

# Digital Input

## USER MANUAL

Translation of the original instructions

Version: **2.0**

Date: **23/05/2025**

## Index


1.	Digital Inputs .....	4
	Input with EOL resistor .....	4
	Object enable / disable.....	4
	Activation on closing contact .....	5
	Activation on closing/opening contact.....	6
	Activation on short and long contact closure .....	6
	Activation on multiple contact closure.....	7
	Dimming.....	7
	Shutters and Blinds.....	8
	Scene .....	8
	Commands Sequences .....	8
	Commands Sequences (1 bit) .....	9
	Counter input .....	9
	Set RGB colour.....	10
	MUR/DND.....	10
	Loop among values .....	11


VERSION	DATE	CHANGES
2.0	23/05/2025	-

Any information inside this manual can be changed without advice.

This handbook can be download freely from the website:  
[www.eelectron.com](http://www.eelectron.com)

Exclusion of liability:  
Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this.  
Any necessary corrections will be incorporated into newer versions of this manual.

Symbol for relevant information 

Symbol for warning 



## 1. Digital Inputs

In Digital input mode each input from can be configured to perform one of the following functions available in the drop-down menu on the corresponding page:

- nothing (inactive and therefore ignored even if connected and receiving signals);
- activation on closing contact;
- activation on closing/opening contact;
- activation on short and long contact closure;
- activation on multiple contact closure
- dimming;
- shutters and blinds;
- scene;
- commands sequences (short and long contact closure);
- commands sequences (toggle);
- commands sequences (1 bit);
- counter (check if available)
- set RGB colour;
- MUR/DND (make room/do not disturb);
- Loop among values (1 Byte).

The setting is performed separately for each input from the page ETS Digital Inputs, by clicking on the corresponding name. Each mode has a specific ETS page, as described below.

For each input in the respective ETS page it is possible, by typing it in the Input name box, to assign a name to the input itself, which can mnemonically facilitate identification in the building (for example “entrance light button”). This box is present for all the modes associated with the digital inputs.

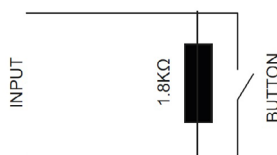
KNX PARAMETER	SETTINGS
<b>Input name</b>	Free field (alphanumeric)
This parameter allows you to set the name of the Input	

### Input with EOL resistor

Please verify whether this function is available on the device.

Each input can be configured by software as an EOL resistor; this mode is used to insert a terminating resistor of the input line in order to detect the interruption of the cables due to accidents or malicious cutting.

The resistor has a value such as to determine, with the input contact open, a voltage falling within a specific window on the input itself; where the cables are interrupted, this voltage will go out of the window and the condition will be read in order to be used as an event that triggers the relative alarm.



The EOL resistor mode can be set separately for each input as

required and the relative reading of the input contact will only apply to the inputs set.

The EOL resistor function can be associated to the active inputs (therefore with a function other than Nothing), which is set from the ETS page **Digital inputs> Function> Input type**.

KNX PARAMETER	SETTINGS
<b>Input type</b>	standard contact EOL resistor
Defines how the device will manage the condition of the associated digital input. <b>standard contact</b> The input will be read as associated with a clean contact. <b>EOL resistor</b> The input will be considered as equipped with a line termination resistor.	

Based on the function chosen for the input, additional items will appear under Input type which are:

Alarm telegram;

Cyclical alarm sending.

The following table applies to the Alarm telegram parameter.

KNX PARAMETER	SETTINGS
<b>Alarm telegram</b>	telegram “0”/ telegram “1”
It is used to manage an alarm telegram in the event of an anomaly (line cut, cable interrupted) in the state of the input. <b>Telegram “0”</b> The occurrence of the anomaly will result in the sending of a telegram of value 0. <b>Telegram “1”</b> The occurrence of the anomaly will result in the sending of a telegram of value 1.	

