

Touch pushbuttons and thermostats
Cubik series / TRMD-K

Programming manual



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1 General description

Cubik Bes series consist of capacitive pushbuttons with different number of touch areas, depending on the model, and thermostats. The pushbuttons also have LEDs in each of the touch areas and, in addition, they all include an internal thermostat and a humidity sensor. The thermostats could have an interface to represent the ambient temperature and / or the setpoint temperature. In addition, they all include logical arithmetic unit and timers.

All these devices have the possibility of personalization in three different modes: basic, only available in white or black glass with fixed glass; design, with customizable fixed glass; and capriccio, with customizable glass fixed to the back of magnetic form so that the glass can be replaced at the request of the client. The TRMD-K only has the first two possibilities of personalization.

1.1 About this manual

This manual describes how to program the Cubik de Bes series (except the Cubik-T thermostat, *SR59X1X0*, and the Cubik-VH, *PL221X00*) and the TRMD-K thermostat. That is why some of the sections in this manual do not apply to some device references, for example, those that describe the entries in the thermostats that lack them. In the following section, the technical characteristics of each reference are specified, a table in which you can check the differences between them.

2 Technical description

The technical characteristics of the different devices to which this manual applies are summarized below:

	Cubik-SQ2 PLX12X00	Cubik-SQ4 PLX14X00	Cubik-SQ6 PLX16X00	Cubik-V6 PLX26X00	Cubik-V8 PLX28X00	Cubik-TH SR59X3X0	Cubik-TL SR59X2X0	TRMD-K DS42XX00
Power supply	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS	29 V _{DC} KNX BUS
Consumption	10 mA	10 mA	10 mA	10 mA	10 mA	10 mA	15 mA	30 mA
BUS devices equivalence*	2	2	2	2	2	2	3	6
Mounting	Universal mechanism box							
Size	88 x 88 x 6 mm			129 x 88 x 6 mm		88 x 88 x 6 mm	129 x 88 x 6 mm	129 x 88 x 6 mm
Connections	KNX BUS terminal connection							
Touch areas	2	4	6	6	8	✗	8	8
Interface	✗	✗	✗	✗	✗	✗	✓	✓
Thermostat	✓	✓	✓	✓	✓	✓	✓	✓
Humidity sensor	✓	✓	✓	✓	✓	✓	✓	✗
Temperature range	Working: -10 °C a 55 °C Storage: -30 °C a 60 °C Transport: -30 °C a 60 °C							
Regulation	In accordance with the electromagnetic compatibility and low voltage directives: EN 50090-2-2 / UNE-EN 61000-6-3:2007 / UNE-EN 61000-6-1:2007 / UNE-EN 61010-1							

* 1 BUS device = 5 mA

3 Programming

3.1 ETS application program information

Application program: Bes – Ingenium / Cubik

Application program version: 1.0

Maximum number of communication program: 256.

Maximum number of assignments: 256.

ETS minimum version: ETS5

The parameters of the device are configured through a parameter window.

1.1.1 Cubik > General

General Hardware type Cubik-SQ2

+ Buttons configuration

+ Button 1 - Short/long (pushbut...

+ Button 2 - Short/long (pushbut...

+ LEDs configuration

- LED 1

Configuration

Lock/unlock

Timer

- LED 2

Configuration

- Thermostat configuration

Configuration

Temperature control

Heating

Thermostat functions No Yes

Humidity sensor No Yes

Dew point protection No Yes

Night mode No Yes

Cleaning mode No Yes

Advanced functions No Yes

Objetos de Comunicación Canales Parámetros

3.2 Assignment of individual address

The devices have a programming button located on the back of it to establish the KNX individual address.

A red LED next to the button lights up when the button is pressed manually or when the device is forced remotely to programming mode.

The LED turns off automatically if the ETS has assigned an individual address correctly or if the program button is pressed manually again.

Like any other device KNX single unique address for the correct operation of the device installation is required and is assigned by the ETS in the same way as any other equipment of this protocol.

3.3 Selection of the type of device

The parameters of the device are configured using a specific parameters dialog.

Existen diversas pestañas para configurar los distintos parámetros dependiendo del tipo de dispositivo seleccionado. El tipo de dispositivo que se desea programar se selecciona en el menú desplegable Tipo de dispositivo.

1.1.1 Cubik > General

General Hardware type Cubik-SQ2

- + Buttons configuration
- + Button 1 - Short/long (pushbut...
- + Button 2 - Short/long (pushbut...
- + LEDs configuration
- LED 1
 - Configuration
 - Lock/unlock
 - Timer
- LED 2
 - Configuration
- Thermostat configuration
 - Configuration
 - Temperature control
 - Heating

Thermostat functions No Yes

Humidity sensor No Yes

Dew point protection No Yes

Night mode No Yes

Cleaning mode No Yes

Advanced functions No Yes

Objetos de Comunicación / Canales / Parámetros

After that, a number of tabs will appear on the left side, depending on the selected device. From them, the programming of the various parameters of the device is performed: configuration of the inputs, the LED behavior, configuration of the thermostat, etc.

3.4 Communication objects associated with the LEDs

3.4.1 Communication objects table

The following table lists the communication objects for the first Cubik LEDs. All LEDs have the same communication objects and are displayed or hidden depending on the selected parameters.

Object	Name - Function	Size	DPT	Flags				
				C	R	W	T	U
0	LED 1 - Switch on/off	1 bit	1.001	•		•		
1	LED 1 - Switch on/off status	1 bit	1.001	•	•		•	
2	LED 1 – Lock/Unlock	1 bit	1.001	•		•		
3	LED 1 – Timer delay/staircase switch on/off	1 bit	1.001	•		•		

Name	LED X - Switch on/off
Function	1 bit communication object to turn the X LED on and off
Description	When a '1' is received through this object, the output is activated. When a '0' is received the output is deactivated, in the operation in 'normally open' mode. In 'normally closed' mode the operation would be the opposite. The selection of the operating mode is made in the parameters tab of each LED.
Name	LED X - Switch on/off status
Function	1 bit communication object for feedback about the status of LED X
Description	Notify the LED status
Name	LED X – Lock/Unlock
Function	1 bit communication object to lock the control of the state of the X LED
Description	By this object, whose polarity is selected in the parameter destined for this purpose, the LED control is locked so that in this case, if it is acted on switch on/off object is, the action will not be reflected in the status of the LED.
Name	LED X – Timer delay/staircase switch on/off
Function	1 bit communication object to turn the X LED on and off with delay or staircase timer
Description	The status of the LED is modified by this object. While the switch object on/off does it instantaneously, with this object the orders are executed with the delays configured in the parameters, in the Timer section of each LED.

3.5 Inputs communication objects

The following tables list the communication objects available for the first of the pushbutton inputs, which can be extrapolated for the other inputs.

Note: The writing flags of the entries can be activated if they are not in this way by default. This ensures that several inputs work synchronously and the switching action is carried out correctly.

3.5.1 Table of switch type inputs

Object	Name - Function	Length	DPT	Flags				
				C	R	W	T	U
164	Button 1 – Close (object 1) - Switch on/off	1 bit	1.001	●		○	●	
165	Button 2 – Close (object 1) - Switch on/off	1 bit	1.001	●		○	●	

3.5.2 Table of pushbutton type inputs

Object	Name - Function	Length	DPT	Flags				
				C	R	W	T	U
164	Button 1 - Short press - Switch on/off	1 bit	1.001	●		○	●	
165	Button 1 - Long press - Switch on/off	1 bit	1.001	●		○	●	

3.6 Humidity sensor objects

Once the humidity sensor option is activated, the following options will appear.

