppose we have set a value of ***0.5 sec*** for the ***Long operation min time*** in the ***Main*** menu and a value of ***0.3 sec*** for the item we are analysing, ***Transmission cycle time*** and the button is pressed:

- 0.5 seconds after the contact is closed, a press and hold event is recognised and therefore the first increase/decrease telegram is sent
- from this moment onwards, for every 0.3 seconds that the buttons remains held, the device will send a new increase/decrease command until the button is released
- When the button is released, no telegram is sent and the cyclical sending of commands is terminated

8.2 Communication objects

The communication objects used to manage the ***1 push button dimmer cyclic sending*** function are the same as those used for the ***1 push button dimmer + stop*** function (see Diag. 7.2) and they are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x*** menu.

➢ *8.2.1 Ch.x – Switch*

For further details see Chapter ***7.2.1***.

➢ *8.2.2 Ch.x – Dimmer status feedback*

For further details see Chapter ***7.2.2***.

➢ *8.2.3 Ch.x – Brightness dimming*

For further details see Chapter ***7.2.3***.

9 *"1 push button shutter control"* function

Here it is possible to configure the channel to control a shutter with one button, regulating the UP and DOWN movement of the shutter and the opening/closing of the laths, where applicable.
It is possible to send Up/Down telegrams and lath regulation telegrams.
As just one button manages the Up/Down and lath regulation functions, it is configured so that each time it is pressed it will send the opposite command compared to the previous movement signal received by the shutter actuator; it will differentiate between short (press and release) pressures and prolonged (press and hold) pressures:

- If the contact remains closed for a time which is longer than the value set for the ***Long operation min time*** a prolonged pressure is recognised that, in this case, is interpreted as an Up/Down command. If the last movement signal received was "UP", the new command will be a "DOWN" command, and vice versa.
- if the contact remains closed for a time which is shorter than the value set for the ***Long operation min time*** a short pressure is recognised that, in this case, is interpreted as a lath regulation command. If the last movement signal received was "UP", the new command will be a "close lath" command; vice versa, if the last movement signal received was "DOWN", the new command will be an "open lath" command. If the shutter is moving, a lath regulation command will simply stop the Up/Down movement of the shutter; the shutter must be at a standstill in order to regulate the laths.

The ***Channel x*** menu can be seen in Diag.9.1 below.

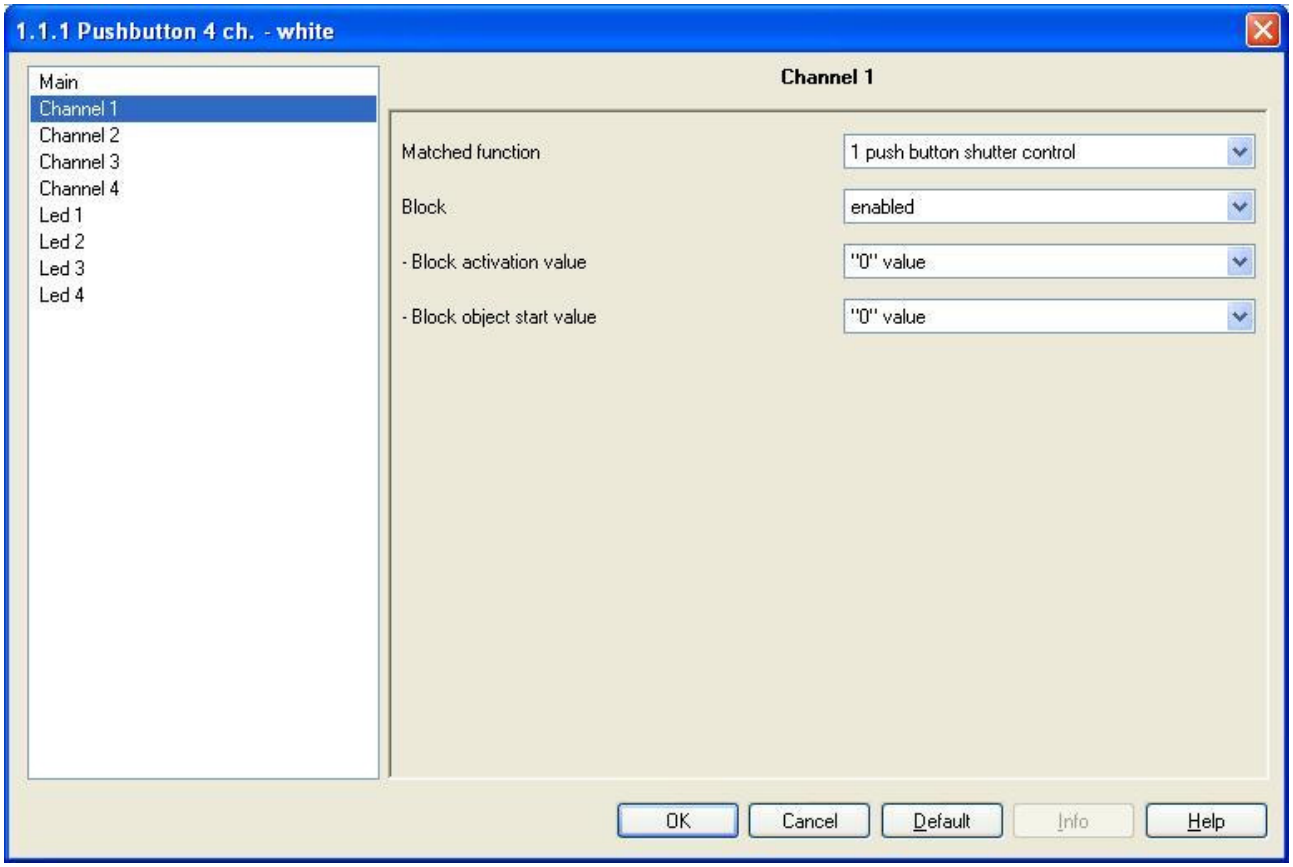


Fig. 9.1

9.1 Parameters

There are no parameters to be configured for this function.

9.2 Communication objects

The communication objects used to manage the ***1 push button shutter control*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x*** menu (see Diag. 9.2).

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
7	Ch.2 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
13	Ch.3 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
19	Ch.4 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
2	Ch.1 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low
8	Ch.2 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low
14	Ch.3 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low
20	Ch.4 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low
28	Ch.1 - Movement feedback	Increase / Decrease	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
29	Ch.2 - Movement feedback	Increase / Decrease	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
30	Ch.3 - Movement feedback	Increase / Decrease	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
31	Ch.4 - Movement feedback	Increase / Decrease	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low

Fig. 9.2

➢ 9.2.1 Ch.x – Shutter movement

Using these communication objects, the device sends Up/Down commands to the bus following prolonged closings of the contacts (press and hold event). The value sent through this object is always the opposite to the last command received by the ***Ch.x – Movement feedback*** object, as we will see in paragraph ***9.2.3 Ch.x – Movement feedback***.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.008 DPT_UpDown*, so the size of the object is *1 bit* and the information it contains is *UP/DOWN*.

➢ 9.2.2 Ch.x – Shutter stop/Louvres step

Using these communication objects, the device sends open/close lath regulation commands to the bus following short closings of the contacts (press and release event). If the shutter is moving, a lath regulation command will simply stop the Up/Down movement of the shutter; the shutter must be at a standstill in order to regulate the laths.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.007 DPT_Step*, so the size of the object is *1 bit* and the information it contains is *open/close regulation or stop movement*.

➢ 9.2.3 Ch.x – Movement feedback

Using these communication objects, the device receives notification of movement of the controlled shutter from the bus.
It is essential for the device to use this communication object in order to function correctly as the commands to be sent to the ***Ch.x - Shutter movement and Ch.x Shutter Stop/Louvres step*** objects depend on the value received on this object and the type of command detected.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.008 DPT_UpDown*, so the size of the object is *1 bit* and the information received is an *UP/DOWN* notification.

10 *"Scene management"* function

Here it is possible to configure the channel to send learn scene and perform scene commands, with the option to memorise the scene after receiving a bus command. Only one scenario can be managed per channel.
The learn scene and perform scene commands differ, also in this case, according to the type of action detected on the contact:

- If the contact remains closed for a time which is longer than the value set for the ***Long operation min time*** a prolonged pressure is recognised that, in this case, is interpreted as a learn scene command.
- if the contact remains closed for a time which is shorter than the value set for the ***Long operation min time*** a short pressure is recognised that, in this case, is interpreted as a perform scene command.

The ***Channel x*** menu can be seen in Diag. 10.1.