KNX PARAMETER	SETTINGS
<b>Alarm cyclical sending</b>	No cyclic sending 1 minute – 12 hours
If active, it is used to send a status telegram cyclically, which can be “alarm” or “no alarm”, according to the set periodicity. <b>No cyclic sending</b> Disables the cyclic sending function. <b>Cyclical sending</b> Determines the periodic sending of the telegram after: 1 minute 2 minutes 5 minutes 10 minutes 15 minutes 30 minutes 45 minutes 1 hour 2 hours 3 hours 4 hours 5 hours 6 hours 8 hours 12 hours	

## Object enable / disable

The communication object “enable/disable” is used to activate/deactivate the reading of the input.

“<Input x> Enable Input”	1 Bit	CW
--------------------------	-------	----

Regardless of the function chosen, the relevant ETS page makes the Object enable/disable parameter available for each input; the setting allows activation of the object <Input x> Enable Input, 1 bit, which allows enabling of the selected input within the scene.

KNX PARAMETER	SETTINGS
<b>Object enable</b>	disabled/enabled
If enabled, this parameter makes available in the ETS page, below it, the items Initial enable state and Enable activation telegram. <b>Initial enable state</b> disabled = after the configuration download, the initial status is “disabled” enabled = after the configuration download, the initial status is “enabled” <b>Enable activation telegram</b> telegram “0” = activation occurs at telegram “0” telegram “1” = activation occurs at telegram “1”	

### Activation on closing contact

Communication objects involved:

“<Input x> Closure Action”	1 Byte	CRT
“<Input x> Opening Action”	1 Byte	CRT
“<Input x> Closure Action”	1 Bit	RWCT
“<Input x> Opening Action”	1 Bit	RWCT
“<Input x> Feedback”	1 Bit	CW

It is used to configure the sending of telegrams when the input is closed; the device can also be configured to send periodic messages with repeat.

In the box **Input name** it is possible to assign a name that will identify the input to the system: for example “input light button”. This box is present for all the modes associated with the digital inputs.

KNX PARAMETER	SETTINGS
<b>Contact type</b>	Normally open Normally close
It defines how the device will interpret the condition of the digital input. <b>Normally open</b> The input will be considered active if it is closed. <b>Normally close</b> The input will be considered active if it is opened.	
<b>Debounce time for inputs</b>	0,20,40,80,100,150,200,600,1000 ms
For each digital input this function is used to avoid false switching, ignoring, after the first activation, for a period of time.	

The telegram transmitted as a consequence of the activation of the input, is set with the associated **Telegram option**, according to the following table.

KNX PARAMETER	SETTINGS
<b>Telegram associated</b>	1 bit 1 byte
<b>1 bit</b> The logic state 0 or 1 is transmitted. <b>1 byte</b> 1 byte is transmitted containing the value that can be selected from the drop-down menu that appears under this option when it is selected, i.e. : value 0÷255 (unsigned generic int) value 0÷100% (percentage in steps of 5%) HVAC mode (DPT_HVACMode 20.102)	

Note that for each item in the drop-down menu, the ETS page appears under a new setting which is **Command associated with opening** if the input is set as normally closed and **Command associated with closure** if the input is set as normally open. In all cases, the drop-down menu offers alternatives related to the setting made in the **associated Telegram**, according to the following table.

KNX PARAMETER	SETTINGS
<b>Command associated with opening</b> <b>Command associated with closure</b>	
<b>Value 0÷255%</b>	0÷255 %
<b>Value 0÷100%</b>	0÷100 %
<b>HVAC mode</b>	Auto comfort standby economy protection (antifreeze/high temperatures)

From the ETS page it is possible, with the setting **Command associated with closure**, to define the action that the activation of the corresponding input determines.

KNX PARAMETER	SETTINGS
<b>Command associated with closure/opening</b>	Off on toggle
The parameter is “Command associated with closure” if the input is set as “normally open” and becomes “Command associated with opening” if the input is instead set as “normally close”. <b>on</b> Send an activation telegram. <b>off</b> Send a deactivation telegram <b>toggle</b> Send a telegram that orders the inversion of the associated user’s state.	

Choosing option toggle, in the ETS page it is possible to set parameter **Feedback object**, as described in the following table.

KNX PARAMETER	SETTINGS
<b>Feedback object</b>	disabled enabled

If enabled, this parameter displays an additional communication object (<Input x> Feedback) which determines the sending, by the actuator receiving the command, of a feedback telegram to check whether the requested operation has been carried out or not. The telegram transmits the state of the actuator.

