Sx Tool Manual

rev. 3.5.3/0.1, 08/07/2014

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1 Introduction

The Sx tool has been developed for the configuration of the Sx2WEB24, a programmable Linux embedded PC specially designed for home automation applications.
All demotic functions are represented by graphic symbols, and all function related parameters are set up locally in the PC, and then transferred to the Sx2WEB24 via Ethernet or the SD-Card. Some of the function parameters can be changed later via remote connection to the controller (web server, email, sms, Modbus,..) as described later in this manual.
Likewise, data from the Sx2WEB24 can be uploaded and modified.

The PC does not need to be connected to a Sx2WEB24 controller in order to make a configuration.

The figures in this manual may differ from the figures on your screen. This is not necessarily an error, but may be caused by revision differences.

The contents of this manual may be altered without notice.

1.1 Requirements

1.1.1 Minimum hardware requirements

- A Microsoft Windows XP SP3, Vista-based PC, Windows Seven 32 or 64Bit
- Display with a resolution capability of minimum 1024x768 pixels
- 200MB of disk-space
- An Ethernet-port and cables or Sd-card reader or usb port

1.1.2 Software requirements

- Windows XP service pack 2 or service pack3 - or - Windows Vista - or - Windows Seven (32 or 64Bit)
- Microsoft DotNet Framework 4.0

1.1.3 How to read the software version number

The Sx tool revision number has the following structure:

Major	Minor	Revision	Build number

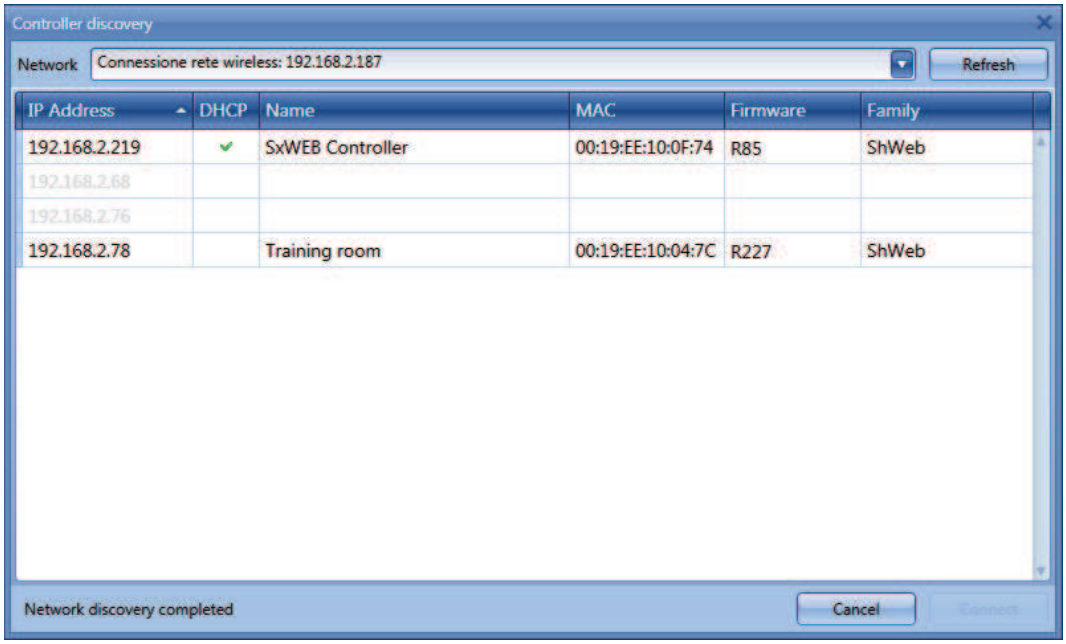
- **Major:** it identifies the main features of the software. It is incremented when new features are added or there are big changes in the existing ones.
- **Minor:** it identifies the version of the relevant *major* release and it is incremented when there are bugs fixing or small new functions.
- **Revision:** it identifies the status of the release.
  1 *beta*: for internal use only
  2 *controlled beta:* to be shared with selected customers for field testing
  3 *final*: available for everybody on the Carlo Gavazzi website

- **Build number:** it is an internal number that includes the day in which the release has been compiled

1.2 Installation

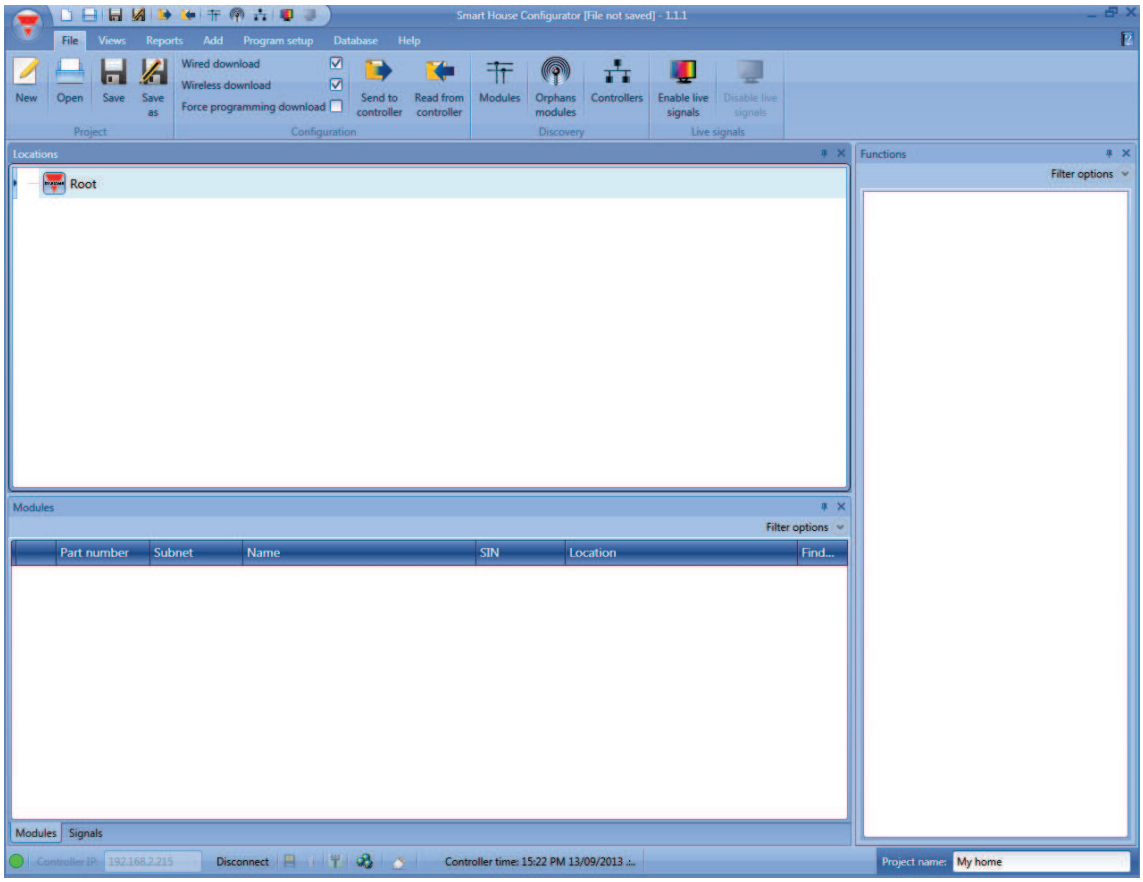
The Sx tool can be downloaded from the smart-house website or can be found in the SD-card delivered with the Sx tool. To install the software you just have to double click on the setup.exe file.

In order to get in contact with the controller, you must use the Ethernet connection.
When you connect your PC to an Ethernet network where one or more controllers are found, the Sx Tool (if started) starts looking for the controller(s). If one or more units are found, a window will pop-up, allowing you to make a selection of which controller to connect to.
Select the required master unit on the list, or cancel if you do not want to get connected at this time.



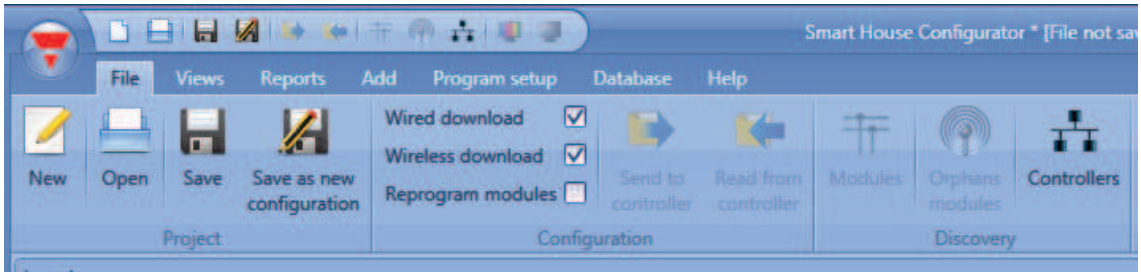
2 User interface

When the Sx tool starts, the following window appears:



The user interface uses the standard ribbon tool often used by a lot of software nowadays. To access a ribbon just click on the required menu.

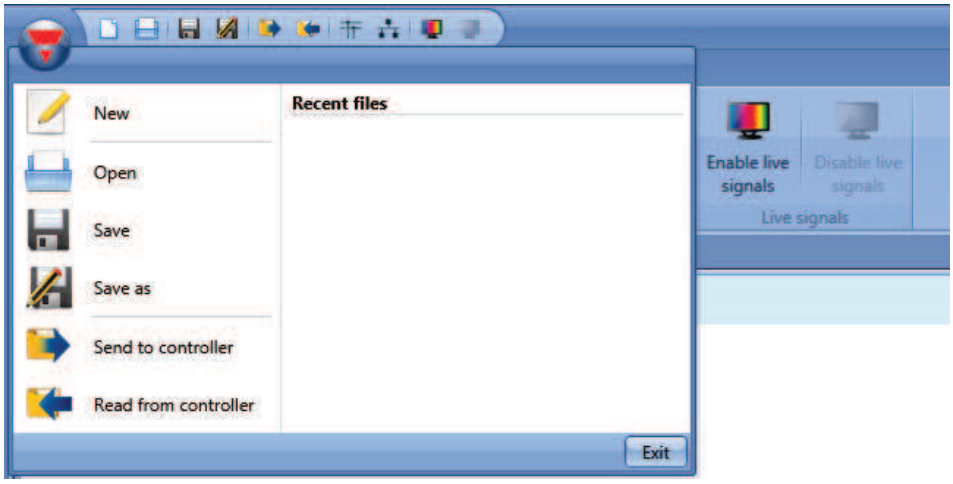
2.1 File Menu



In the File menu the user can create a new project, open an already existing one or save it as in a standard menu File.
In addition some functions strictly related to the connection with Sx2WEB24s are available and listed here:

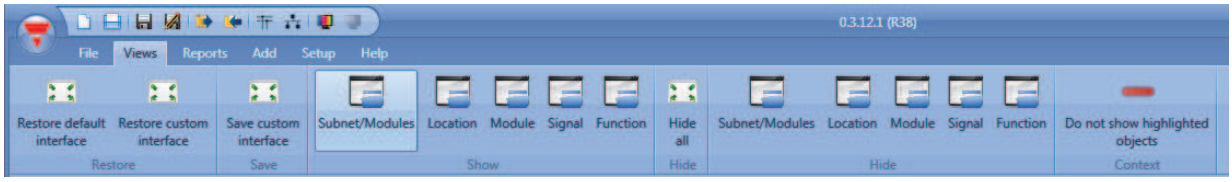
- Uploading/downloading of a project
- Discovery functions of the Sx2WEB24s and modules connected in the network.
- Enabling/Disabling of Live signal monitoring

The user can access the menu file either with the quick menu in the upper part of the window on the right of the red Carlo Gavazzi triangle or by clicking on the triangle.

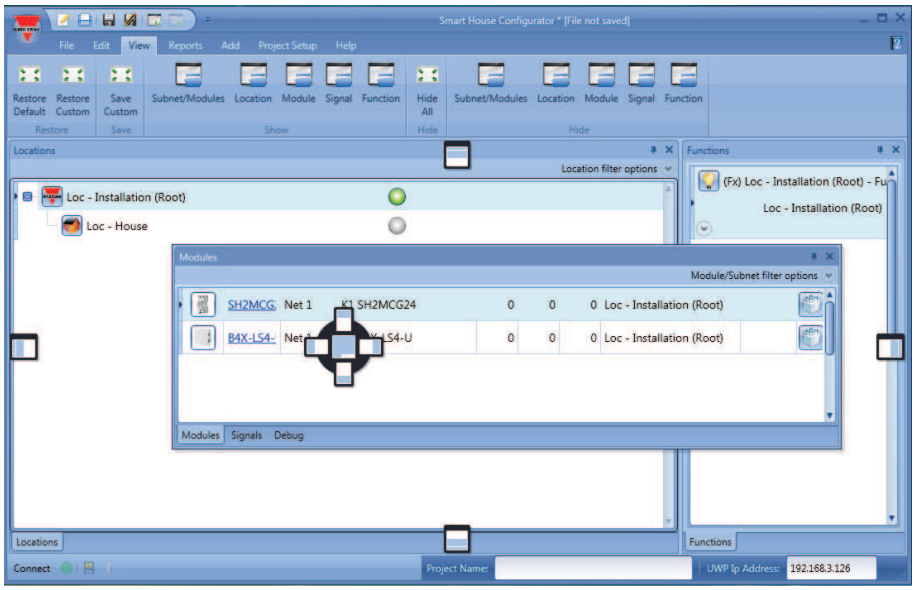


2.2 View Menu

In the View menu, the user can configure the preferred position of the windows relevant to Locations, Modules, Signals, Functions and Subnet. It can also remove the contents view.



