Sentido KNX v3.1

Manual

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1. Introduction

The Sentido switch for KNX is a four way touch sensor.

By touching each of the four touch sensitive areas you can use KNX to execute a range of functions including switching, dimming, operating blinds, activating scenes, etc.

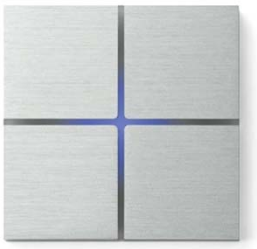
Touching a touch sensitive area will give a visual feedback by means of lighting up the central RGB led.

The central RGB led can also be controlled by KNX to provide a visual feedback of statuses. The led can also be used to illuminate the switch in the dark.

The Sentido switch uses the patented Multitouch technology. Touching more than one touch sensitive area at the same time activates an additional comfort function which also can be used by KNX.

The Sentido switch has to be used in combination with the Sentido and Enzo front covers, either four-way or two-way.

201-06 – Sentido
2-way classic
fer forgé



202-01 – Sentido
4-way aluminium
brushed aluminium

203-03 Enzo
2-way
black glass

204-14 – Enzo
4-way
white leather

2. Installation

Use a standard European back box with screws to mount the Sentido switch. The distance between the screws must be 60mm. The screws must be installed vertically.

Using screws that are too big might hinder the mounting of the front cover onto the Sentido switch. When mounted, the front cover should hide the Sentido switch completely. If not, the connection to the front cover might not work properly, which will result in a reduced sensitivity of the switch!

When fixing the screws, do not apply too much force since this will deform the plastic surrounding opening G. Doing so might hinder the installation of the Sentido front cover onto the Sentido switch!

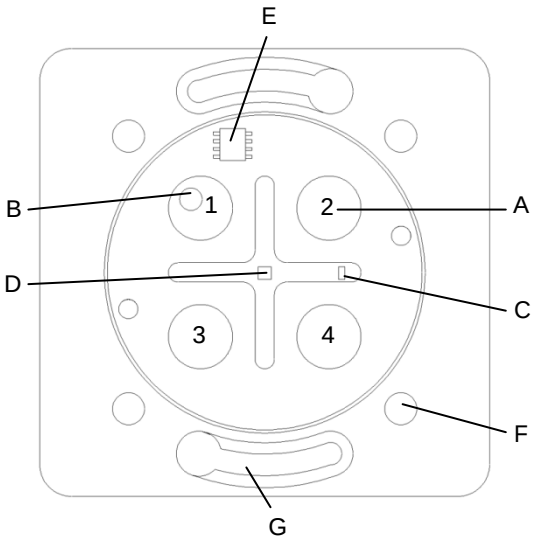
The minimal depth required for the Sentido switch KNX is 24mm. Additional depth should be reserved for connecting the device.

When powering the device, trough the KNX bus, the device will start calibrating.
This calibration process is necessarily to calibrate the sensors of the Sentido switch to the environment.
During this calibration process, the central RGB led will light up blue and slowly fade up and down. When the calibration is done, the central RBG led will blink green. After this, the switch is ready to be used.

2.1 Identifying the parts

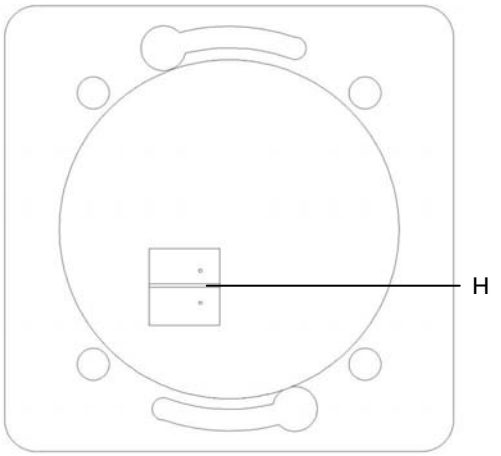
2.1.1 Front view

A Touch sensor (with according no. to be programmed in ETS)
B Programming button
C Programming led
D RGB-led
E Temperature sensor
F Guide for the front cover
G Opening to screw the device into the wallbox



2.1.2 Rear view

H KNX connector



3. General

The Sentido KNX has 4 touch sensitive areas.
When touching one touch sensitive area, the led will become white.
When touching more than one touch sensitive area simultaneously, which is called the multitouch, the led will become orange.

Each single touch sensitive area has a defined function. These functions can be:

- No action
- Edge
- Switching
- Dim
- Motor control
- Single press motor control
- Scene
- 1 byte value
- 2 byte value
- Shift register
- RGB value

The multitouch can have the following functions:

- No action
- Edge
- Switching
- Shift register
- 1 byte value
- Motor control
- Single press motor control
- Room toggle
- Room toggle + single press motor control
- Room toggle + scene sequencer
- Room toggle + general on/off/scene
- RGB toggle + RGB sequencer

3.1 General functions

3.1.1 Touch sensor calibration

The touch sensors need calibration to compensate for environment changes. At start-up, this calibration is performed automatically. Internal drift compensation will track slow variations.

Quick changes in the environment (installation or removal of front cover) will necessitate recalibration. In most cases automatic recalibration is performed without user intervention.

When manual recalibration is required, the user can force this by touching the switch for 40 seconds. The device will restart and calibration is performed.

Another option is to use a communication object to trigger the recalibration.

Remark:
Do not touch the front cover during recalibration because this can lead to insensitive sensors!

3.1.2 Cleaning object

The cleaning object allows the user to clean the surface of the device without activating the touch button.

As long as there is a 1 on the corresponding communication object, the switch is disabled. As long as the cleaning mode is activated, the LED will glow red.

To release the switch, write value 0 to the communication object.

Remark:
On release of the switch, the switch will calibrate.

3.1.3 State polling

At start-up, Sentido polls all relevant communication objects for their status. To reduce bus load, only 1 state is requested per second. All irrelevant communication objects are skipped.

Remark: Please refer to the appendix on page 62 to see which communication objects will be polled for their status.

3.2 Function

3.2.1 Edge

Each sensor individual and the multitouch can be defined to the function edge.

The configuration edge makes a difference between the rising and the falling edge of a touch. Each edge can send a 1 bit value (0, 1, toggle between 0 and 1).

3.2.2 Switching

Each sensor individual and the multitouch can be defined to the function switching.

The configuration switching can send a 1 bit value (0, 1, toggle between 0 and 1) on a short press event or/and a long press event.

3.2.3 Dim

Each sensor individual can be defined to the dim function.

The short press event send a 1 bit value (0, 1, toggle between 0 and 1) to switch the light on or off. The long press event sends a 4 bit value which will dim the light up or down.

3.2.4 Motor control

Each sensor individual and the multitouch can be defined to the function motor control.

The motor control allows controlling blinds, shutters, curtains, etc.
Each motor action can be set to:

- Up
- Down
- Toggle

3.2.5 Single press motor control

Each sensor individual and the multitouch can be defined to the function single press motor control.

The “single press motor control” function is more convenient for controlling curtains and screens. It does not require the use of long and short presses.

Touching the sensor the first time will start the motor command up or down. Touching the sensor the second time within the activation time will force the motor to stop.

For a correct operation of this function, the activation time has to be set to the time required to fully open/close the screen.

3.2.6 Scene

Each sensor individual can be defined to the scene function.

By touching the surface short or long, a scene can be recalled. This scene is saved in an actuator or another external memory location.
The long press event has the possibility to load a scene or to save the scene in the external memory.

An additional blocking object can be used to block certain external functions while the scene is activated. The blocking object is sent out simultaneously with the scene number. This can be use for example to block a motion detector.

3.2.7 1 byte value

Each sensor individual and the multitouch can be defined to the function 1 byte value.

Each sensor can send a 1 byte value on the short press and on the long press event. The values for short and long press can be set in ETS.

3.2.8 2 byte value

Each sensor individual can be defined to the function 2 byte value.

Each sensor can send a 2 byte value on the short press and on the long press event. The values for short and long press can be set in ETS.

3.2.9 Shift register

Each sensor individual and the multitouch can be defined to the function shift register.

The shift register allows going thru values with a start and stopping value, using a direction and step value.

If the next step exceeds the stop value, the next step will be the stop value. After reaching the stop value, the next value will be the start value.

If the value is sent by an external device, the internal value, used to calculate the next step, will round to the closest logic value.
This means that the next step is dependent on the step direction. If the step direction is “from lowest value to highest value”, the step just below the external value will be used as last active step. If the step direction is “from lowest value to highest value”, the step just above the external value will be used as last active step.

It is possible to reset the current value to the initial start value by touching the sensor for a longer time, this time can be set in ETS.

Example 1:
Value 1: 5
Value 2: 10
Step value: 2
Direction: from lowest value to highest value

This will result in 5 – 7 – 9 – 10 – 5 - 7 - …

Value sent external = 6, the next step on touching the switch will be 7.

Example 2:
Value 1: 10
Value 2: 5
Step value: 3
Direction: from highest value to lowest value

This will result in 10 – 7 – 5 – 10 – 7 - …

Value sent external = 9, the next step on touching the switch will be 7.

3.2.10 RGB value

Each sensor individual can be defined to the function RGB value.

The RGB value function allows sending 3 1-byte values by touching a sensor short and/or long. These 3 1-byte values are the values for the colours red, green and blue.

In addition, a 3-byte object sends the colour values for red, green and blue.

This function makes it possible to send a pre-defined colour with a single touch function.

3.2.11 Room toggle

This function is only available on the multitouch.

The room toggle is a function to control a complete room in a simple way.

For a correct use of the room toggle function, the device has to know the feedback of the lights. For this, there are 8 communication objects to couple the feedback of the lights (communication object 122-129).

When one or more feedback objects are active (1), the room toggle will send the “off” command. When all the feedback objects are inactive (0), the room toggle will send the “on” command.

The output for the room toggle can be set to a “1 bit object”, a “scene on and scene off” or “scene on and all off”.

In addition, a day and night object can be used. This day/night object is controlled by a communication object (communication object 107). Depending on the status of this object, the output of the room toggle will be different.
This makes it possible to control for example a different scene during the day then during the night.

The room toggle logic can also be triggered by a communication object (communication object 71). This action will not show any visual aspects on the switch.

3.2.12 Scene sequencer

This function is only available on the multitouch in combination with the room toggle on the short press event.

The long press event of the multitouch is the scene sequencer function.

As long as the user touches the multitouch, the colour of the central LED will change. If the user releases the switch, the corresponding scene for that colour will become active.
There can be set 2 to 4 different scene numbers, the colours for each scene can be defined in ETS.

Remark: The colour of the central LED changes every 1.5 sec

3.2.13 General on/off/scene

This function is only available on the multitouch in combination with the room toggle on the short press event.

The long press event of the multitouch is the general on/off/scene function.

This function can send a 0, 1 or a scene number. This function is intended to, for example, to turn all the lights in the complete house off.

3.2.14 RGB toggle + RGB sequencer

This function is only available on the multitouch.

The short press event is the RGB toggle, which is a single 1 bit command that switches the RGB fixture on or off.

If the user touches the switch for a long time, the colour of the central LED will scroll through the colour sequence. The colour sequence and the time to show each colour can be adjusted with the parameters in ETS.
At release will send a value between 0 and 255 or between 0 and 100 for the 3 corresponding RGB values on their respective communication objects (communication object 77/78/79).

In addition, a 3-byte object sends the colour values for red, green and blue (communication object 64).

3.3 Central LED

The switch has several possibilities to control the colour of the central LED.

If the switch is not touched, the central LED is set to the night light. The colour and brightness of the night light can be defined in ETS. The night light can be set on/off or can be enabled/disabled via a communication object (communication object 108).

It is also possible to provide a feedback via the central LED. This colour is brighter then the night light and can be controlled by a fixed palette of colours (using a 1 bit object or a 1 byte object). The feedback colour overrides the night light colour.

Another option is to control the central LED with RGB values (3 1-byte values). The night light and fixed feedback colours are not available if the colour is controlled by RGB values.

The central LED becomes white when touching a single sensor for a short time. The central LED becomes orange when touching more than one sensor simultaneously. When touching the switch for a long time, the central LED becomes a different colour which can be defined in ETS. The touch colour overrides feedback colour and night light colour.

3.4 Thermostat logic

The Sentido switch has a built-in thermostat logic. This thermostat can be used separately from the other functions of the switch.

The thermostat controls the mode and setpoint for heating and/or cooling.

3.4.1 Mode

For each mode there is a 1-bit communication object. The mode is also available through a 1-byte communication object, where the value represent the mode:
1: Comfort
2: Standby
3: Economy
4: Building protect

Any input on the input communication object overwrites the current mode settings.

When a 0 to 1 transition is received on the building protect object (communication object 97), the building protect mode overrules the current mode, even if the current mode is changed, the building protect mode remains active.
After a 1 to 0 transition is received on the building protect object (communication object 97), the last active mode will become active.

When the mode is controlled by the 1-byte mode input object (communication object 93), the last active value is the current mode.

3.4.2 Setpoint

The setpoint can be controlled in 2 different ways, by “Comfort based setpoint” or by “Actual setpoint”.

The comfort based setpoint calculates the setpoint for the mode “standby” and “economy”. The offset to calculate the setpoint for the mode “standby” and “economy” can be set in ETS.

At reception of an update on the actual setpoint object (communication object 82), the Sentido will overwrite the actual setpoint. If the active mode is different from the “comfort” mode, there will be calculated a new comfort setpoint. This new setpoint will be sending on communication object 85.

At reception of an update on the comfort setpoint object (communication object 84), the Sentido will calculate a new actual setpoint, depending on the active mode.

3.5 Scene controller

The Sentido switch has a built-in scene controller. This scene controller can be used separately from the other functions of the switch.

The scene controller can store 6 different scenes with up to 8 light objects for each scene. Each light object can be a 1 bit or a 1 byte value.

Every object has a feedback object which is used to save the actual values into the respective scene.

3.6 Timing

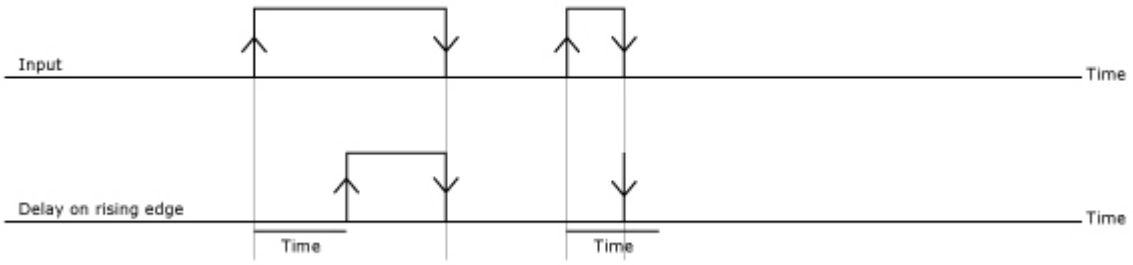
The Sentido switch has 4 integrated timing functions. These functions can be used separately from the rest of the switch functions.

Each timing function has its own input and output communication object. The timing functions can be:

- delay on rising edge
- delay on falling edge
- delay pulse
- one shot triggered by rising edge
- one shot triggered by falling edge
- delay pulse inverted
- rising edge filter (delayed)
- falling edge filter (delayed)

3.6.1 Delay on rising edge

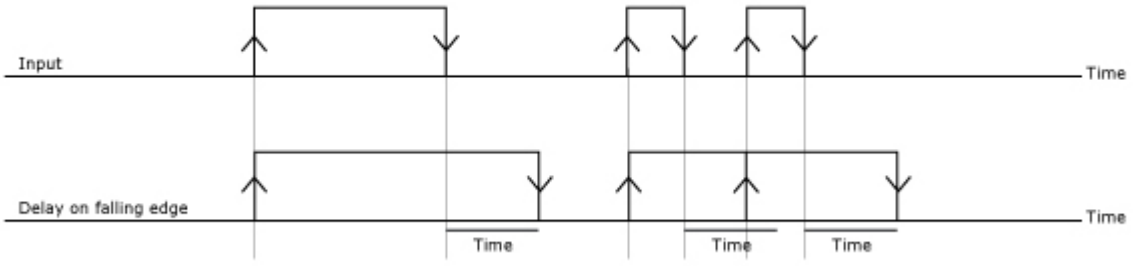
The time function “delay on rising edge” delays the rising edge of a pulse.
If the pulse is shorter than the delay time, only the falling edge will be sent on the bus.