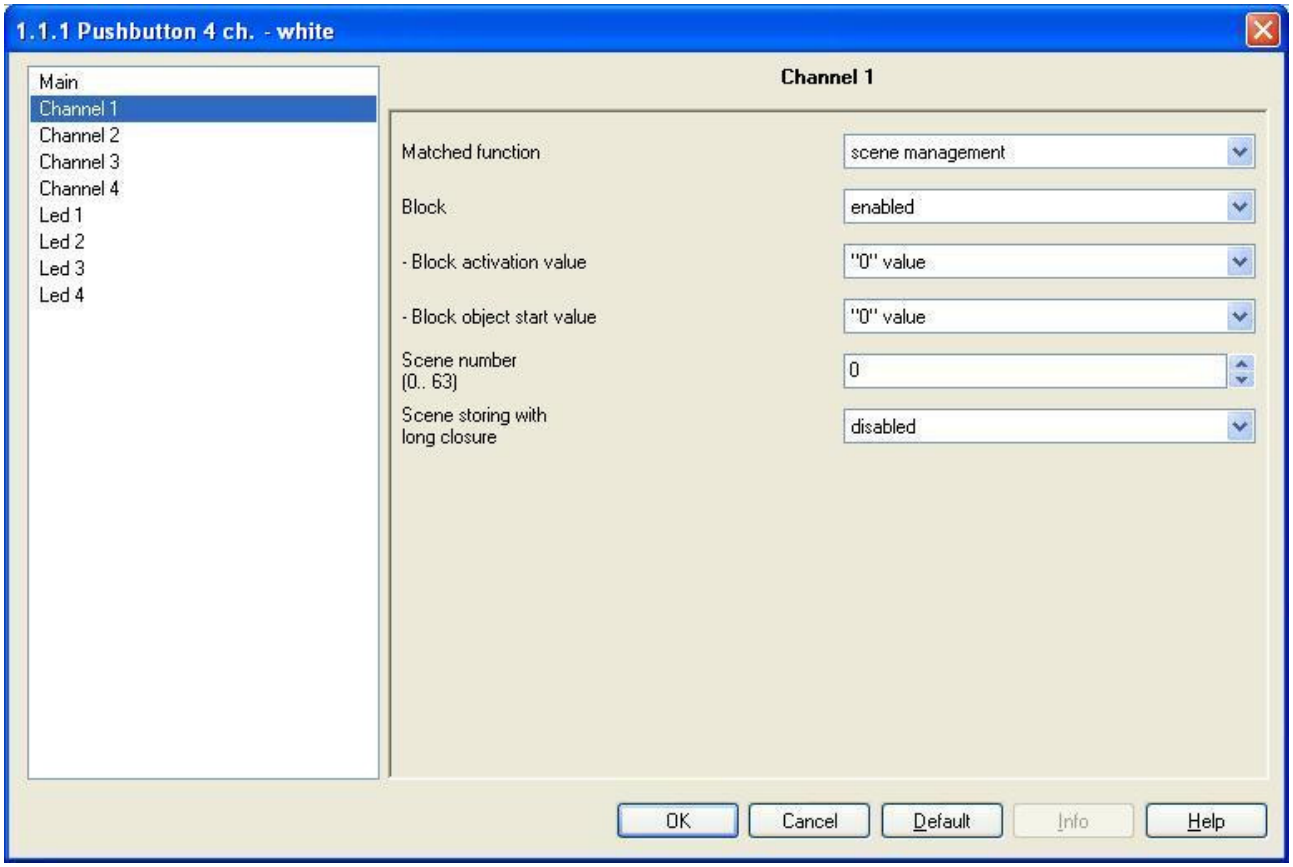


Fig. 10.1

10.1 Parameters

➢ *10.1.1 Scene number (0.. 63)*

Here it is possible to set the value of the scene you intend to activate/deactivate.
Remember that the 4 channel interface is only able to manage one scene per channel.
The value set for this option (that varies from 0 to 63) is important as the output devices (actuators, dimmers etc.) are usually able to manage more than one scene, which is identified by the command value that is received; it is recommended to configure this option correctly, making sure the number is assigned according to the scene that you intend to manage with the general channel x.

➢ *10.1.2 Scene storing with long closure*

This enables the sending of the learn scene command on detection of prolonged activation of the contact (press and hold event).
The settings are:

- ***disabled***

In the case where a press and hold event is detected on the general channel x in question, no telegram is sent; it is not therefore possible to learn the scene through the activation of the contact, but it is possible to send the command if a value is received by the ***Ch.x – Scene storing trigger*** communication object (for further details see ***10.2.2***).

- ***enabled***

In the case where a press and hold event is detected on the general channel x in question, a learn scene command is sent; it is also possible to send the learn scene command if a value is received by the ***Ch.x – Scene storing trigger*** communication object (for further details see ***10.2.2***).

10.2 Communication objects

The communication objects used to manage the ***scene management*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x*** menu (see Diag. 10.2).

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - Scene	Execute/Store	1 Byte	C	R	W	T	U		Low
7	Ch.2 - Scene	Execute/Store	1 Byte	C	R	W	T	U		Low
13	Ch.3 - Scene	Execute/Store	1 Byte	C	R	W	T	U		Low
19	Ch.4 - Scene	Execute/Store	1 Byte	C	R	W	T	U		Low
2	Ch.1 - Scene storing trigger	Store	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
8	Ch.2 - Scene storing trigger	Store	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
14	Ch.3 - Scene storing trigger	Store	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
20	Ch.4 - Scene storing trigger	Store	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 10.2

➢ *10.2.1 Ch.x - Scene*

The device sends perform scene commands to the bus through these communication objects following press and release events on the push-button and learn scene commands following press and hold events (if this option is enabled) or when a value is received by the ***Ch.x – Scene storing trigger*** communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *18.001 DPT_SceneControl*, so the size of the object is *1 byte* and the information it contains refers to ***perform/learn scene y*** (where y indicates the general scene number associated to the commands, that is the value set under the item ***Scene number (0.. 63)***).

➢ *10.2.2 Ch.x – Scene storing trigger*

Using these communication objects, the device receives a specific value from the bus that triggers a learn scene command to be sent to the ***Ch.x - Scene object***.
If a telegram is received by this object with a logic value “1”, the device will immediately send a learn scene command to the ***Ch.x – Scene*** object; vice versa, it will not send any commands if it receives a “0” value.
This object is particularly useful when it is not possible to memorise the scene using a press and hold command, that is when the ***Scene storing with disabled long closure*** option in the ***Channel x*** menu with a ***scene management*** association function is set to ***disabled;*** in this case, any bus device can trigger the 4 channel push-button panel to send a learn scene command by sending a telegram to this communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it receives is *ON/OFF*, which in this case is interpreted as a *learn scene send request / no request*.

11 "*Switching sequences*" function

With this option it is possible to send a sequence of commands simulating a step-by-step relay behaviour, following the detection of a specific edge.
The general ***Channel x*** menu can be seen in Diag. 11.1 below.

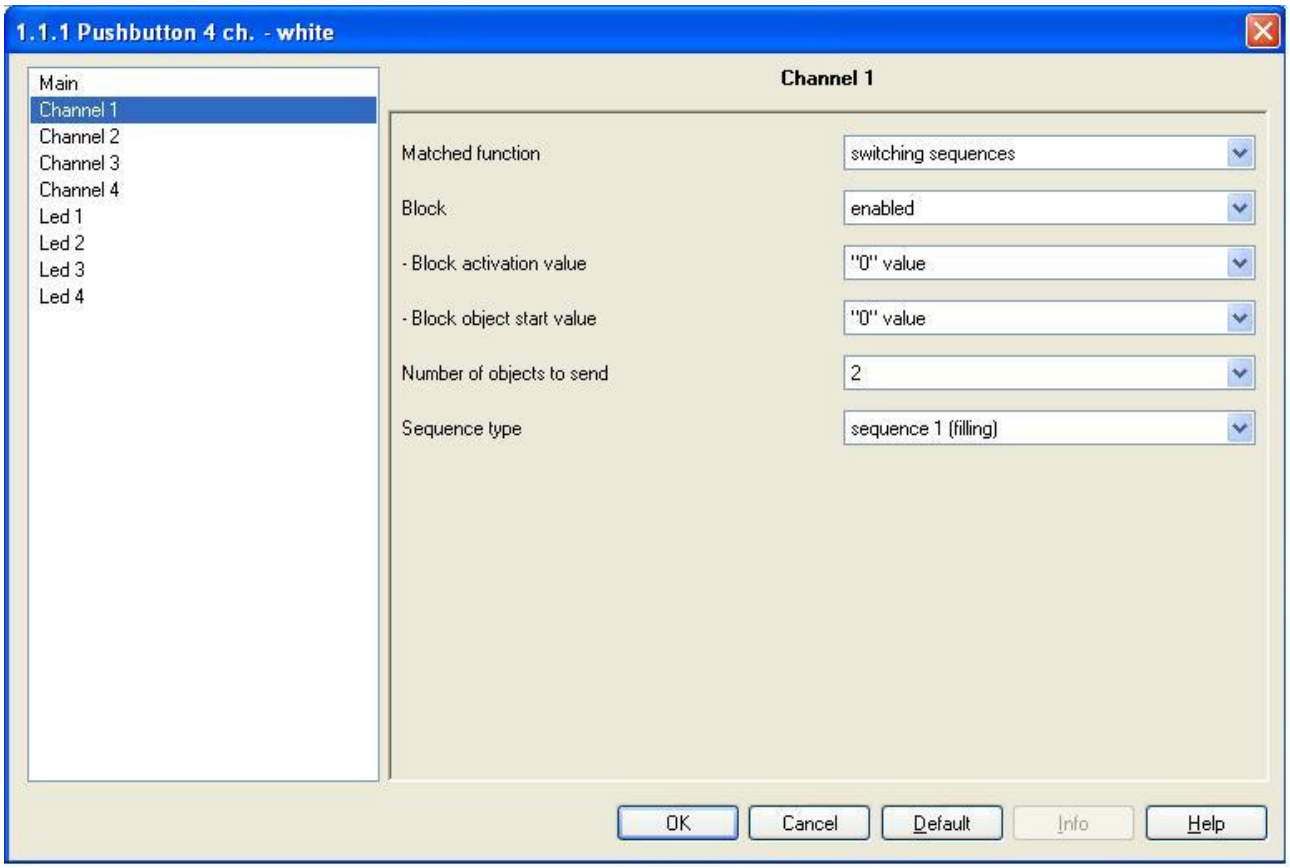


Fig. 11.1

11.1 Parameters

➢ *11.1.1 Number of objects to send*

In this section you can set the number of commands which form the sequence; according to the value set for this option, different communication objects are enabled (see ***11.2***).
The settings range from 2 to 5 and determine the number of commands (and communication objects) that comprise the sequence.