KNX PARAMETER	SETTINGS
<b>Delay telegram with closure</b> <b>Delay telegram with opening</b>	no/yes
This parameter defines whether to introduce a delay in the sending of the telegram.	
<b>Delay closure [s]</b> <b>Delay opening [s]</b>	1 ... 255
This parameter defines the delay time in seconds for sending the telegram.	

It is also possible to assign the cyclic (periodic) sending of telegrams to the digital inputs when they are active; as long as the input remains active, the telegram, with size and value selected on the same ETS page, is sent cyclically. The parameter setting defines the time interval between two consecutive submissions. The possible values are subject to the choice of the “short” or “long” option for the setting **Long or short cyclic times**, according to the following table.

KNX PARAMETER	SETTINGS	
	Long or short cyclic times	
	short	long
<b>Cyclic sending when contact closed/opened</b>	Never	Never
	0.3 s.	30 seconds
	0.4 s.	45 seconds
	0.5 s.	1 minute
	0.8 s.	2 minutes
	1.0 s.	3 minutes
	1.2 s.	4 minutes
	1.5 s.	5 minutes
	2.0 s.	10 minutes
	3.0 s.	15 minutes
	5.0 s.	30 minutes
	8.0 s.	45 minutes
	10 s.	60 minutes
		4 hours
		12 hours
	24 hours	

The parameter shown on the ETS page is **Cyclic sending when contact closed** if Type of contact is “normally open” and **Cyclic sending when contact opened** if Type of contact is set as “normally close”.

#### Activation on closing/opening contact

Communication objects involved:

“<Input x> Closure - Opening Action”	1 Byte	CRT
“<Input x> Opening Action”	1 Byte	CRT
“<Input x> Closure Action”	1 Byte	CRT
“<Input x> Opening Action”	1 Byte	CRT
“<Input x> Feedback”	1 Bit	CW
“<Input x> Closure Action”	1 Bit	RWCT
“<Input x> Opening Action”	1 Bit	RWCT

It is used to configure the sending of telegrams when the input

is active, on both “open” and “closed “ conditions and therefore following changes in state.

The parameters are identical to the choice “Activation on closing contact”; “Contact type” is missing and the “Command associated with closure” and “Command associated with opening” settings are simultaneously present because activation will occur following the occurrence of both conditions. For the settings, what has already been explained applies.

The page also makes available the parameter **Feedback object** already explained in “Activation on closing contact” and parameter **Communication object** on opening described as follows.

KNX PARAMETER	SETTINGS
<b>Communication object on opening</b>	disabled enabled
If enabled, this parameter allows to send closure and opening command with two different objects, respectively “<Input x> Closure Action” and “<Input x> Opening Action”.	

The parameters related to the delay in sending the telegram and Cyclic sending are the same as those already described in the “Activation on contact closure” function, differentiated according to the closure and opening actions.

#### Activation on short and long contact closure

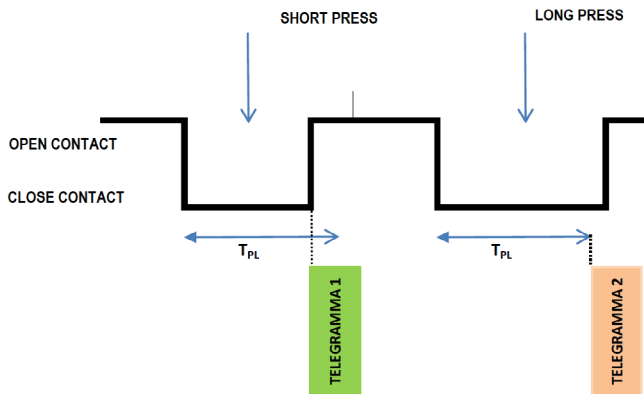
Communication objects involved:

“<Input x> Short Closure”	1 Byte	CRT
“<Input x> Short Closure”	1 Bit	RWCT
“<Input x> Short - Long Closure”	1 Byte	CRT
“<Input x> Short - Long Closure”	1 Bit	RWCT
“<Input x> Long Closure”	1 Byte	CRT
“<Input x> Long Closure”	1 Bit	RWCT
“<Input x> Feedback”	1 Bit	CW

With this input mode of operation, it is possible to differentiate the actions based on the activation duration of the input itself. The distinction between “short closure” and “long closure” is defined by the parameter **Minimum time long closure**, according to the following table.