Remark: Only 0 to 1 transitions and 1 to 0 transitions have effect.

3.6.2 Delay on falling edge

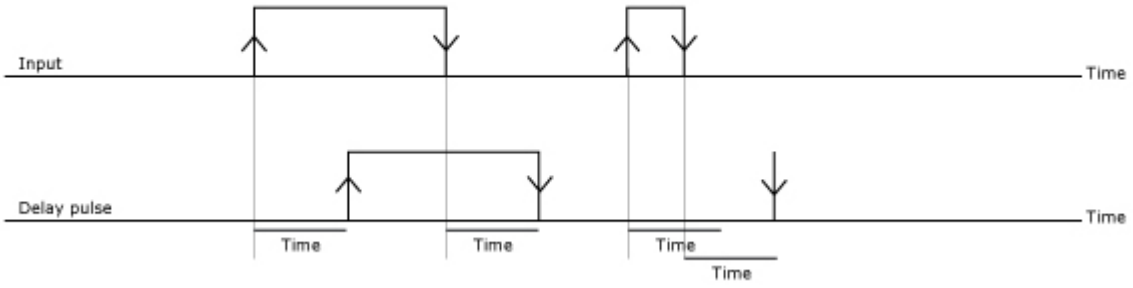
The time function “delay on falling edge” delays the falling edge of a pulse.
If a new pulse starts within the delay time, the previous falling edge will be ignored.



Remark: Only 0 to 1 transitions and 1 to 0 transitions have effect.

3.6.3 Delay pulse

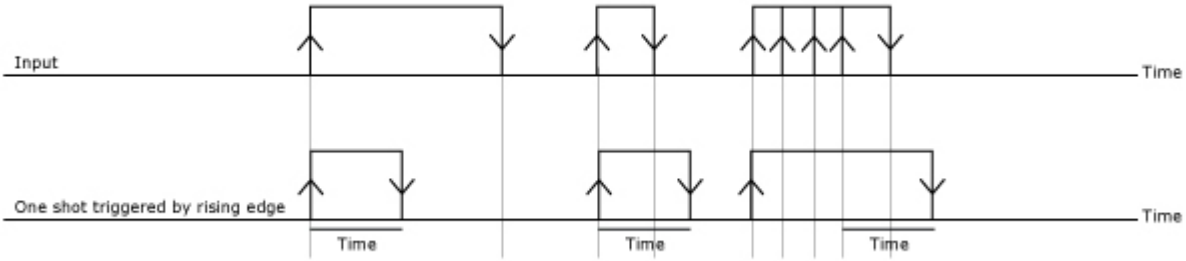
The time function “delay pulse” delays a complete pulse.
If a pulse is shorter than the delay time, the rising edge will be ignored.



Remark: Only 0 to 1 transitions and 1 to 0 transitions have effect.

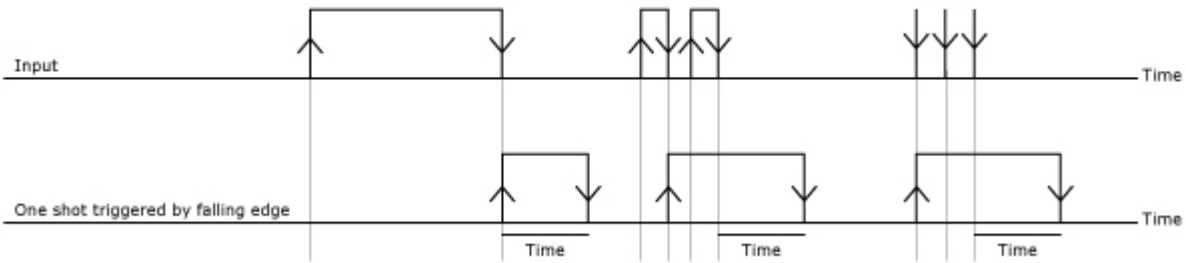
3.6.4 One shot triggered by rising edge

The time function “one shot triggered by rising edge” will start a pulse with a fixed length.
Every rising edge restarts the delay time.



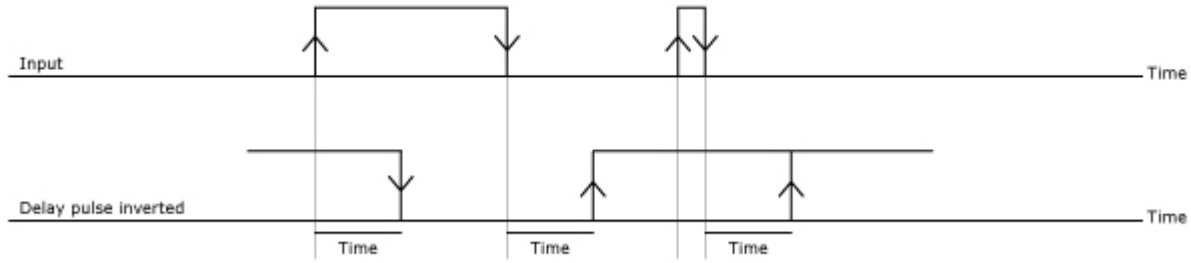
3.6.5 One shot triggered by falling edge

The time function “one shot triggered by falling edge” will start a pulse with a fixed length.
Every falling edge restarts the delay time.



3.6.6 Delay pulse inverted

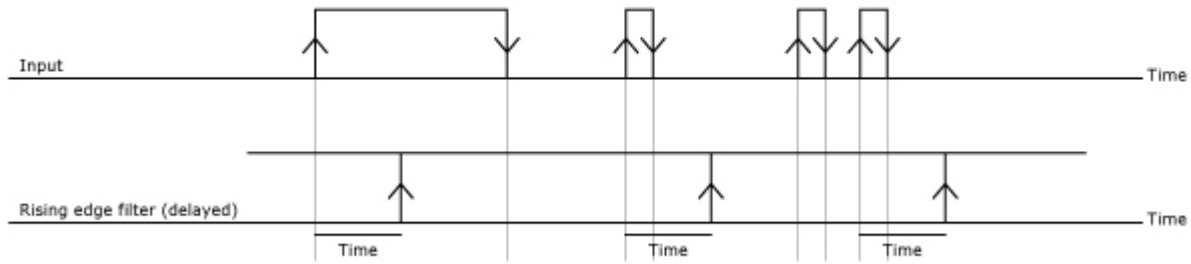
The time function “delay pulse inverted” delays a complete pulse and inverts the signal.
If a pulse is shorter than the delay time, the rising/falling edge will be ignored.



Remark: Only 0 to 1 transitions and 1 to 0 transitions have effect.

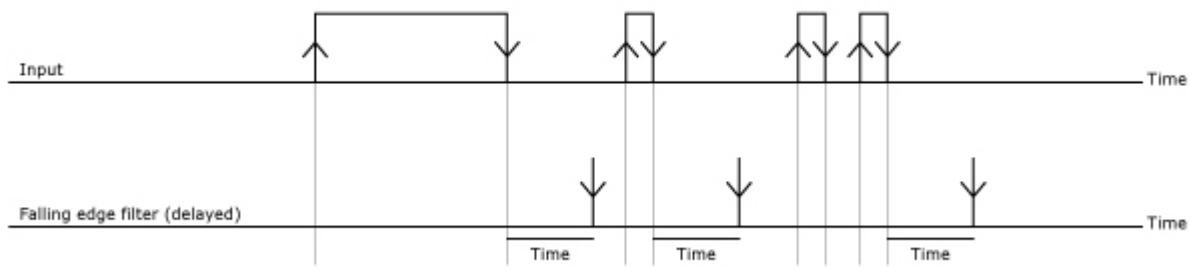
3.6.7 Rising edge filter (delayed)

The time function “rising edge filter (delayed)” filters all the rising edges out of the input signal.
The output can be delayed with the set time. Every rising edge restarts the delay time.



3.6.8 Falling edge filter (delayed)

The time function “falling edge filter (delayed)” filters all the falling edges out of the input signal.
The output can be delayed with the set time. Every falling edge restarts the delay time.



4. Internal thermostat

4.1 Functions (heating / cooling)

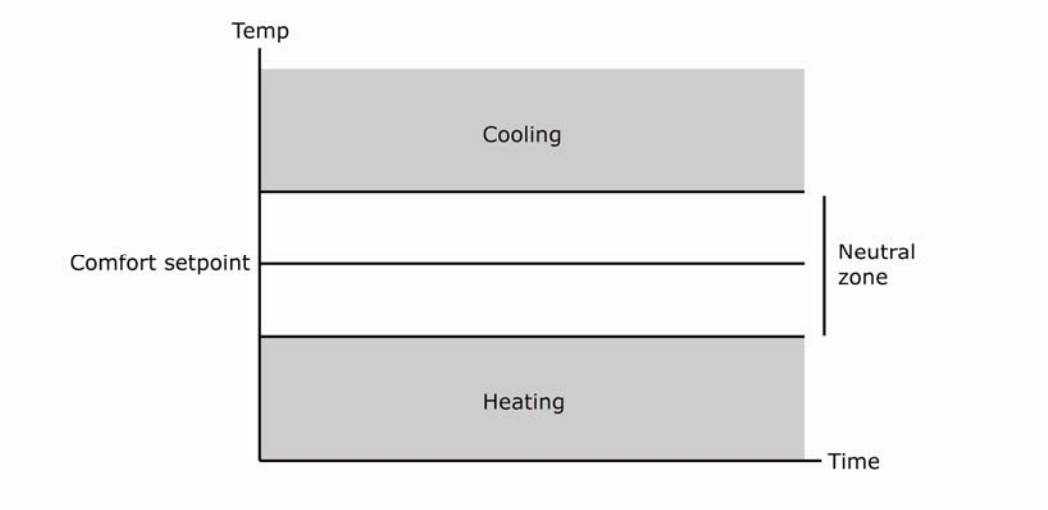
The internal room temperature controller can control the temperature of 1 room. The device supports 4 operating options:

- Heating
- Cooling
- Heating and cooling manual
- Heating and cooling automatic

In manual mode, the function is controlled by a communication object

In Automatic mode, the function is automatically set by the controller.
Heating mode is activated if the temperature falls below comfort setpoint – neutral zone / 2.
Cooling mode is activated if the temperature rises above comfort setpoint + neutral zone / 2.

This neutral zone can be set between 2 and 6.



4.2 Modes

In each option, the controller can work in 4 modes. Each mode has a setpoint assigned to it.

- Comfort: To be activated when people are present in the room. The temperature is set to a comfortable value. This value is a reference for the calculation of all other setpoint values.
- Standby: To be activated when the room is not in use. The temperature is set to a standby value which allows energy saving.
- Economy: To be activated when a room is not in use for a longer period (e.g. at night). The temperature is set to a low value.
- Building protection: When a window is opened, normal operation is suspended. The temperature is kept between critical values, preventing freezing and/or overheating.

Remark: "Protection" is a mode that will automatically be activated when a window is opened (if enabled).

4.2.1 Manual and automatic mode selection

The normal operating modes: "comfort", "standby" and "economy" can be selected by the according communication objects.

If enabled, the mode can be overridden to "protect" if a window is open.

The mode can also be automatically defined using a presence object.

4.2.1.1 Presence object

The presence object allows the user to automatically switch to the appropriate mode, depending on the presence in a room.
When the presence object is active, the mode is set to comfort.

When the presence object is inactive, the mode changes to standby or economy, depending on the settings.

4.2.1.2 Window object

When the window object is enabled, normal operation of the thermostat is suspended if the object is active. The mode automatically changes to Protect.
In Building protect mode, only frost protection and/or overheating protection are active, keeping room temperature between critical values.

If the window object returns to low, the thermostat resumes normal operation with the previously active settings.

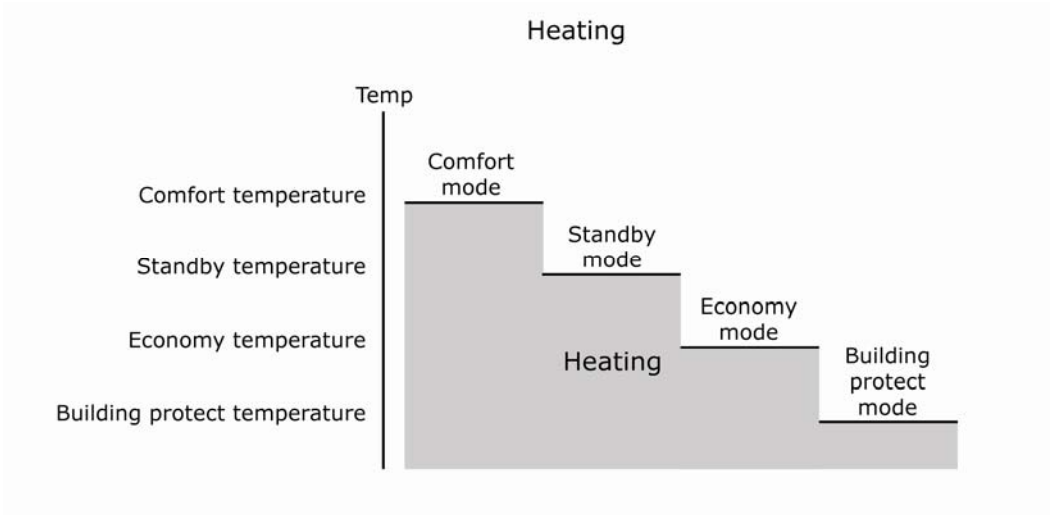
The window object can be configured to be activated on high or low.