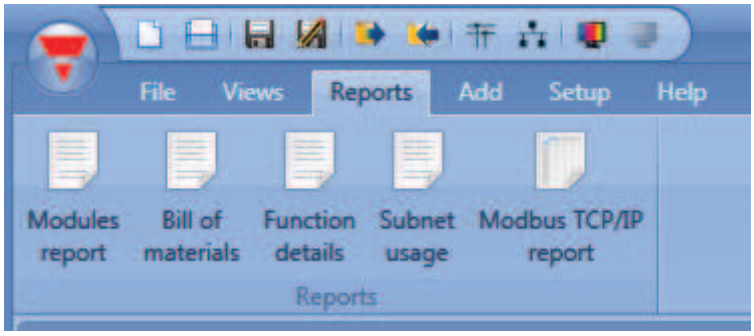
The windows are floating and can be positioned by using the five docking areas shown in the figure below. The position of the windows can be saved.



2.3 Reports menu

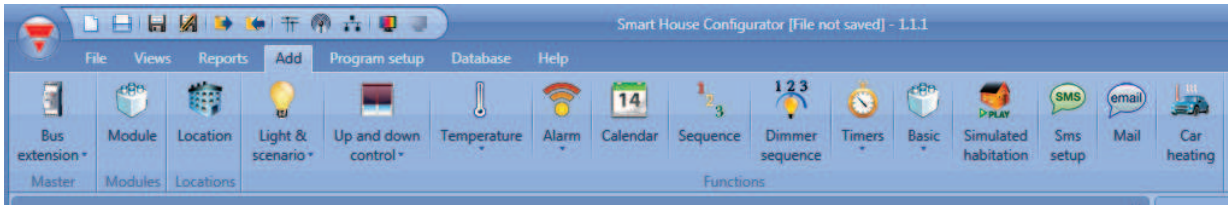
In the reports menu four different kinds of reports can be created, saved, printed.
The user can select from:

- *Module list*: the complete list of modules is shown.
- *Bill of materials*: the list of modules is organized by type of modules.
- *Function details*: each function is described with the details of used signals.
- *Subnet usage*: this report indicates the number of used signals and the total current consumption.
- *Modbus TCP/IP report:* in this report the modbus map of the project is reported.



2.4 Add menu

In the Add menu the user can select what to add: bus extension, modules, locations and functions.

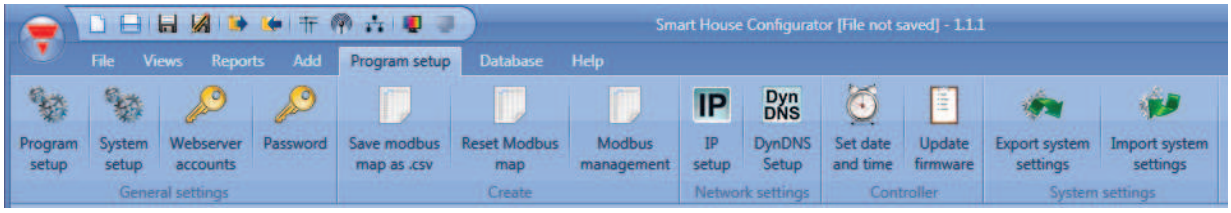


Bus extension: if a new Dupline network is needed, a new bus extension module has to be added.
Module: a new module is added (light switch, pir sensor, output module,…)
Location: The user has to define floors, rooms or any other type of location to have a clear structure of its installation.
Functions: some predefined functions can be defined and configured by means of the wizard tool. The predefined functions are:

- Lights & scenario
- Up/Down control: for controlling blinds, curtains, windows
- Temperature
- Alarms: intruder, smoke, water, siren
- Calendar: can execute activities during the year
- Sequences: executes a list of chosen functions
- Dimmer sequences
- Timers
- Basic function: in this section are grouped logic gates and analogue comparator
- Simulated habitation: records and then plays back the light activations
- SMS: manages the SMS for the remote control of functions
- EMAIL
- Car heating

2.5 Program setup menu

In the Program s*etup* menu, the user can configure the settings relevant to a specific project, the general settings of the installer, the IP address, time and date of the Sx2WEB24. Furthermore he can update the firmware and configure the webserver, the password for the Controller access, the database and modbus TCP/IP.

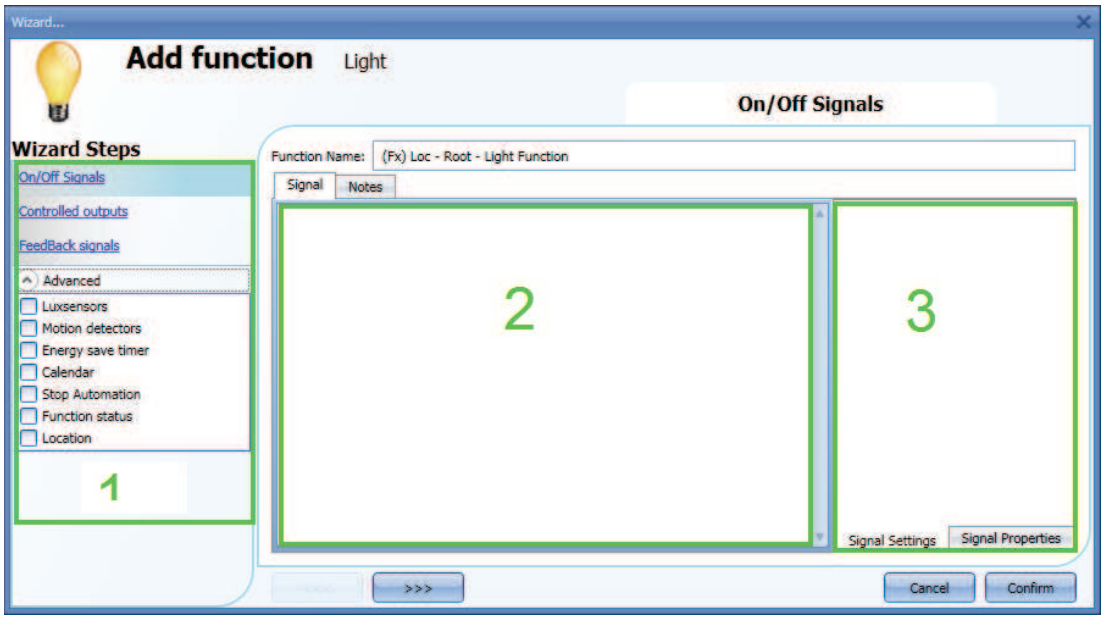


3 Project structure

In a project the user has to define the locations of the house/building, add the required modules (light switches, movement detectors, output modules, …) and place them in the relevant location, then create the functions.
Location, *modules* and *functions* are the pillars of the project structures: they are described in detail in the following paragraphs.

3.1 Wizard

Each object, whichever type it is, is created and configured by means of the *Wizard* tool.

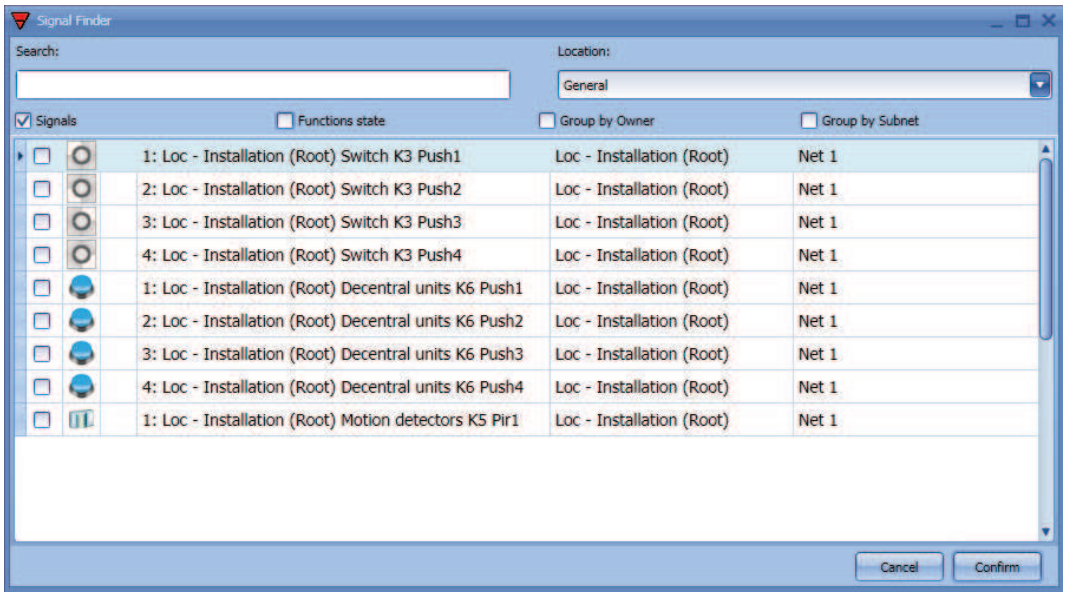


The wizard is a tool that drives the user in the configuration of an object, guiding him in small steps to the complete setup of a module, location or function. The aim of the wizard is to reduce the effort of understanding the complete process of a configuration, making it easy and fast. The different steps can be filled in one by one just by clicking on *">>>"* and going through all of them, or just by clicking on the required ones visualized in blue in the area on the right (area 1).

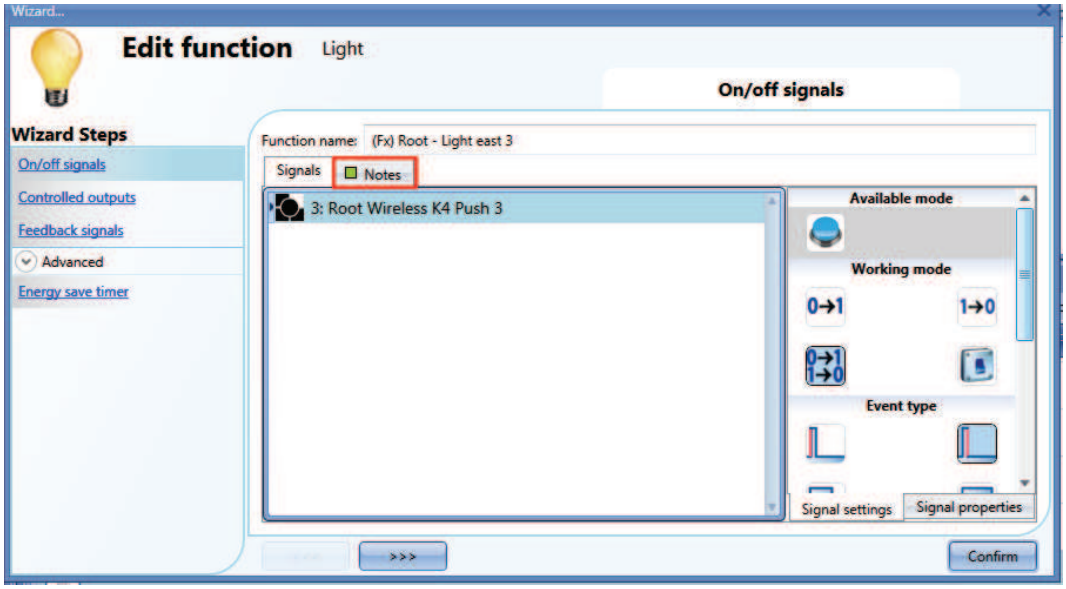
In the picture above an example of the wizard tool divided into three areas is shown.

Area 1: is divided into two sections. The one on top contains the basic signal/settings the user has to insert/define to create the object ('object' is a general word to indicate location, modules or functions). For example, in a light function the basic signals are the inputs and the output signals, which are the minimum settings required to create this kind of function. In general, most functions show the input and output signals in the basic settings.
In the lower section the "Advanced" functionalities are editable: if they are not enabled they are hidden to the user in order to give an easy user interface to the not so skilled installer.
The list of Advanced functionalities will appear: check the relevant box to enable the one required. For example, if the Lux sensor is to be used, click on it (Fig.9b). Once the complete list disappears, by clicking again on *Advanced*, the enabled one/ones will appear for quick access.

Area 2: this is the area where signals have to be added. By double clicking on this area the following window will appear. All the available signals and functions will be shown, giving the user the possibility of selecting one or more of them by selecting the relevant row and clicking on *Confirm*. Different filters can be used according to the icon on the top of the window.