KNX PARAMETER	SETTINGS
<b>Minimum time long closure</b>	0.3 s
	0.4 s
	0.5 s
	0.8 s
	1 s
	1.2 s
	1.5 s
	2 s
	3 s
	5 s
	8 s
	10 s
The time set from the drop-down menu is the time after which the device believes that activation is to be considered long.	

It is possible to set the sending of telegrams with different values on the short and long press or to decide to send commands only on one of these events.



When the input is closed, the time count starts; if the input is opened before the time exceeds the time TPL, the device executes the command associated with the “short closure” event and if, instead, the timeout TPL expires and the input is still being closed, the command associated with the “long closure” event is executed.

The parameters and transmission modes of the telegrams that can be managed through the “Command associated with short closure” and “Command associated with long closure” settings are the same as those relating to the “activation on closing/opening contact” configuration except for the cyclical send function, which is not foreseen here.

**Activation on multiple contact closure**

Communication objects involved:

“<Input x> Single/Double/triple/Long closure”	1 Bit	RWCT
	1 Byte ... 4 Byte	CRT

With this operating mode of the input, it is possible to differentiate actions based on the number of activations of the input itself. It is also possible to differentiate the “long closure” action through the parameter “**Maximum time between closures**”, according to the following table. In the case of a “normally closed” contact, all the actions defined below refer to events of contact opening.

KNX PARAMETER	SETTINGS
<b>Maximum time between closures</b>	200/300/400/500/600/700/800 ms 1.0/1.5/2.0/3.0/4.0/5.0/8.0/10.0 s
This parameter defines the maximum allowed time between two closures for them to be considered part of the action. If the contact closure lasts longer than this time, the long closure action is executed.	
<b>Single/double/triple/long closure - action</b>	no/yes
This parameter defines whether to execute the corresponding action.	
<b>Single/double/triple/long closure - DPT output</b>	1 bit 1 byte signed/unsigned 2 byte signed/unsigned/float 3 byte RGB 4 byte signed/unsigned/float

This parameter defines the type of the output command for the corresponding action.

<b>Single/double/triple/long closure - output type</b>	0-255 value 0-100% value HVAC mode scene
This parameter is only available if the “Output DPT” parameter is configured as 1-byte unsigned. It defines which 1-byte DPT is assigned to the output command.	
<b>Single/double/triple/long closure - output value</b>	off/on/toggle -128 ... +127 0 ... 255 0% ... 100% auto/comf/stby/eco/protection 1 ... 64 (scenario) -32768 ... 32767 0 ... 65535 -671088 ... 670760 #000000 ... #FFFFFF -2147483648 ... 2147483647 0 ... 4294967295 -3,4E+38 ... 3,4E+38
This parameter defines the value sent for the corresponding action.	

**Dimming**

Communication objects involved:

“<Input x> Dimming On/Off”	1 Bit	RWCT
“<Input x> Dimming Control”	1 Bit	CRT
“<Input x> Feedback”	1 Bit	CW

With this mode of operation of the inputs it is possible to control adjustment of the light through a dimmer module using the short and long press of buttons connected to the input itself.

Each button uses 2 communication objects:

- 1-bit objects for ON / OFF commands associated with short pressing.
- 4-bit objects for brightness adjustment associated with long pressing.

The “**Minimum time long closure**” parameter is the same as explained for “**Activation on short and long contact closure**” and for it and for the setting “Feedback object” what has already been explained applies. Two further settings are available on the page. According to the table, set the minimum duration of the prolonged pressing. “**Dimming mode**” and “**Dimming step**” define the behaviour associated with the prolonged pressing.