Number	Name	Object name	Length	C	R	W	T	U	Type of data
125	Humidity	Measured humidity status	2 bytes	C	R	-	T	-	humidity (%)
126	Humidity	High alarm (1=Alarm / 0=No alarm)	1 bit	C	R	-	T	-	switch
127	Humidity	Low alarm (1=Alarm / 0=No alarm)	1 bit	C	R	-	T	-	switch

Name	Humidity – Measured humidity status
Function	2-byte communication object to read and/or notify (depending on the configuration of the parameters)
Description	By this object the measure of relative humidity in % is known

Name	Humidity – High alarm (1=Alarm / 0=No alarm)
Function	1 bit communication object to read and/or notify the upper limit humidity alarm

Description	By this object it is notified if the upper humidity limit established in the parameter for this purpose has been exceeded.
Name	Humidity – Low alarm (1=Alarm / 0=No alarm)
Function	1 bit communication object to read and / or notify the humidity alarm of the lower limit
Description	By this object it is notified if the relative humidity is lower than the lower humidity limit established in the parameter for that effect

3.7 Dew point communication objects

Number	Name	Object function	Length	C	R	W	T	U	Type of data
129	Dew point	Alarm	1 bit	C	R	-	T	-	switch
128	Dew point	Temperature value	2 bytes	C	R	-	T	-	temperature (°C)

Name	Dew point – Alarm
Function	1-bit communication object to notify a dew point alarm
Description	By this 1-bit communication object, the sensor notifies if the dew point has dropped from a value defined in the corresponding parameter
Name	Dew point – Temperature value
Function	1 bit communication object to notify the dew temperature
Description	2-byte communication object by which the sensor reports the calculated dew temperature according to the relative humidity and the measured ambient temperature.

3.8 Night mode communication objects

Number	Name	Object function	Length	C	R	W	T	U	Type of data
253	Night mode	Enable (1=Enable / 0=Disable)	1 bit	C	-	W	-	-	switch

Name	Night mode – Enable (1=Enable / 0=Disable)
Function	1 bit communication object to enable or disable night mode
Description	By means of this 1 bit communication object, the user can set the night mode so that the LEDs of the button acquire a percentage of brightness different from that of the usual operation

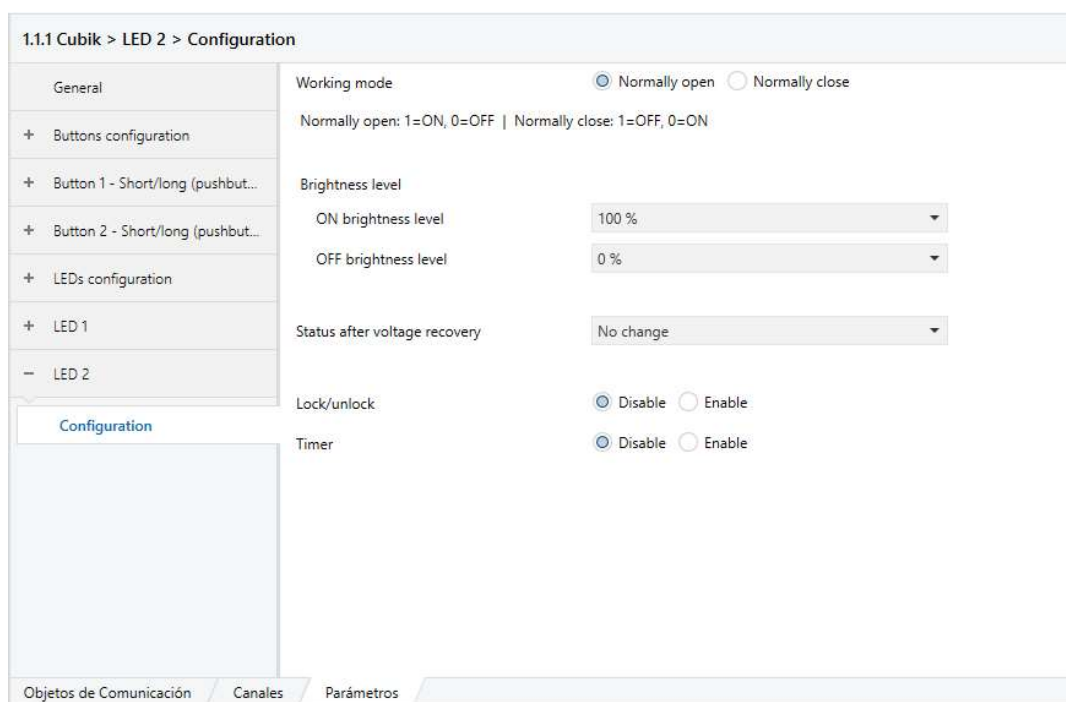
3.9 Cleaning mode communication objects

Number	Name	Object function	Length	C	R	W	T	U	Type of data
252	Cleaning mode	Enable (1=Enable / 0=Disable)	1 bit	C	-	W	-	-	switch

Name	Cleaning mode – Enable (1=Enable / 0=Disable)
Function	1 bit communication object to enable or disable the cleaning mode
Description	By this communication object, the user can enable or disable the pushbutton cleaning mode so that the touch areas are disabled for a time set by a parameter, so that the button can be cleaned without unwanted pulses

3.10 LEDs parameters

In the parameters tab of the LEDs, once enabled, you can configure the ones explained below.



Working mode: It can be normally open or normally closed. In normally open mode the output is controlled following the standard logic: 1 = closed, 0 = open. In normally closed mode, it is controlled with the inverse logic: 1 = open, 0 = closed.

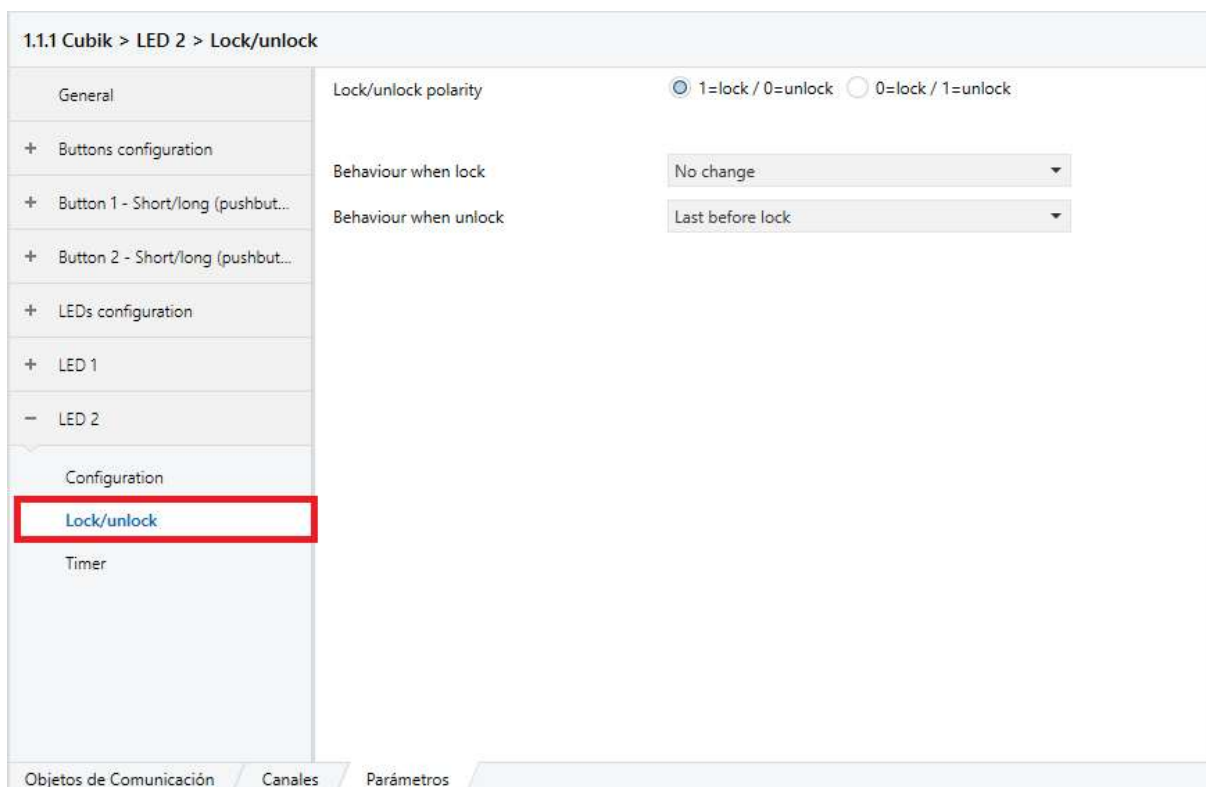
Brightness level: Parameter which allows to regulate the brightness of the LEDs. It allows to configure the light intensity of the LED outputs for its ON and OFF level, being the 100% value the maximum configurable brightness and a 0% value turns the light off.