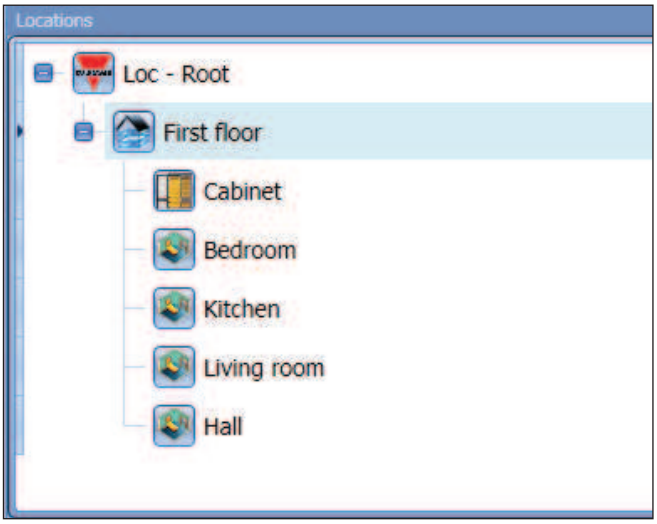
Area 3: this is the area where signals are configured. The user can modify the signal settings and view the properties of each signal (for example the long activation time of one light switch, or the sensitivity of a motion detector)



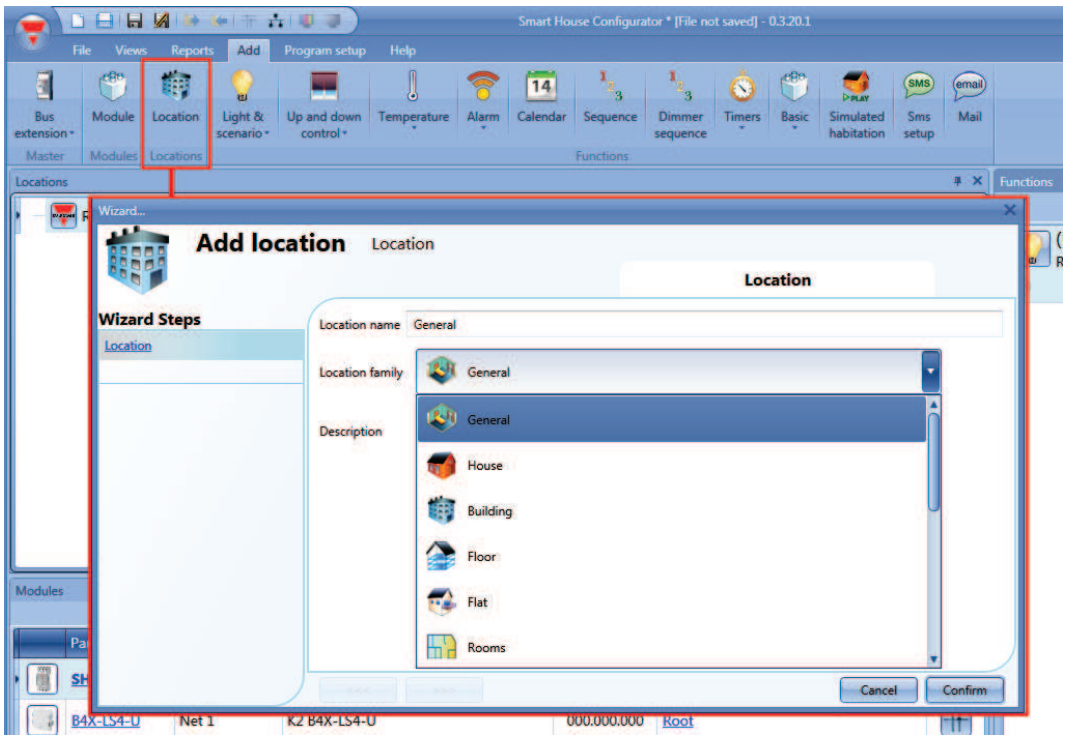
If a note is added in the *Note* tab window, a green rectangle will appear to indicate it. By selecting it with the mouse, a tool tip is shown with the added note.

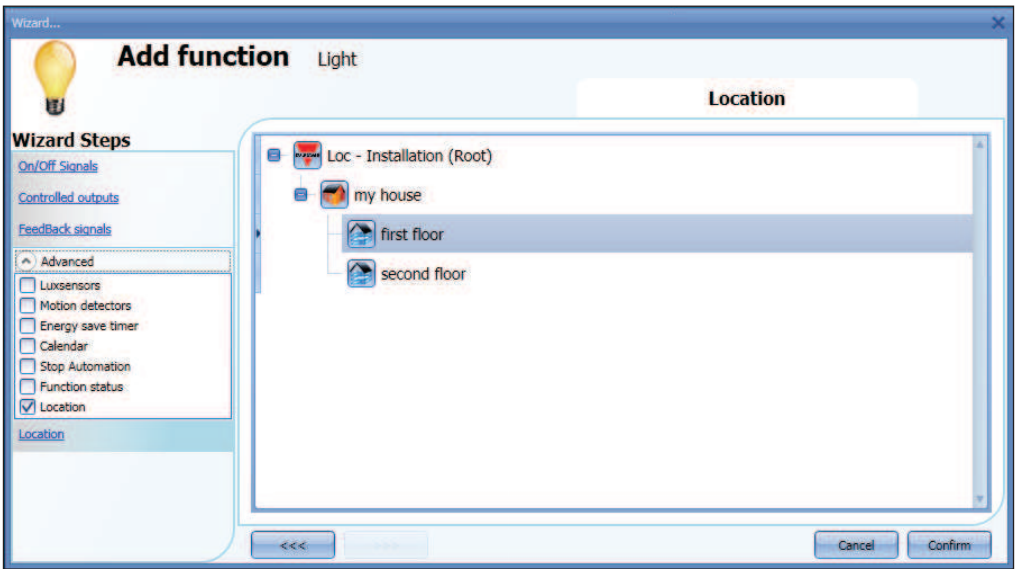
4 Locations

In this window the user can define the structure of the project, starting from the locations where modules and functions have to be placed.



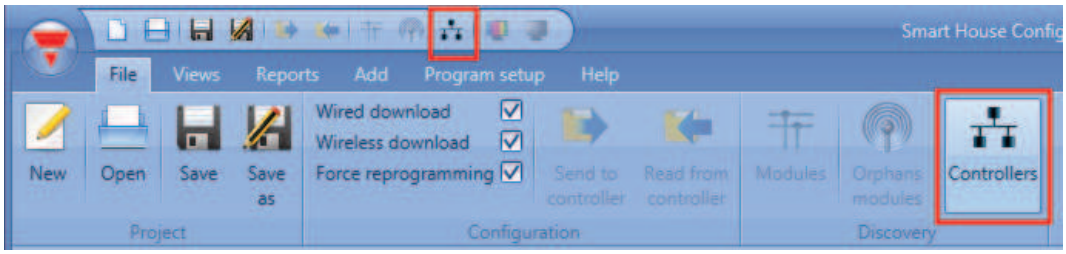
When the user inserts a new location, the following Wizard window will appear.
With this window the user can select the name of the *Location* and the *Location family*, and a small description of the *Location* can be added.
When the *Confirm* button is pressed, the Location is inserted into the *Locations* tree.





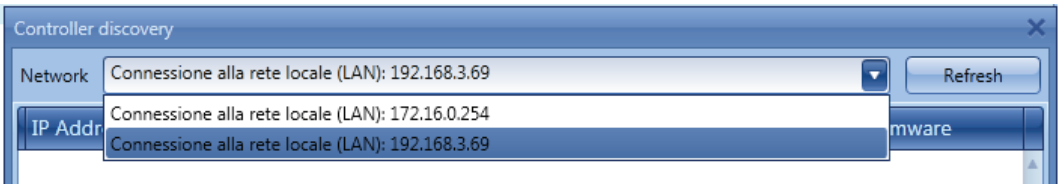
5 Connection with the master unit Sx2WEB24

To connect to a master unit Sx2WEB24, the user has to click on the icon highlighted in red in the picture below: the Sx tool will start the discovery of the Sx2WEB24 connected to the Ethernet network.



Important note
If the PC is running the Windows Firewall or a Third party Firewall / Antivirus, make sure that the ports 48007, 10000, 10001 are not blocked (input/output packets). These ports are used by the Sx Tool to search for the master unit in the network and for communication. If a firewall blocks these ports, the Sx Tool will not be able to find the controllers in the network or to use the Live Signals.
Be sure that the master unit's IP settings match the IP settings of the PC used: it must have the same IP class and the same net mask address.

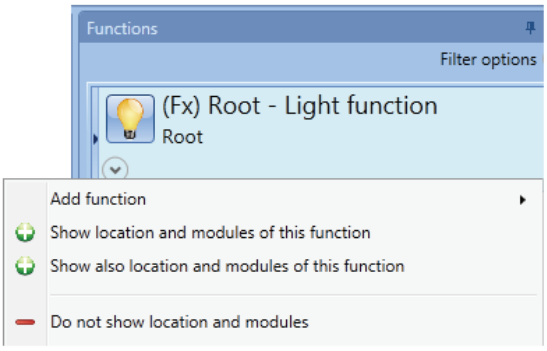
When the PC has more than one network card or has many IP addresses, it is possible to select the right network from the list (see picture below): it must be the same one as the Sx2WEB24 is connected to.



After a power on, the Sx2WEB24 master unit is ready to work after about 1 minute. Only when the yellow BUS Led starts flashing the master unit is ready.

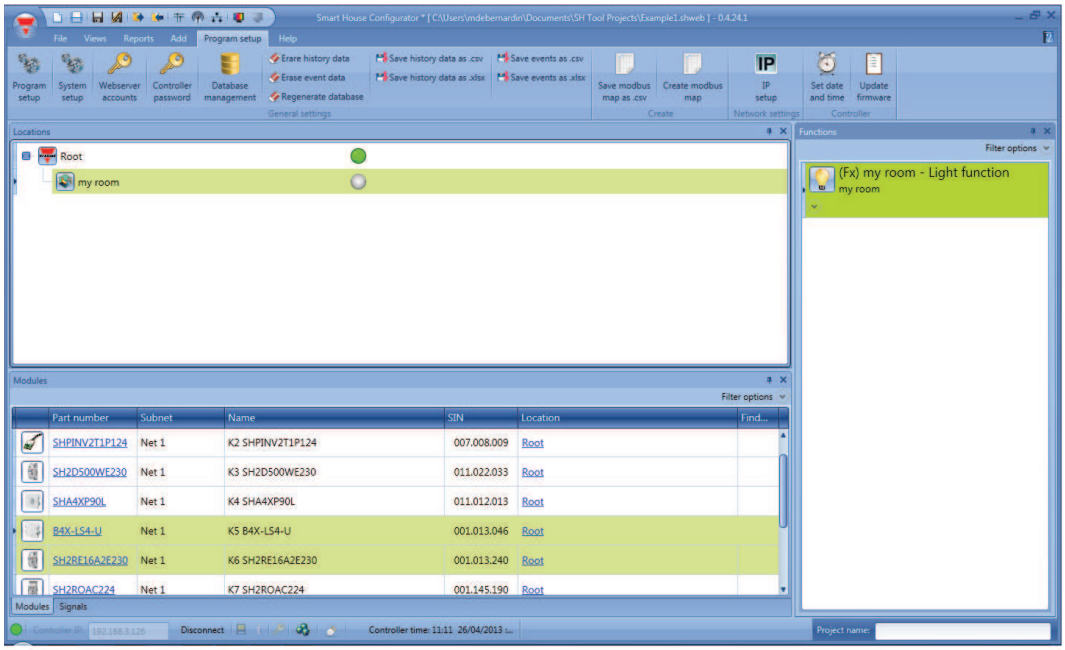
6 Function and modules view

The functionality *Show location and modules* allows the user to easily find the signals used in each function.



By a right click on the function it is possible to select the option *Show location and modules of this function*.

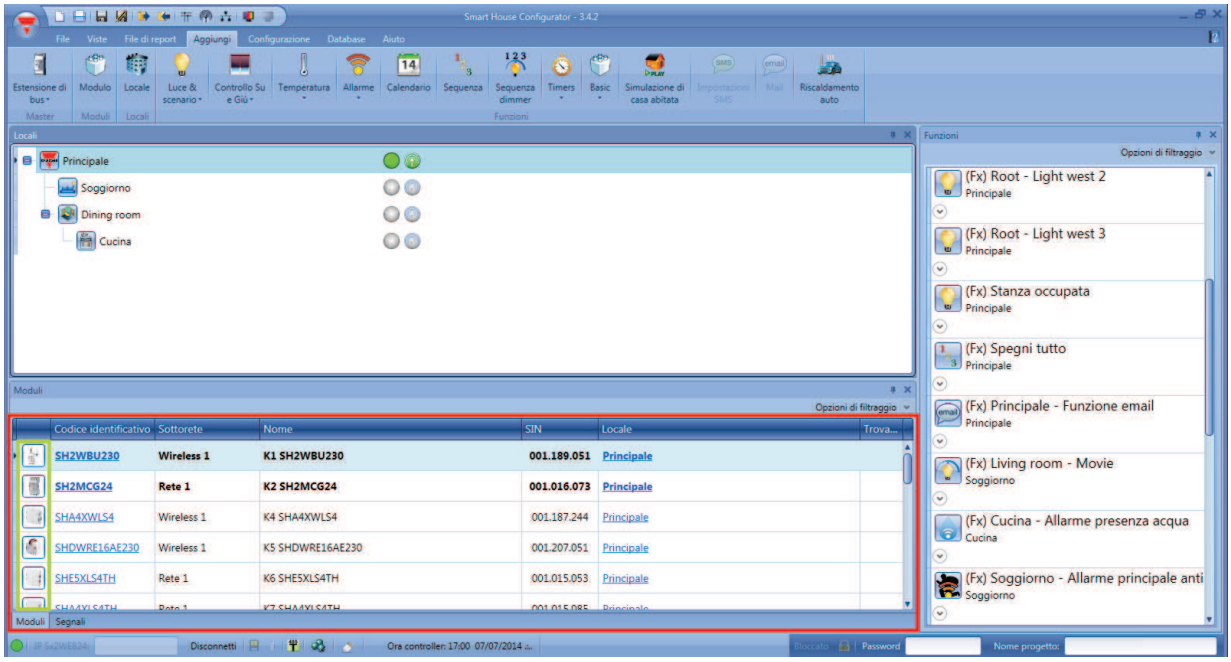
The Tool automatically highlights the location and all the modules that are used in the function selected.