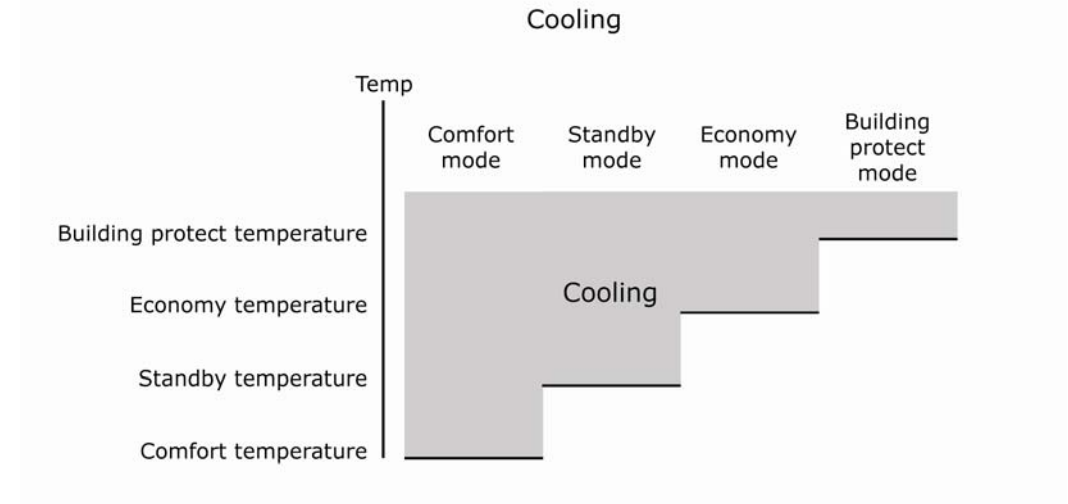
4.3 Setpoint

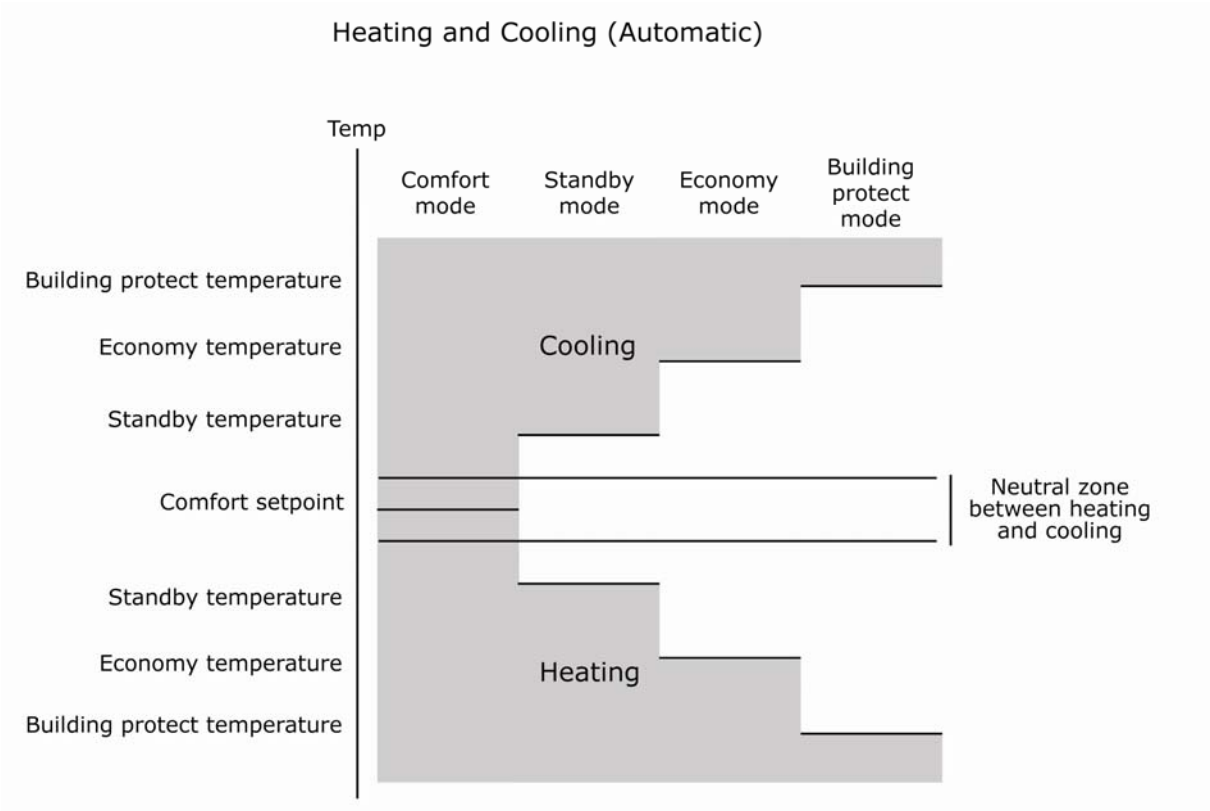
For each function there is a setpoint assigned to each mode.
The function “heating and cooling automatic” share the same setpoint for “heating comfort” and “cooling comfort”.
The function “heating and cooling manual” has 2 different setpoint values, one for “heating comfort” and one for “cooling comfort”.

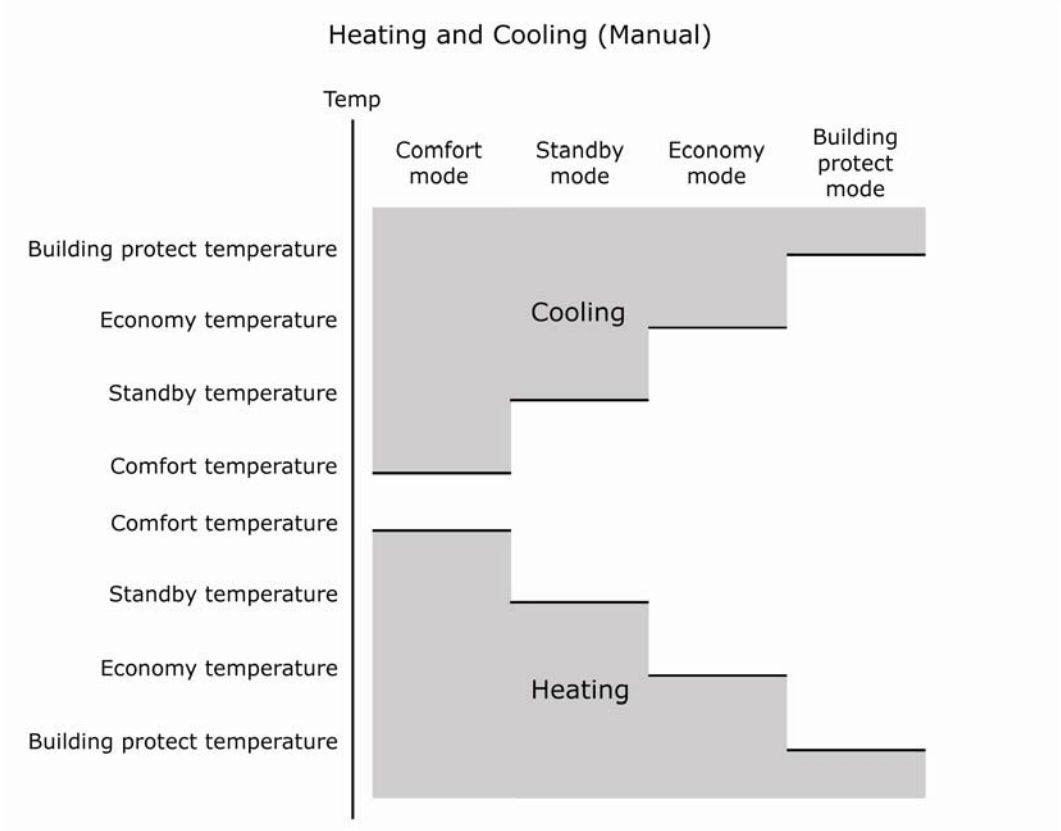
The setpoint for “standby” and “economy” mode are derived from the “comfort” setpoint.
This deviation, called an offset, for “standby” and “economy” can be set into the parameters of ETS. This deviation is kept constant against the changes to the comfort setpoint.

The setpoint for “building protect” is a fixed setpoint for the heating and cooling mode.









4.4 Temperature control method

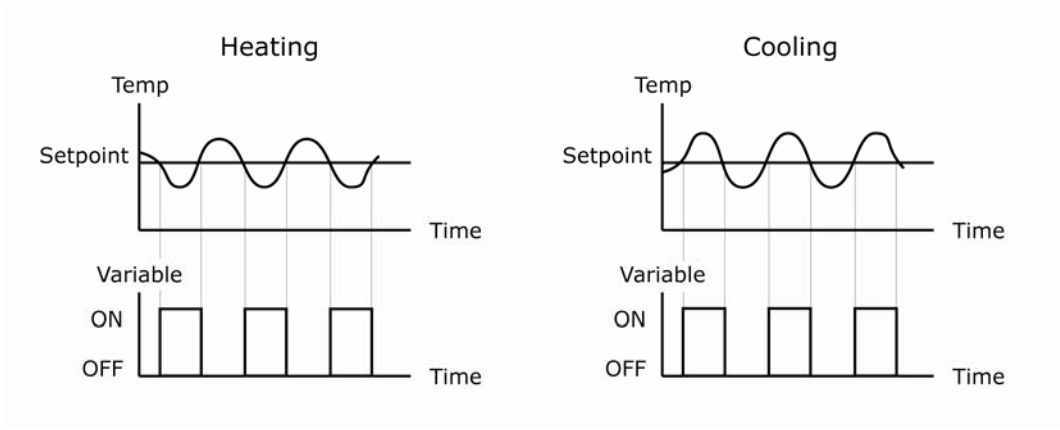
4.4.1 2-point control method

This is a very simple controller method, suitable for slow responding cooling and heating systems. It addresses the actuator with 1 bit output variable. No proportional value is calculated.

This type of method results is a significant temperature fluctuation.

For heating:
When the temperature rises above the setpoint, the actuator is deactivated.
When the temperature falls below setpoint – hysteresis, the actuator is activated.
The hysteresis is a value that can be set between 10 and 60.

For cooling:
When the temperature falls below above the setpoint, the actuator is deactivated.
When the temperature rises below setpoint + hysteresis, the actuator is activated.
The hysteresis is a value that can be set between 10 and 60.



4.4.2 PI control

PI control is a feedback control method that combines proportional and integral actions.

The proportional action provides smooth control without overshoot or oscillation. This action's output is proportional to the temperature deviation. When the temperature deviation is equal to the proportional band, the output is 100%.

The integral action's output is proportional to the time over which the deviation occurred. This action output reaches the same level as the proportional action after a specified time: the reset time. The integral action automatically corrects offset, created by the proportional action.

When the output saturates due to a big temperature deviation, normal operation is suspended and the output is maintained at 100%. Once the setpoint is reached, normal operation resumes and I action is reset to avoid temperature overshoot.

The proportional band and reset time are adjustable in ETS.

4.5 Temperature control output

In case of a 2-point controller, there is a single 1-bit output for the actuator. No parameterization is required.

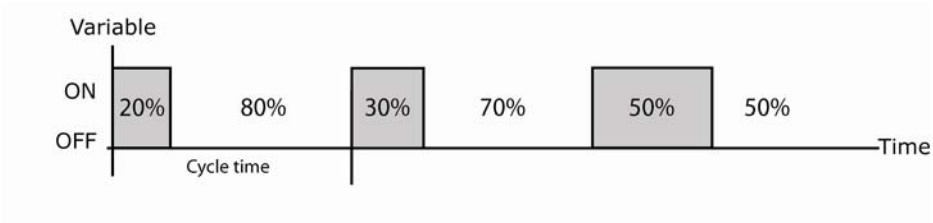
In case of a PI controller, the controller output type can be set to PWM or Continuous.

4.5.1 PWM

A PWM output uses a single 1 bit output. By adjusting the pulse / pause ratio, averaged over time, it behaves like a proportional output.

Output values smaller than 10% are discarded and values exceeding 90% result in pulse / pause ratio of 100%.
In this regard, please keep in mind that the valve needs a certain time to open or close.
The time to open or close the valve should be at least 10% of the cycle time.

The PWM period (duration of 1 pulse + 1 pause) can be parameterized.



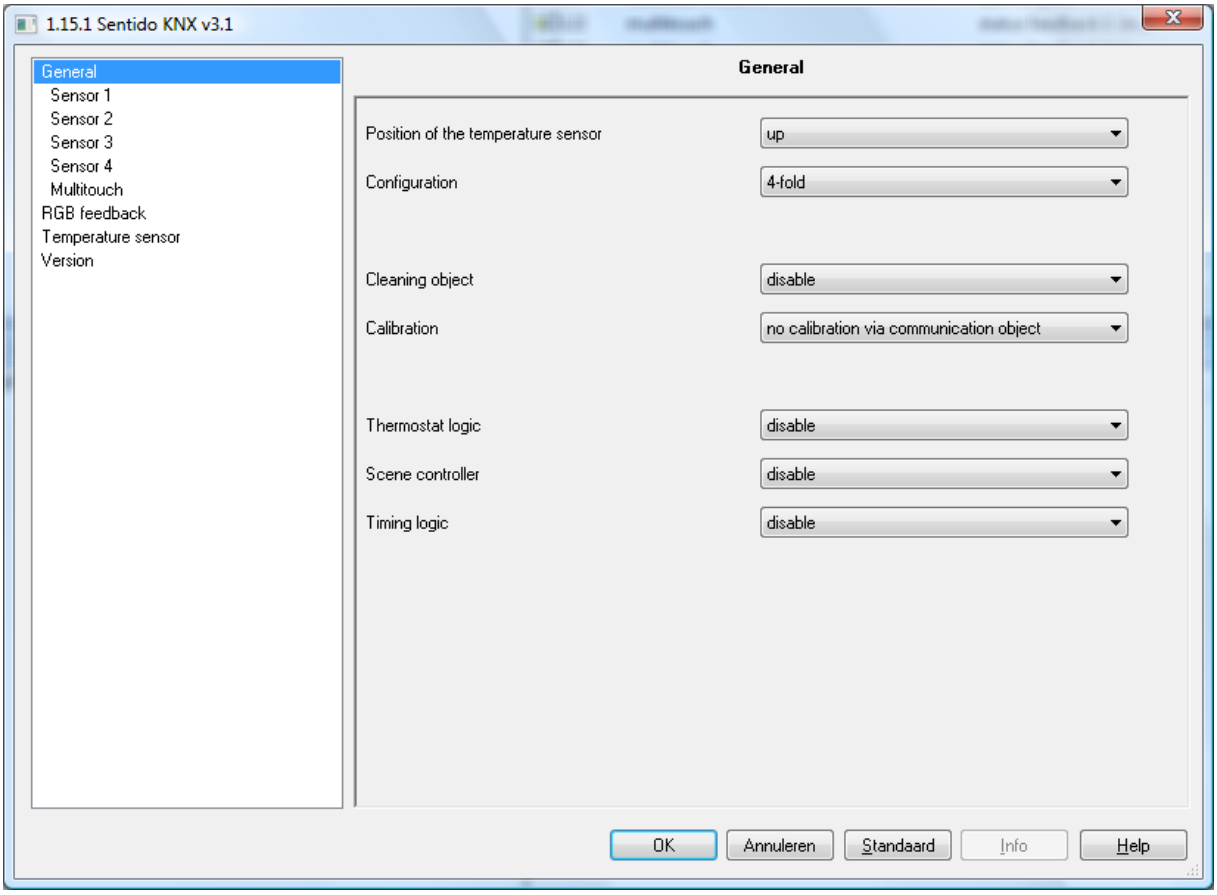
When the PWM output is 0%, only the falling edge is sent every cycle.
When the PWM output is 100%, only the rising edge is sent every cycle.

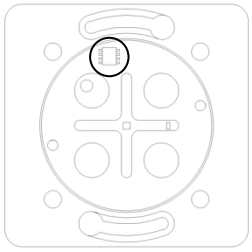
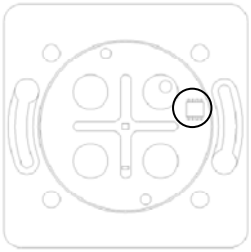
4.5.2 Continuous

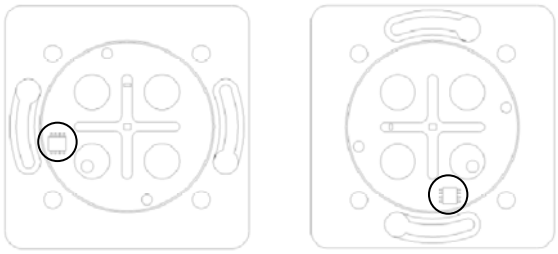
A continuous output uses a 1-byte unsigned output and directly reflects the proportional output of the PI controller. The output value is updated every 20 seconds or when de value is changed by more than 5%.