Status after voltage recovery: status after feed recovery. Selection of the mode to which the output will be changed after recovering from a power loss. The available options are:

- No change: the status of the LED will remain with the value it had before the voltage loss.
- LED ON: the LED will turn on after the voltage is recovered.
- LED OFF: the LED will turn off after the voltage is recovered.

Lock/unlock: enable / disable control of the status of the LED. If this option is activated, a new menu will appear on the left, just below the channel configuration menu, as shown in the image below. In this section you can choose the polarity and behavior of the LED after locking or unlocking it. The options available when blocking are: turn off, turn on the LED or not make changes. However, when you unlock the options are: turn off, turn on the LED, last value before locking or update. These options are explained below:

- Open output: Turn off the LED.
- Close output: Turn on the corresponding LED.
- Last value before locking: It remains in the state it was in before sending the block order for the communication object destined for that purpose.
- Update: Once unlocked, the LED will change the status to the last value received during its locking.



Timer: This option allows the selection of delays or timings in the LED control. The delays can be configured for turn on and/or off, be instantaneous, configure staircase timers or both combined.

Note: lock communication object will not affect to this function

Switch on action	Delay on
Delay time	00:00:05 hh:mm:ss
Switch off action	<input type="radio"/> Instant off <input checked="" type="radio"/> Delay off
Delay time	00:00:05 hh:mm:ss
Size of communication object	1 bit

The timers that can be selected are the following:

Instant on: With this option, the LED would turn on instantaneously when receiving a '1' by the communication object, while a delay could be chosen when the LED is turned off (when a '0' is received by the communication object) if *Delay off* is selected in the *Switch off action* parameter. It also allows the selection of the size of the communication object between 1 bit, 4 bits or both, allowing the timer to be executed from dimming communication objects.

Delay on: A delay time is counted, selectable in *Delay time*, before turning on the corresponding LED. This option also allows to have a delay in LED off (when a '0' is received by the communication object) if *Delay off* is selected in the *Switch off action* parameter. It also allows the selection of the size of the communication object between 1 bit, 4 bits or both, allowing the timer to be executed from dimming communication objects.

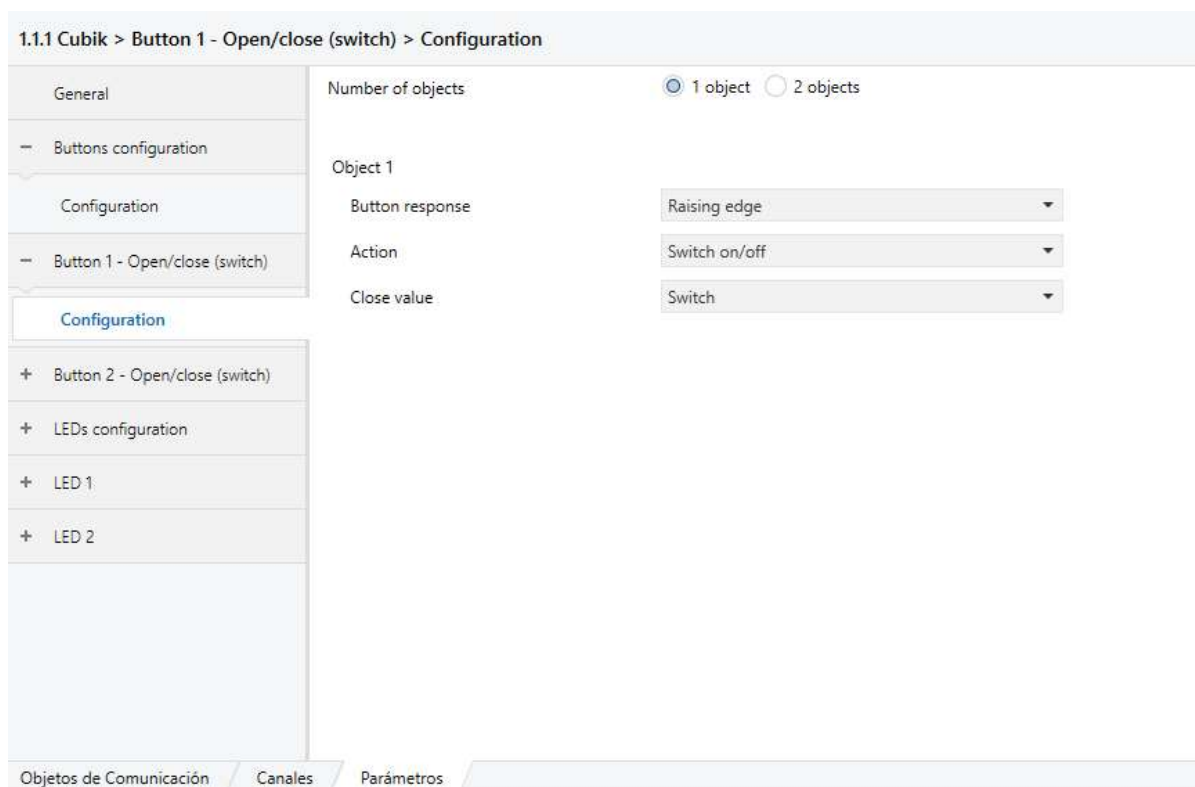
Staircase timer: When receiving a '1' the LED lights up and stays on for the time defined in Staircase time, turning off after that time. By means of the Retriggerable parameter, it is selected if the countdown, when receiving a new '1' by the communication object, will be reset or not. It is also selectable by the parameter Switch off action, the behavior of the device when a '0' is received by this communication object. It also allows the selection of the size of the communication object between 1 bit, 4 bits or both, allowing the timer to be executed from dimming communication objects.

Delay on + Staircase timer. The device counts down the time defined in Delay on before starting a staircase timer cycle. If the device receives a new '1' for the communication object, in case the device is counting the delay on time, it will count this time again; if the device is counting the staircase timing, the device will turn off the LED and start a new cycle with the countdown of the delay on time. It also allows the selection of the size of the communication object between 1 bit, 4 bits or both, allowing the timer to be executed from dimming communication objects.

3.11 Inputs parameters

3.11.1 Parameters of switch type inputs

When the working mode of a touch area is defined as a switch, you can configure the following parameters:



Number of objects: between an object or two can be chosen. If 2 objects are selected, the following options can be chosen in both object 1 and object 2. A new communication object corresponding to the second object will also appear.

Button response: it can be chosen between open, closed or switch. If the raising/falling option is selected, a value must be chosen for the action when pressing and another one when releasing the touch area.

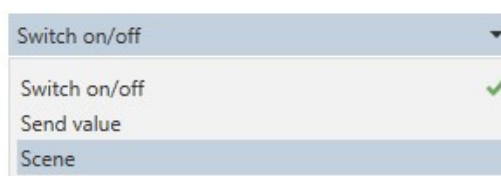
Object 1

Button response



Action: It is the action that is wanted to be done. The options are on/off, send value or execute a scene. If the action is to execute a scene a new menu will appear to write the number of the scene to be executed and if it is in activated or learning mode .

Action



Close value: You can choose to send a 0 or 1 value, or make a switch (switch).

Close value

Switch

- Send '0'
- Send '1'
- Switch ✓

3.11.2 Parameters of pushbutton type inputs

When the working mode of a touch area is defined as a short/long press, the following parameters can be configured for each type of pulse:

Short press action

Switch on/off

- No action
- Switch on/off ✓
- Send value
- Dimming
- Shutter/blind
- Scene

No action: Nothing will be executed when pressed.

Switch on/off: You must choose the value of the output when acting on the input: open, closed or open / closed switch.

Short press action

Switch on/off

Switch

- On
- Off
- Switch ✓

Send value: The output will send the value written in the box. The format of the introduced data can also be selected.