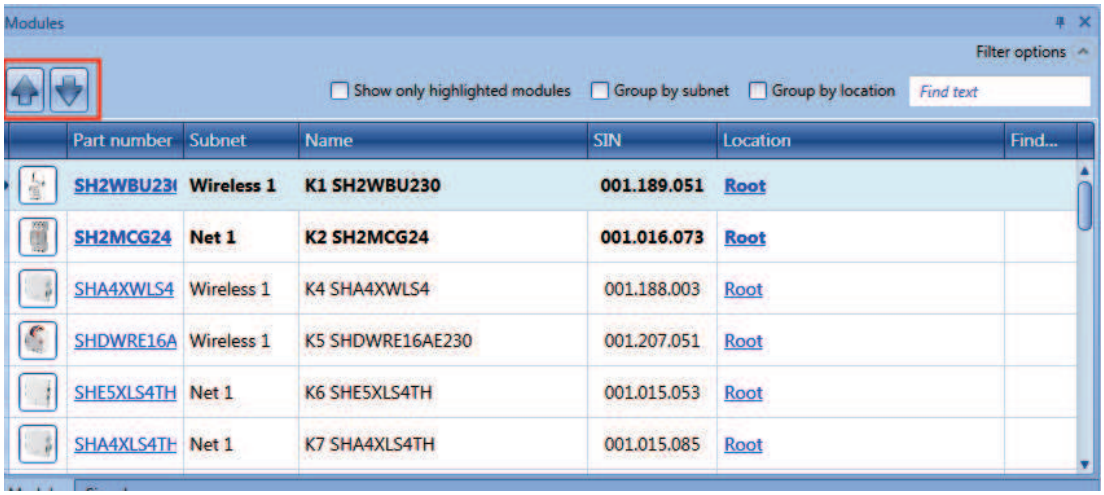
When more functions must be highlighted the user can select the option *Show also location and module of this function*. By selecting the option D*o not show location and modules*, the filter is removed.

7 Modules

To configure a module, the user has to click on the picture of the module in the *Module* window (see picture below).



The modules can be sorted or filtered by opening *Filter options*: once a module is selected, by clicking on the arrows it can be moved up or down while selecting a filtering option. Only the modules according to the filter will be shown.

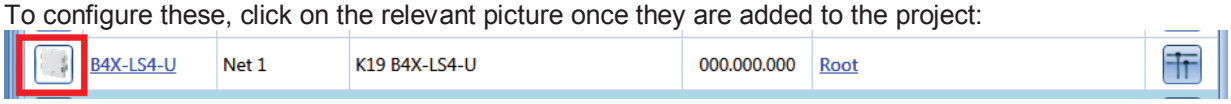


7.1 Light switches

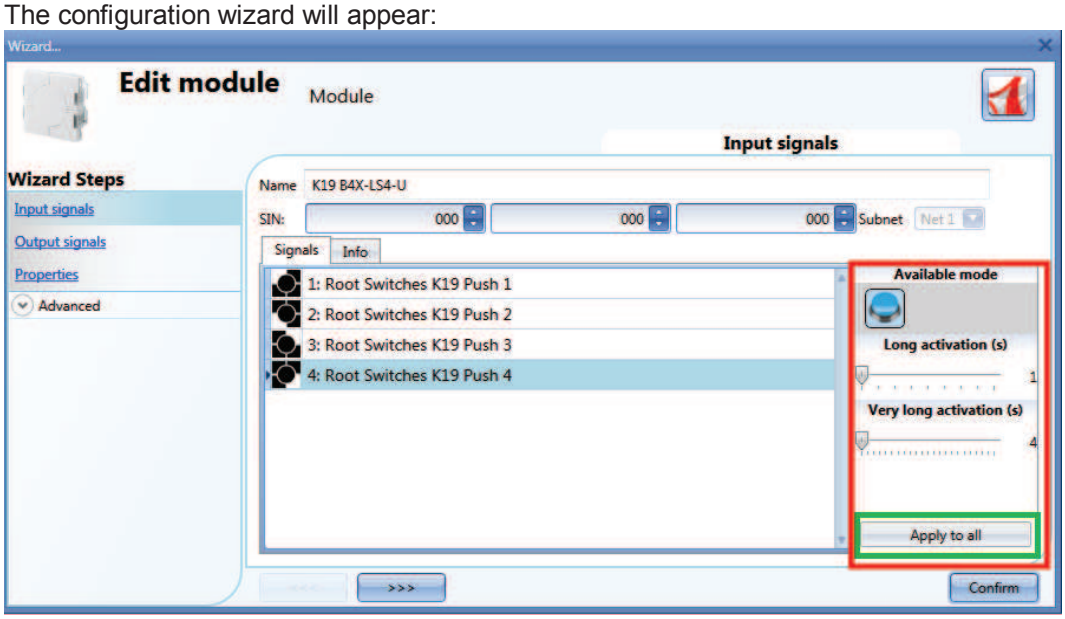
The following items belong to the *Light switches* family:

B4X-LS4-U
B5X-LS4-U (this item also has to be selected for B5B-LS4-U and B5W-LS4-U)
BEW-LS1-U
BEW-LS2-U
BEW-LS3-U
BEW-LS4-U (this item also has to be selected for BEA-LS4-U and BEG-LS4-U)
SHA4XLS4P90L (this is a light switch with integrated PIR sensor and luxmeter)
SHE5XLS4P90L (this is a light switch with integrated PIR sensor and luxmeter)

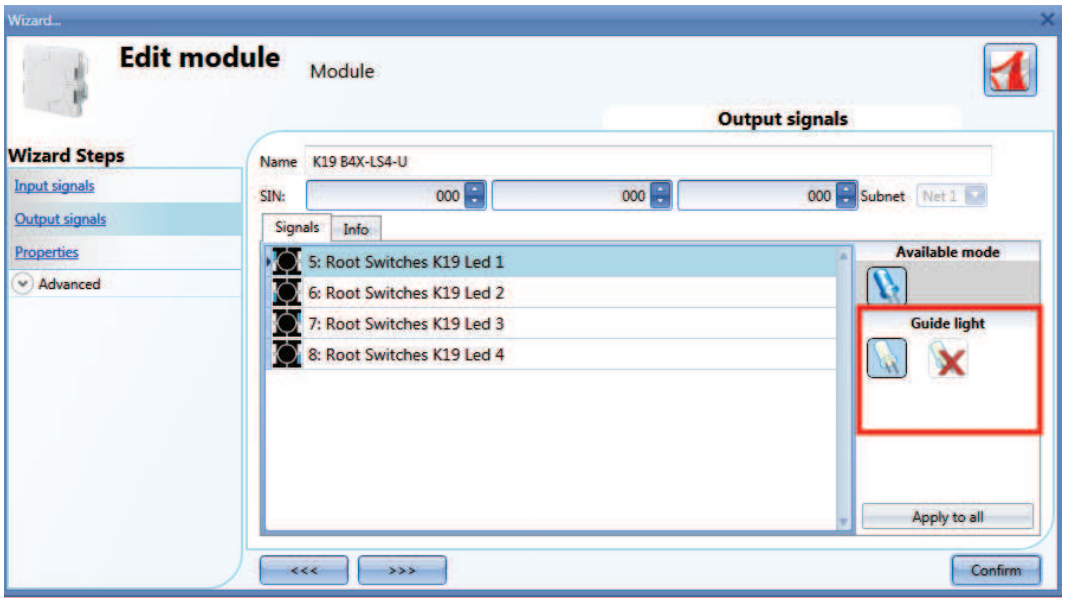
To configure these, click on the relevant picture once they are added to the project:



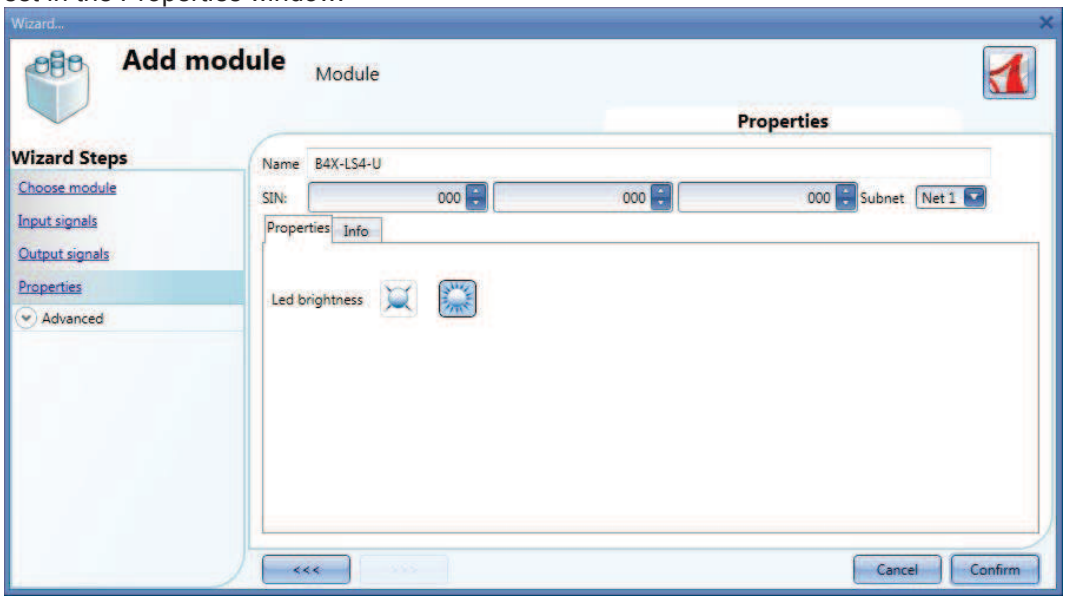
The configuration wizard will appear:



In the *Input signals* field, the *Long activation* and the *Very long* activation time has to be defined.
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and it is always set by the system 3 seconds longer than the *Long activation* time. The short press and long press are recognized when the push button is released.
The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*
If the *Very long activation time* is set shorter than 4 seconds, the long press is disabled: in this situation, the function associated to the very long press will be activated as soon as the pushbutton is pressed for the selected time.



In the *Output signals* window, the user can enable the white LED as a guide light (red rectangle): by clicking on the white LED icon, the guide light is enabled, while by clicking on the red cross the guide light is not enabled .
Each LED can have different behaviour.
The guide light is configurable in the following items: B4X-LS4-U, B5X-LS4-U and the brightness can be set in the Properties window.