5. Configuration of parameters

5.1 General

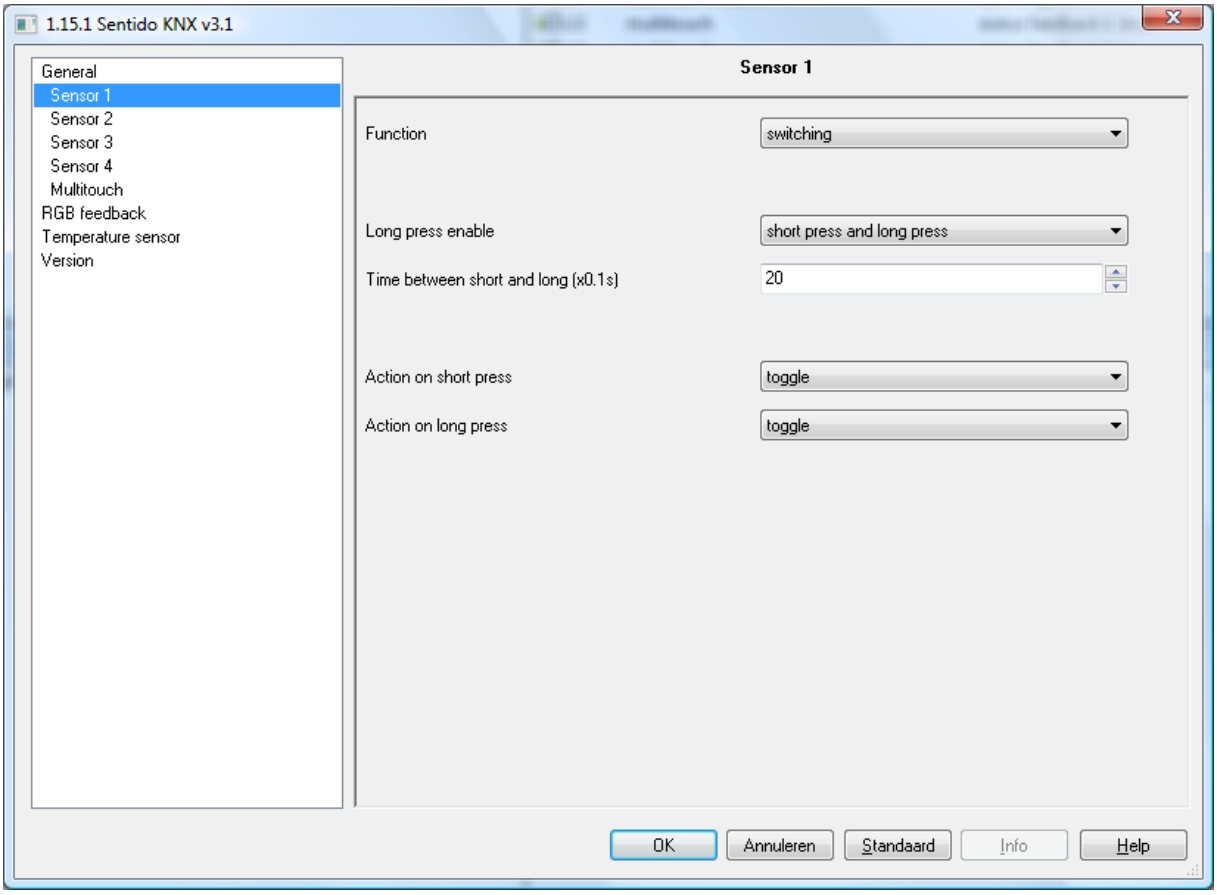


Parameter	Description
Position of the temperature sensor	This parameter defines the position of the installed switch. Settings:  Up  Right

	 Left Bottom
Configuration	This parameter sets the configuration of the switch. Settings: 4-fold 2-fold 1-fold Multitouch only Behaviour: • A 4-fold switch uses sensor 1 to 4 + multitouch. • A 2-fold switch uses sensor 1 and 2 + multitouch. • A 1-fold switch uses only sensor 1 without multitouch, every touch of the switch will have the behaviour of sensor 1. • Multitouch only uses only the multitouch, every touch of the switch will have the behaviour of the multitouch.
Cleaning object	This parameter allows enable/disable the touch sensor with a communication object. Settings: Disable Enable Communication objects: 120: cleaning object – as long as object is 1 (input) Behaviour: As long as there is a 1 on the corresponding communication object, the button is disabled. To release the button, write value 0 to the communication object. After the release, the switch starts to calibrate. *Remark: The central LED of the switch will light up red while the cleaning object is active.*

Calibration	This parameter allows calibrating the sensor of the device with an external communication object. Settings: No calibration by groupaddress Calibration by groupaddress Communication objects: 119: calibration – on rising edge (input) Behaviour: The touch sensor of the device starts to calibrate on a rising edge of the communication object. *Remark: Do not touch the front cover during recalibration because this can lead to insensitive sensors!*
Thermostat logic	This parameter enables/disables the thermostat logic. Settings: Disable Enable
Scene controller	This parameter enables/disables the scene controller. Settings: Disable Enable Communication objects: 130: scene controller – scene number (input)
Timing logic	This parameter enables/disables the timing functions. Settings: Disable (default) Enable

5.2 Sensor 1-4



Parameter	Description
Function	This parameter defines the function of this sensor. Settings: No action Edge Switching Dim Motor control Single press motor control Scene 1 byte value 2 byte value Shift register RGB value

Edge	
Action on rising edge	This parameter sets the sending command for the rising edge. Settings: No function Send 1 Send 0 Toggle Communication objects: 01: sensor 1 – edge – on/off (output) 17: sensor 2 – edge – on/off (output) 33: sensor 3 – edge – on/off (output) 49: sensor 4 – edge – on/off (output)
Action on falling edge	This parameter sets the sending command for the falling edge. Settings: No function Send 1 Send 0 Toggle Communication objects: 01: sensor 1 – edge – on/off (output) 17: sensor 2 – edge – on/off (output) 33: sensor 3 – edge – on/off (output) 49: sensor 4 – edge – on/off (output)

Switching	
Long press enable	This parameter enables/disables the long press action for this sensor. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*

Action on short press	This parameter sets the switching direction for the short press event. Settings: No function Send 1 Send 0 Toggle Communication objects: 01: sensor 1 – short press – on/off (output) 17: sensor 2 – short press – on/off (output) 33: sensor 3 – short press – on/off (output) 49: sensor 4 – short press – on/off (output)
Action on long press	This parameter sets the switching direction for the long press event. Settings: No function Send 1 Send 0 Toggle Communication objects: 02: sensor 1 – long press – on/off (output) 18: sensor 2 – long press – on/off (output) 34: sensor 3 – long press – on/off (output) 50: sensor 4 – long press – on/off (output)

Dim	
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Action on short press	This parameter sets the switching direction for the short press event. Settings: No function Send 1 Send 0 Toggle Communication objects: 03: sensor 1 – switch – on/off (output) 19: sensor 2 – switch – on/off (output) 35: sensor 3 – switch – on/off (output) 51: sensor 4 – switch – on/off (output)

Dim direction on long press	This parameter sets the dim direction for the long press event. Settings: No function Send 1 Send 0 Toggle Communication objects: 04: sensor 1 – dim – on/off (output) 20: sensor 2 – dim – on/off (output) 36: sensor 3 – dim – on/off (output) 52: sensor 4 – dim – on/off (output)

Motor control	
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Motor direction on short press	This parameter sets the direction of the motor on the short press event. Settings: No function Up Down Toggle Communication objects: 05: sensor 1 – short press – motor open/close (output) 21: sensor 2 – short press – motor open/close (output) 37: sensor 3 – short press – motor open/close (output) 53: sensor 4 – short press – motor open/close (output)
Motor direction on long press	This parameter sets the direction of the motor on the long press event. Settings: No function Up Down Toggle Communication objects: 06: sensor 1 – short press – motor open/close (output) 22: sensor 2 – short press – motor open/close (output) 38: sensor 3 – short press – motor open/close (output) 54: sensor 4 – short press – motor open/close (output)

Single press motor control	
Time from open to close (sec)	This parameter sets the time required to fully open/close the screen. Settings: Value between 1 and 255

Motor direction	This parameter sets the motor direction. Settings: Up Down Toggle Communication objects: 07: sensor 1 – motor – motor open/close (output) 08: sensor 1 – motor – motor open/close step (output) 23: sensor 2 – motor – motor open/close (output) 24: sensor 2 – motor – motor open/close step (output) 39: sensor 3 – motor – motor open/close (output) 40: sensor 3 – motor – motor open/close step (output) 55: sensor 4 – motor – motor open/close (output) 56: sensor 4 – motor – motor open/close step (output)

Scene	
Long press enable	This parameter enables/disables the long press action for this sensor. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*
Scene number on short press	This parameter defines the scene number for the short press event. Settings: Value between 1 and 64 Communication objects: 09: sensor 1 – scene – scene number (output) 25: sensor 2 – scene – scene number (output) 41: sensor 3 – scene – scene number (output) 57: sensor 4 – scene – scene number (output)
Blocking object on short press	This parameter disables or sets the blocking function for the short press event. Settings: No blocking object Blocking object = 1 Blocking object = 0 Communication objects: 10: sensor 1 – scene – blocking (output) 26: sensor 2 – scene – blocking (output) 42: sensor 3 – scene – blocking (output) 58: sensor 4 – scene – blocking (output)

Action on long press	This parameter defines the behaviour of the long press event. Settings: Call scene Save scene
Scene number on long press	This parameter defines the scene number for the short press event. Settings: Value between 1 and 64
Blocking object on long press	This parameter disables or sets the blocking function for the long press event. Settings: No blocking object Blocking object = 1 Blocking object = 0

1 byte value	
Long press enable	This parameter enables/disables the long press action for this sensor. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*
Value on short press	This parameter sets the value for the short press event. Settings: Value between 0 and 255 Communication objects: 11: sensor 1 – 1 byte – value (output) 27: sensor 2 – 1 byte – value (output) 43: sensor 3 – 1 byte – value (output) 59: sensor 4 – 1 byte – value (output)
Value on long press	This parameter sets the value for the long press event. Settings: Value between 0 and 255

2 byte value	
Long press enable	This parameter enables/disables the long press action for this sensor. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*
Value on short press	This parameter sets the value for the short press event. Settings: Value between 0 and 65535 Communication objects: 12: sensor 1 – 2 byte – value (output) 28: sensor 2 – 2 byte – value (output) 44: sensor 3 – 2 byte – value (output) 60: sensor 4 – 2 byte – value (output)
Value on long press	This parameter sets the value for the long press event. Settings: Value between 0 and 65535

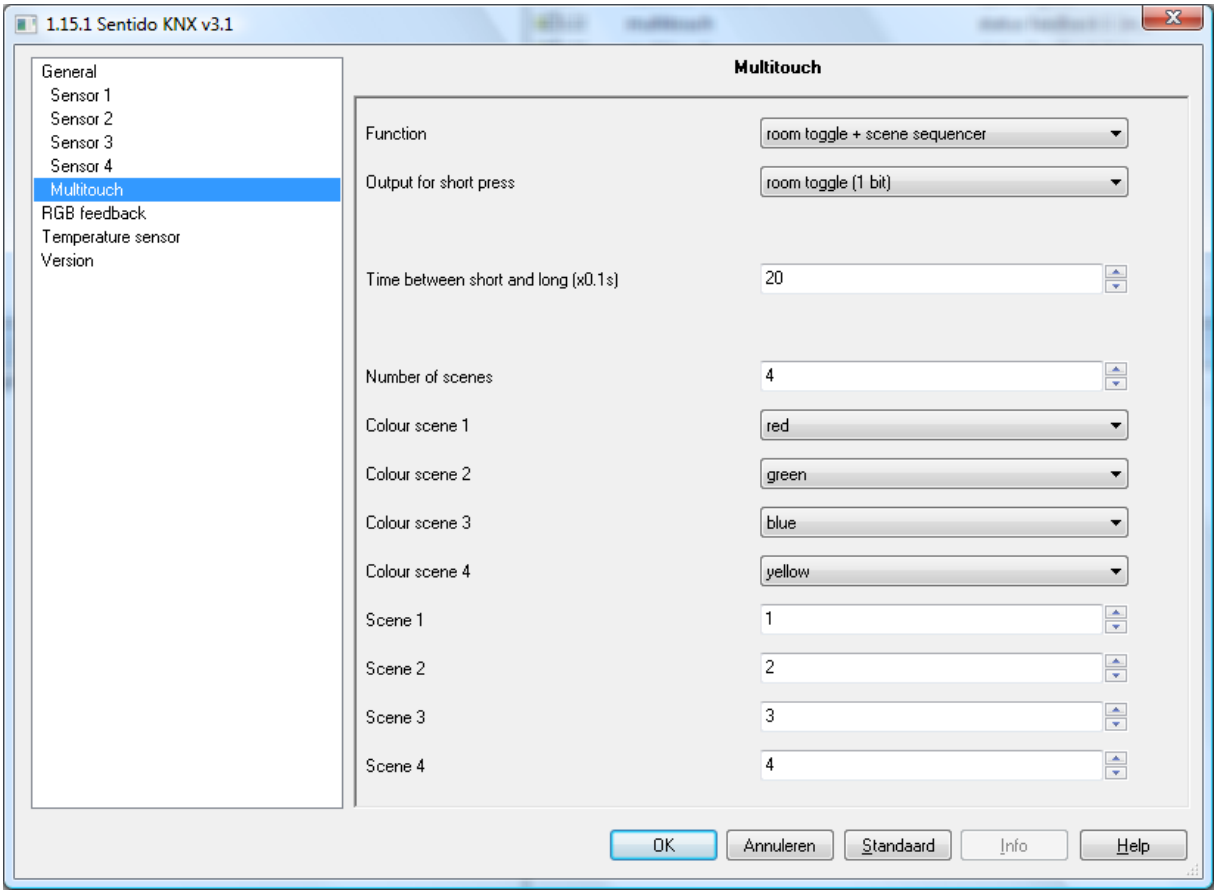
Shift register	
Value 1	This parameter sets value 1 for the shift register. Settings: Value between 0 and 255
Value 2	This parameter sets value 2 for the shift register. Settings: Value between 0 and 255
Step value	This parameter sets the step value to go through the shift register. Settings: Value between 0 and 255

Register direction	This parameter sets the direction to go through the shift register. Settings: from lowest value to highest value from highest value to lowest value Communication objects: 11: sensor 1 – register – value (output) 27: sensor 2 – register – value (output) 43: sensor 3 – register – value (output) 59: sensor 4 – register – value (output)
Enable reset	This parameter enables/disables to reset the actual value to start value of the shift register. The start value of the shift register depends on the direction. If the register direction is “from lowest value to highest value”, the start value is the lowest value. If the register direction is “from highest value to lowest value”, the start value is the highest value. Settings: No reset Reset on long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option “enable reset” is set to “reset on long press”.*

RGB value	
Long press enable	This parameter enables/disables the long press action for this sensor. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option “long press enable” is set to “short press and long press”.*

Value R/G/B on short/long press	This parameter sets the intensity of the red/green/blue colour on the short/long press event. Settings: Value between 0 and 255 Communication objects: 00: sensor 1 – RGB – RGB colour (output) 13: sensor 1 – 1 byte – value red (output) 14: sensor 1 – 1 byte – value green (output) 15: sensor 1 – 1 byte – value blue (output) 16: sensor 2 – RGB – RGB colour (output) 29: sensor 2 – 1 byte – value red (output) 30: sensor 2 – 1 byte – value green (output) 31: sensor 2 – 1 byte – value blue (output) 32: sensor 3 – RGB – RGB colour (output) 45: sensor 3 – 1 byte – value red (output) 46: sensor 3 – 1 byte – value green (output) 47: sensor 3 – 1 byte – value blue (output) 48: sensor 4 – RGB – RGB colour (output) 61: sensor 4 – 1 byte – value red (output) 62: sensor 4 – 1 byte – value green (output) 63: sensor 4 – 1 byte – value blue (output)

5.3 Multitouch



Parameter	Description
Function	This parameter defines the function of the multitouch. Settings: No action Edge Switching Shift register 1 byte value Motor control Single press motor control Room toggle Room toggle + single press motor control Room toggle + scene sequencer Room toggle + general on/off/scene RGB toggle + RGB sequencer

Edge	
Action on rising edge	This parameter sets the sending command for the rising edge. Settings: No function Send 1 Send 0 Toggle Communication objects: 64: Multitouch – edge – on/off (output)
Action on falling edge	This parameter sets the sending command for the falling edge. Settings: No function Send 1 Send 0 Toggle Communication objects: 64: Multitouch – edge – on/off (output)