Short press action

Send value

Format

1 byte unsigned 0...100% (dpt 5.001)

Value

0 %

Dimming: The output will make a dimming as indicated: increasing (more luminosity), decreasing (less luminosity) or dimming alternately up and down. The will be carried out with an interval of regulation which will be established in the "step" box

Short press action	Dimming
Response	Increase / Decrease
Step	100%

Shutter/Blind: The response of the blinds can be movement or stopping/steps of slats. And its direction: up, down or combined up/down.

Short press action	Shutter/blind
Response	<input type="radio"/> Move <input checked="" type="radio"/> Stop / step (slats)
Direction	Up/down

Scene: Activate scenes or put them in learning mode. The number of the scene to be executed will be chosen, which will be between 1 and 64.

Short press action	Scene
Function	<input checked="" type="radio"/> Activate <input type="radio"/> Learn
Scene number	1

As stated above, all options are available for both short and long press. You must set the touch time for a long press.

3.12 Thermostat parameters

3.12.1 Thermostat functions

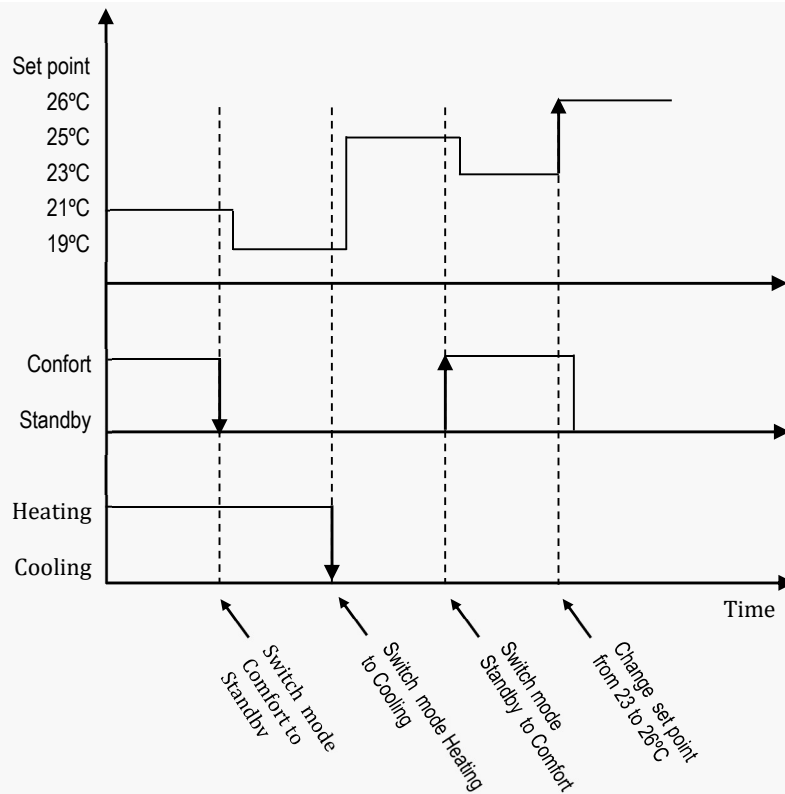
In the case of inhabiting the functions of the thermostat of the device in the General section, a new tab appears in the menu on the left:

Parameter	Use external temperature sensor
Values	Yes / No
Description	This parameter allows to choose if the controller reference is the internal temperature probe or the measured form another sensor connected to the KNX system. <ul style="list-style-type: none"> - No: The controller will use its internal measure. You can calibrate the measurement and set up recurring or change notifications. The value can be read or notify via Measured temperature object - Yes: The temperature controller used as a reference value written to the Measured temperature object and despises its internal measure.
Parameter	Sensor calibration
Values	From -8°C to +5°C
Description	This parameter allows you to correct the measurement of the temperature sensor if necessary. The set value is added or subtracted to the current measurement sensor, which can be checked by Measured temperature object.

Parameter	Transmission of measured temperature
Values	Only read, cyclically (time), on change (°C) or both (°C y time).
Description	This parameter is used to configure the frequency with which to send notifications of temperature by measured temperature object
Parameter	Period of time (seconds)
Values	From 5 to 80
Description	If the transmission measured temperature parameter is set as cyclically or both, this additional parameter allows to define the period of sending notifications in seconds.
Parameter	Minimum change
Values	From 0,2 to 3,2 °C
Description	If the transmission measured temperature parameter is set as on change (°C) or both, this additional parameter allows to define the minimum change necessary to send a notification. When sending a minimum change notification, the periodical sending countdown restarts.

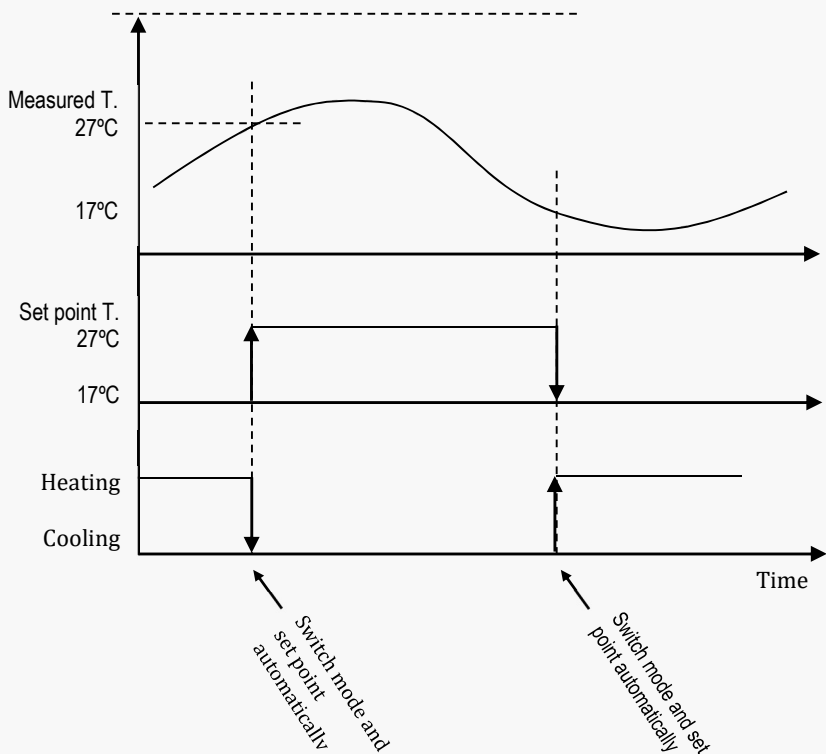
3.12.1.1 TEMPERATURE CONTROLLER

Parameter	Temperature controller
Values	Enabled / Disabled
Description	This parameter lets you choose whether the device uses the temperature controller or not. If not in use, the equipment can simply be used as a temperature sensor.
Parameter	Controller function
Values	Heating only, Cooling only, Heating/Cooling switch over, Heating/Cold simultaneous.
Description	By this parameter, controller function is chosen from the following: <ul style="list-style-type: none"> - Heating only: The controller only manages the heating (winter mode). - Cooling only: The controller only manages the air conditioning system (summer mode). - Heating/Cooling Switch over: The controller manages both systems separately. The mode change is effected by corresponding communication objects (can be a single object or separate objects). - Heating/Cooling simultaneous: The controller manages both systems at once, and can automatically switch between them if necessary.
Parameter	Special modes
Values	Enabled / Disabled
Description	This parameter is enabled and disabled and special modes Comfort, Stand-by, Economy and Protection. These modes can be set using the HVAC mode object sending the corresponding value. When selecting a special mode, the controller adjusts its temperature set point according to the memorized parameter mode (hot or cold) in which it is at that time. After selecting a special mode, if the controller mode is switched between heating/cooling, set point changes to its mode according to the parameters.