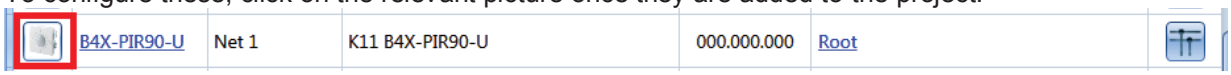


7.2 Motion detectors

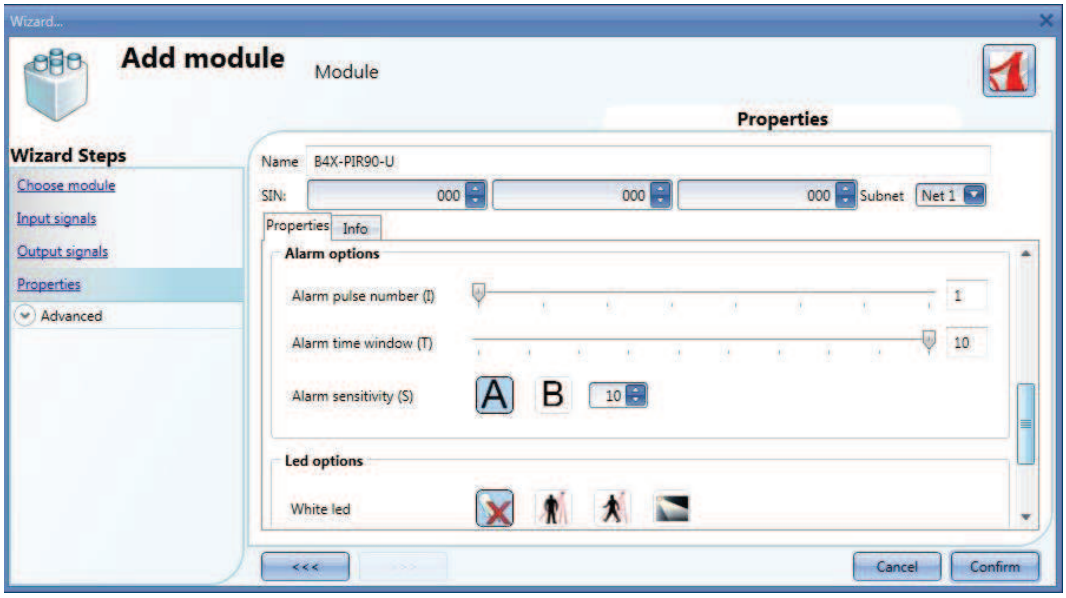
The following items belong to the *Motion detector* family:

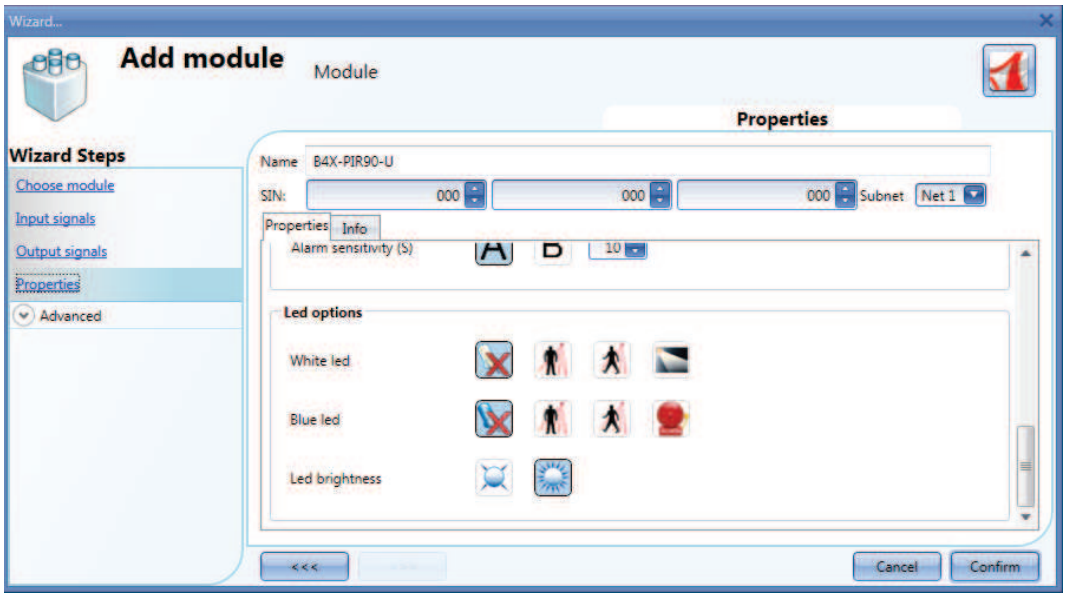
B4X-PIR90-U
B5X-PIR90-U (this item also has to be selected for B5B-PIR90-U and B5W-PIR90-U)
BSB-PIR90-U
BSD-PIR90-U
BSP-PIR90-U
SHA4XP90L
SHE5XP90L
SHSBB90L
SHSBD90L
SHSBP90L
SHSQP360L
SHA4XP150L
SHA4XP150
SHE5XP150L
SHE5XP150

To configure these, click on the relevant picture once they are added to the project:



The configuration wizard will appear: the only configurable field is *Properties*. In *Input signals* and *Output signals* only the available input and output signals are shown.



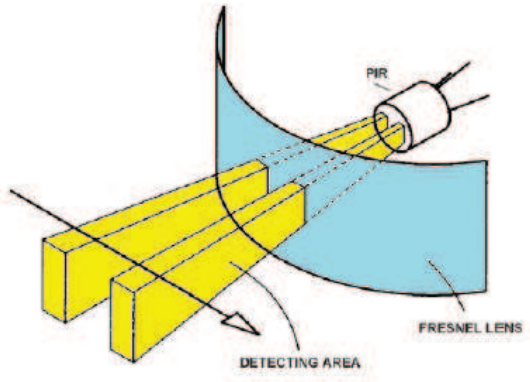


In this window the sensitivity has to be configured, also the behaviour of the LEDs: they could be used as a guide light, feedback on the detection of presence or movement or feedback of an alarm.

7.2.1 How PIRs work and how to configure them

This PIR sensor responds to any fluctuation in infrared heat radiation, so any object or human presence changes the thermal image detected by the sensor when entering its field of vision.

The sensor is equipped with a segmented lens that divides the field of vision into active and passive zones (zones not visible to the sensor, see figure below: active zones in yellow). When a heat source crosses these zones, the sensor detects a change of infrared radiation, then presence and / or movement is detected.



When a warm body moves into the sensor's field of vision, the sensor detects a difference in the measured temperature.

The crossing of the active and passive zones can generate the following conditions:

a) When the body stays still in a passive area, the PIR does not generate any pulses (fig.2).
b) When the body moves into a passive area, the PIR does not generate any pulses (fig.2).
c) When the body stays still in an active area, the PIR does not generate any pulses (fig.2)
d) When the body moves into an active area, the PIR generates a positive pulse (an increase in the temperature is detected) (fig. 3).
e) When the body moves out of an active area the PIR generates a negative pulse (a decrease of the temperature is detected) (fig. 3).
f) When the body moves into an active area, the PIR can generate positive or negative pulses (positive if the body moves towards the sensor, negative if it moves away from the sensor) (fig. 3).
g) When the body moves from a passive area to another passive area by crossing an active area, the PIR generates positive and negative pulses (fig. 3).
h) When the body moves from an active area to another active area by crossing a passive area, the PIR generates negative and positive pulses (fig. 3).

Figure 2.

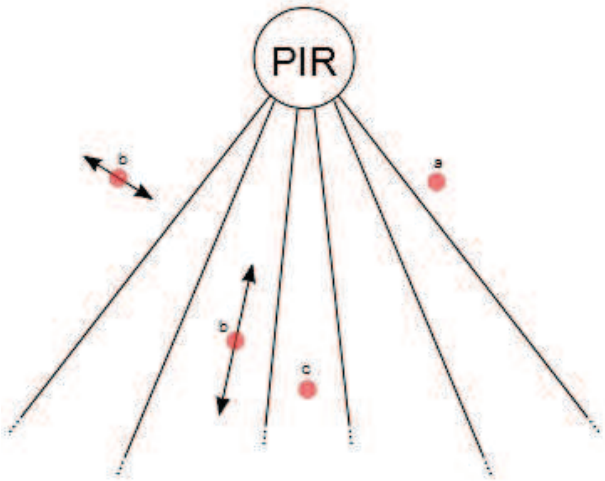
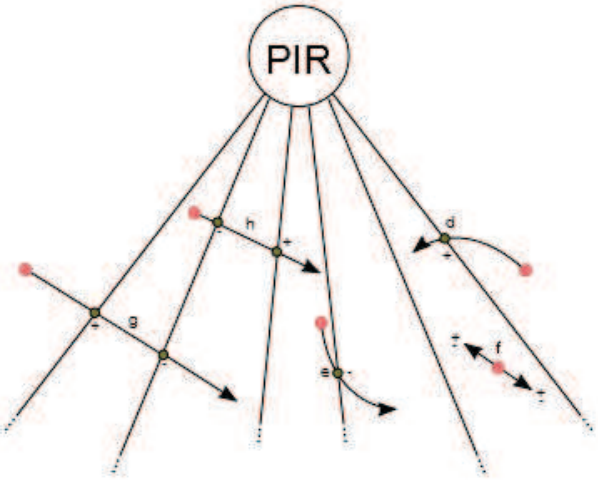


Figure 3.



The pulses generated by the PIR (i.e. the detection of a change in temperature) are compared with a threshold temperature value.

The PIR signal is a value going from 0 to 127 that corresponds to the difference detected in the temperature value; the threshold value can be set from 3 to 100. The higher the threshold is, the bigger the change of temperature.

In the smart-house system, since a PIR sensor can be used both in intruder alarm functions and in light functions at the same time, it generates three kinds of signal: *presence*, *movement and alarm*. The first is used in the light functions to reload the energy-save timer, the second is used to switch the light on in the light functions, the third is used in the intruder alarm functions.

The user defines how the smart-house system detects *presence, movement and the alarm* by setting four different parameters for both the signals by means of the software Sx tool.

The parameters are as follows:

1) **Mode of detection**

A: any type of pulse is valid (positive and negative). This option has to be selected for presence detection and movement, in order to turn the light on as soon as a person moves from an active to a passive area (or vice versa) or into an active area (very quick response). With this setting, any change in temperature causes the sensor to give a detection message to the master unit.
B: only the sequence positive to negative pulse or negative to positive pulse is valid. The person has to go from an active area to another active area, passing through a passive one, or vice versa.
This option is recommended for sensors used in the intruder alarm function, in order to avoid false alarm conditions. With this setting the sensor sends a detection message only if it perceives an increase or a decrease in the temperature.

2) **Threshold Value - Sensing**

This is a number that can be set between 3 and 100. The smaller the value, the longer the detection range, but sensitivity to the heat source is greater.
In figures 4 and 5 there are some examples of different sensitivities for the B4X-PIR90-U PIR sensor. Figure 4 represents the covered area of the horizontal sensing plane, while figure 5 represents the covered area of the vertical plane.

a) Threshold =100. With this setting the PIR has the least sensitivity, represented by the white area in figures 4 and 5. Detection extends to 6m and small bodies on the floor cannot be detected. In figure 5 (*vertical sensing area)* you can see that the white area extends to less than 0.5m below the mounting height of the sensor. With this setting small bodies cannot be detected (e.g. small pets)
b) Threshold =42. With this setting the PIR has medium sensitivity, represented by the light blue areas indicated in figures 4 and 5. Detection extends to 7.5m and again small bodies on the floor cannot be detected. In figure 5 (*vertical sensing area)* you can see that the light blue area extends to about 0.5m below the mounting height of the sensor.
c) Threshold =3. With this setting the PIR has the highest sensitivity, represented by the dark blue areas indicated in figures 4 and 5. Detection extends to 8.5m and small bodies on the floor are detected. In figure 5 (*vertical sensing area)* you can see that the dark blue area arrives at floor level, with a sensor mounting height of 1.1m.

3) **Number of pulses**

This is the number of pulses calculated according to mode A or B, which the sensor has to detect in a predefined time interval in order to send a people detection message to the controller. It can be set from 1 to 8.

4) **Time window**

This is the time interval within which pulses are counted. The window can be set between 1 and 10 seconds.

Figure 4: Horizontal sensitivity area.

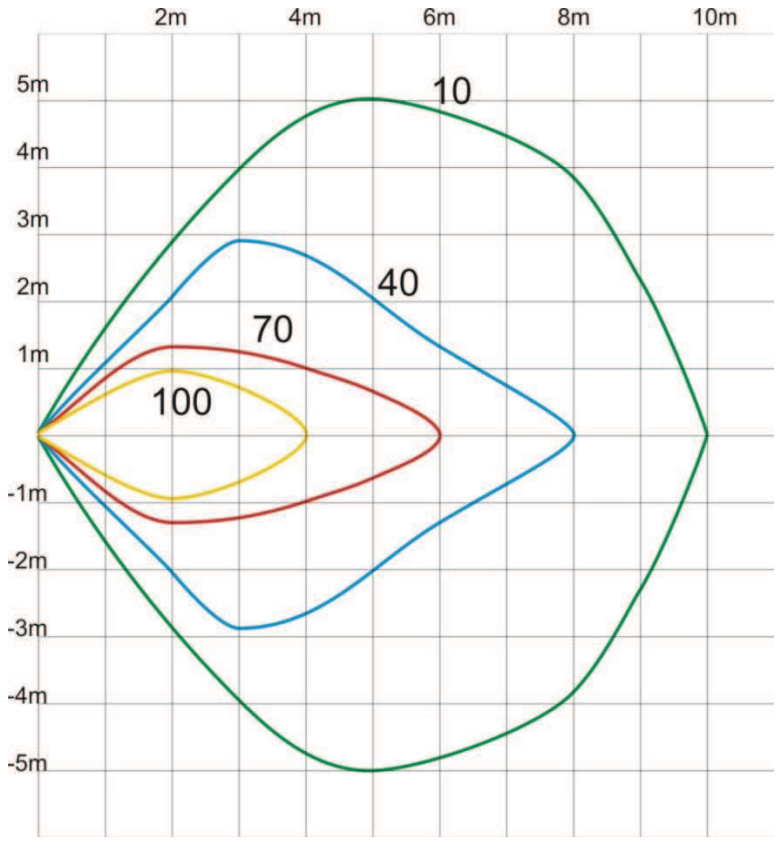
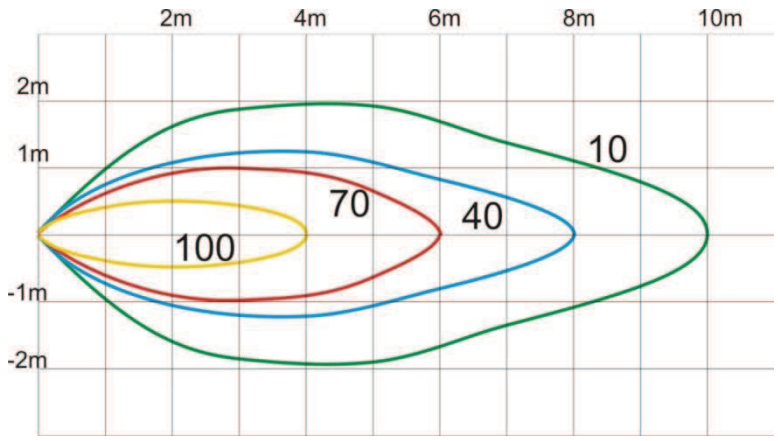


Figure 5: Vertical sensitivity area.