Switching	
Long press enable	This parameter enables/disables the long press action for the multitouch. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*
Action on short press	This parameter sets the switching command for short press. Settings: No function Send 1 Send 0 Toggle Communication objects: 65: Multitouch – short press – on/off (output)

Action on long press	This parameter sets the switching command for long press. Settings: No function Send 1 Send 0 Toggle Communication objects: 66: Multitouch – long press – on/off (output)

Shift register	
Value 1	This parameter sets value 1 for the shift register. Settings: Value between 0 and 255
Value 2	This parameter sets value 2 for the shift register. Settings: Value between 0 and 255
Step value	This parameter sets the step value to go through the shift register. Settings: Value between 0 and 255
Register direction	This parameter sets the direction to go through the shift register. Settings: from lowest value to highest value from highest value to lowest value Communication objects: 67: Multitouch – register – value (output)
Enable reset	This parameter enables/disables to reset the actual value to start value of the shift register. The start value of the shift register depends on the direction. If the register direction is “from lowest value to highest value”, the start value is the lowest value. If the register direction is “from highest value to lowest value”, the start value is the highest value. Settings: No reset Reset on long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option “enable reset” is set to “reset on long press”.*

1 byte value	
Long press enable	This parameter enables/disables the long press action for the multitouch. Settings: Only short press Short press and long press
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50 *Remark: This parameter is only available when the option "long press enable" is set to "short press and long press".*
Value on short press	This parameter sets the value for the short press event. Settings: Value between 0 and 255 Communication objects: 67: Multitouch – 1 byte – value (output)
Value on long press	This parameter sets the value for the long press event. Settings: Value between 0 and 255 Communication objects: 67: Multitouch – 1 byte – value (output)

Motor control	
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Motor direction on short press	This parameter sets the direction of the motor on the short press event. Settings: No function Up Down Toggle Communication objects: 72: Multitouch – motor – motor open/close (output) 73: Multitouch – motor – motor open/close step (output)

Motor direction on long press	This parameter sets the direction of the motor on the long press event. Settings: No function Up Down Toggle

Single press motor control	
Time from open to close (sec)	This parameter sets the time required to fully open/close the screen. Settings: Value between 1 and 255
Motor direction	This parameter sets the motor direction. Settings: Up Down Toggle Communication objects: 72: Multitouch – motor – motor open/close (output) 73: Multitouch – motor – motor open/close step (output)

Room toggle	
Output	This parameter defines the type of command for the scene toggle. Settings: Room toggle (1 bit) Toggle between scene 1 (on) and scene 2 (off) Toggle between scene 1 (on) and all off Communication objects: 68: multitouch – room toggle – on/off (output) 69: multitouch – room toggle – scene number (output) 70: multitouch – room toggle – all off (output) 71: room toggle – trigger (input) 122: multitouch – status feedback 1 (input) 123: multitouch – status feedback 2 (input) 124: multitouch – status feedback 3 (input) 125: multitouch – status feedback 4 (input) 126: multitouch – status feedback 5 (input) 127: multitouch – status feedback 6 (input) 128: multitouch – status feedback 7 (input) 129: multitouch – status feedback 8 (input)

Day / night object	This parameter disables or sets the day/night function. Settings: No day / night object Day = 1, night = 0 Day = 0, night = 1 Communication objects: 107: Day / Night – on/off (input) *Remark: This option is only available is the parameter 'scene toggle' is set to 'toggle between scene 1 (on) and scene 2 (off)' or 'toggle between scene 1 (on) and all off'.*
Scene n	This parameter defines the scene number for scene n. Settings: Value between 1 and 64
Scene n during day	This parameter defines the scene number for scene n during the day. Settings: Value between 1 and 64
Scene n during night	This parameter defines the scene number for scene n during the night. Settings: Value between 1 and 64

Room toggle + single press motor control	
	Short press is the behaviour as described in "room toggle".
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
	Long press is the behaviour as described in "single press motor control".

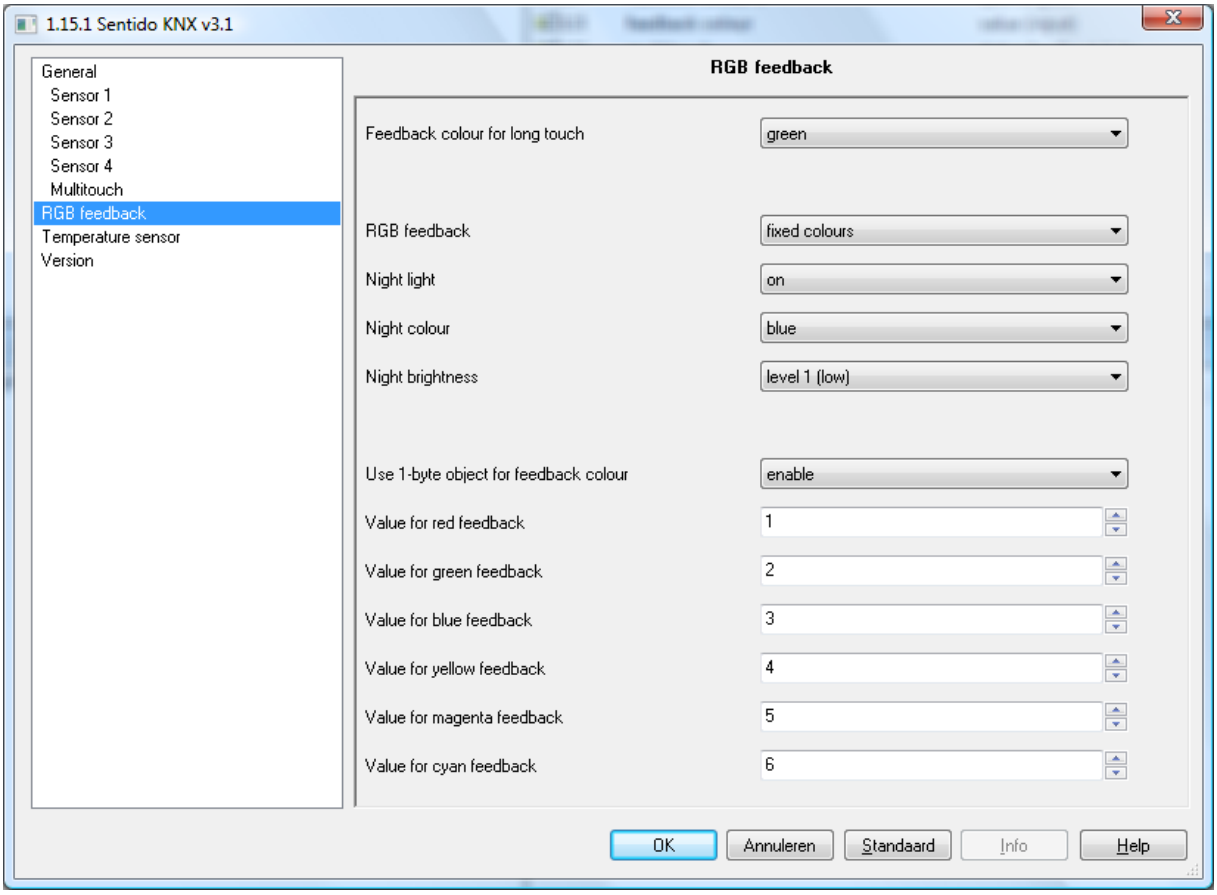
Room toggle + scene sequencer	
	Short press is the behaviour as described in "room toggle".
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Number of scenes	This parameter defines the number of scenes for the scene sequencer. Settings: Value between 2 and 4

Colour scene n	This parameter defines the colour for the corresponding scene. Settings: Red Green Blue Yellow Magenta Cyan
Scene n	This parameter defines the scene number for each corresponding colour. Settings: Value between 1 and 64 Communication objects: 74: multitouch – scene sequencer – scene number (output)

Room toggle + general on/off/scene	
	Short press is the behaviour as described in “room toggle”.
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Output	This parameter defines the output command for the general off function. Settings: Send 1 Send 0 Scene number Communication objects: 75: multitouch – general off – all off (output) 76: multitouch – general off – scene number (output)
Scene number	This parameter defines the scene number for the general off. Settings: Value between 1 and 64

RGB toggle + RGB sequencer	
Time between short and long (x0.1s)	This parameter defines the time between short and long press. Settings: Value between 15 and 50
Sequence switch	This parameter enables/disables the switching object for the short press behaviour. Settings: No function Toggle Communication objects: 121: RGB switch – on/off (output) *Remark: if this parameter is set to "no function", the short press of the multitouch is disabled.*
RGB sequence	This parameter describes the colour sequence. Settings: RYGCBMR WYRMBCGYW Communication objects: 64: multitouch – RGB sequencer – RGB colour (output) 77: multitouch – RGB sequencer – value red (output) 78: multitouch – RGB sequencer – value green (output) 79: multitouch – RGB sequencer – value blue (output)
Sequencer value	This parameter sets the type of output for the corresponding RGB objects. Settings: Value from 0-255 Value from 0-100
Sequencer time	This parameter sets the time to scroll through the colours Settings: Slow (2 sec / colour) Mid (1 sec / colour) Fast (0.5sec / colour)

5.4 RGB feedback



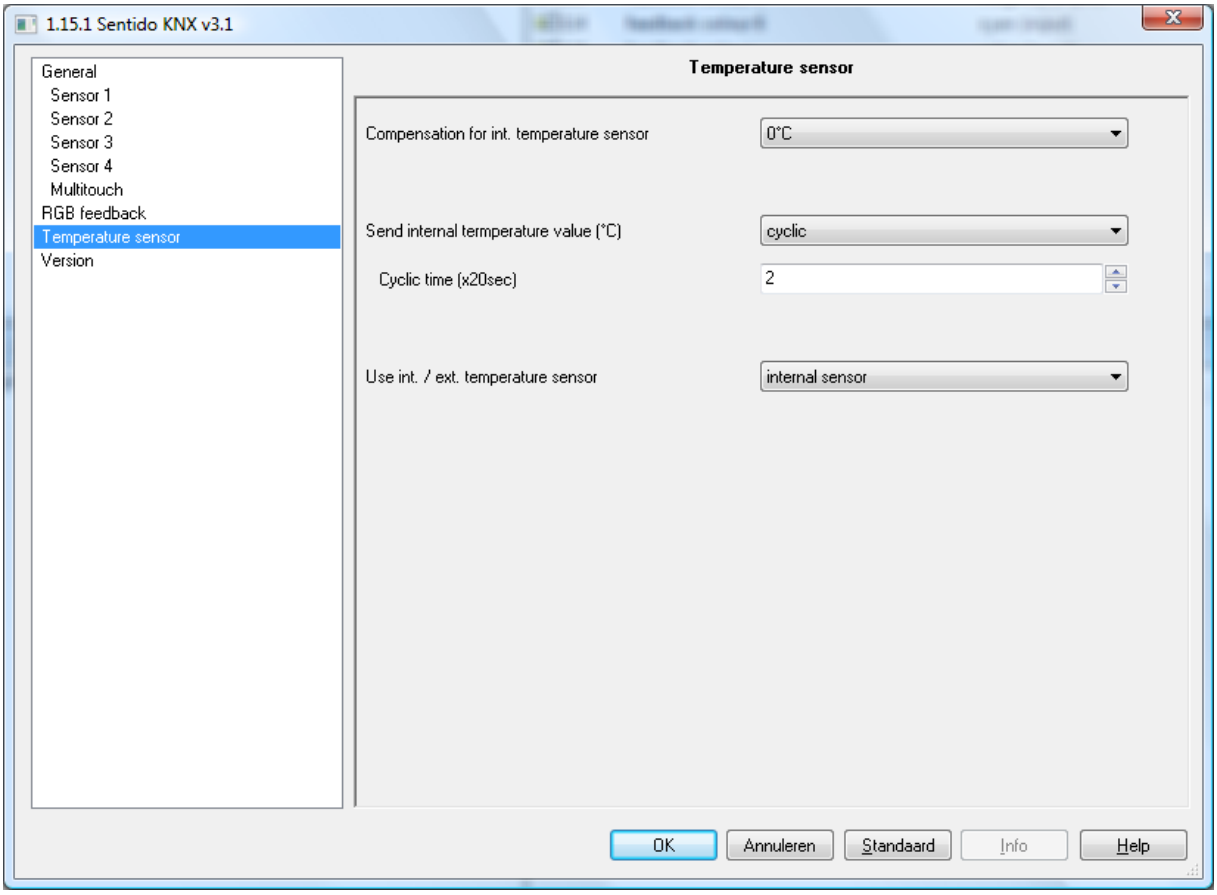
Parameter	Description
Feedback colour for long touch	This parameter sets the feedback colour for a long touch. Settings: Red Green Blue Yellow Magenta Cyan

RGB feedback	This parameter defines how to control the feedback LED. Settings: Fixed colours Controlled by RGB values Communication objects: 109: feedback colour 1 – red (input) 110: feedback colour 2 – green (input) 111: feedback colour 3 – blue (input) 112: feedback colour 4 – yellow (input) 113: feedback colour 5 – magenta (input) 114: feedback colour 6 – cyan (input) 116: feedback colour R – value red (input) 117: feedback colour G – value green (input) 118: feedback colour B – value blue (input) Behaviour: On reception of a 1 on communication object 41 to 47 will turn on the feedback colour, reception of a 0 will turn off the feedback colour.
Night light	This parameter disables or defines how the night light is controlled. Settings: Off On Controlled by groupaddress Communication objects: 108: night light – on/off (input) Behaviour: On reception of a 1, the night light will be on. On reception of a 0, the night light will be off.
Night colour	This parameter defines the night colour. Settings: Red Green Blue Yellow Magenta Cyan Orange Blue white Light pink Light green Light orange
Night brightness	This parameter defines the brightness of the night light. Settings: Level 1 (low) Level 2 Level 3 (high)

Use 1-byte object for feedback colour	This parameter enables/disables to control the central RGB feedback with a 1-byte object. Settings: Disable Enable Communication objects: 115: feedback colour – value (input) Behaviour: On receiving a value between 1 and 7, the respective colour will be shown: 1: red 2: green 3: blue 4: yellow 5: magenta 6: cyan In case of another number, the feedback colour will go off.
Value for red feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour red. Settings: Value between 0 and 255
Value for green feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour green. Settings: Value between 0 and 255
Value for blue feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour blue. Settings: Value between 0 and 255
Value for yellow feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour yellow. Settings: Value between 0 and 255
Value for magenta feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour magenta. Settings: Value between 0 and 255

Value for cyan feedback	This parameter sets the number, which has to be received on communication object 115, to turn the central LED to the colour cyan. Settings: Value between 0 and 255