➢ *11.1.2 Sequence type*

Here it is possible to set the type of sequence you intend to send.
The settings are:

- ***sequence 1 (filling)***

Upon each detected pressure the device sends a sequence to the enabled communication objects that follow a fill pattern; this sequence consists in activating one communication object at a time, in cascade mode, until all the objects have a "1" logic value, and deactivating, again in cascade mode, the objects until the all have a "0" logic value.
If we consider for instance a 3 command sequence, at each iteration the commands sent will be:

Edge N°	Value sent to ***Ch.x – C sequence***	Value sent to ***Ch.x – B sequence***	Value sent to ***Ch.x – A sequence***
Edge 1	0	0	1
Edge 2	0	1	1
Edge 3	1	1	1
Edge 4	0	1	1
Edge 5	0	0	1
Edge 6	0	0	0

Once Edge 6 is detected the sequence recommences from the beginning

You can seen in the table that, looking at the increase/decrease sequence pattern, the most significant bit of the sequence, in this particular case, is the ***Ch.x – C sequence*** communication object bit, whilst the least significant is the ***Ch.x – A sequence*** object bit.

- ***sequence 2 (sum)***

Upon each detected pressure the device sends a sequence to the enabled communication objects which follow a sum pattern; this sequence consists in counting the detected edges and converting this value into a binary format, and distributing it to the enabled communication objects.
If we consider for instance a 3 command sequence, at each iteration the commands sent will be:

Edge N°	Value sent to ***Ch.x – C sequence***	Value sent to ***Ch.x – B sequence***	Value sent to ***Ch.x – A sequence***
Edge 1	0	0	1
Edge 2	0	1	0
Edge 3	0	1	1
Edge 4	1	0	0
Edge 6	1	0	1
Edge 7	1	1	0
Edge 8	1	1	1
Edge 9	0	0	0

Once Edge 9 is detected the sequence recommences from the beginning

You can see in the table how the pattern of the commands sent depends on the number of the detected edge; in fact it starts with a binary coding of value 1, in this case, to the coding of value 7 and then from the next edge the count is reset. Also in this case the most significant bit of the sequence is the ***Ch.x – C sequence*** communication object bit, whilst the least significant is again the ***Ch.x – A sequence*** object bit.

11.2 Communication objects

The communication objects enabled by the general ***Channel x*** menu, if the ***switching sequence*** value is indicated in the ***Matched function*** option, are those seen in Diag. 11.2.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1 - A sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
7	Ch.2 - A sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3 - A sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
19	Ch.4 - A sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
2	Ch.1 - B sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
8	Ch.2 - B sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
14	Ch.3 - B sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
20	Ch.4 - B sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
3	Ch.1 - C sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
9	Ch.2 - C sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
15	Ch.3 - C sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
21	Ch.4 - C sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
4	Ch.1 - D sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
10	Ch.2 - D sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
16	Ch.3 - D sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
22	Ch.4 - D sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
5	Ch.1 - E sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
11	Ch.2 - E sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
17	Ch.3 - E sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
23	Ch.4 - E sequence	On/Off sequence	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low

Fig. 11.2

➢ 11.2.1 Ch.x – A sequence

This communication object is always visible once the ***switching sequence*** value is set for the ***matched function*** option in the general ***Channel x*** menu.
Using these communication objects, the device sends the bus the least significant bit value to the configured switching sequence.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is 2 *1 bit* and the information it contains is *ON/OFF*.

➢ 11.2.2 Ch.x – B sequence

This communication object is always visible once the ***switch sequence*** value is set for the ***matched function*** option in the general ***Channel x*** menu, given that the minimum value which can be set for the ***Number of objects to send*** option is ***2***.
Using these communication objects, the device sends the bus the bit value which corresponds to the configured switching sequence.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is 2 *1 bit* and the information it contains is *ON/OFF*.

➢ 11.2.3 Ch.x – C sequence

This communication object is only visible when the ***Number of objects to send*** option in the general ***Channel x*** menu, is set higher than ***2***.
Using these communication objects, the device sends the bus the bit value which corresponds to the configured switching sequence.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is 2 *1 bit* and the information it contains is *ON/OFF*.

➢ 11.2.4 Ch.x – D sequence

This communication object is only visible when the ***Number of objects to send*** option in the general ***Channel x*** menu, is set higher than ***3***.

Using these communication objects, the device sends the bus the bit value which corresponds to the configured switching sequence.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is 2 *1 bit* and the information it contains is *ON/OFF*.

➢ *11.2.5 Ch.x – E sequence*

This communication object is only visible when the ***Number of objects to send*** option in the general ***Channel x*** menu, is set higher than ***5***.
Using these communication objects, the device sends the bus the bit value which corresponds to the configured switching sequence.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is 2 *1 bit* and the information it contains is *ON/OFF*.

12 "*Channel x/y*" menu (coupled channels)

This chapter describes the parameters and the communication objects relative ***combined*** (not independent) channels, ***Channel 1/2*** and ***Channel 3/4*** referred to generally as ***Channel x/y***.
The first item on the general ***Channel x*** menu is the one that determines the menu structure itself, as the menu structure and the other visible option depend of the value set for this option, except for the first item and the ***Block*** option (including the ***Block activation value*** and ***Block object start value*** options, which are visible if the block is enabled) which were analysed in chapters ***4.1*** and ***4.2***.
The list, the explanations for the other options and the relative enabled communication objects are indicated according to the value set for the first option on the ***Channel x/y*** menu.
Diag. 12.1 reproduces the complete ***Channel x/y*** menu screen shot with the first two options always visible, whilst the options below depend on the associated function settings.

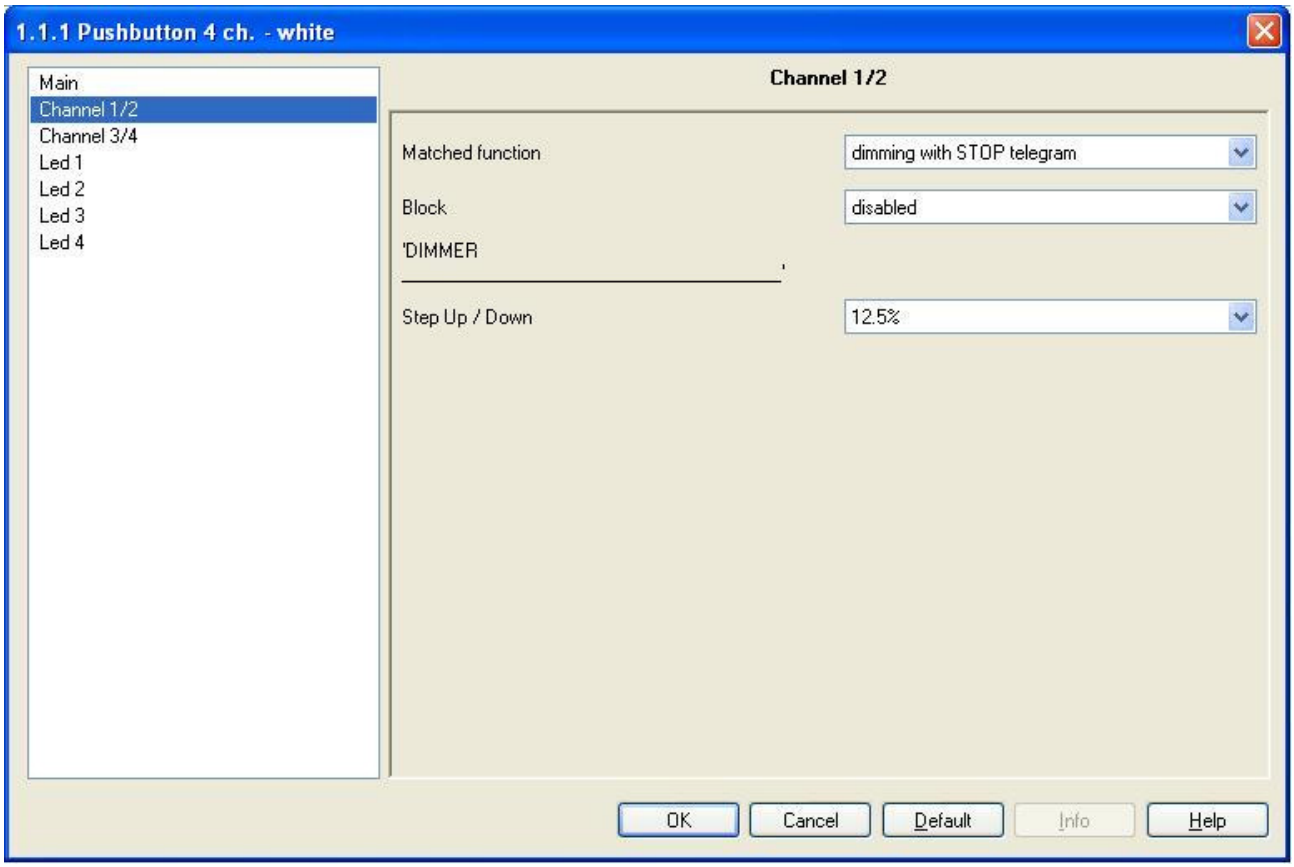


Fig. 12.1

12.1 Parameters

➢ *12.1.1 Matched function*

This determines the function associated to the general combined channels x and y; according to the value of these settings, the ***Channel x/y*** menu will behave differently. The settings are:

- ***dimming with STOP telegram***
  See Chapter ***13*** **"Dimming with STOP telegram"** function

- ***dimming with cyclic telegram***
  See Chapter ***14*** **"Dimming with cyclic telegram"** function

- ***shutter control***
  See Chapter 15 "***Shutter control" function***

13 "*Dimming with STOP telegram*" function

Here it is possible to configure the combined channels to control a dimmer with two buttons, using one button for the ON function and to regulate the increase in the brightness and the other for the OFF function and to regulate the decrease in brightness.
Even if in this case two channels control the function, the press and release events are still discriminated from the press and hold events:

- If the contact remains closed for a time which is longer than the value set for the ***Long operation min time*** a prolonged pressure is recognised that, in this case, is interpreted as a brightness dimming command. If this type of activation is recognised on channel x, the device will send an increase brightness command; vice versa, if the activation is recognised on channel x, the device will send a decrease brightness command. In both cases, when the contact is re-opened, a stop regulation telegram is sent, to terminate the dimmer increase/decrease brightness operation and it sets the brightness value reached at the moment that the stop regulation command is received.
- If the contact remains closed for a time which is shorter than the value set for the ***Long operation min time*** a short pressure is recognised that, in this case, is interpreted as an ON/OFF command. If this type of activation is recognised on channel x, the device will send an ON command; vice versa, if the activation is recognised on channel x, the device will send an OFF command.

Using this type of function, the brightness dimming depends on the so-called brightness dimming characteristic curve that varies from device to device, according to how the manufacturer has designed the curve that regulates output and consequently brightness. Unlike the 1 push button dimmer control however, we will see how in this case it is possible to define the maximum variation that you can achieve with a press and hold command.
The ***Channel x/y*** menu can be seen in Diag. 13.1.

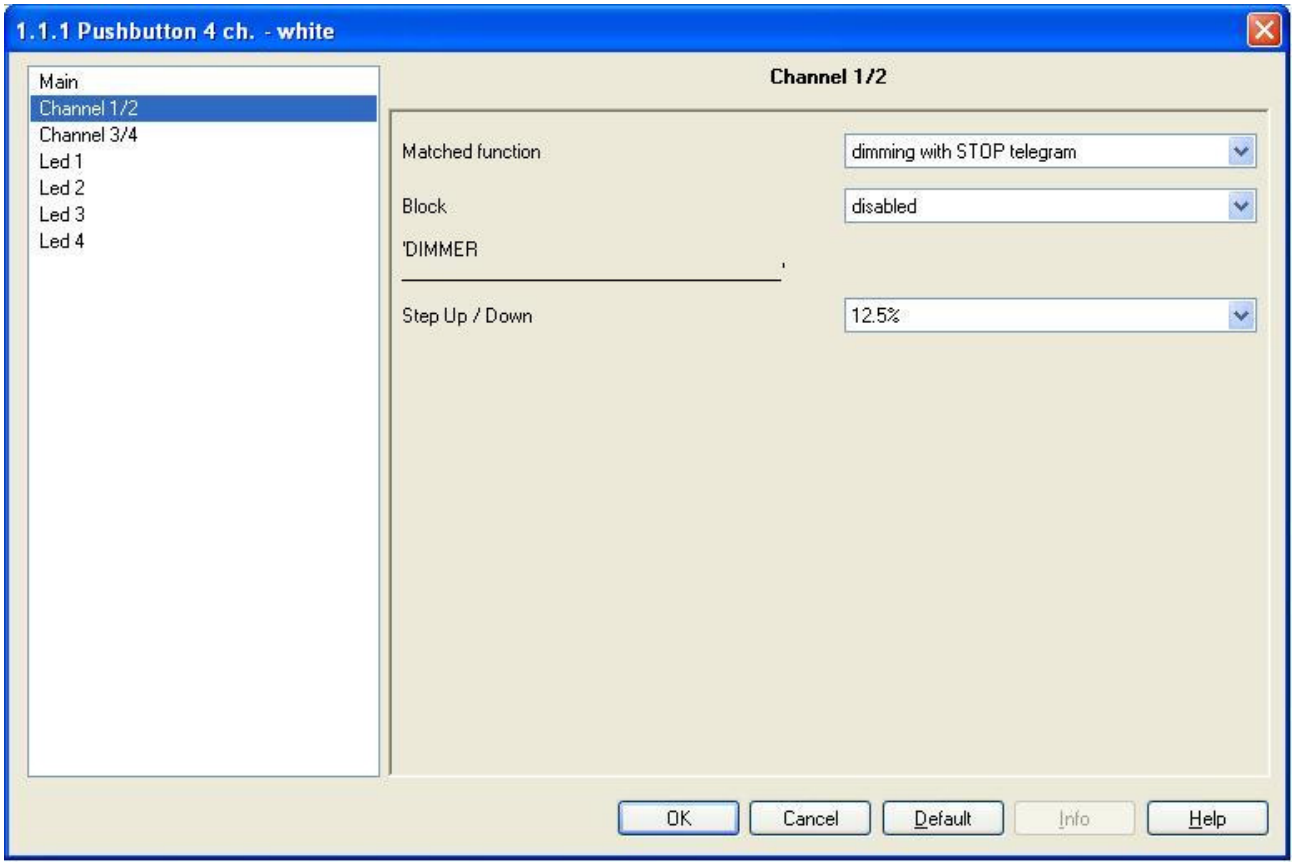


Fig. 13.1

13.1 Parameters

➢ 13.1.1 Step Up / Down

Here you can set the percentage value for the variation in brightness associated to brightness increase/decrease commands.
As soon as prolonged pressure (press and hold event) is detected on the button, the device sends the increase/decrease command (according to which contact was activated) with the set percentage whilst when the button is released it sends a stop brightness command. The settings are:

- ***100%***

When prolonged pressure on the button is detected, the device sends a 100% increase/decrease brightness command (according to which contact was activated). When the button is released a stop regulation telegram is sent; this means that the brightness increase/decrease speed of the commanded device will depend on the output/brightness characteristic curve and the value that the latter will assume will depend on the value reached when the stop regulation telegram was received.

- ***50%***

When prolonged pressure on the button is detected, the device sends a 50% increase/decrease brightness command (according to which contact was activated). When the button is released a stop regulation telegram is sent; this means that the brightness increase/decrease speed of the commanded device will depend on the output/brightness characteristic curve but the maximum variance will be 50% more or less (according to whether it is an increase or decrease command) of the previous value of the commanded device.
In this case therefore, supposing we want to reach the maximum brightness value, it will be necessary to press and hold the channel x button until it reaches a 50% brightness level, then press and hold again to reach the maximum brightness value (100%). Remember that, on releasing the button, a stop regulation telegram is always sent to the telegram, and it is therefore possible to stop the brightness dimming before it increases/decreases by 50% as dictated by the command sent by the press and hold event on the contact.

The same applies for:

- ***25%***
- ***12.5%***
- ***6.25%***
- ***3.125%***
- ***1.56%***

13.2 Communication objects

The communication objects used to manage the ***dimmer with STOP telegram*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x/y*** menu (see Diag. 13.2).

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1/2 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
13	Ch.3/4 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
2	Ch.1/2 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low
14	Ch.3/4 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low

Fig. 13.2

➢ 13.2.1 Ch.x/y – Switch

Using these communication objects, the device sends ON/OFF commands to the bus following short press and release events on the buttons. The value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an ON command or OFF command will be sent.
Each pair of channels is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).

The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *ON/OFF*.

➢ *13.2.2 Ch.x/y – Brightness dimming*

Using these communication objects, the device sends increase/decrease brightness commands to the bus following prolonged pressure on the buttons. The value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an increase brightness command or decrease brightness command will be sent. The coding of this type of command allows you to differentiate between increase and decrease, and also the percentage value of the same variation; when the contact is re-opened, a stop regulation command is sent. This allows you to achieve a dimmer action that on one side depends on the intrinsic output/brightness dimming characteristics of each device, but which is also controlled by increase/decrease steps with variations that depend on the command sent.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *3.007 DPT_Control_Dimming*, so the size of the object is *4 bit* and the information it contains is *increase/decrease by a specific % value, stop regulation.*

14 "*Dimming with cyclic telegram*" function

Here it is possible to configure the combined channels to control a dimmer with two buttons, using one button for the ON function and to regulate the increase in the brightness and the other for the OFF function and to regulate the decrease in brightness.
As the channel and activation functions are identical, please refer to Chapter ***13*** for further information.