KNX PARAMETER	SETTINGS
<b>Dimming mode</b>	brighter darker brighter/darker

<b>brighter</b> Each time the input is activated, the dimmer controls the increase in brightness according to the setting of Dimming step.	
<b>darker</b> Each time the input is activated, the dimmer controls the decrease in brightness according to the setting of Dimming step.	
<b>brighter/darker</b> Each time the input is activated, the dimmer reverses the progression of brightness by one step or in full according to the parameter setting	
<b>Dimming step</b>	Minimum/maximum brightness 1/2 brighter/darker ÷ 1/64 brighter/darker
<b>Minimum/maximum brightness</b> It sets the progressive adjustment from minimum to maximum and vice-versa depending on whether "Dimming mode" is "brighter" or "darker".	
<b>1/2 brighter/darker ÷ 1/64 brighter/darker</b> It sets the precision of the variation, which will occur depending on whether "Dimming mode" is "brighter" or "darker".	

<b>Example 1:</b> Set the dimmer control so that when the button is pressed the brightness gradually goes from minimum to maximum.	
<b>PARAMETER</b>	<b>VALUE</b>
Dimming mode	brighter
Dimming step	Minimum/maximum brightness

<b>Example 2:</b> Set the dimmer control so that when the button is pressed, the brightness increases by 1/4.	
<b>PARAMETER</b>	<b>VALUE</b>
Dimming mode	brighter
Dimming step	1/4 brighter/darker

It defines the movement direction of the roller shutter associated with the prolonged closing of the input.
<b>move up</b> Each time the input is activated, the module commands the total opening of the roller shutter.
<b>move down</b> Each time the input is activated, the module commands the roller shutter to close.
<b>move up/move down</b> Each time the input is activated, the module moves the roller shutter in the direction preceding the one performed following the last activation: if the previous closing of the input raised the roller shutter, further activation will lower it and vice-versa.

### Scene

Communication objects involved:

"<Input x> Recall/Learn Scene"	1 Byte	CRT
"<Input x> Send Learn Scene Trigger"	1 Bit	WC

In this configuration page it is possible to set the button for the management of the scenarios: storage and execution of the scenarios.

These two behaviours (storage and execution) are performed through two different actions: short closing and long closing of the input.

Saving by long closing can be enabled through the parameter Minimum time long closure and the related drop-down menu common to the other modes that is used to set the minimum activation duration of the input to be considered as long closure (activation).

The following table applies to the scenario settings.

KNX PARAMETER	SETTINGS
<b>Scene number</b>	1 ÷ 64
This parameter sets the value of the scene to be stored/executed (one per channel). As the output devices (i.e. the actuators, etc.) can generally manage different scenes, each identified by a value (which varies from 0 to 63) it is crucial to set this parameter correctly so that it corresponds to the number set on the actuators.	
<b>Store scene on long closure</b>	disabled/enabled
If disabled, the long closure is ignored and no telegram is sent on the bus; if enabled, when long closure occurs, a scene storage telegram is sent on the bus.	
<b>Object enable scene learning from bus</b>	disabled/enabled
If this parameter is enabled, there is a communication object (size = 1 bit) in order to enable/disable runtime from bus the sending of the "learn scene telegram". When this object receives a telegram "1", the function associated with the long closure of the input (sending of telegram for scenario storage) is enabled, while when it receives a telegram "0" with prolonged closing no command is sent.	

### Commands Sequences

Communication objects involved:

"<Input x> Sequence Command A/B/C 0-255"	1 Byte	CRT
"<Input x> Sequence Command A/B/C 0-100%"	1 Byte	CRT
"<Input x> Sequence Command A/B/C HVAC Mode"	1 Byte	CRT
"<Input x> Sequence Command A/B/C Off/On"	1 Bit	CRT
"<Input x> Sequence Command A/B/C 0-255 - Toggle"	1 Byte	CRT

### Shutters and Blinds

Communication objects involved:

"<Input x> Shutter - Up/Down"	1 Bit	RWCT
"<Input x> Shutter - Step/Stop"	1 Bit	CRT
"<Input x> Feedback"	1 Bit	CW

Through this function it is possible to control motorised roller shutters using the short and long press of the buttons. Each input uses 2 communication objects:

- **1-bit STEP/STOP** objects associated with short pressing;
- **1-bit UP/DOWN** objects associated with long pressing.