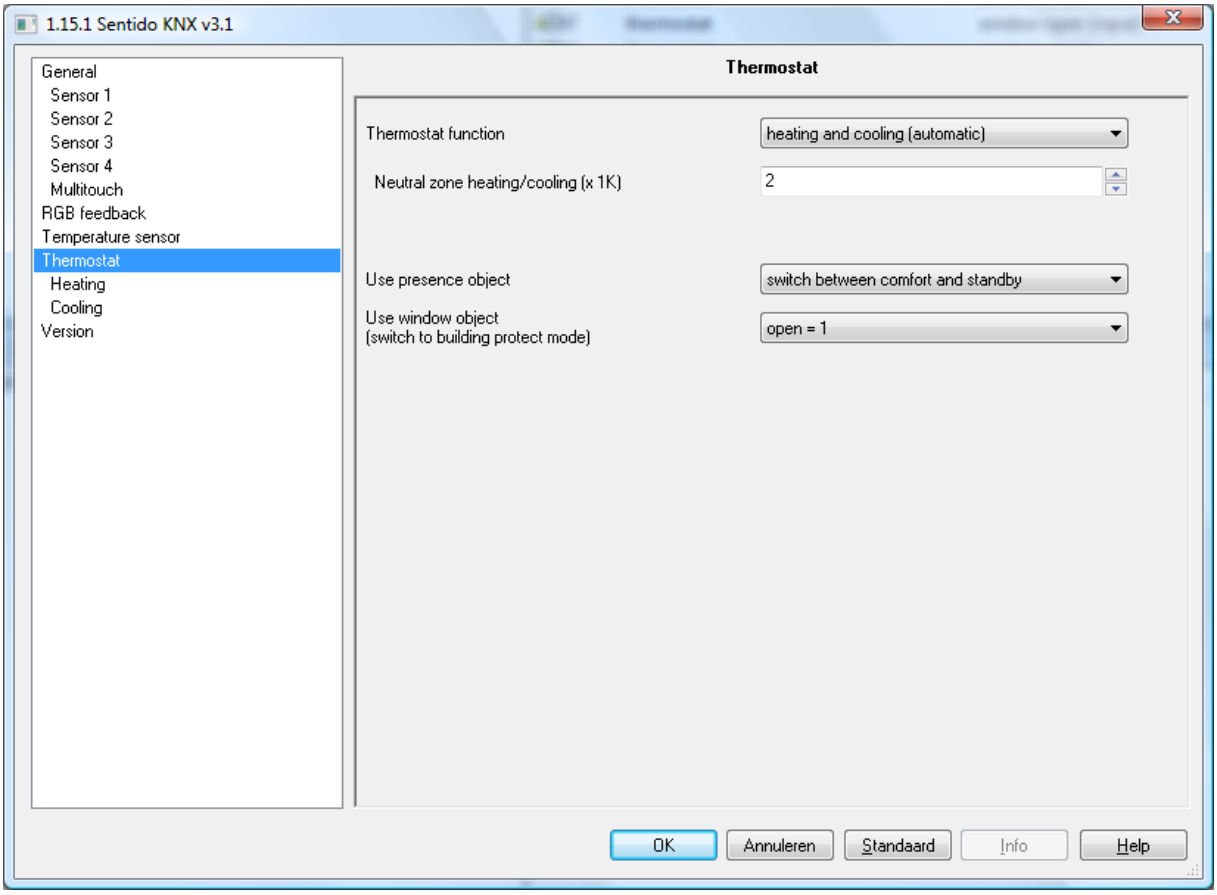
5.5 Temperature sensor



Parameter	Description
Compensation for int. Temperature sensor	This parameter makes it possible to compensate the measured temperature. Settings: From -5°C to +5°C with steps of 0.5°C Behaviour: The temperature shown on the device or set on the bus, is the compensated temperature.

Send internal temperature value (°C)	With this parameter, it is possible to enable or disable to send the temperature on the bus. When enabled, there are 2 ways to send the temperature on the bus, cyclic by time or when on a change of the temperature. Settings: Disable (default) Cyclic Delta temp Communication objects: 80: temperature - internal value (output) *Remark:* *Please consider a delay of about 20 minutes until you have the correct value.* *After 20 minutes you can compare the measured value with a measurement in the room with a digital temperature sensor to get the compensation value.*
Cyclic time (x20sec)	This parameter sets the time base to send the temperature on the bus. Settings: Value between 1 and 16
Delta temp (x0.5°C)	This parameter sets the temperature difference to send the temperature on the bus. Settings: Value between 1 and 16
Use int. / ext. temperature sensor	With this parameter it is possible to set the way of measuring the temperature. The device can use the internal temperature sensor or an external temperature sensor from another device. It is also possible to combine the internal and external temperature sensor. (This can be used e.g. to measure the average temperature of the Sentido and another device) Settings: Internal sensor (default) 80% internal sensor + 20% external sensor 60% internal sensor + 20% external sensor 50% internal sensor + 20% external sensor 40% internal sensor + 20% external sensor 20% internal sensor + 20% external sensor external sensor Communication objects: 80: temperature - internal value (output) 81: temperature - external sensor (input)

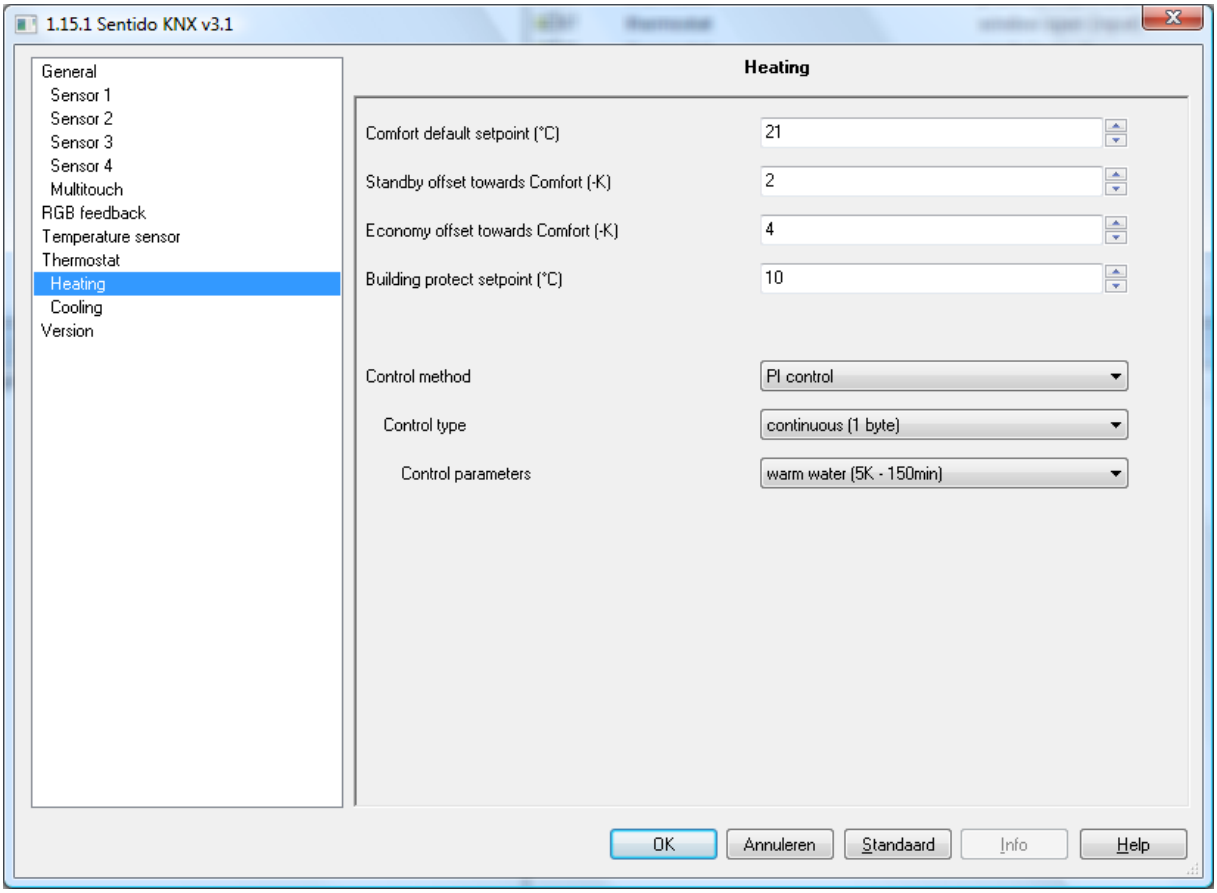
5.6 Thermostat



Parameter	Description
Thermostat function	This parameter sets the type of the thermostat. Settings: Heating Cooling Heating and cooling (manual) Heating and cooling (automatic) Communication objects: 082: thermostat – actual setpoint (input) 083: thermostat – actual setpoint (output) 084: thermostat – setpoint (comfort) (input) 085: thermostat – setpoint (comfort) (output) 088: thermostat – mode (input) 089: thermostat – mode – comfort (output) 090: thermostat – mode – standby (output 091: thermostat – mode – economy (output) 092: thermostat – mode – protected (output) 093: thermostat – mode (input) 094: thermostat – mode – comfort (input) 095: thermostat – mode – standby (input) 096: thermostat – mode – economy (input) 097: thermostat – mode – protected (input)

	098: thermostat – cooling/heating mode (input) 099: thermostat – heating mode (output) 100: thermostat – cooling mode (output) 101: thermostat – heating active (output) 102: thermostat – cooling active (output)
Use presence object	This parameter enables or disables the presence object. Settings: Disable Switch between comfort and standby Switch between comfort and economy Communication object: 86: thermostat – presence object (input) Behaviour: The presence object allows the user to automatically switch to the appropriate mode, depending on the presence in a room.
Use window object (switch to building protect mode)	This parameter enables or disables the window object. Settings: Disable Open =1 Open = 0 Communication object: 87: thermostat – window open (input) Behaviour: On receiving a 1 on this communication object, the heating will go into the 'building protection' mode.

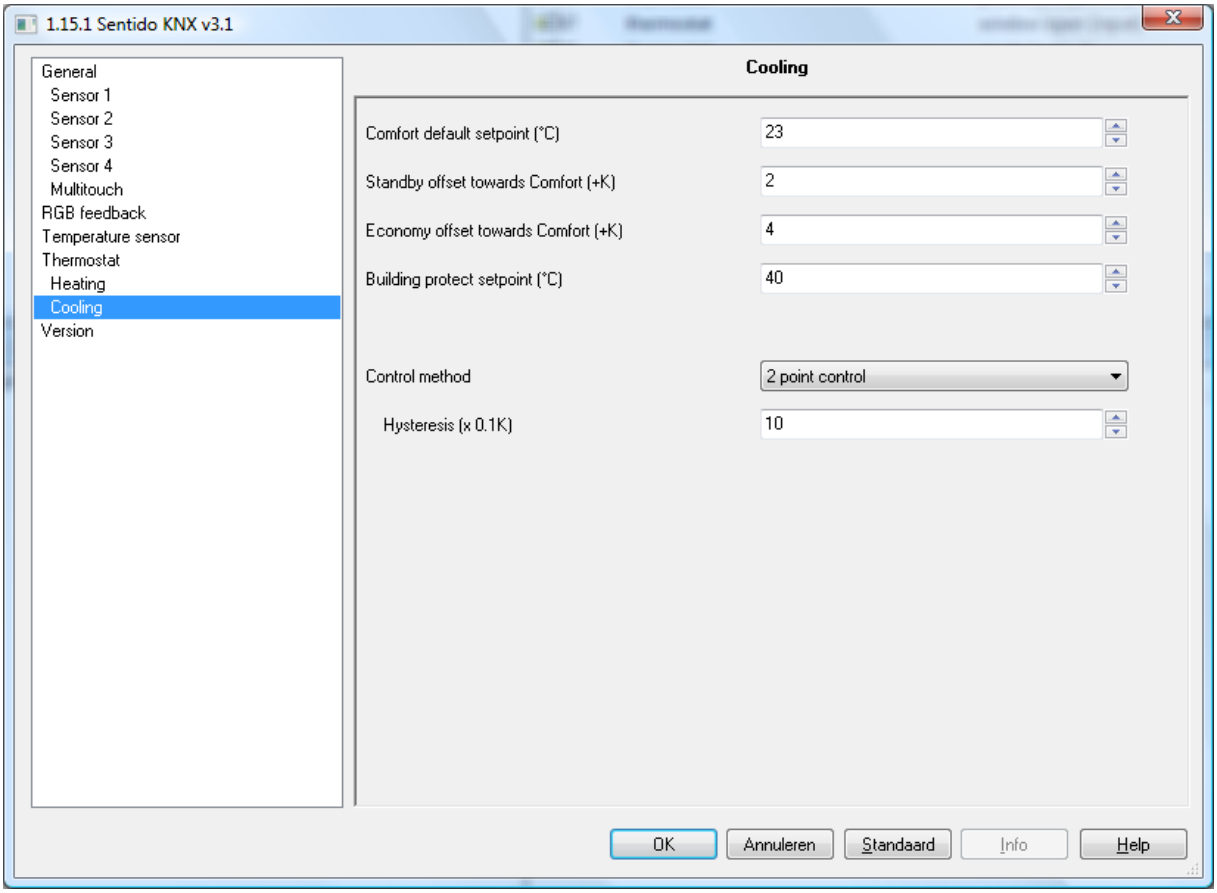
Heating



Parameter	Description
Comfort default setpoint (°C)	This parameter sets the default comfort setpoint. Settings: Value between 15 and 30
Standby offset towards Comfort (-K)	This parameter sets the offset for the standby setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 1 and 6
Economy offset towards Comfort (-K)	This parameter sets the offset for the economy setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 1 and 6
Building protect setpoint (°C)	This parameter sets the offset for the building protect setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 5 and 10

Control method	This parameter sets the type of control method for the heating. Settings: 2 point control PI control
Hysteresis (x 0.1 K)	This parameter sets the hysteresis value into degrees Kelvin. Settings: Value between 10 and 60
Control type	This parameter sets the type of control system for the heating system. Settings: Continuous (1 byte) PWM (1 bit) Communication objects: 103: thermostat – heating PWM (output) 104: thermostat – heating continuous (output)
PWM cycle time (min)	This parameter sets the time for the PWM cycle into minutes. Settings: Value between 5 and 40
Control parameters	This parameter sets the type for the heating system. Settings: Warm water (5K – 150min) Floor heating (5K – 240min) Electric heating (4K – 100min) Blow convector (4K – 90min) A/C split (4K – 90min) Customised parameters
Proportional band (x0.1 K)	This parameter sets the band in which the output is proportional to the deviation between the actual temperature and the setpoint value. Settings: Value between 10 and 50
Integral time (min)	This parameter sets the time required to obtain the same output variable as for the proportional action when using only an integral action. Settings: Value between 5 and 240

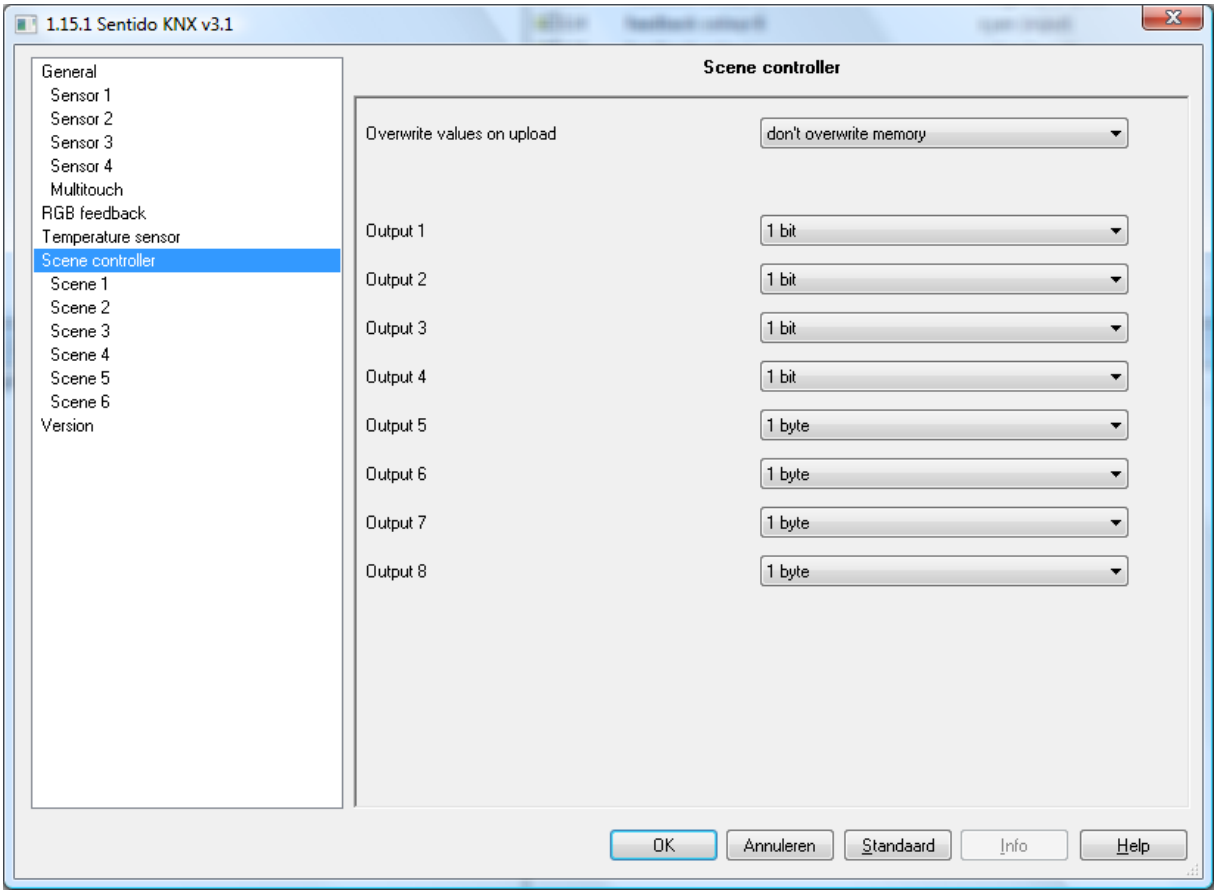
Cooling



Parameter	Description
Comfort default setpoint (°C)	This parameter sets the default comfort setpoint. Settings: Value between 15 and 30
Standby offset towards Comfort (+K)	This parameter sets the offset for the standby setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 1 and 6
Economy offset towards Comfort (+K)	This parameter sets the offset for the economy setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 1 and 6
Building protect setpoint (°C)	This parameter sets the offset for the building protect setpoint towards the comfort setpoint into degrees Kelvin. Settings: Value between 30 and 45