Unlike the ***dimming + STOP telegram***, it is possible to define the steps for the brightness changes for the brightness increase/decrease commands and also the time between the sending of one command and another, in the case when the button is pressed and held; it is therefore not necessary to send a stop regulation telegram when the contact is opened, as the regulation follows the output/brightness characteristic curve but it is the command that is sent by the 4 channel push-button panel that actually determines the percentage variation. The ***Channel x/y*** menu can be seen in Diag. 14.1.

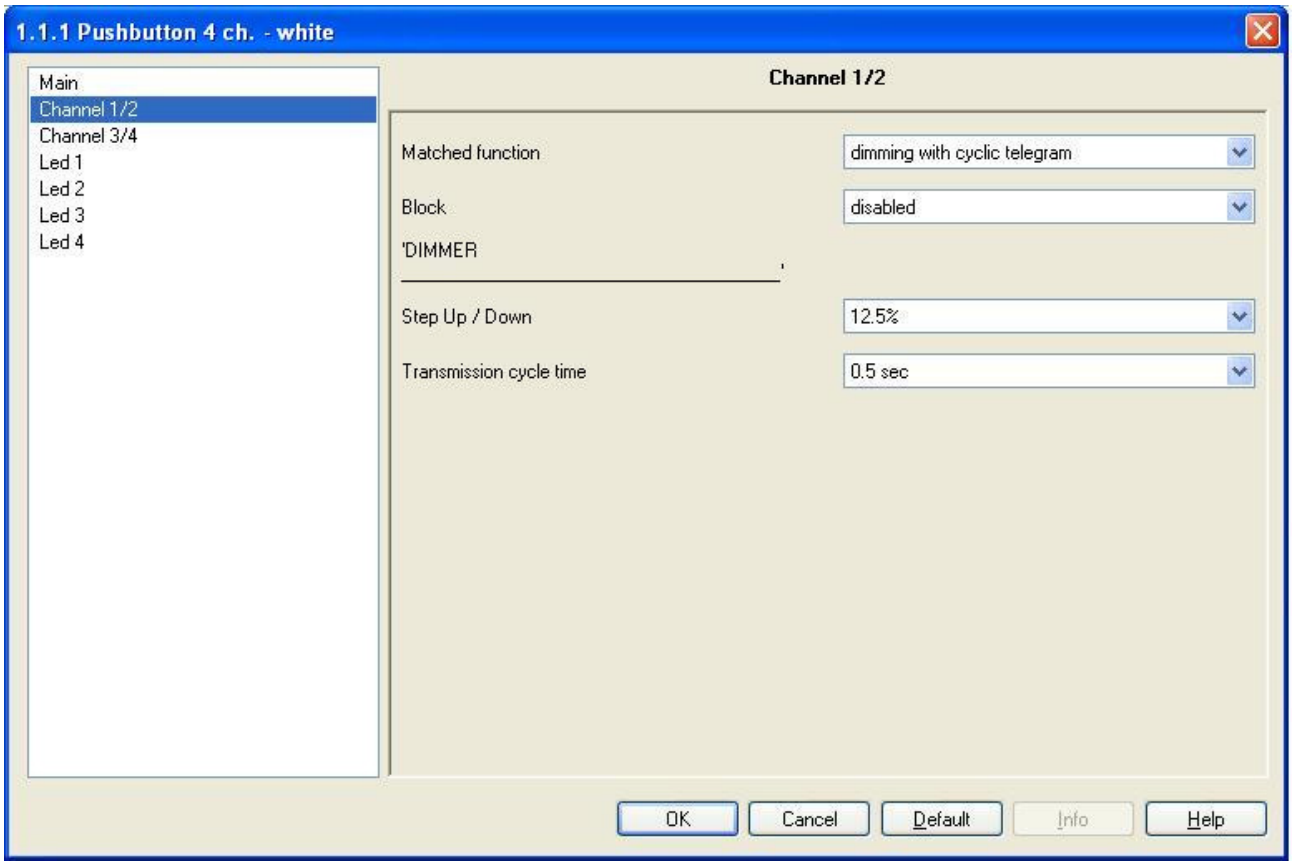


Fig. 14.1

14.1 Parameters

➢ *14.1.1 Step Up / Down*

Here you can set the percentage value for the variation in brightness associated to brightness increase/decrease commands.
As soon as prolonged pressure (press and hold event) is detected on the button, the device sends the increase/decrease command (according to which contact was activated) with the set percentage and, if the contact is still closed it will periodically send the command until the contact opens. The settings are:

- ***100%***

When prolonged pressure on the button is detected, the device sends a 100% increase/decrease brightness command. When the button is released no telegram is sent, including a stop regulation telegram; therefore the brightness increase/decrease speed of the commanded device will depend on

the output/brightness characteristic curve but the final value will always be equal to 100%, with no possibility to stop the regulation. This effect achieved by this function is a gradual and not instant ON/OFF command on the load.

- ***50%***

When prolonged pressure on the button is detected, the device sends a 50% increase/decrease brightness command. When the button is released no telegram is sent, including a stop regulation telegram; therefore the brightness increase/decrease speed of the commanded device will depend on the output/brightness characteristic curve but the final value will always be 50% more or less (according to whether it is an increase or decrease command) of the value of the commanded device before each command sent.

The same applies for:

- ***25%***
- ***12.5%***
- ***6.25%***
- ***3.125%***
- ***1.56%***

➢ *14.1.2 Transmission cycle time*

Here you can set the time that must pass between the sending of one increase/decrease command and another in the case when the button is pressed and held; when the button is released no telegram is sent and the cyclical sending of brightness dimming commands is terminated.
As soon as prolonged pressure (press and hold event) is detected on the button, the device sends the first increase/decrease command (according to which contact was activated) with the set percentage and, if the button is held further, it will periodically send the command until the button is released. The settings range are provided in the drop-down menu (within an interval of from 0.3 to 5 seconds).

To illustrate this concept more clearly, let's suppose we have set a value of ***0.5 sec*** for the ***Long operation min time*** in the ***Main*** menu and a value of ***0.3 sec*** for the item we are analysing, ***Transmission cycle time*** and the device contact closes:

- 0.5 seconds after the contact is closed, a press and hold event is recognised and therefore the first increase telegram is sent
- from this moment onwards, for every 0.3 seconds that the buttons remains held, the device will send a new increase command until the button is released
- when the button is released, no telegram is sent and the cyclical sending of commands is terminated

14.2 Communication objects

The communication objects used to manage the ***dimming with cyclic telegram*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x/y*** menu; the objects are those indicated in Diag. 14.2.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
13	Ch.3/4 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
1	Ch.1/2 - Switch	On/Off	1 bit	C	R	W	T	U	1 bit DPT_Switch	Low
14	Ch.3/4 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low
2	Ch.1/2 - Brightness dimming	Increase / Decrease	4 bit	C	R	W	T	U	3 bit controlled DPT_Control_Dimming	Low

Fig. 14.2

➢ *14.2.1 Ch.x/y – Switch*

Using these communication objects, the device sends ON/OFF commands to the bus following short press and release events on the buttons. The value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an ON command or OFF command will be sent.
Each pair of channels is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).

The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *ON/OFF*.

➢ *14.2.3 Ch.x/y – Brightness dimming*

Using these communication objects, the device sends increase/decrease brightness commands to the bus following prolonged pressure on the buttons. The value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an increase brightness command or decrease brightness command will be sent.
The coding of this type of command allows you to differentiate between increase and decrease, and also the percentage value of the same variation; in this specific case, when the button is pressed and held it sends increase/decrease commands with set brightness values in cyclical mode; when the button is released only the cyclical commands are stopped. This allows you to achieve a dimmer action that on one side depends on the intrinsic output/brightness dimming characteristics of each device, but which is also controlled by increase/decrease steps with variations that depend on the command sent.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *3.007 DPT_Control_Dimming*, so the size of the object is *4 bit* and the information it contains is *increase/decrease by the set percentage value.*

15 "*Shutter control*" function

Here it is possible to configure the channel to control a shutter with two buttons, regulating the UP and DOWN movement of the shutter and the opening/closing of the laths, where applicable.
It is possible to send Up/Down telegrams and lath regulation telegrams.
Even if in this case two channels control the function, the press and release events are still discriminated from the press and hold events:

- If the button is pressed and held for a time which is longer than the value set for the ***Long operation min time*** a prolonged pressure is recognised that, in this case, is interpreted as an Up/Down command. If this type of activation is recognised on channel x, the device will send an UP command; vice versa, the device will send a DOWN command. When the button is released, the device performs no actions.
- if the button is pressed and held for a time which is shorter than the value set for the ***Long operation min time*** a short pressure is recognised that, in this case, is interpreted as a lath regulation command. If this type of activation is recognised on channel x, the device will send an open lath regulation command; otherwise the device will send a close lath regulation command. If the shutter is moving, a lath regulation command will simply stop the Up/Down movement of the shutter; the shutter must be at a standstill in order to regulate the laths.

The ***Channel x/y*** menu can be seen in Diag. 15.1.