For the settings common to all the other input operating modes, what has already been explained applies. The following table applies to the Command drive shutter parameter.

KNX PARAMETER	SETTINGS
<b>Command drive shutter</b>	move up move down move up/move down

"<Input x> Sequence Command A/B/C 0-100% - Toggle"	1 Byte	CRT
"<Input x> Sequence Command A/B/C HVAC Mode - Toggle"	1 Byte	CRT
"<Input x> Sequence Command A/B/C Off/On - Toggle"	1 Bit	CRT

This function is used to associate sequences of different commands on the bus.

For each input, this function can be associated with the combination **"short and long closure"** or with the **"toggle"** function.

The sequence consists of 3 commands (A-B-C) which can each be sized as 1 bit or 1 byte. Once the size (1 bit/1 byte) of elements in the sequence has been defined, it is possible to associate different values to each element of the sequence or to decide to send commands only on one of the two events. The waiting time between one command and the next is defined through parameter **Delay between commands**.

Each communication object can be linked to a different group address.

For example, it is possible to define a sequence as proposed in the following table.

object	dimension	short closure (switching 1)	long closure (switching 2)
A	1 bit	ON (towards actuators)	OFF (towards actuators)
B	1 byte	100% (towards dimmer)	0% (towards dimmer)
C	1 byte	COMFORT (towards thermostats)	ECONOMY (towards thermostats)

### Command Sequences (1 bit)

Communication objects involved:

"<Input x> Object A"	1 Bit	CRT
"<Input x> Object B"	1 Bit	CRT
"<Input x> Object C"	1 Bit	CRT

This function is used to send 1-bit command sequences on multiple objects. The sequence can be defined on 2 or 3 objects. Each time the button connected to the input is pressed, the next step of the defined sequence is sent.

KNX PARAMETER	SETTINGS
<b>Number of objects</b>	2, 3
This parameter sets and defines the number of 1-bit objects that will be visible and that will send the values 0 or 1 on the bus	
<b>Number of steps in the sequence</b>	2 ÷ 4 for 2 objects 2 ÷ 8 for 3 objects
It indicates the number of steps that compose the sequence.	
<b>Long closure to restart sequence</b>	disabled/enabled

It is used to associate the restart of the sequence at step zero with the long closure of the input	
<b>Restart function</b>	Restart and send first Send long step and restart
<b>Restart and send first</b> The long press determines the sending of step 1	
<b>Send long step and restart</b> The long press causes the next step to be sent and brings the sequence to the initial step.	
<b>Value step long</b>	<Different combinations of values of objects a, b, c>
It defines what happens when a long press is performed (it depends on the "Restart function" parameter)	
<b>Send only changed objects</b>	disabled/enabled
This parameter defines whether, in the passage from one step to the next, all the values associated with one-bit objects must always be sent or only those that change.	
<b>Value step &lt;x&gt;</b>	Combinations of on and off on 2 or 3 1-bit objects
It determines the combination associated with a step in the sequence using 2 or 3 1-bit objects.	

### Counter input



**Please verify whether this function is available on the device.**

Communication objects involved:

"<Input x> Counter"	1/2/4 Bytes	CRT
"<Input x> Reset Counter"	1 Bit	CW
"<Input x> Out Overflow Counter"	1 Bit/1 Byte	CRT
"<Input x> Conversion Output"	1/2/4 Bytes	CRT

With this function it is possible to use the events at the corresponding input as a trigger for a counter and then to count them, for example to activate functions and send telegrams when a certain number of them occur.

Using the **Counter Input function**, it is possible to count the pulses of a contact connected to the input for which the function was activated.

The corresponding ETS page offers the options and parameters described below.

The **Software filter frequency parameter** is used to manage a software filter to count 2 pulses that are too close together as a single pulse; this is necessary when the contact connected to the input has a bounce for a certain time. The parameter is therefore used to introduce and customise any debouncing at the input for which the counter Input function is activated.