Control method	This parameter sets the type of control method for the cooling. Settings: 2 point control PI control
Hysteresis (x 0.1 K)	This parameter sets the hysteresis value into degrees Kelvin. Settings: Value between 10 and 60
Control type	This parameter sets the type of control system for the cooling system. Settings: Continuous (1 byte) PWM (1 bit) Communication objects: 105: thermostat – cooling PWM (output) 106: thermostat – cooling continuous (output)
PWM cycle time (min)	This parameter sets the time for the PWM cycle into minutes. Settings: Value between 5 and 40
Control parameters	This parameter sets the type for the cooling system. Settings: Cooling ceiling (5K – 240min) A/C split (4K – 90min) Customised parameters
Proportional band (x0.1 K)	This parameter sets the band in which the output is proportional to the deviation between the actual temperature and the setpoint value. Settings: Value between 10 and 50
Integral time (min)	This parameter sets the time required to obtain the same output variable as for the proportional action when using only an integral action. Settings: Value between 5 and 240

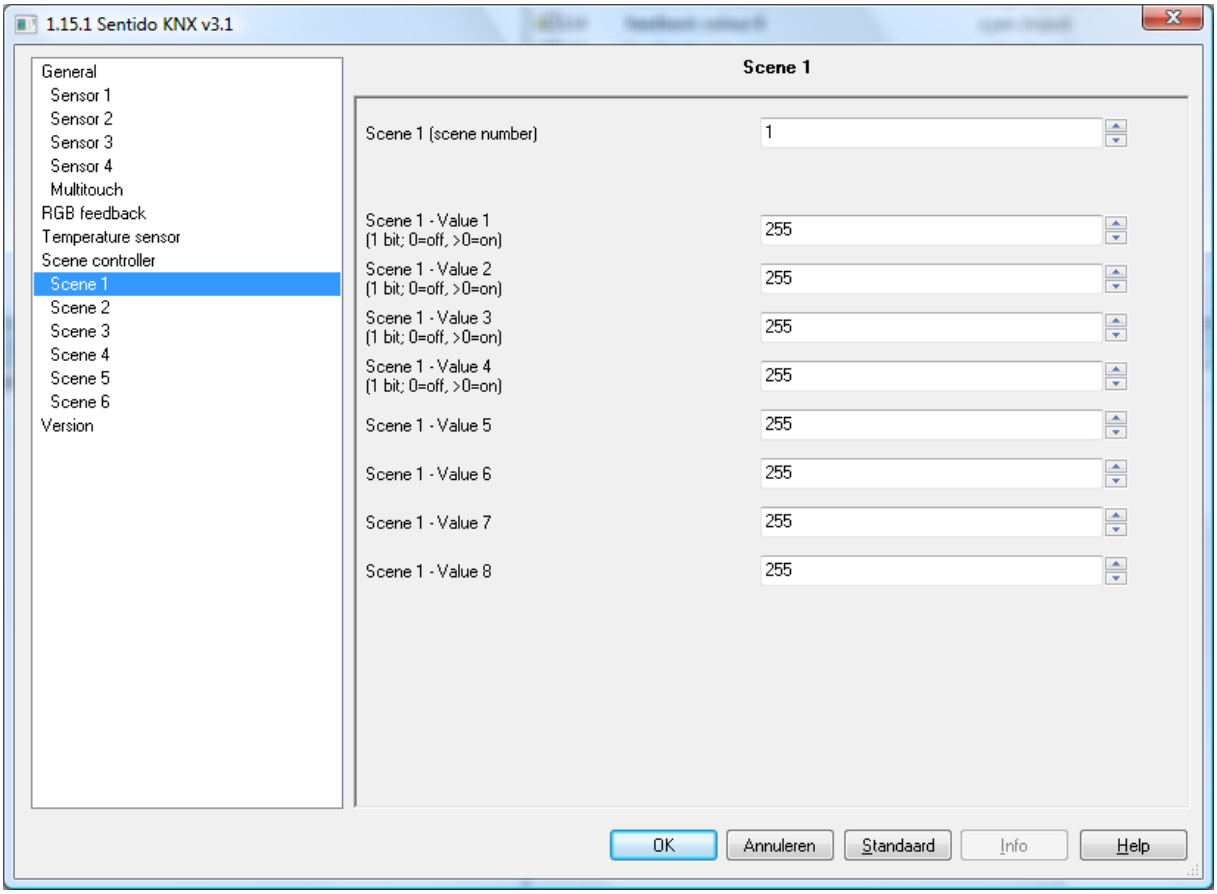
5.7 Scene controller



Parameter	Description
Overwrite values on upload	This parameter defines if the set values in ETS have to overwrite the values in the switch or if the values in the switch must be saved. This parameter defines if the default values, set in ETS, have to overwrite the saved values in the switch. The default values can be set as mentioned in 4.7.1. Settings: Don't overwrite memory Overwrite memory *Remark: If the user is allowed to change and save scenes, we advise to put this parameter to "don't overwrite memory".*

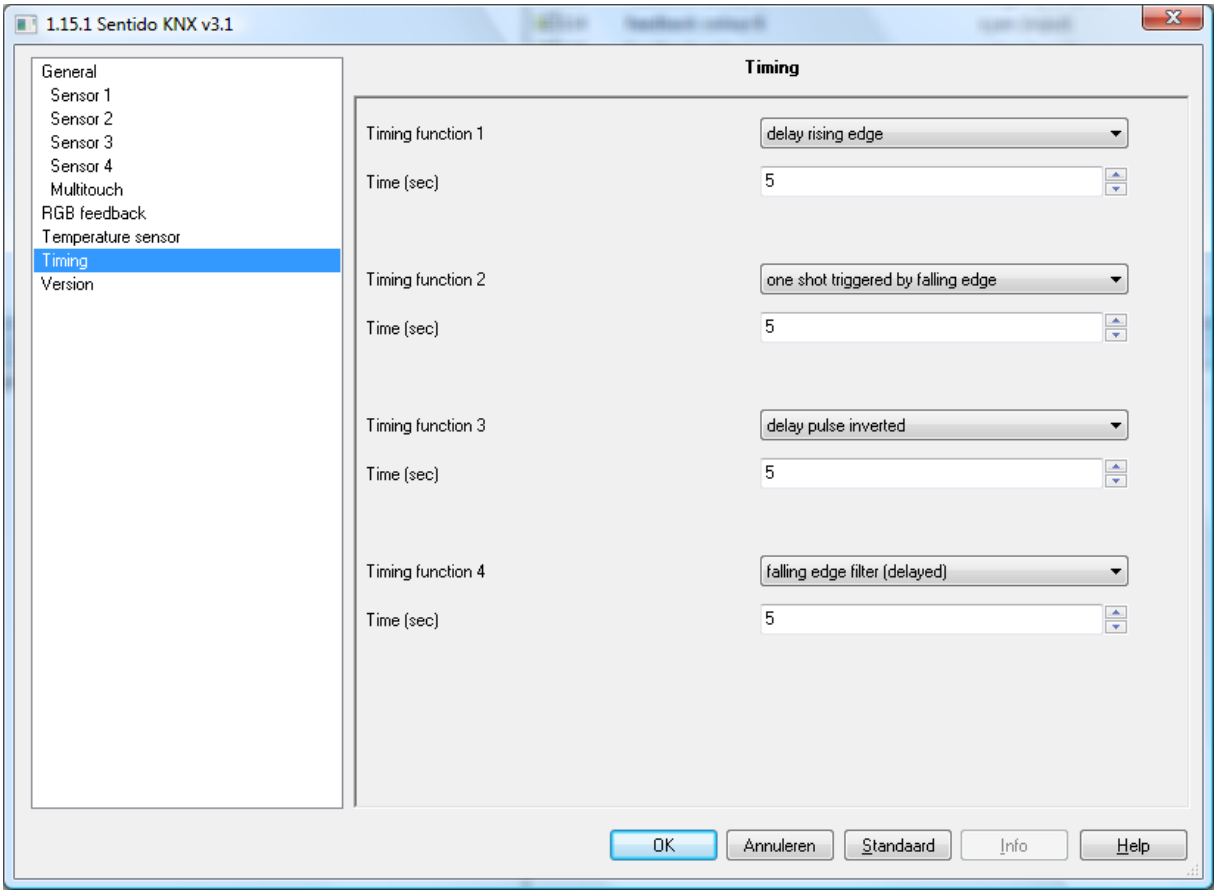
Output n	This parameter disables or defines the output type. Settings: Not used 1 bit 1 byte Communication objects: 131: scene controller - output 1 – on/off (output) 132: scene controller - output 2 – on/off (output) 133: scene controller - output 3 – on/off (output) 134: scene controller - output 4 – on/off (output) 135: scene controller - output 5 – on/off (output) 136: scene controller - output 6 – on/off (output) 137: scene controller - output 7 – on/off (output) 138: scene controller - output 8 – on/off (output) 139: scene controller - output 1 – value (output) 140: scene controller - output 2 – value (output) 141: scene controller - output 3 – value (output) 142: scene controller - output 4 – value (output) 143: scene controller - output 5 – value (output) 144: scene controller - output 6 – value (output) 145: scene controller - output 7 – value (output) 146: scene controller - output 8 – value (output) 147: scene controller - output 1 – status feedback (input) 148: scene controller - output 2 – status feedback (input) 149: scene controller - output 3 – status feedback (input) 150: scene controller - output 4 – status feedback (input) 151: scene controller - output 5 – status feedback (input) 152: scene controller - output 6 – status feedback (input) 153: scene controller - output 7 – status feedback (input) 154: scene controller - output 8 – status feedback (input) 155: scene controller - output 1 – value feedback (input) 156: scene controller - output 2 – value feedback (input) 157: scene controller - output 3 – value feedback (input) 158: scene controller - output 4 – value feedback (input) 159: scene controller - output 5 – value feedback (input) 160: scene controller - output 6 – value feedback (input) 161: scene controller - output 7 – value feedback (input) 162: scene controller - output 8 – value feedback (input)

5.7.1 Scene n



Parameter	Description
Scene n (scene number)	This parameter sets the scene number. Settings: Value between 1 and 64 Communication objects: 130: scene controller – scene number (input)
Scene n – value n	This parameter sets the default value for each output for a scene. Settings: Value between 1 and 255 *Remark: If the data type is set to 1 bit, each value higher than 0 will become a 1.*

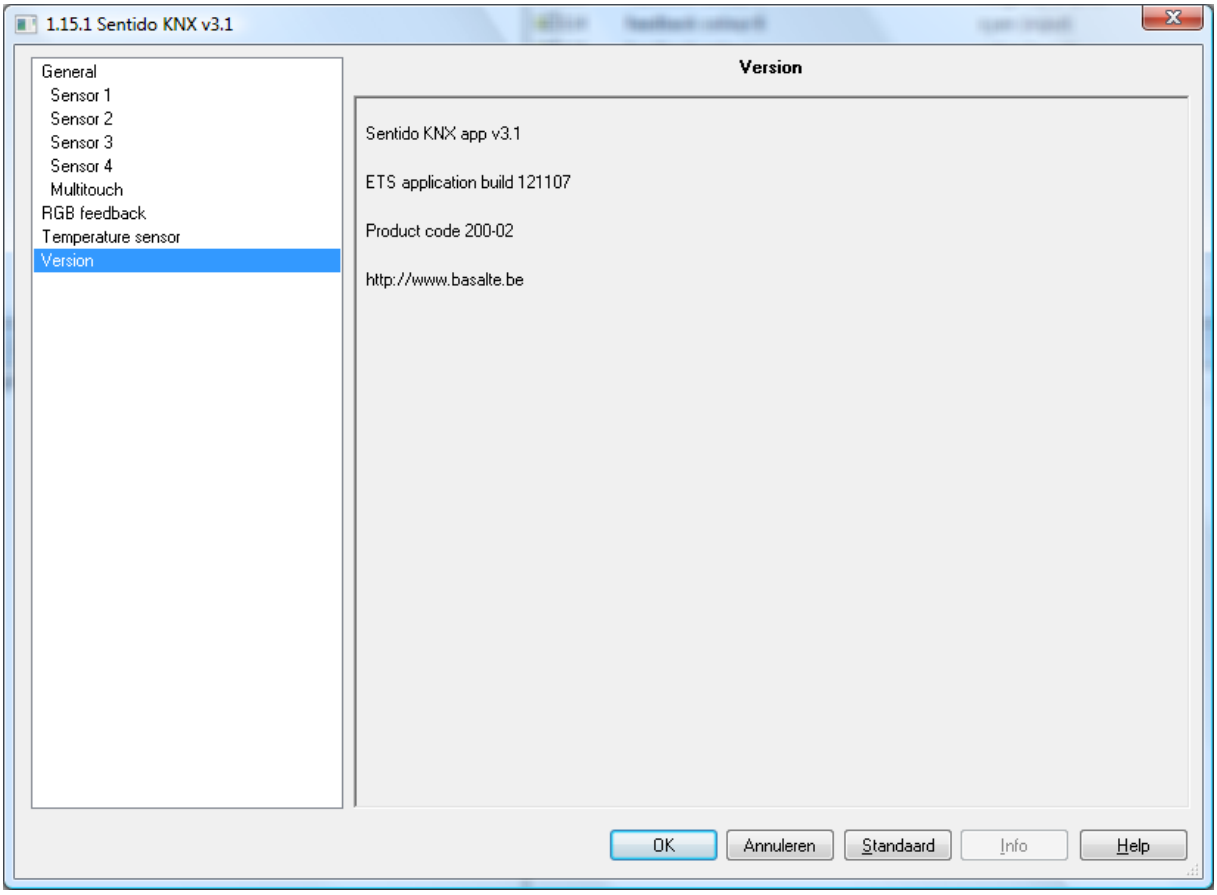
5.8 Timing



Parameter	Description
Timing function n	This parameter disables or set the timing function. Settings: None Delay rising edge Delay falling edge Delay pulse One shot triggered by rising edge One shot triggered by falling edge Delay pulse inverted Rising edge filter (delayed) Falling edge filter (delayed) Communication objects: 163: timing 1 – 1 bit (input) 164: timing 1 – 1 bit (output) 165: timing 2 – 1 bit (input) 166: timing 2 – 1 bit (output) 167: timing 3 – 1 bit (input) 168: timing 3 – 1 bit (output) 169: timing 4 – 1 bit (input) 170: timing 4 – 1 bit (output)