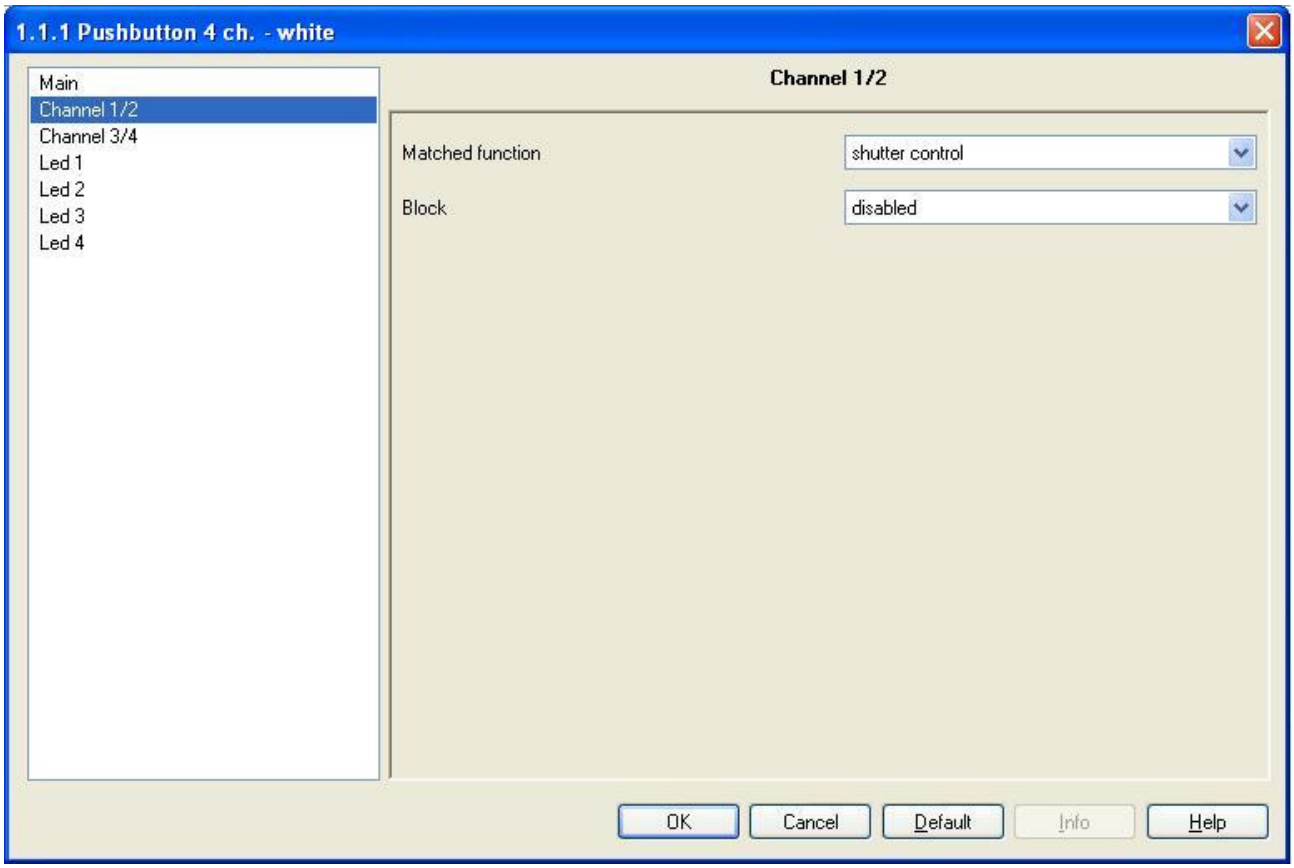


Fig. 15.1

15.1 Parameters

There are no parameters to be configured for this function.

15.2 Communication objects

The communication objects used to manage the ***shutter control*** function are always visible once this function is enabled in the ***Matched function*** option in the general ***Channel x/y*** menu; the objects are those indicated in Diag. 15.2.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
1	Ch.1/2 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
13	Ch.3/4 - Shutter movement	Up/Down	1 bit	C	R	W	T	U	1 bit DPT_UpDown	Low
2	Ch.1/2 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low
14	Ch.3/4 - Shutter stop/Louvres step	Stop/Step	1 bit	C	R	W	T	U		Low

Fig. 15.2

➢ 15.2.1 Ch.x/y – Shutter movement

Using these communication objects, the device sends UP/DOWN commands to the bus following prolonged pressure (press and hold event) on the buttons. The value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an UP command or DOWN command will be sent.
Each pair of channels is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.008 DPT_UpDown*, so the size of the object is *1 bit* and the information it contains is *UP/DOWN*.

➢ 15.2.2 Ch.x/y – Shutter stop/Louvres step

Using these communication objects, the device sends open/close lath regulation commands to the bus following short pressure on the buttons (press and release event). Remember that the value sent through this object depends on which contact was activated: if the activated contact is the one on channel x, an open lath regulation command will be sent, otherwise a close lath regulation command will be sent.
If the shutter is moving, a lath regulation command will simply stop the Up/Down movement of the shutter; the shutter must be at a standstill in order to regulate the laths.
Each pair of channels is associated to its own independent communication object.
The enabled flags are C (communication), R (read by bus), W (written by bus), U (actualize the value) and T (transmission).
The standard format of the object is *1.007 DPT_Step*, so the size of the object is *1 bit* and the information it contains is *open/close regulation or stop movement*.

16 “Led *x* ” Menu

This chapter describes the parameters and the communication objects relative to the ***Led 1***, ***Led 2***, ***Led 3*** and ***Led 4*** menus.
The list, the explanations for the other options and the relative enabled communication objects are indicated according to the value set for the first option on the ***Led x*** menu, which is the one that determines the menu structure itself (the menu options are the same, but their layout changes according to value set for the first option).
Diag. 16.1 shows an example of a complete ***Led x*** menu screen shot.

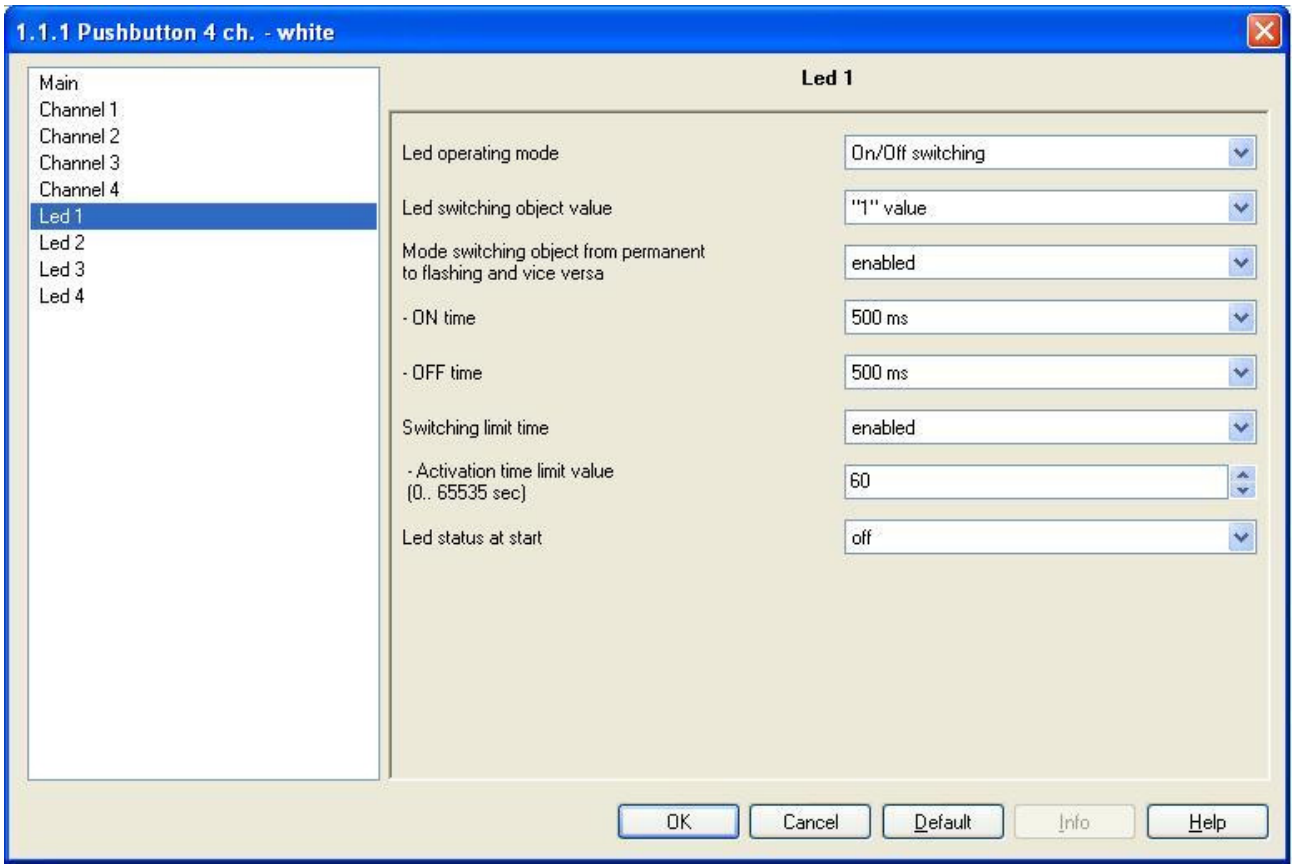


Fig. 16.1

16.1 Parameters

➢ *16.1.1 Led operating mode*

This determines the function associated to the general led x; according to the value of these settings, the ***Led x*** menu will behave differently. The settings are:

- ***On/Off switching***

See Chapter 17 ***Led mode: ”On/Off switching”***

- ***flashing***

See Chapter 18 ***Led mode: “flashing”.***

17 Led mode: *"On/Off switching"*

This activates/deactivates the green coloured led with on/off commands received from the bus. It is possible to activate the night lighting function so that, if the green led is off, the amber led is activated and the control panel can always be detected in the dark.
The ***Led x*** menu can be seen in Diag.17.1 below.