KNX PARAMETER	SETTINGS
<b>Software filter frequency</b>	No filter 20Hz ÷ 1 kHz

Allows software events to be filtered according to the specified frequency. **No filter** it does not activate the filter via software, while by choosing one of the values from the drop-down menu it is possible to choose a filter frequency of:

- 20 Hz
- 50 Hz
- 100 Hz
- 200 Hz
- 500 Hz
- 1 kHz

Using the **Counter input size** parameter it is possible to define the counter input size (1, 2 or 4 Bytes), the initial value and the final value; in particular, the final value, i.e. the maximum number of events that can be counted before the overflow, depends on the choice made in the Counter Input Size drop-down menu.

KNX PARAMETER	SETTINGS
<b>Counter input size</b>	1 bytes 2 bytes 4 bytes
It is used to choose the counter input size, i.e. the maximum number of events that can be counted.	

The possibility of configuring the counter with a size from 1 to 4 bytes enables counting from a few to numerous events, therefore from short periods of time to whole days, offering maximum versatility for the monitoring of all types of events.

KNX PARAMETER	SETTINGS
<b>End counter value</b>	1÷255 1÷65535 1÷4294967295
It is used to decide at which value the counter should stop.	

The initial value can be set starting from 0 and up to one unit less than the final one.

KNX PARAMETER	SETTINGS
<b>Start counter value</b>	0÷254 0÷65534 0÷4294967294
It allows you to decide whether the counter should start from zero or from a value that will be defined in the appropriate field.	

Using the parameter “Condition of increase counter” it is possible to define whether to count only the rising and falling edges or both.

KNX PARAMETER	SETTINGS
<b>Condition of increase counter</b>	rising edge falling edge rising and falling edge
This parameter defines under what condition the counter will be incremented. It is a logical condition (rising or falling edge or both) that determines the counter increase based on input values or events.	
<b>Send counter on time base</b>	no cycling sending 5/10/30 minutes
This parameter refers to automatically sending the current value of a counter (telegram) at regular time intervals over the KNX bus.	

<b>Send counter on variation base (0 = Disable)</b>	0÷255 0÷65535 0÷4294967295
It defines whether and how a counter value is sent automatically when it changes.	

It is possible to associate the sending on the bus of a 1 bit or 1 Byte value each time the counter reaches the final value (overflow). The counter can be reset via a 1-bit input object.

KNX PARAMETER	SETTINGS
<b>Telegram associated to overflow</b>	nothing 1 bit 1 byte
It refers to a KNX device's ability to send a telegram (KNX message) when a counter overflows; meaning the counter exceeds its maximum value or wraps around.	
<b>Command Type</b>	value 0-255 value 0-100% HVAC mode
This parameter defines what kind of data or command is sent by a KNX device via a telegram when a certain action or condition occurs.	
<b>Value associated to overflow</b>	0-255 0/5/10/15/20/25....100% auto/comfort/standby/economy/building protection
It defines the specific value that a KNX device sends on the bus when a counter overflows; i.e., when it exceeds its maximum range and wraps around or resets.	

The parameter “**Conversion object**” (*new feature*) refers to a special group object or setting used to convert a raw input or internal value into another format, scale, or data type before sending it on the bus.

KNX PARAMETER	SETTINGS
<b>Conversion object</b>	disabled enabled
This parameter deactivates or activates the function.	
<b>Object DTP</b>	1/2/3/4 bytes signed 1/2/3/4 bytes unsigned 4 bytes float
It defines the format, size, and meaning of the data (telegrams) that the object sends or receives over the KNX bus.	
<b>Offset</b>	-671088 ÷ 670760
This is a numeric value added (or subtracted) from the scaled value.	
<b>Factor</b>	-671088 ÷ 670760
This is a parameter used to define how a raw internal value should be scaled before being sent out via a conversion object on the KNX bus.	
<b>Conversion</b>	Output = Counter*factor value ± offset value
This formula is like: $Converted\ Value = (Raw\ Value \times Factor) \pm Offset$	

### Set RGB colour

Communication objects involved:

"<Input x> Enable Input"	1 Bit	CW
"<Input x> Red"	1 Byte	CRT
"<Input x> Green"	1 Byte	CRT

"<Input x> Blue"	1 Byte	CRT
"<Input x> RGB Command"	1 Bit	CRT
"<Input x> RGB Feedback"	1 Bit	CW

This function is used to briefly press the button connected to the corresponding input with a command on the bus to set an RGB colour through an RGB driver for LED lighting.