Time (sec)	This parameter will set the delay of the timing function. Settings: Value between 0 and 255

5.9 Version



Parameter	Description
Sentido KNX app 3.0	The software version of the application In this case: v3.1
ETS application build	This is the build number of the application In this case: 121107
Product code	The product code for the Sentido KNX In this case: 200-02
http://www.basalte.be	The website from basalte

6. Appendix:

Communi-cation object	Name	Function	Input/ Output	Data length	Data type	Flags	Polled at startup
0	Sensor 1 – RGB	RGB colour	Output	3 byte	Colour RGB	C-T	
1	Sensor 1 – edge Sensor 1 – short press	On/off	Output	1 bit	Switch	C-W-T-U	V
2	Sensor 1 – long press	On/off	Output	1 bit	Switch	C-W-T-U	V
3	Sensor 1 – switch	On/off	Output	1 bit	Switch	C-W-T-U	V
4	Sensor 1 – dim	On/off	Output	4 bit	Dim	C-T	
5	Sensor 1 – short press	Motor open/close	Output	1 bit	Open/close	C-W-T	
6	Sensor 1 – long press	Motor open/close	Output	1 bit	Open/close	C-W-T	
7	Sensor 1 – motor	Motor open/close	Output	1 bit	Open/close	C-W-T	
8	Sensor 1 – motor	Motor open/close step	Output	1 bit	Open/close	C-W-T	
9	Sensor 1 – scene	Scene number	Output	1 byte	Unsigned	C-T	
10	Sensor 1 – blocking	Scene blocking	Output	1 bit	Switch	C-T	
11	Sensor 1 – 1 byte Sensor 1 – register	Value	Output	1 byte	Uncount	C-W-T-U	V
12	Sensor 1 – 2 byte	Value	Output	2 byte	Uncount	C-T	
13	Sensor 1 – 1 byte	Value red	Output	1 byte	Unsigned	C-T	
14	Sensor 1 – 1 byte	Value green	Output	1 byte	Unsigned	C-T	
15	Sensor 1 – 1 byte	Value blue	Output	1 byte	Unsigned	C-T	
16	Sensor 2 – RGB	RGB colour	Output	3 byte	Colour RGB	C-T	
17	Sensor 2 – edge Sensor 2 – short press	On/off	Output	1 bit	Switch	C-W-T-U	V
18	Sensor 2 – long press	On/off	Output	1 bit	Switch	C-W-T-U	V
19	Sensor 2 – switch	On/off	Output	1 bit	Switch	C-W-T-U	V
20	Sensor 2 – dim	On/off	Output	4 bit	Dim	C-T	
21	Sensor 2 – short press	Motor open/close	Output	1 bit	Open/close	C-W-T	
22	Sensor 2 – long press	Motor open/close	Output	1 bit	Open/close	C-W-T	
23	Sensor 2 – motor	Motor open/close	Output	1 bit	Open/close	C-W-T	
24	Sensor 2 – motor	Motor open/close step	Output	1 bit	Open/close	C-W-T	
25	Sensor 2 – scene	Scene number	Output	1 byte	Unsigned	C-T	

26	Sensor 2 – blocking	Scene blocking	Output	1 bit	Switch	C-T	
27	Sensor 2 – 1 byte Sensor 2 – register	Value	Output	1 byte	Uncount	C-W-T-U	V
28	Sensor 2 – 2 byte	Value	Output	2 byte	Uncount	C-T	
29	Sensor 2 – 1 byte	Value red	Output	1 byte	Unsigned	C-T	
30	Sensor 2 – 1 byte	Value green	Output	1 byte	Unsigned	C-T	
31	Sensor 2 – 1 byte	Value blue	Output	1 byte	Unsigned	C-T	
32	Sensor 3 – RGB	RGB colour	Output	3 byte	Colour RGB	C-T	
33	Sensor 3 – edge Sensor 3 – short press	On/off	Output	1 bit	Switch	C-W-T-U	V
34	Sensor 3 – long press	On/off	Output	1 bit	Switch	C-W-T-U	V
35	Sensor 3 – switch	On/off	Output	1 bit	Switch	C-W-T-U	V
36	Sensor 3 – dim	On/off	Output	4 bit	Dim	C-T	
37	Sensor 3 – short press	Motor open/close	Output	1 bit	Open/close	C-W-T	
38	Sensor 3 – long press	Motor open/close	Output	1 bit	Open/close	C-W-T	
39	Sensor 3 – motor	Motor open/close	Output	1 bit	Open/close	C-W-T	
40	Sensor 3 – motor	Motor open/close step	Output	1 bit	Open/close	C-W-T	
41	Sensor 3 – scene	Scene number	Output	1 byte	Unsigned	C-T	
42	Sensor 3 – blocking	Scene blocking	Output	1 bit	Switch	C-T	
43	Sensor 3 – 1 byte Sensor 3 – register	Value	Output	1 byte	Uncount	C-W-T-U	V
44	Sensor 3 – 2 byte	Value	Output	2 byte	Uncount	C-T	
45	Sensor 3 – 1 byte	Value red	Output	1 byte	Unsigned	C-T	
46	Sensor 3 – 1 byte	Value green	Output	1 byte	Unsigned	C-T	
47	Sensor 3 – 1 byte	Value blue	Output	1 byte	Unsigned	C-T	
48	Sensor 4 – RGB	RGB colour	Output	3 byte	Colour RGB	C-T	
49	Sensor 4 – edge Sensor 4 – short press	On/off	Output	1 bit	Switch	C-W-T-U	V
50	Sensor 4 – long press	On/off	Output	1 bit	Switch	C-W-T-U	V
51	Sensor 4 – switch	On/off	Output	1 bit	Switch	C-W-T-U	V
52	Sensor 4 – dim	On/off	Output	4 bit	Dim	C-T	
53	Sensor 4 – short press	Motor open/close	Output	1 bit	Open/close	C-W-T	
54	Sensor 4 – long press	Motor open/close	Output	1 bit	Open/close	C-W-T	
55	Sensor 4 – motor	Motor open/close	Output	1 bit	Open/close	C-W-T	
56	Sensor 4 – motor	Motor open/close step	Output	1 bit	Open/close	C-W-T	
57	Sensor 4 – scene	Scene number	Output	1 byte	Unsigned	C-T	
58	Sensor 4 – blocking	Scene blocking	Output	1 bit	Switch	C-T	

59	Sensor 4 – 1 byte Sensor 4 – register	Value	Output	1 byte	Uncount	C-W-T-U	V
60	Sensor 4 – 2 byte	Value	Output	2 byte	Uncount	C-T	
61	Sensor 4 – 1 byte	Value red	Output	1 byte	Unsigned	C-T	
62	Sensor 4 – 1 byte	Value green	Output	1 byte	Unsigned	C-T	
63	Sensor 4 – 1 byte	Value blue	Output	1 byte	Unsigned	C-T	
64	Multitouch – RGB sequencer	On/off	Output	1 bit	Switch	C-W-T-U	V
65	Multitouch – edge Multitouch – short press	RGB colour	Output	3 byte	Colour RGB	C-T	
66	Multitouch – long press	On/off	Output	1 bit	Switch	C-W-T-U	V
67	Multitouch – register Multitouch – 1 byte	Value	Output	1 byte	Uncount	C-W-T-U	V
68	Multitouch – room toggle	On/off	Output	1 bit	Switch	C-W-T	
69	Multitouch – room toggle	Scene number	Output	1 byte	Unsigned	C-T	
70	Multitouch – room toggle	All off	Output	1 bit	Switch	C-T	
71	Room toggle	Trigger	Input	1 bit	Switch	C-W	
72	Multitouch – motor	Motor open/close	Output	1 bit	Open/Close	C-W-T	
73	Multitouch – motor	Motor open/close step	Output	1 bit	Open/close	C-W-T	
74	Multitouch – scene sequencer	Scene number	Output	1 byte	Unsigned	C-T	
75	Multitouch – general off	All off	Output	1 bit	Switch	C-T	
76	Multitouch – general off	Scene number	Output	1 byte	Unsigned	C-T	
77	Multitouch – RGB sequencer	Value red	Output	1 byte	Unsigned	C-T	
78	Multitouch – RGB sequencer	Value green	Output	1 byte	Unsigned	C-T	
79	Multitouch – RGB sequencer	Value blue	Output	1 byte	Unsigned	C-T	
80	Temperature	Internal value	Output	2 byte	Temp	C-R-T	
81	Temperature	External value	Input	2 byte	Temp	C-W-T-U	V
82	Thermostat	Actual setpoint	Input	2 byte	Temp	C-W-T-U	V
83	Thermostat	Actual setpoint	Output	2 byte	Temp	C-R-T	
84	Thermostat	Setpoint (comfort)	Input	2 byte	Temp	C-W-T-U	V
85	Thermostat	Setpoint (comfort)	Output	2 byte	Temp	C-R-T	
86	Thermostat	Presence object	Input	1 bit	Switch	C-W-T-U	V
87	Thermostat	Window open	Input	1 bit	Switch	C-W-T-U	V
88	Thermostat	Mode	Output	1 byte	Unsigned	C-R-T	
89	Thermostat	Mode – comfort	Output	1 bit	Switch	C-R-T	
90	Thermostat	Mode – standby	Output	1 bit	Switch	C-R-T	
91	Thermostat	Mode – economy	Output	1 bit	Switch	C-R-T	
92	Thermostat	Mode – protected	Output	1 bit	Switch	C-R-T	

93	Thermostat	Mode	Input	1 byte	Unsigned	C-W-T-U	V
94	Thermostat	Mode – comfort	Input	1 bit	Switch	C-W-T-U	V
95	Thermostat	Mode – standby	Input	1 bit	Switch	C-W-T-U	V
96	Thermostat	Mode – economy	Input	1 bit	Switch	C-W-T-U	V
97	Thermostat	Mode – protected	Input	1 bit	Switch	C-W-T-U	V
98	Thermostat	Cooling/heating mode	Input	1 bit	Switch	C-W	
99	Thermostat	Heating mode	Output	1 bit	Switch	C-R-T	
100	Thermostat	Cooling mode	Output	1 bit	Switch	C-R-T	
101	Thermostat	Heating active	Output	1 bit	Switch	C-R-T	
102	Thermostat	Cooling active	Output	1 bit	Switch	C-R-T	
103	Thermostat	Heating PWM	Output	1 bit	Switch	C-R-T	
104	Thermostat	Heating continuous	Output	1 byte	Scaling	C-R-T	
105	Thermostat	Cooling PWM	Output	1 bit	Switch	C-R-T	
106	Thermostat	Cooling continuous	Output	1 byte	Scaling	C-R-T	
107	Day / Night	On/off	Input	1 bit	Switch	C-W-T-U	V
108	Night light	On/off	Input	1 bit	Switch	C-W-T-U	V
109	Feedback colour 1	Red	Input	1 bit	Switch	C-W-T-U	V
110	Feedback colour 2	Green	Input	1 bit	Switch	C-W-T-U	V
111	Feedback colour 3	Blue	Input	1 bit	Switch	C-W-T-U	V
112	Feedback colour 4	Yellow	Input	1 bit	Switch	C-W-T-U	V
113	Feedback colour 5	Magenta	Input	1 bit	Switch	C-W-T-U	V
114	Feedback colour 6	Cyan	Input	1 bit	Switch	C-W-T-U	V
115	Feedback colour	value	Input	1 byte	Unsigned	C-W-T-U	V
116	Feedback colour R	Value red	Input	1 byte	Unsigned	C-W-T-U	V
117	Feedback colour G	Value green	Input	1 byte	Unsigned	C-W-T-U	V
118	Feedback colour B	Value blue	Input	1 byte	Unsigned	C-W-T-U	V
119	Calibration	On rising edge	Input	1 bit	Switch	C-W	
120	Cleaning object	As long as object is 1	Input	1 bit	Switch	C-W-T-U	V
121	RGB switch	On/off	Output	1 bit	Switch	C-W-T-U	V
122	Multitouch	Status feedback 1	Input	1 bit	Switch	C-W-T-U	V
123	Multitouch	Status feedback 2	Input	1 bit	Switch	C-W-T-U	V
124	Multitouch	Status feedback 3	Input	1 bit	Switch	C-W-T-U	V
125	Multitouch	Status feedback 4	Input	1 bit	Switch	C-W-T-U	V
126	Multitouch	Status feedback 5	Input	1 bit	Switch	C-W-T-U	V
127	Multitouch	Status feedback 6	Input	1 bit	Switch	C-W-T-U	V
128	Multitouch	Status feedback 7	Input	1 bit	Switch	C-W-T-U	V
129	Multitouch	Status feedback 8	Input	1 bit	Switch	C-W-T-U	V

130	Scene controller	Scene number	Input	1 byte	Unsigned	C-W	
131	Scene controller – output 1	On/off	Output	1 bit	Switch	C-T	
132	Scene controller – output 2	On/off	Output	1 bit	Switch	C-T	
133	Scene controller – output 3	On/off	Output	1 bit	Switch	C-T	
134	Scene controller – output 4	On/off	Output	1 bit	Switch	C-T	
135	Scene controller – output 5	On/off	Output	1 bit	Switch	C-T	
136	Scene controller – output 6	On/off	Output	1 bit	Switch	C-T	
137	Scene controller – output 7	On/off	Output	1 bit	Switch	C-T	
138	Scene controller – output 8	On/off	Output	1 bit	Switch	C-T	
139	Scene controller – output 1	Value	Output	1 byte	Scaling	C-T	
140	Scene controller – output 2	Value	Output	1 byte	Scaling	C-T	
141	Scene controller – output 3	Value	Output	1 byte	Scaling	C-T	
142	Scene controller – output 4	Value	Output	1 byte	Scaling	C-T	
143	Scene controller – output 5	Value	Output	1 byte	Scaling	C-T	
144	Scene controller – output 6	Value	Output	1 byte	Scaling	C-T	
145	Scene controller – output 7	Value	Output	1 byte	Scaling	C-T	
146	Scene controller – output 8	Value	Output	1 byte	Scaling	C-T	
147	Scene controller – output 1	Status feedback	Input	1 bit	Switch	C-W-T-U	V
148	Scene controller – output 2	Status feedback	Input	1 bit	Switch	C-W-T-U	V
149	Scene controller – output 3	Status feedback	Input	1 bit	Switch	C-W-T-U	V
150	Scene controller – output 4	Status feedback	Input	1 bit	Switch	C-W-T-U	V
151	Scene controller – output 5	Status feedback	Input	1 bit	Switch	C-W-T-U	V
152	Scene controller – output 6	Status feedback	Input	1 bit	Switch	C-W-T-U	V
153	Scene controller – output 7	Status feedback	Input	1 bit	Switch	C-W-T-U	V
154	Scene controller – output 8	Status feedback	Input	1 bit	Switch	C-W-T-U	V
155	Scene controller – output 1	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
156	Scene controller – output 2	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
157	Scene controller – output 3	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
158	Scene controller – output 4	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
159	Scene controller – output 5	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
160	Scene controller – output 6	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
161	Scene controller – output 7	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
162	Scene controller – output 8	Value feedback	Input	1 byte	Scaling	C-W-T-U	V
163	Timing 1	1 bit	Input	1 bit	Switch	C-W	
164	Timing 1	1 bit	Output	1 bit	Switch	C-T	
165	Timing 2	1 bit	Input	1 bit	Switch	C-W	
166	Timing 2	1 bit	Output	1 bit	Switch	C-T	

167	Timing 3	1 bit	Input	1 bit	Switch	C-W	
168	Timing 3	1 bit	Output	1 bit	Switch	C-T	
169	Timing 4	1 bit	Input	1 bit	Switch	C-W	
170	Timing 4	1 bit	Output	1 bit	Switch	C-T	