Parameter	Change objects
Values	One object / Separated object
Description	<p>This parameter allows you to choose which objects use to change the function of the controller.</p> <ul style="list-style-type: none"> - Object: a single communication object is used to switch between hot and cold Heat/Cool switch (= 1/ 0) object. Writing a 1 in this object the controller switches to heating mode while if you write 0 mode it switches to cold. - Separate objects: - Heating (mode 1 = Set / 0 = no) and Cooling object (mode 1 = Set / 0 = no) communication objects are used different. If you write a 1 in these objects is changed to the corresponding mode while writing a 0 has no action. <p>(Note: Changing the heating / cooling mode, if the controller set point is set by selecting a special way, it will change to the special mode. If you have set using Set point temperature object will be maintained.)</p>

Parameter	Automatic heating/cooling change
Values	No deviation (1 point) / With deviation.
Description	<p>If the controller function is set to heating / cooling simultaneously, this parameter allows you to choose the way the controller decides when to switch from one mode to another.</p> <ul style="list-style-type: none"> - No deviation: the controller will work with both systems (heating and cooling) to maintain a single temperature set point which can only be changed by the Temperature object. If the auto mode is activated by Auto mode object the controller will change from cold to heat when the reference is greater than the measure and viceversa when it is less. - With deviation: The function of heat or cold is changed depending on the difference between the measured temperature and the set point according to the value set in the deviation parameter to change heat / cold (see next item). <p>In both cases it is possible to change manually the heating/cooling mode via the corresponding communication objects.</p>

Parameter	Heating/Cooling change drift
Values	Value of opposite special mode, fixed value of 1 ° C to 15 ° C.
Description	<p>- Value of opposite special mode: Switching between heating/cooling is done when the measurement is greater or less than the set point of the current special mode. For example: The default set points for special economic mode is 17 or 27 ° C for heat and cold respectively. If the controller is in economy mode and heat and the temperature of the room rises above 27 ° C (set point especially opposite: cold), then change to cool mode.</p>  <p>- Fixed value (1 to 15 ° C): Switching between heating/cooling is done when the difference between the current set point and the measurement is greater than the selected value. In both cases it is possible to manually change mode heating/cooling by the corresponding communication objects. (Note: An incorrect setting of these parameters and / or set points special modes can cause instability of the controller.)</p>
Parameter	Initial set point temperature (°C)
Values	-1000 to 1000 °C.
Description	It is the set point temperature of the controller in which it is initialized after downloading the application program from the ETS.
Parameter	Set point change through object
Values	Yes / No
Description	It is allows to enable or disenable the Set point temperature object
Parameter	Controller always on
Values	Yes / No
Description	- Yes: The controller is initialized on after downloading the application from the ETS and you cannot turn it off.

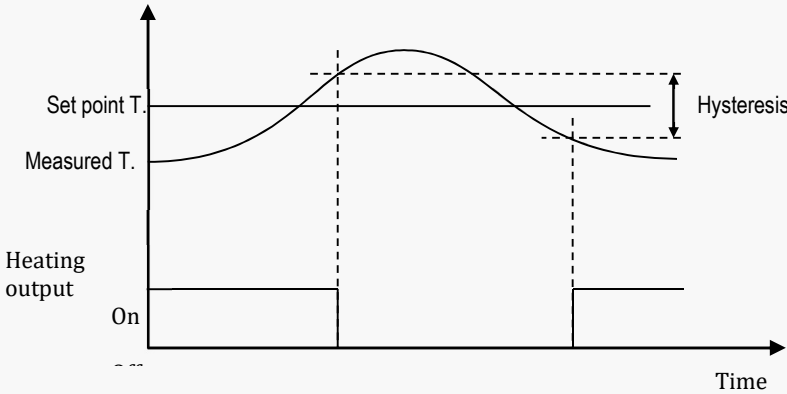
- No: Object Controller on/off is enabled for switching the controller via a bus telegram.

3.12.1.2 HEATING / COOLING

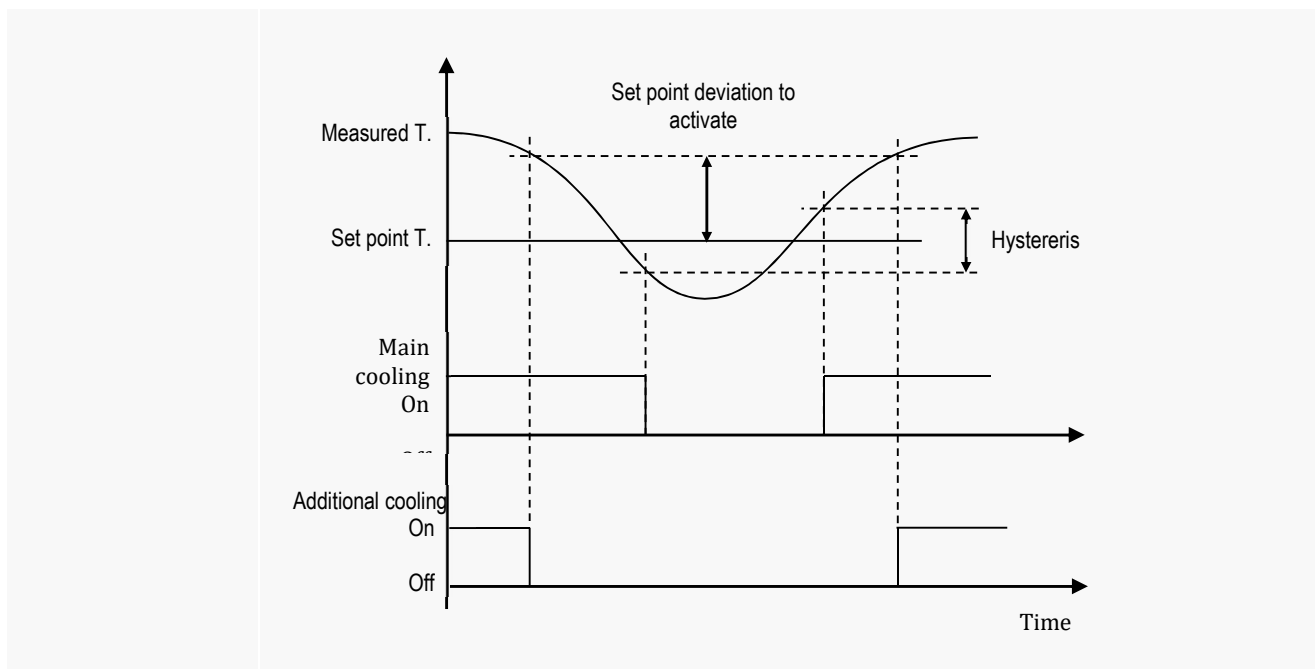
The following parameters let you set the type of controller for each operating mode, heating and cooling, being similar for both.

Parameter	Controller type
Values	2 steps, PWM (1 bit), Continuous (1 byte)
Description	<ul style="list-style-type: none"> - 2 steps is a type of on/off control with hysteresis (see next item). In heating mode, the control output is activated when the set point is greater than the measure and is disabled otherwise. In cooling mode the control output of cooling (object 13) is activated when the reference is less than the measure and disabled otherwise. - PWM (1 bit): PI control allows a more accurate room temperature control. The controller output is PWM modulation (Pulse Width Modulation), an on/off signal which switches in a fixed period of time "T" and whose pulse width "d" is calculated by the control (see parameter PWM cycle time). - Continuous (1 byte): PI control enables more accurate room temperature control. In this case the controller output is proportional signal (0- 100%).

Parameter	Heating/Cooling system
Values	Floor heating, Water radiators, Electric radiators, Convection or Custom.
Description	<p>By this parameter, it is possible to set the PI constants of the controller which controls the heating or cooling depending on the type of system installed.</p> <ul style="list-style-type: none"> - Floor heating (5K / 240min). - Water radiators (5K / 150min). - Electric radiators (4K / 140min). - Convection (4K / 90min). - Custom: Allows you to set manually the proportional and integral constants of the PI controller. <p>(Note: An incorrect setting of these parameters can lead to instability of the controller).</p>

Parameter	Hysteresis
Values	0,2 to 5 °C.
Description	<p>When using a 2-steps control, if the temperature is stabilized close to the set point, the output can be switched too frequently. This parameter is obtained leave a dead band above and below the set point to reduce this effect (see next image).</p> 

Parameter	PWM cycle time
Values	4 to 28 min
Description	When using a PWM control, this parameter allows you to set the value of the period "T" of the output waveform (see picture below). <div style="text-align: center;"> </div>
Parameter	Output value send on change
Values	0.5 to 15 %
Description	When using a continuous control, this parameter determines the minimum change in the output signal (from 0 to 100%) in order to send the value through the bus.
Parameter	Additional heating/cooling output
Values	Enabled / Disabled
Description	This parameter allows you to configure the controller to use an additional output (on / off) of the heating or cooling system which works to support the principal when the deviation between the set point and the measure is too big (as the next parameter).
Parameter	Deviation from set point to activate
Values	1 to 20 °C.
Description	The value set in this parameter defines when the additional heating/cooling output is activated or deactivated. When the difference between the set point and the measurement is higher than the deviation, additional output is activated (see next image).