KNX PARAMETER	SETTINGS
<b>Input name</b>	Free field (alphanumeric)
With this parameter, it is possible to set the name of the input.	
<b>Short closure action</b>	send color send command send color and command
This function allows you to manage a type of behavior configured for a device, where an action is triggered after an output is briefly closed for a short period of time.	
<b>Color value</b>	red/orange / yellow / green-yellow / green / green-cyan / cyan blue cyan / blue / blue-magenta magenta / red-magenta / white
<b>Command value</b>	off/on/toggle
<b>Send color on OFF</b>	no/yes
<b>Priority</b>	send color before command/ send command before color
These functions allow you to configure a KNX device according to some pre-assigned values, which may relate to color management, commands executed by the device, and the management of the priority of one parameter over another.	
<b>Long closure to change color</b>	long closure disabled 0.5 s / 1 s / 1.5 s / 2 s
This function allows you to enable/disable and set the duration for which a device is kept active for a longer period of time in order to change a parameter.	
<b>RGB objects type</b>	3 objects of 1 byte 1 object of 3 bytes
It defines whether the command is sent with a single 3-byte object or with 3 1-byte objects.	

## MUR/DND

Communication objects involved:

"<Input x> Make Up Room"	1 Bit	RWCT
"<Input x> Do not Disturb"	1 Bit	RWCT
"<Input x> Additional Object RGB"	3 Bytes	CRT

This function is used to configure an input to send 1-bit commands with DND (do not disturb), MUR (make up room) or to restore both base signals. The action is set through the drop-down menu **Associated command** which is made available on the ETS page.

The choice of the "Associated command" parameter ("cmd" column of the following table) defines which values are sent on the 2 1-bit objects.

cmd	Action	DND	MUR	NOTE
MUR	enable	0	1	Obj. MUR send "1" Obj. DND send "0"
MUR	disab.	-	0	Obj. MUR send "0"
MUR	toggle	MUR enab./disab. In sequence		
DND	enable	1	0	Obj. MUR send "0" Obj. DND send "1"
DND	disab.	0	-	Obj. DND send "0"
DND	toggle	DND enab./disab. In sequence		
Loop 1 0		0	1	Loop in sequence between these 3 sets of values.
		0		
		0		

The setting **Reset all** (default) sends a reset command to the related actuators.

The parameter is also available on the ETS page **Additional object** which is used to associate a colour to each of the 3 states (active DND, active MUR, inactive MUR and DND); this colour is sent on the bus using a 3Byte DPT 232.600 RGB value 3x object (0...255). The following table summarises the parameter setting.

KNX PARAMETER	SETTINGS
<b>Additional object</b>	None RGB
None does not activate any additional objects while clicking on RGB the setting appears on the page Colour associated with... in whose box it is possible to write the hexadecimal equivalent of the colour to be associated with the action for which the additional object has been enabled (MUR, DND, loop) or to select the colour from the palette that appears by clicking on the button with the four coloured squares. The setting Colour associated with "reset all" is also made available where, in the same way as those just described, the colour of the light displayed following the reset command is set.	

## Loop among values

Communication objects involved:

"<Input x> Loop Value Output"	1 Byte	CRT
This object is dedicated to sending the step-by-step sequence.		
"<Input x> Loop Value Feedback"	1 Byte	CW
This object is made to receive a value from the bus; if it corresponds to a value set in the sequence, it takes it to the corresponding step.		

With this function it is possible to configure an input to send a 1-byte value in sequence.

KNX PARAMETER	SETTINGS
<b>Active edge</b>	Send on closing Send on opening
It defines whether to enable the input on closing or opening.	
<b>Number of values</b>	3,4,5,6,7,8,9
It defines the number of values sent.	
<b>Value A, B, C</b>	0...255
Each time the input is activated (according to the "active front" setting), a value is sent following the order set in ETS: from the first (A) to the last (C).	