The four parameters have to be tuned during the installation, taking into consideration the environments and the application. Typical adjustments might be the following:

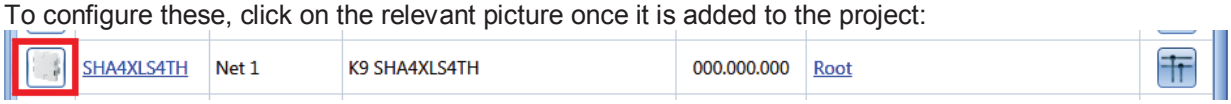
PARAMETER	PRESENCE	MOVEMENT (light fx)	MOVEMENT (alarm fx)
Filter type	A	A	B
Threshold level	10..30	30..70	50..100
Number of pulses	1	1	3
Window time (sec)	10	2	10

7.3 Temperature modules

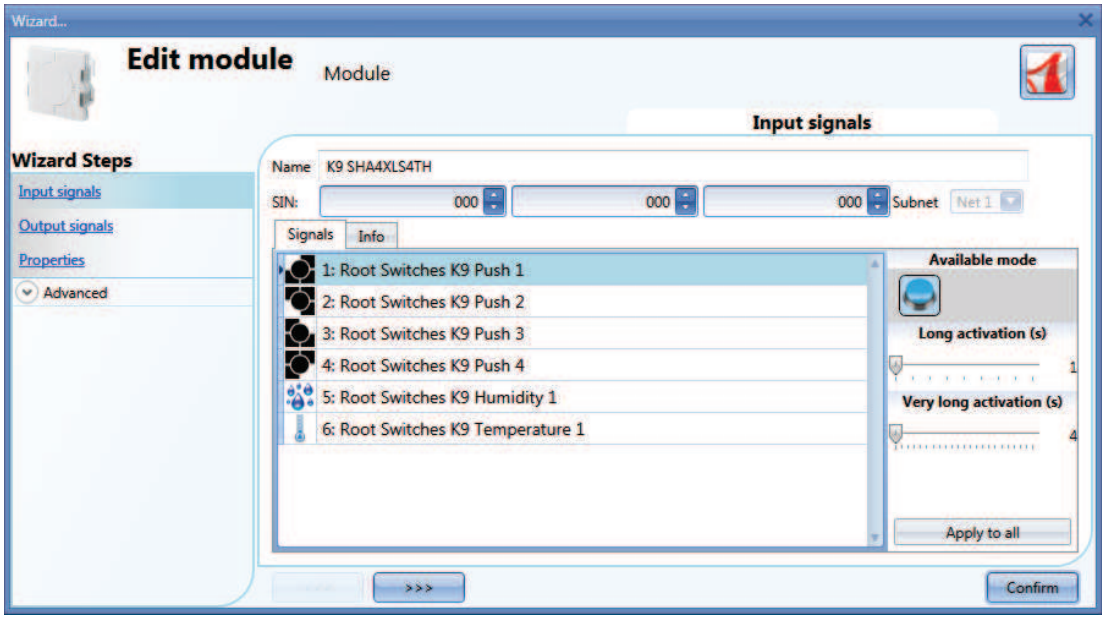
The following items belong to the *Temperature* family:

SHA4XLS4TH
SHE5XLS4TH (this item also has to be selected for SHE5BLS4TH and SHE5WLS4TH)
SHA4XTEMDIS
SHE5XTEMDIS
BSI-TEMANA-U
BSI-TEMANB-U

To configure these, click on the relevant picture once it is added to the project:

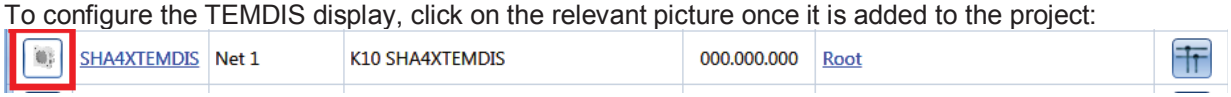


The configuration wizard will appear:

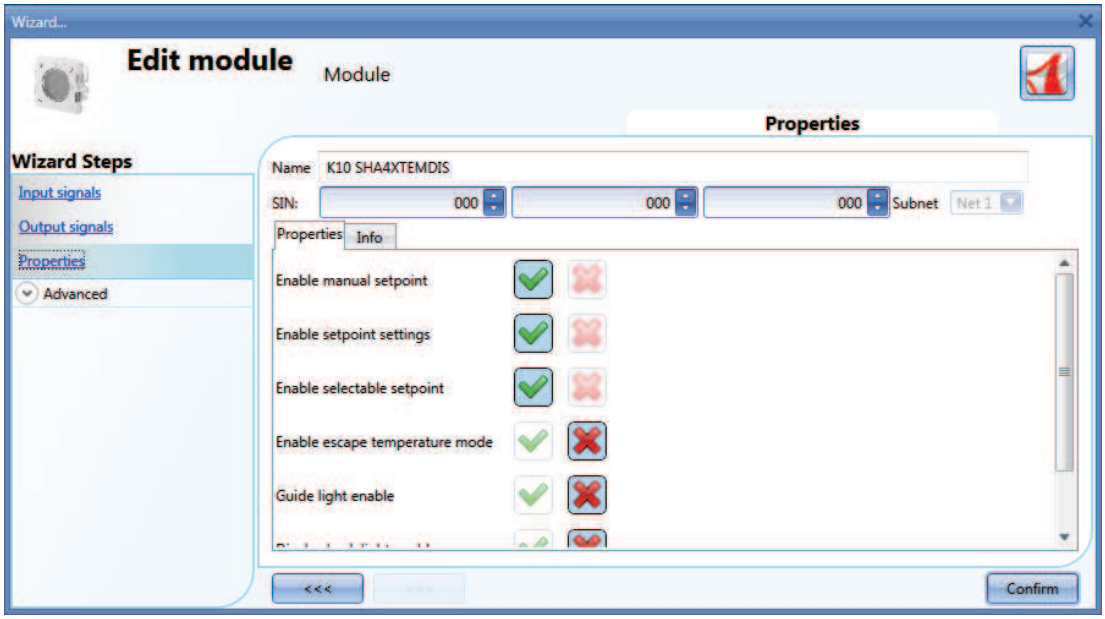


The SHA4XLS4TH and the SHE5XLS4TH are light switches with sensor display, so they can be configured as described in the paragraph related to *Light switches*.

To configure the TEMDIS display, click on the relevant picture once it is added to the project:



The configuration wizard will appear:



In the Input signals field, the available temperature values are shown, and the only window with the configuration settings is *Properties*.

The user can enable the following settings:

1) *Enable manual setpoint*: the user will have access to a manual setpoint in addition to set point 1, set point 2, set point 3.
2) *Enable setpoint setting*: the three set points 1, 2, 3 can be changed by the user.
3) *Enable selectable setpoint*: the user can select the three set points.
4) *Enable escape temperature mode*: at midnight, the regulating setpoint will be updated according to that of the configuration file, and any change of the user is cancelled.
5) *Guide light enable*: the guide light on the push button is enabled.
6) *Display back light enable*: the user can enable the display back light, which will always be on.
7) *Display back light as status indicator*: the back light is on when the zone temperature function is on.
8) *Set resolution to 0.1:* the resolution of the display is 0.1°C instead of 0.5°C
9) *Led brightness:* the user can set the brightness of the blue and white LEDs

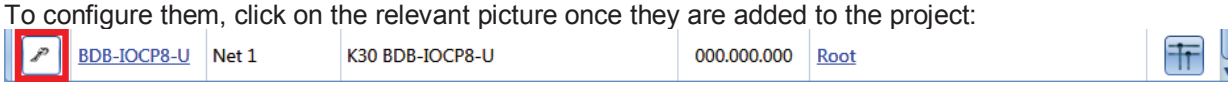
7.4 Decentral modules

The *Decentral module* family can be split into two main groups:

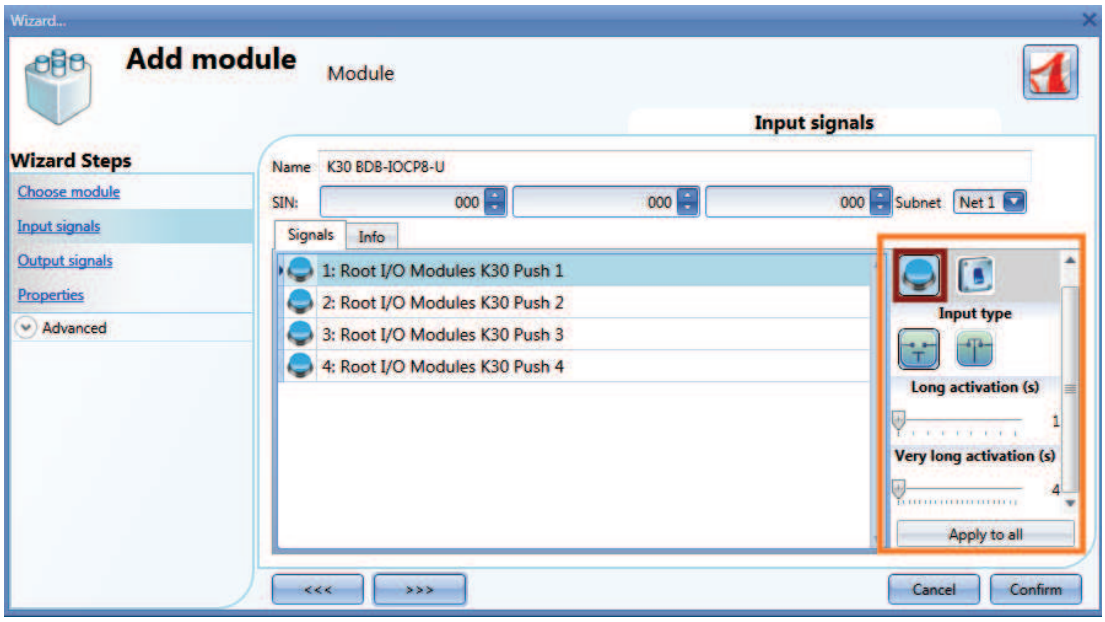
7.4.1 Digital input/output modules:

BDB-IOCP8-U
BDB-IOCP8A-U
BDB-INCON4-U
BDB-INCON8-U
BDD-INCON4-U

To configure them, click on the relevant picture once they are added to the project:

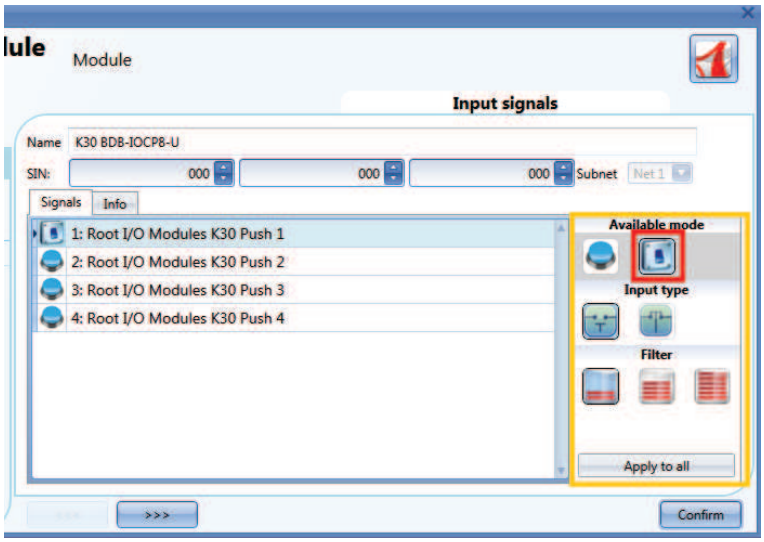


The configuration wizard will appear:



There are configurable settings only in the *Input signals* windows.
Each input can have its own settings, and the first thing to do is to select the behaviour: each input can be configured as a push button or a switch.