3.12.1.3 SPECIAL MODES

Parameter	Heating/Cooling set points
Values	0 to 51 °C
Description	By these parameters is possible to define the set points for each special mode, depending on the controller function is defined heating or cooling. These are the default values for the four special modes: - Comfort: Heating = 21 °C / Cooling = 23 °C - Stand-by: Heating = 19 °C / Cooling = 25 °C - Economic: Heating = 17 °C / Cooling = 27 °C - Protection: Heating = 9 °C / Cooling = 35 °C

3.13 Parameters of humidity sensor

Once the humidity sensor option is activated, the parameters that are explained below appear.

1.1.1 Cubik > Humidity sensor > Configuration

General	Transmission of measured humidity	<input type="radio"/> Only read <input checked="" type="radio"/> Ciclically (time)
+ Buttons configuration	Period of time	00:00:05 h:mm:ss
+ Button 1 - Short/long (pushbut...	Humidity alarm	High and low alarm
+ Button 2 - Short/long (pushbut...	High limit	100
+ LEDs configuration	High hysteresis	5 %
- LED 1	Low limit	50
Configuration	Low hysteresis	5 %
Lock/unlock		
Timer		
- LED 2		
Configuration		
- Thermostat configuration		
Configuration		
Temperature control		
Heating		
- Humidity sensor		
Configuration		
+ Dew point		

Objetos de Comunicación Canales Parámetros

- Transmission of measured humidity: There are two options to know the humidity measurement. The first of them allows knowing the measure by reading the corresponding communication object; while the second option, cyclically, allows the selection of a period in which the device sends the measurement to the bus automatically.

- Humidity alarm: it allows to choose two thresholds of humidity, upper and lower, both with certain hysteresis, and send an alarm through the communication objects that are activated for this purpose when exceeded these limits.

3.14 Parameters of dew point calculation

Dew point feedback

Period of time (sec.) hh:mm:ss

Minimum change

Dew point alarm No Yes

Limit

Hysteresis

Name	Period of time (sec.)
Value	0 – 4 min 15 seg.
Description	Set the time between notifications of the dew temperature calculated by the device
Name	Dew point alarm
Value	No/Yes
Description	This parameter enables the dew point alarm, the device writes a '1' value through the corresponding object if the dew temperature is lower than that established in the Limit parameter or a '0' value when the dew temperature returns to be above the limit.

3.15 Night mode

In the case of inhabiting the night mode of the device in the General section, a new section appears in the menu on the left:

1.1.1 Cubik > Night mode > Configuration

- General
- + Buttons configuration
- + Button 1 - Open/close (switch)
- + Button 2 - Open/close (switch)
- + LEDs configuration
- + LED 1
- + LED 2
- Night mode
- Configuration

Polarity of night mode enable 0=Enable / 1= Disable
 1=Enable / 0=Disable

Brightness configuration

LED 1 - Night brightness level ON

LED 1 - Night brightness level OFF

LED 2 - Night brightness level ON

LED 2 - Night brightness level OFF

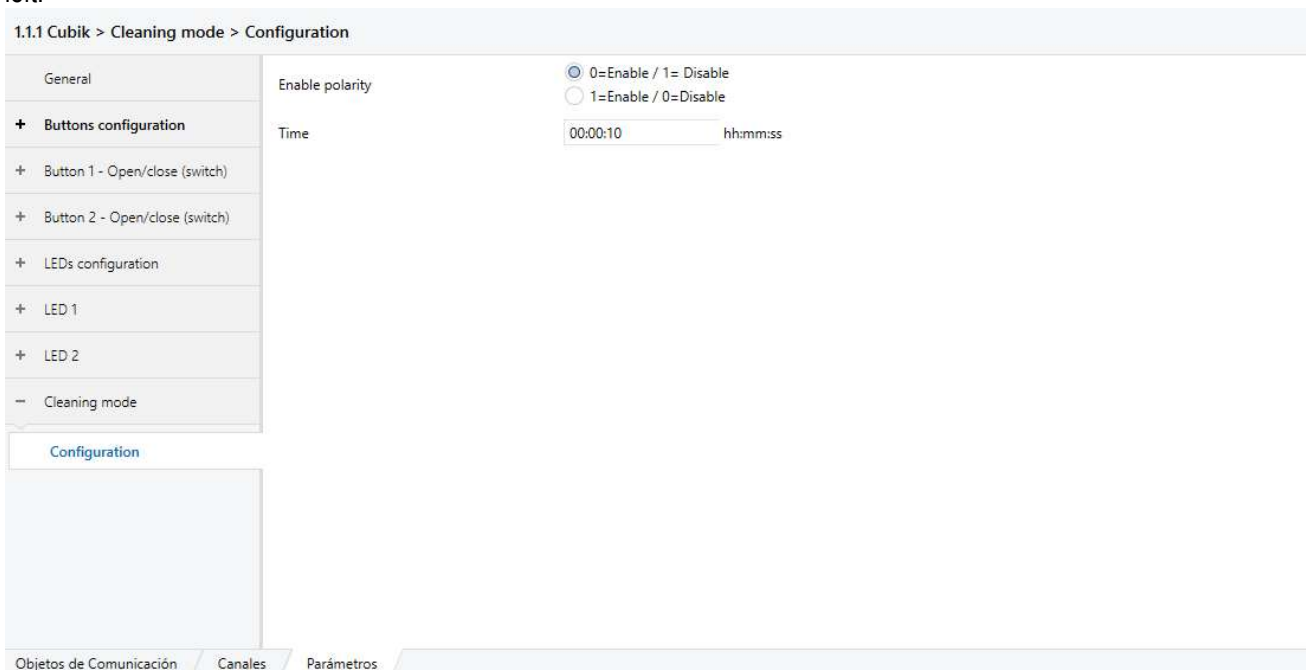
Objetos de Comunicación
Canales
Parámetros

This mode allows the user to define an alternative configuration of brightness values for each of the LED outputs of its capacitive pushbutton. Its standard purpose is to configure lower brightness values when the ambient brightness is reduced to achieve more efficient consumption. Its configuration parameters are the following:

Name	Polarity of night mode enable
Value	0 = Enable / 1 = Disable 1 = Enable / 0 = Disable
Description	It can be normally open or normally closed. In the first case, the night mode is activated following the standard logic: 1 = activated, 0 = disabled. In the "normally closed" mode, it is controlled with the inverse logic: 1 = deactivated, 0 = activated.
Name	Configuración del brillo
Value	0-100%
Description	It allows configuring the brightness that each of the LED outputs must have in their ON and OFF levels when the night mode is activated. The default values are the following: LED 1 – Night brightness level ON = 50% LED 1 – Night brightness level OFF = 0% LED 2 – Night brightness level ON = 50% LED 2 – Night brightness level OFF = 0%

3.16 Cleaning mode

In the case of inhabiting the cleaning mode of the device in the General section, a new section appears in the menu on the left:

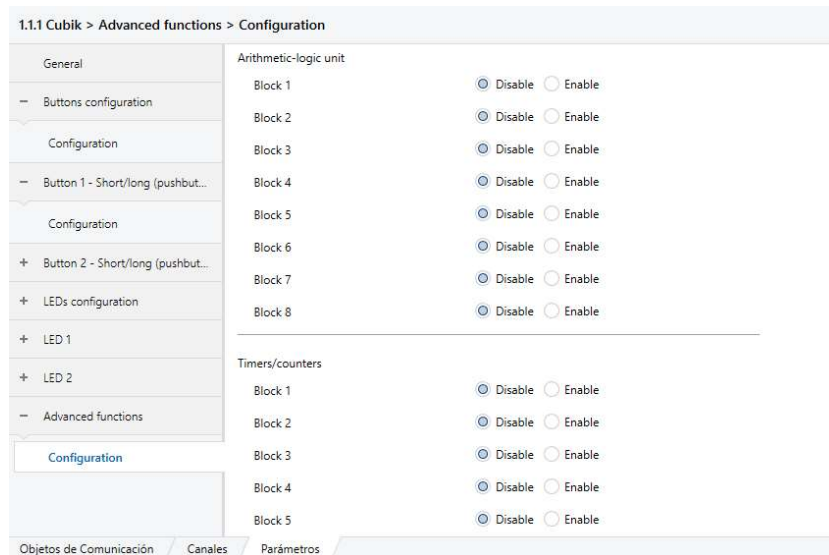


Its function consists of blocking the functionalities of the equipment during a certain period of time. This mode is indicated for use in case you want to manipulate the device without activating any of its capacitive buttons accidentally, which facilitates cleaning and maintenance. Its configuration parameters are the following:

Name	Enable polarity
Value	0 = Enable / 1 = Disable 1 = Enable / 0 = Disable
Description	It can be normally open or normally closed. In the first case, the cleaning mode is activated following the standard logic: 1 = activated, 0 = disabled. In the "normally closed" mode, it is controlled with the inverse logic: 1 = deactivated, 0 = activated.
Name	Time
Value	Min: 0 sec. Max: 4 min and 15 sec.
Description	It allows to configure the time during which the device will not receive orders from the user. After this time, the device will return to normal operation. The default value is 10 sec.

3.17 Advanced functions

If the advanced functions are enabled in the General menu, a new submenu appears on the left.



In this configuration menu it is possible to select what Arithmetic and logic or timers / counters blocks are enabled.

Name	Arithmetic-logic block X
Values	Enable / Disable
Description	Allows to enable or disable each arithmetic and logic block.
Name	Timer / counter block
Values	Enable / Disable
Description	Allows to enable or disable the each timer / counter blocks.

3.17.1 Arithmetic and Logic block (ALU)

Operation	AND
Number of inputs	2
Input 1	<input type="radio"/> Communication object <input checked="" type="radio"/> Constant value
Format	1 bit
Value	1
Input 2	1 bit
Output	1 bit

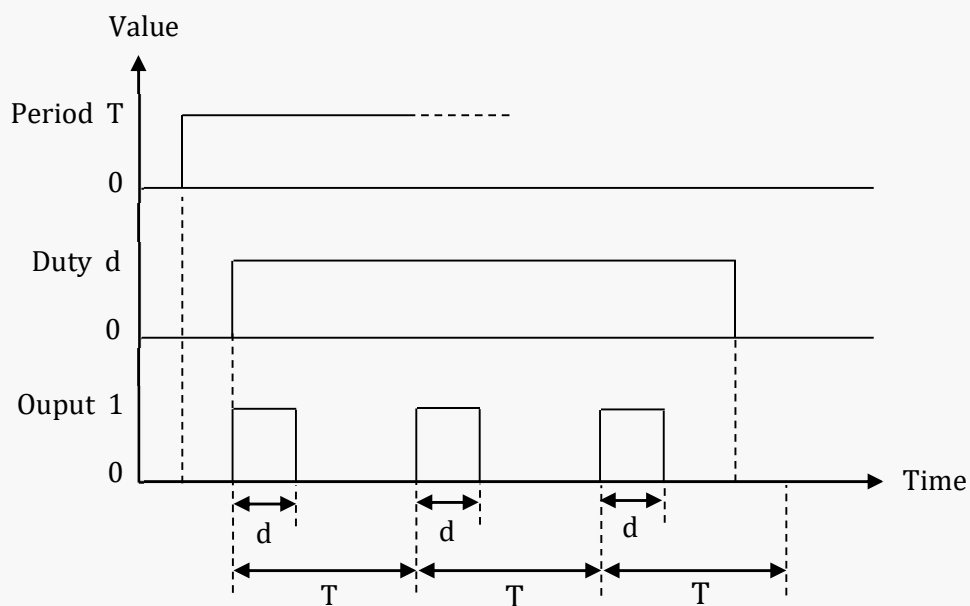
Name	Operation
Values	AND, NAND, OR, NOR, XOR, XNOR, NOT, BUFFER, ==, !=, <, >, <=, >=, +, -, *, /.
Description	<p>It allows to select the arithmetic or logic operation of the block:</p> <p>Logic operations:</p> <ul style="list-style-type: none"> - AND: Logic product - NAND: Negative logic product - OR: Logic addition - NOR: Negative logic addition - XOR: Exclusive logic addition - XNOR: Negative exclusive logic addition - NOT: Negation - BUFFER: Saves the input value in the output. <p>Comparison operation:</p> <ul style="list-style-type: none"> - == : equality - != : inequality - < : smaller than - > : greater than - <= : smaller or equal than - >= : greater or equal than <p>Arithmetic operations:</p> <ul style="list-style-type: none"> - + : addition - - : subtraction - * : multiplication <p>/ : division</p>
Name	Number of inputs
Values	From 2 to 4
Description	This parameter defines the number of inputs of the block. Depending on the type of operation it is allowed two or more inputs.
Name	Input 1
Values	Communication object / Constant value

Description	This parameter allows to select the type of the input 1, that can be a constant value or a value received from a communication object.
Name	Format
Values	1 bit, 1 byte unsigned (dpt 5.001), 1 byte unsigned (dpt 5.010), 1 byte signed (6.*), 2 bytes unsigned (dpt 7,*), 2 bytes unsigned (dpt 8,*), 2 bytes float (dpt 9,*).
Description	This parameter allows to select the size and format of the input 1. Depending on the type of operation different formats are allowed.
Name	Input 2/3/4
Values	1 bit, 1 byte unsigned (dpt 5.001), 1 byte unsigned (dpt 5.010), 1 byte signed (6.*), 2 bytes unsigned (dpt 7,*), 2 bytes unsigned (dpt 8,*), 2 bytes float (dpt 9,*).
Description	This parameter allows to select the size and format of the other inputs communication objects. Depending on the type of operation different formats are allowed.

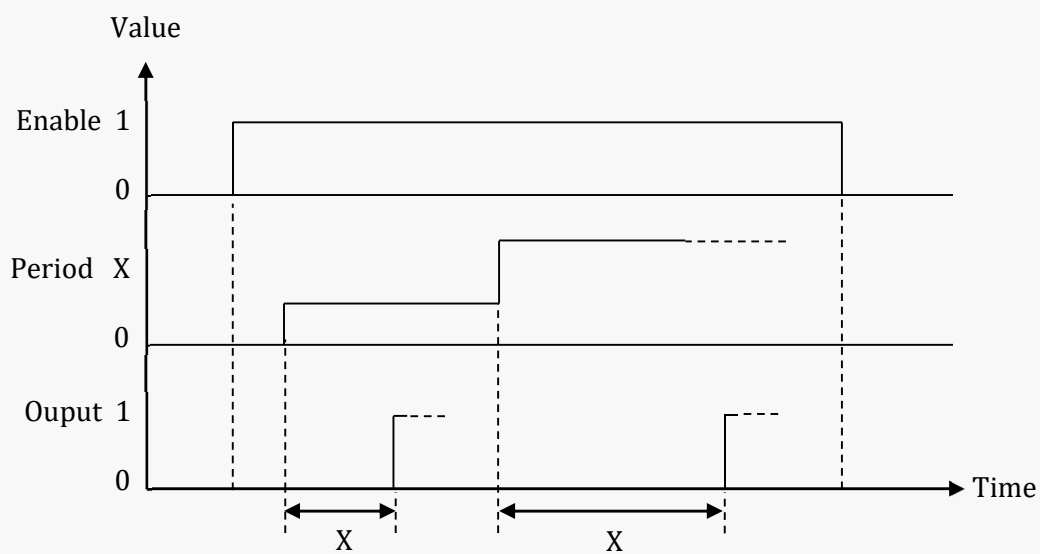
3.17.2 Timer / counter block

Type of block	<input checked="" type="radio"/> Timer <input type="radio"/> Counter
Timer type	PWM
Period of time	<input checked="" type="radio"/> Communication object <input type="radio"/> Constant value
Format	1 byte (dpt 5.010)
Duty	1 byte (dpt 5.010)