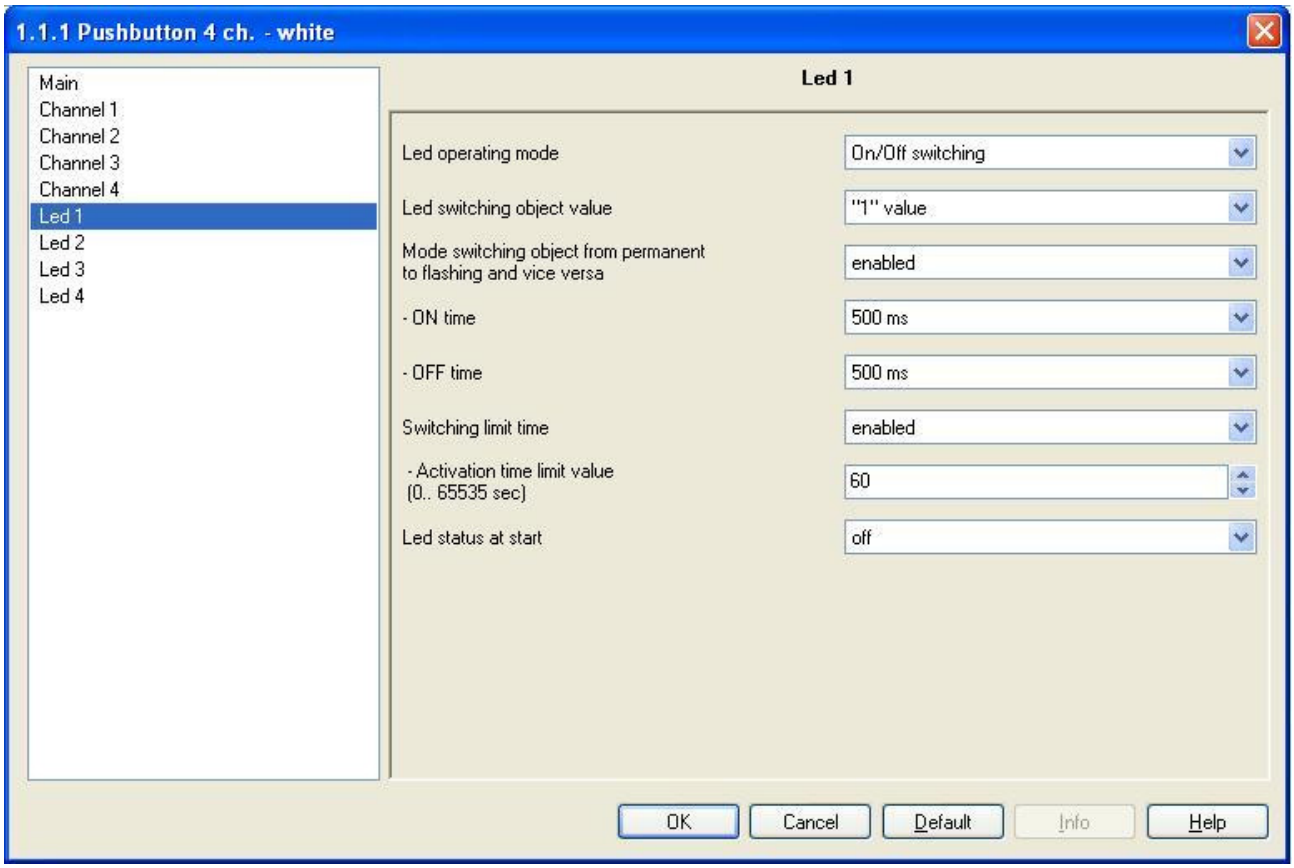


Fig. 17.1

17.1 Parameters

➢ *17.1.1 Led switching object value*

Here you can configure the logic value of the bit used in the telegram received from the bus which allows the led to be activated. The settings are:

- ***"0" value***

When the device receives a telegram from the bus with a "0" logic value, it activates and powers up the green led. On receiving a "1" value, it cuts off the power to the green led which switches off; in this condition, if the night lighting is deactivated, the amber coloured led is activated.

- ***"1" value***

When the device receives a telegram from the bus with a "1" logic value, it activates and powers up the led. On receiving a "0" value, it cuts off the power to the green led which switches off; in this condition, if the night lighting is deactivated, the amber coloured led is activated.

➢ *17.1.2 Mode switching object from permanent to flashing and vice versa*

This enables the possibility to switch from green led ON mode to green led flashing mode

- ***disabled***

The ***Led x – change*** object is not visible and it is therefore not possible to switch from green led ON mode to green led flashing mode.

- ***enabled***

The ***Led x – change*** object is visible and it is therefore possible to switch from green led ON mode to green led flashing mode.
This means that, once the led is on, if the device receives a bus telegram with a "0" logic value on the above mentioned object, the led will switch from ON to flashing mode; vice versa, if the led is flashing, when the device receives a bus telegram with a "1" logic value, the led will switch from flashing to ON mode.
This configuration makes the ***ON Time*** and ***OFF Time*** options appear which allow you to set the length of the activation and deactivation times for the green led during the flashing phase.
If the night lighting function is activated, during the flashing phase when the green led is deactivated (duration dictated by the Off Time) the amber led will not be activated; it will only be activated when a telegram is received with an opposite value to that set for the ***Led switching object value***.

➢ *17.1.3 ON Time*

Here you can set the time for which the green led must remain on during the flashing phase. The settings are provided in the drop-down menu (an interval of from 300 ms to 60 seconds).

➢ *17.1.4 OFF Time*

Here you can set the time for which the green led must remain off during the flashing phase. The settings are provided in the drop-down menu (an interval of from 300 ms to 60 seconds).

➢ *17.1.5 Switching limit time*

This enables the possibility to set the maximum time for which the green led can remain ON or in flashing mode. The settings are:

- ***disabled***

The green led remains in the ON or flashing mode until an OFF telegram command is received.

- ***enabled***

The green led remains in the ON or flashing mode for a maximum set time.
This setting has a ***Activation time limit value (0.. 65535 sec)*** option where you can set the time we referred to above.
It is always possible to switch off the green led (whether it is in ON or flashing mode) with a bus telegram, on the condition that it is received before the end of the activation time limit.
The count for this period is activated in the following cases:

- each time a telegram is received with a green led ON command
- each time that bus power is reinstated, if the green led ON setting is configured for this event
- each time, when the green led is ON or flashing, a telegram is received with a switch mode command

➢ *17.1.6 Activation time limit value (0.. 65535 seconds)*

Here you can configure the duration, expressed in seconds, of the switching limit time. The settings range from 0 to 65535 seconds.

➢ *17.1.7 Led status at start*

This is used to set the status of the green led when bus power is reinstated. The settings are:

- ***off***

When the bus power is reinstated, the led remains OFF.

- ***on***

When bus power is reinstated, the green led comes ON; at this point, if enabled, the receipt of a switching mode telegram can activate or deactivate the flashing phase.

17.2 Communication objects

The communication objects enabled by the general ***Led x*** menu, if the ***On/Off switching*** value is indicated in the ***Operating mode*** option, are those seen in Diag. 17.2.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
24	Led 1 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
25	Led 2 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
26	Led 3 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
27	Led 4 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
32	Led 1 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
33	Led 2 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
34	Led 3 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
35	Led 4 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

Fig. 17.2

➢ 17.2.1 Led x – Control

This communication object is always visible once the ***On/Off switching*** value is set for the ***Operating mode*** option in the general ***Led x*** menu.
Using these communication objects, the device receives bus commands to switch the led ON and OFF. When this communication object receives a telegram with a logic value equal to the value set for the ***Led switching object value***, the led switches ON; vice versa, if the led is ON or flashing, when this communication object receives a telegram with a logic value contrary to the value set for the ***Led switching object value*** option, the led will switch OFF (if the night lighting option is enabled, the amber led will switch ON).
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), W (written by bus) and U (actualize the value).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *led ON/OFF*.

➢ 17.2.2 Led x – Change

This communication object is visible when the ***Mode switching object from permanent to flashing and vice versa*** option in the general ***Led x*** menu, is set to ***enabled.***
Using these communication objects, the device receives switch mode bus commands from led ON to led flashing, and vice versa. When a communication object telegram is received with a "0" logic value, the device switches from ON mode to flashing mode; vice versa when the bit has a "1" value, it switches from flashing mode to ON mode.
If the green led is OFF, any switch from ON to flashing mode command is ignored; this means that, the next time the led receives an activation command, it will be activated in ON mode and not flashing mode.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), W (written by bus) and U (actualize the value).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *led mode ON/flashing*.

18 Led mode: *“flashing”.*

This activates/deactivates the green coloured led with on/off commands received from the bus.
The ***Led x*** menu can be seen in Diag. 18.1 below.

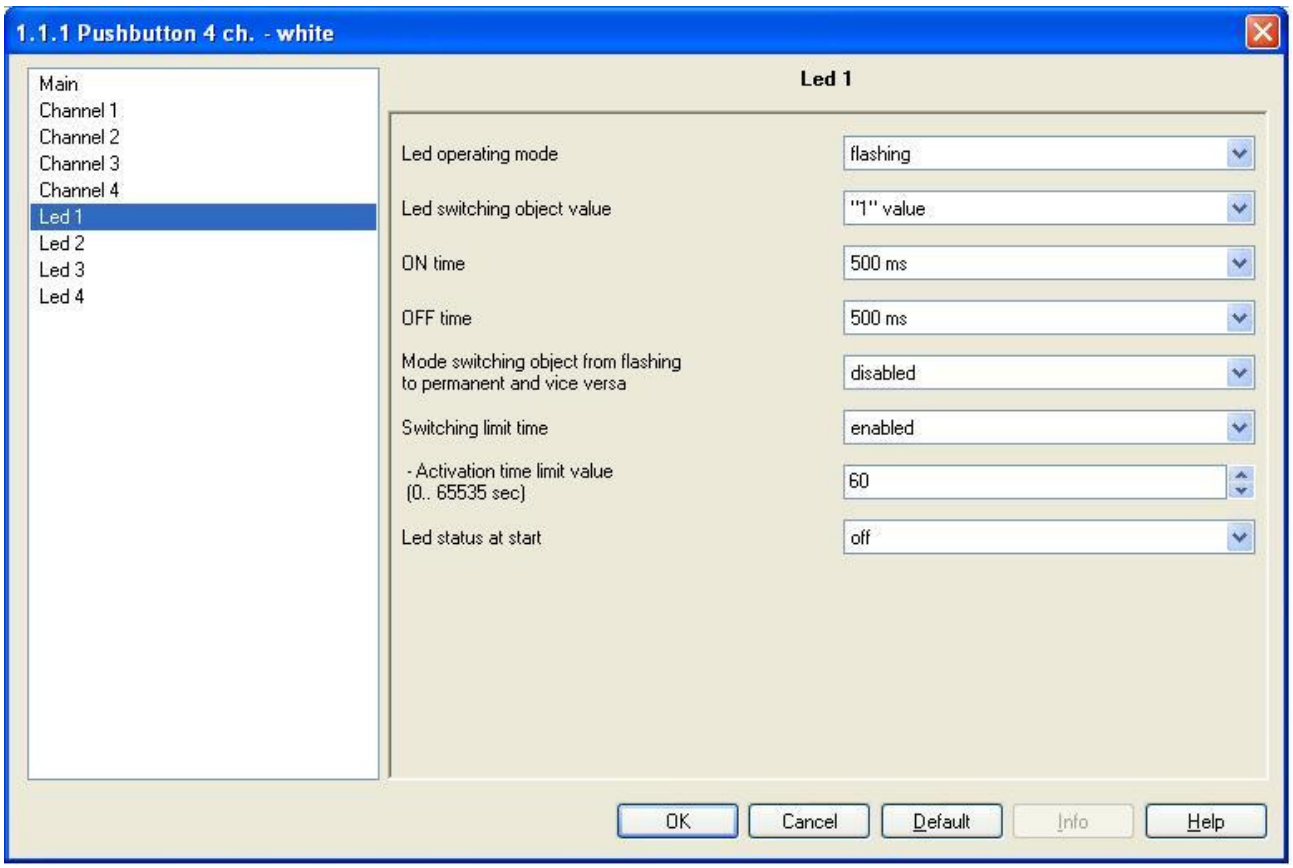


Fig. 18.1

18.1 Parameters

➢ *18.1.1 Led switching object value*

Here you can configure the logic value of the bit used in the telegram received from the bus which allows the green led to be activated in flashing mode. The settings are:

- ***“0” value***

When the device receives a telegram from the bus with a “0” logic value, it activates the led in flashing mode. On receiving telegram with a “1” logic value, it cuts off the power to the green led which switches off; in this condition, if the night lighting is deactivated, the amber coloured led is activated.

“1” value

When the device receives a telegram from the bus with a “1” logic value, it activates the led in flashing mode. On receiving telegram with a “0” logic value, it cuts off the power to the green led which switches off; in this condition, if the night lighting is deactivated, the amber coloured led is activated.

18.1.2 ON Time

Here you can set the time for which the green led must remain on during the flashing phase. The settings are provided in the drop-down menu (an interval of from 300 ms to 60 seconds).

➢ *18.1.3 OFF Time*

Here you can set the time for which the green led must remain off during the flashing phase. The settings are provided in the drop-down menu (an interval of from 300 ms to 60 seconds).

➢ *18.1.4 Mode switching object from permanent to flashing and vice versa*

This enables the possibility to switch from green led ON mode to green led flashing mode and vice versa using a telegram to the ***Led x – change*** communication object. The settings are:

- ***disabled***

The ***Led x – change*** object is not visible and it is therefore not possible to switch from green led flashing mode to green led ON mode.

- ***enabled***

The ***Led x – change*** object is visible and it is therefore possible to switch from green led flaching mode to green led ON mode.
This means that, once the led is in flashing mode, if the device receives a bus telegram with a "0" logic value on the above mentioned object, the led will switch from flashing to ON mode; vice versa, if the led is ON, when the device receives a bus telegram with a "0" logic value, the led will switch from ON to flashing mode.
If the night lighting function is activated, during the flashing phase when the green led is deactivated (duration dictated by the Off Time) the amber led will not be activated; it will only be activated when a telegram is received with an opposite value to that set for the ***Led switching object value***.

➢ *18.1.5 Switching limit time*

This enables the possibility to set the maximum time for which the green led can remain ON or in flashing mode. The settings are:

- ***disabled***

The led remains in the flashing or ON mode until an OFF telegram command is received.

- ***enabled***

The led remains in the ON or flashing mode for a maximum set time.
This setting has a ***Activation time limit value (0.. 65535 sec)*** option where you can set the time we referred to above.
It is always possible to switch off the green led (whether it is in ON or flashing mode) with a bus telegram, on the condition that it is received before the end of the switching limit time.
The count for this period is activated in the following cases:

- each time a telegram is received with an activate green led flashing mode command
- each time that bus power is reinstated, if the green led flashing setting is configured for this event
- each time, when the green led is flashing or ON, a telegram is received with a change mode command

➢ *18.1.6 Activation time limit value (0.. 65535 seconds)*

Here you can configure the duration, expressed in seconds, of the activation time limit. The settings range from 0 to 65535 seconds.

➢ *18.1.7 Led status at start*

This is used to set the status of the green led when bus power is reinstated. The settings are:

- ***off***

When the bus power is reinstated, the green led remains OFF.

- ***on***

When bus power is reinstated, the green led flashing mode is activated; at this point, if enabled, the receipt of a change mode telegram can activate or deactivate the green led ON mode.

18.2 Communication objects

The communication objects enabled by the general ***Led x*** menu, if the ***flashing*** value is indicated in the ***Operating mode*** option, are those seen in Diag. 18.2.

Number	Name	Object Function	Length	C	R	W	T	U	Data Type	Priority
24	Led 1 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
25	Led 2 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
26	Led 3 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
27	Led 4 - Control	Switching on/off	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
32	Led 1 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
33	Led 2 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
34	Led 3 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
35	Led 4 - Switching mode	Change mode	1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

Fig. 18.2

➢ 18.2.1 Led x – Control

This communication object is always visible once the ***flashing*** value is set for the ***Operating mode*** option in the general ***Led x*** menu.
Using these communication objects, the device receives bus commands to activate the led flashing / On mode. When this communication object receives a telegram with a logic value equal to the value set for the ***Led switching object value***, the led flashing mode is activated; vice versa, if the led is ON or flashing, when this communication object receives a telegram with a logic value contrary to the value set for the ***Led switching object value*** option, the led will switch OFF.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), W (written by bus) and U (actualize the value).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *activate led flashing/OFF mode*.

➢ 18.2.2 Led x – Switching mode

This communication object is visible when the ***Mode switching object from permanent to flashing and vice versa*** option in the general ***Led x*** menu, is set to ***enabled.***
Using these communication objects, the device receives change mode bus commands from led flashing to led ON mode, and vice versa. When a communication object telegram is received with a "1" logic value, the device switches from flashing mode to ON mode; vice versa when the bit has a "0" value, it switches from ON mode to flashing mode.
If the green led is OFF, any change from flashing mode to ON command is ignored; this means that, the next time the led receives an activation command, it will be activated in flashing mode and not ON mode.
Each channel is associated to its own independent communication object.
The enabled flags are C (communication), W (written by bus) and U (actualize the value).
The standard format of the object is *1.001 DPT_Switch*, so the size of the object is *1 bit* and the information it contains is *led mode ON/flashing*.

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