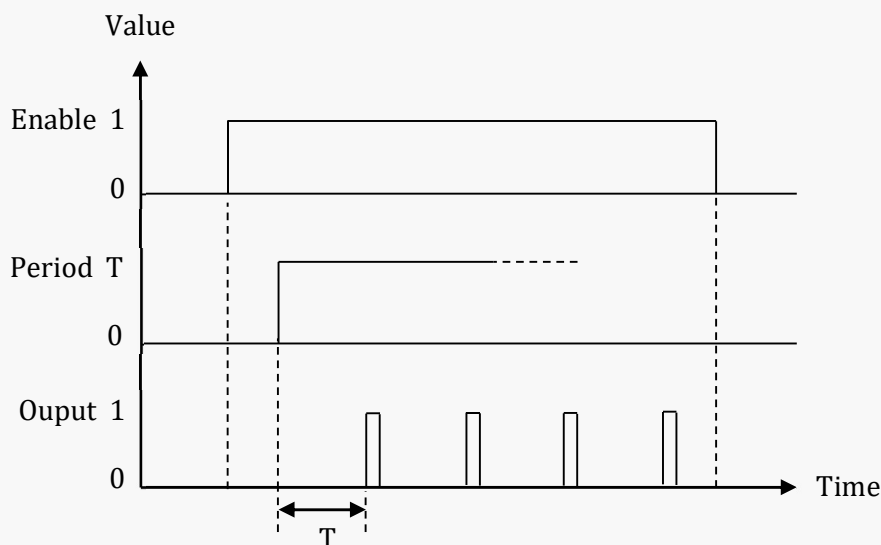
Name	Timer type
Values	PWM, Limit, Cyclic
Description	PWM: It generates a pulse width modulated output according to the period of time and a duty.



Limit: It sends a bit telegram '1' to the bus when a limit value is exceeded.



Cyclic: It sends a bit telegram '1' to the bus each time the limit value is exceeded cyclically.



Name	Period of time
-------------	-----------------------

Values	Communication object / Constant value
--------	---------------------------------------

Description	<p>It is the count time of the timer. It can be configured as a constant value or a value received through the bus with one of the following communication object formats:</p> <p>1 byte (dpt 5.010): Value from 0 to 255 (x 100 ms) 2 bytes (7.004): Value from 0 to 6553500 ms 2 bytes float (9.010): Value from 0 to 670760 s</p>
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Name	Duty
-------------	-------------

Values	1 byte (dpt 5.010), 2 bytes (7.004) or 2 bytes float (9.010)
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Description	<p>Only visible if timer type PWM is selected. It is the time that the output signal is at high level ("1") within the period of time. Its value can be received through the bus with one of the following communication object formats:</p> <p>1 byte (dpt 5.010): Value from 0 to 255 (x 100 ms) 2 bytes (7.004): Value from 0 to 6553500 ms 2 bytes float (9.010): Value from 0 to 670760 s</p>
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Name	Counter type
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Values	Rising edge, falling edge, 1 or 0
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Description	It is the change that the counter may detect in its "event" object to increase the count.
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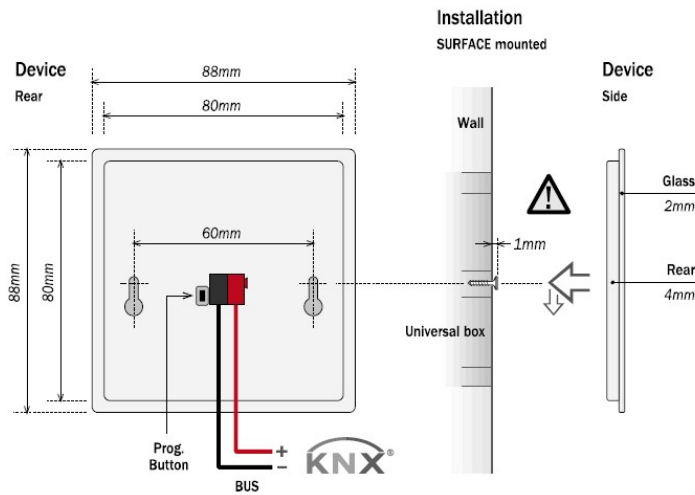
Name	Limit value
Values	From 0 to 65535
Description	It is the number of events over which the counter sends the finish telegram.
Name	Output behaviour
Values	Send 1 when limit reached, Send counter value (5.010), Send counter value (7.001)
Description	This parameter allows to select the format and behaviour of the counter output. It can be send a 1 when the count limit is reached or it can send the count value each time an event is detected.

4 Installation

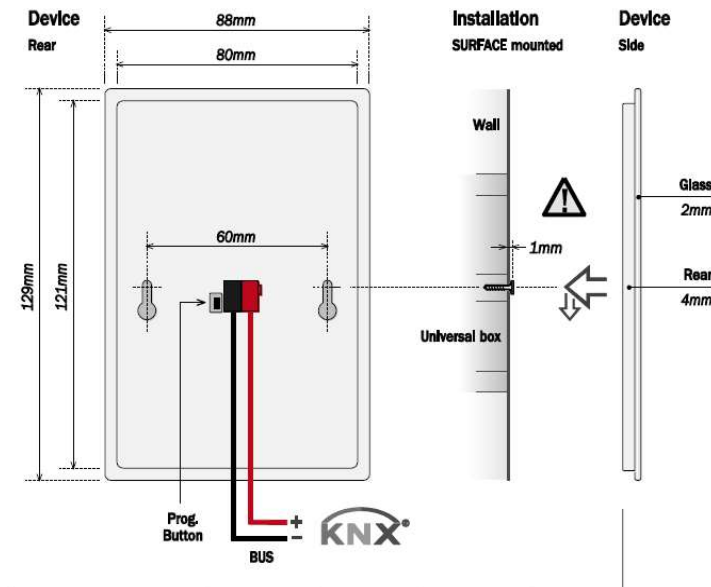
Square format Cubiks:



The device is installed hanging from the two parallel grooves on its rear.
 Two conical head screws are used in wall and/or universal mechanism box.
 It is **VERY IMPORTANT** that the screws head exceeds 1mm from the wall.



Vertical format Cubiks:



custom series
capriccio
 Front glass
 interchangeable



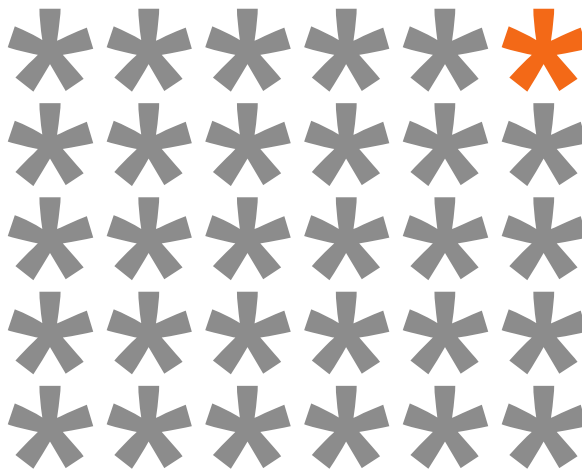
Exclusively in the capriccio custom series, the glass is fixed to the rear with a four magnets system that enables an easy exchange.





Feed the low voltage lines (bus and inputs) in separate conduits of the 230 V power supply in order to ensure that there is sufficient insulation and thus avoid interference.

Do not connect the 230 V mains voltage or any other external voltage to any point on the bus or to the inputs.



KNX products by ingenium



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Manual version: v1.0