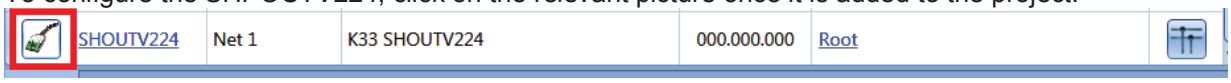
1) *Input configured as a pushbutton*: if the behaviour is configured as a push button, such as for light switches, the *Long activation* and *Very long activation* time has to be set. The user can also select if the input is normally closed or normally open, by clicking on the relevant *Input type* icons.
2) *Input configured as a switch*: if the behaviour is configured as a switch, the user can select if the input is normally closed or normally open, by clicking on the relevant *Input type* icons. Then the type of filtering of the signal on the bus can be selected from three options: low, average and high filtering. This should be selected according to how noisy the bus is (see picture below).


lule
Module
Input signals
Name
K30 BDB-IOCP8-U
SIN:
000
000
000
Subnet
Net 1
Signals
Info
1: Root I/O Modules K30 Push 1
2: Root I/O Modules K30 Push 2
3: Root I/O Modules K30 Push 3
4: Root I/O Modules K30 Push 4
Available mode
Input type
Filter
Apply to all
>>>
Confirm

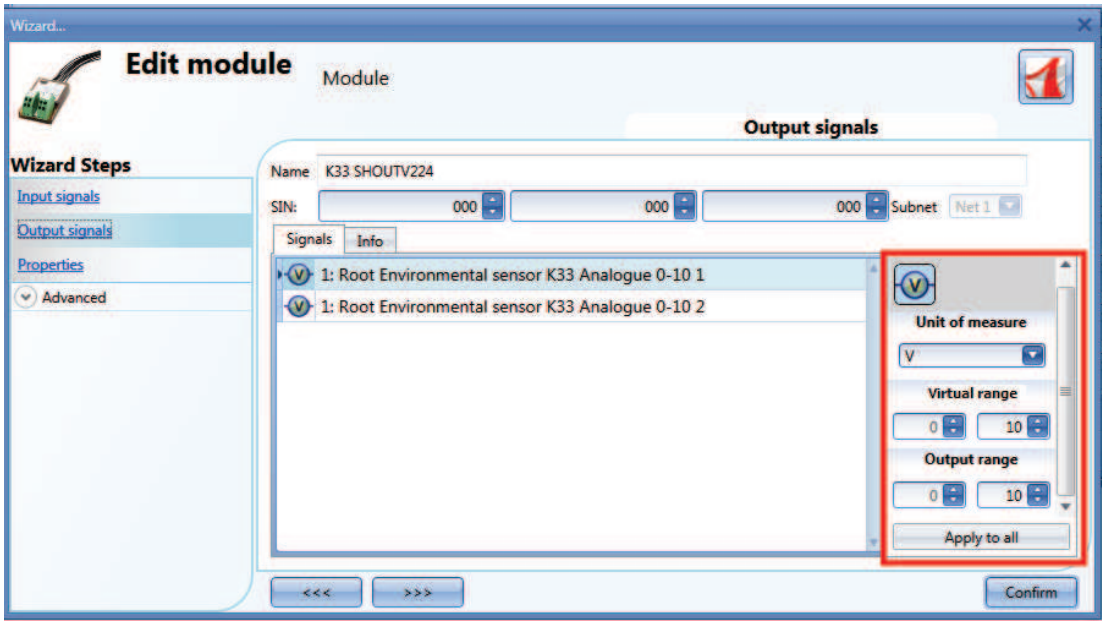
7.4.2 Analogue input/output modules

SHPOUTV224
SHPINV324
SHPINV2T1P124
SHPINT1P1
SHPINNI2
SHPINA224

To configure the SHPOUTV224, click on the relevant picture once it is added to the project:

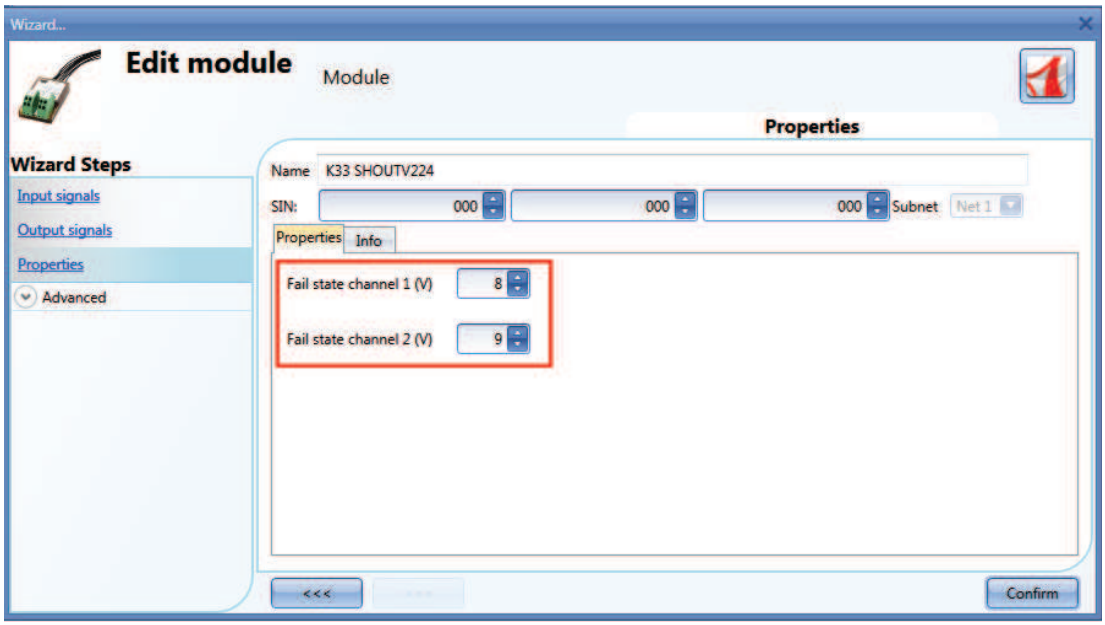


The configuration wizard will appear:

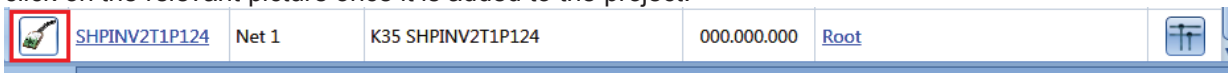


Since this is a 0 to 10V output module, it is a general purpose module and the output can be converted into many different units of measurement.
Those available can be selected from the field *Unit of measurement*: the icon will also be changed accordingly.
The "virtual" range of the selected unit of measurement has to be set in *Virtual range,* while the relevant output value in Volts has to be set in *Output range*. The conversion from the virtual to the voltage output range is linear.

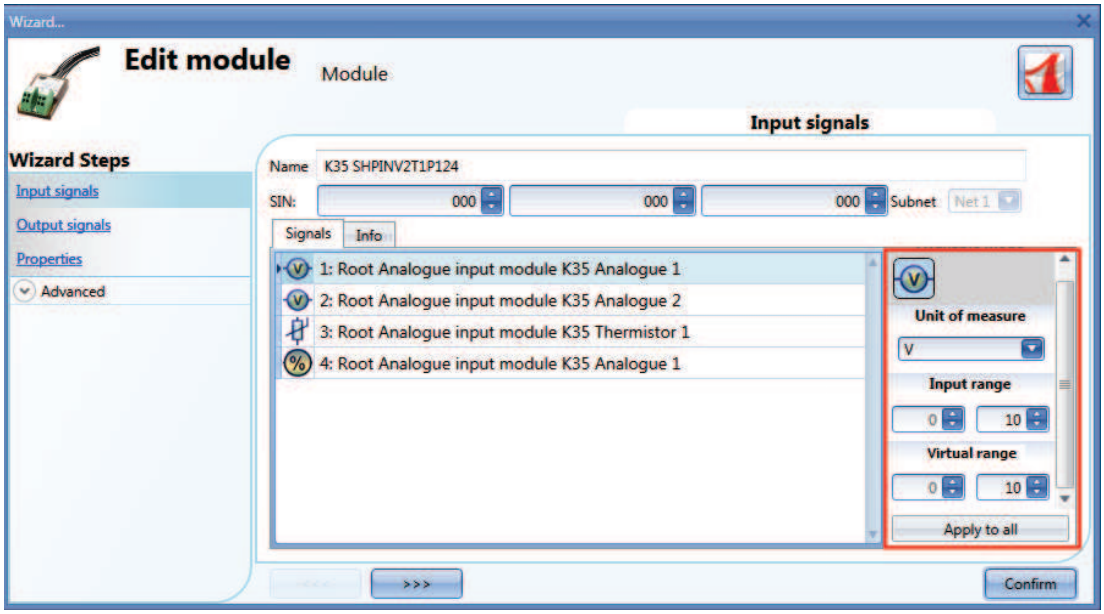
In *Properties*, the user can define the output value if the Dupline bus is faulty or not connected (see picture below).



To configure the analogue input module (SHPINV324, SHPINV2T1P124, SHPINT1P1, SHPINA224), click on the relevant picture once it is added to the project:



The configuration wizard will appear:

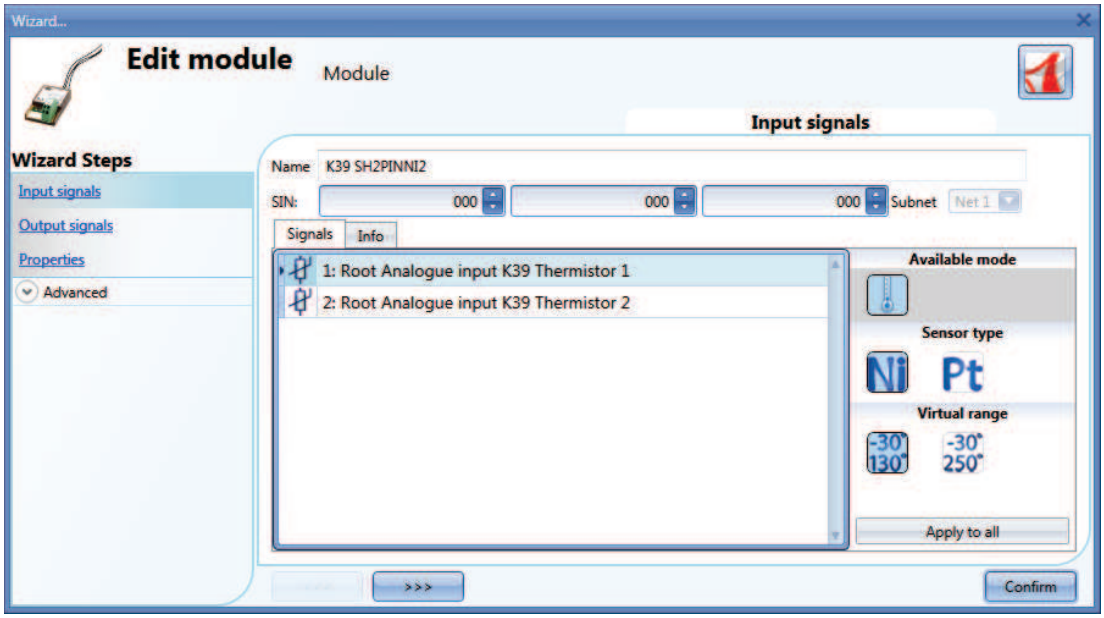


Since this is a general purpose input module, the value can be converted into many different units of measurement.

Those available can be selected from the field *Unit of measurement*: the icon will also be changed accordingly.
The "virtual" range of the selected unit of measurement has to be set in *Virtual range,* while the relevant input value has to be set in *Input range (*it might be a 0-10V value or a percentage according to the selected input*)*. The conversion from the virtual to the real input range is linear. The virtual input can then be used in all the functions, logged into the webserver and read via the Modbus TCP/IP.

To configure the analogue input module SHPINNI2, click on the relevant icon once it is added to the project:

The configuration wizard will appear:



From this window the user can select the type of sensor connected to this input module and the input range.

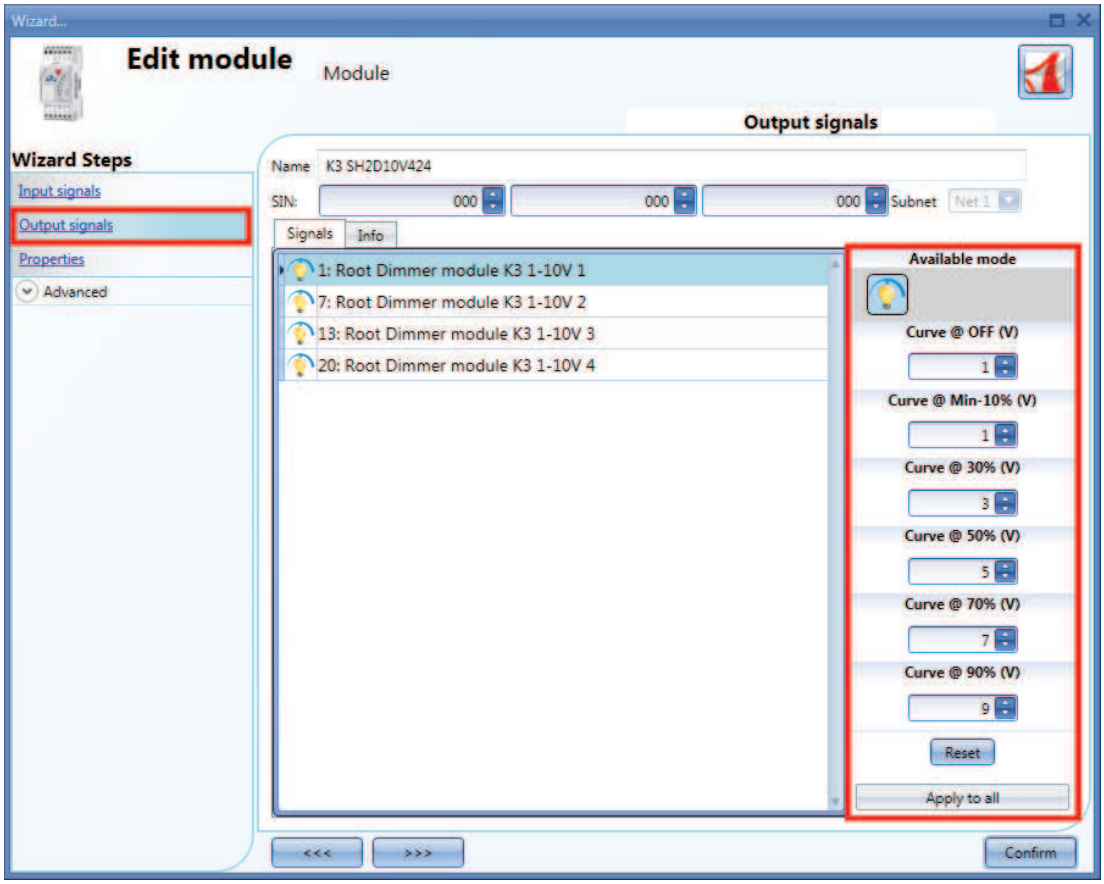
7.5 Cabinet modules

The following items belong to the *Cabinet module* family:

SH2D10V424
SH2D500WE230 (this does not require any configuration)
SH2D500W1230 (this does not require any configuration)
SH2INDI424
SH2RE16A2E230
SH2RE16A4
SH2RE1A424
SH2RODC224
SH2ROAC224
SH2SSTRI424

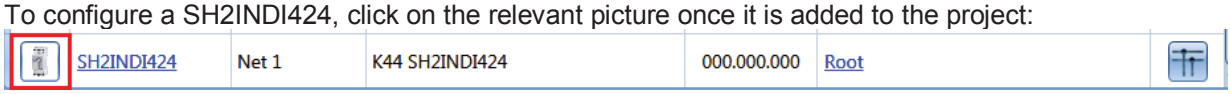
To configure a SH2D10V424, click on the relevant picture once it is added to the project:

The configuration wizard will appear:

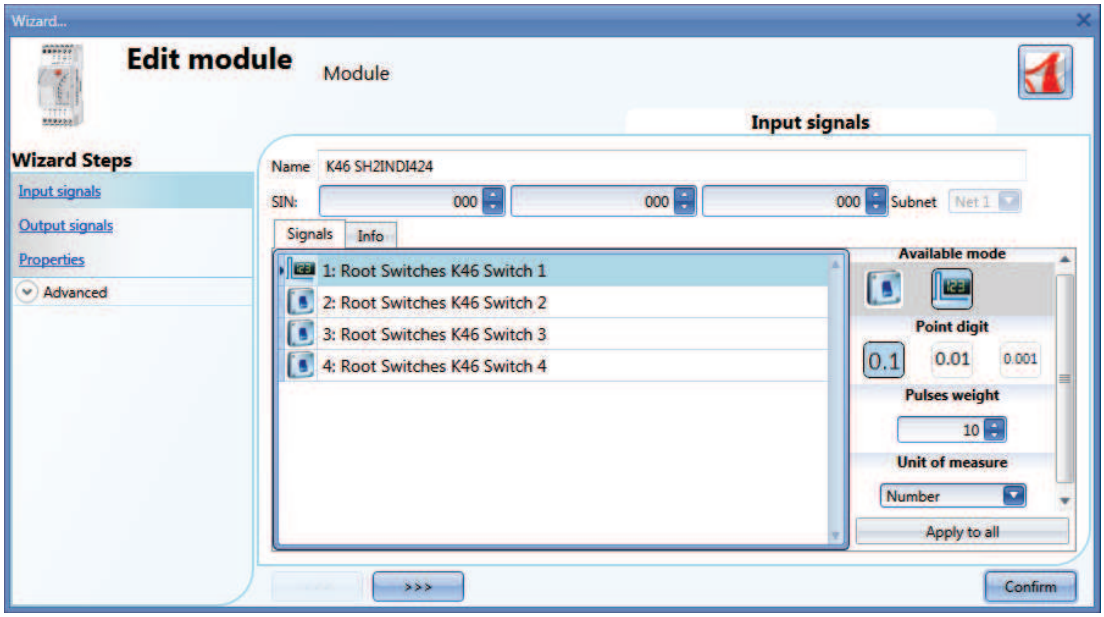


In the *Output signals* field the user can set the output curve according to the input voltage level required by the connected load. The curve is divided into six steps (OFF, 10%, 30%, 50%, 70%, 90%) and for each step the voltage level can be defined.

To configure a SH2INDI424, click on the relevant picture once it is added to the project:



The configuration wizard will appear:



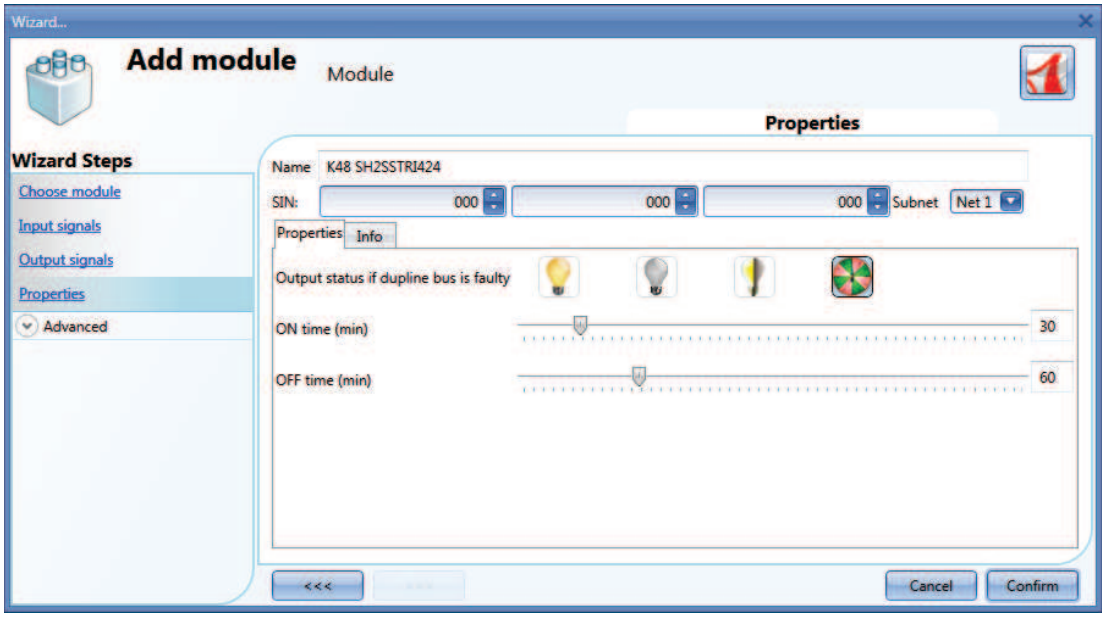
As for the settings of the SH2INDI424, the user has to select the working mode: it might be configured as a switch (the switch icon has to be selected), as a pulse counter by selecting the icon with *123* or as a push button. With this configuration the weight of each pulse can also be set in the *Pulse weight* field.

See *How to configure a counter function* to set this module for people counting.

To configure the SH2SSTRI424 and the SH2RE16A2E230, click on the relevant picture once they are added to the project:

	SH2RE16A2E230	Net 1	K47 SH2RE16A2E230	000.000.000	Root	
	SH2SSTRI424	Net 1	K48 SH2SSTRI424	000.000.000	Root	

The configuration wizard will appear:

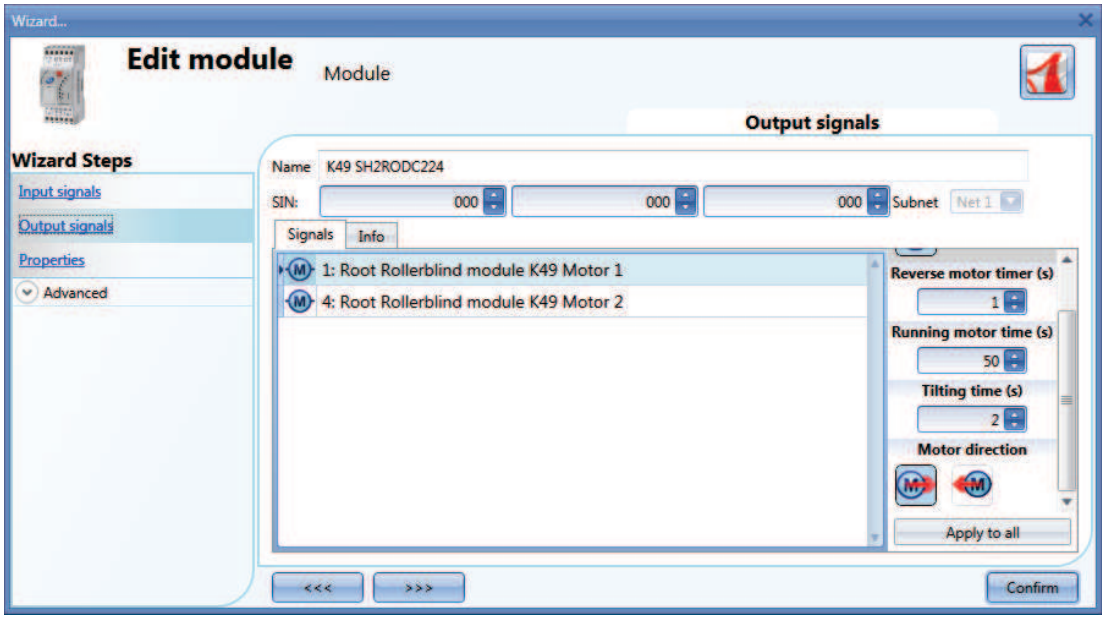


As for the setting of the output modules SH2SSTRI424 and SH2RE16A2E230, the user has to select the fail-safe working mode when the bus is faulty or not connected.
There are 4 available setups:

1) Output always on (yellow bulb)
2) Output always off (grey bulb)
3) The output maintains the status it had before the disconnection of the bus (yellow and grey bulb)
4) The output recycles: it will be on for the *On time*, and off for the *Off time*.

To configure the SH2ROAC224 and the SH2RODC224, click on the relevant picture once they are added to the project:

The configuration wizard will appear:



As for the setting of the roller blind module SH2RODC224 and the SH2ROCC224, the user has to set the *Reverse motor time* (the pause the motor takes before changing its direction), the *Running motor time* (the time the blind takes to go to a fully closed position from a fully open one) and the *Tilting time* (the time the motor needs to do a 180° rotation of the slats).

N.B. The modules with serial numbers higher then MN47xxxx can be programmed with different up/down running times.
All the modules produced before these dates can only be programmed with one running time.

7.6 MasterGlass switches

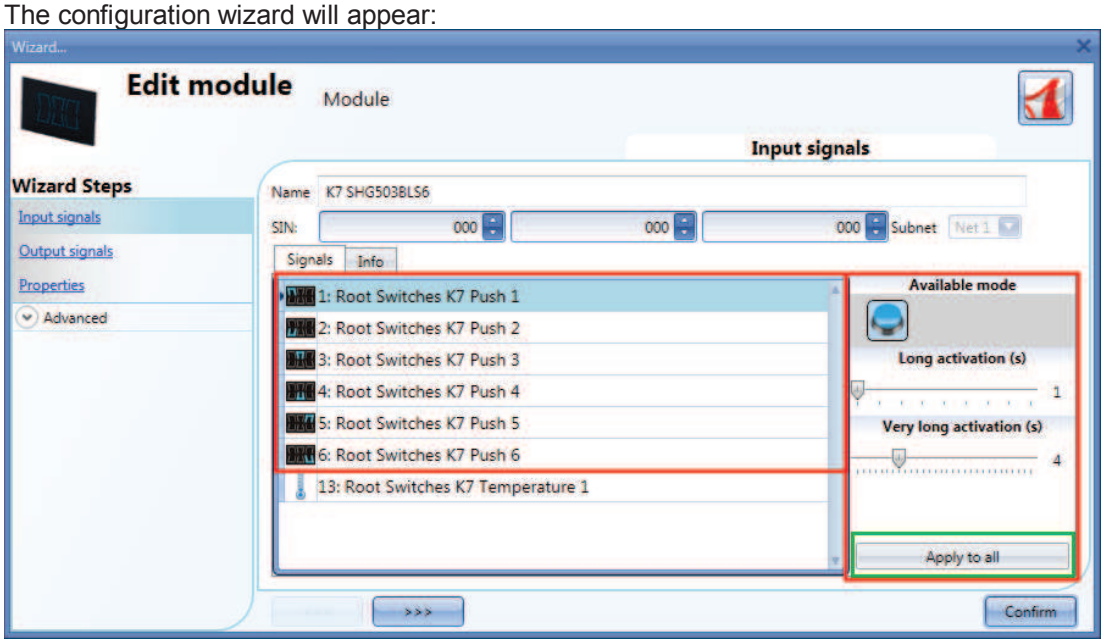
The following items belong to the Master*Glass switches* family:

SHG503WLS6
SHG503BLS6
SHG060WLS4
SHG060BLS4
SHG503WSLD
SHG503BSLD
SHG060WSLD
SHG060BSLD

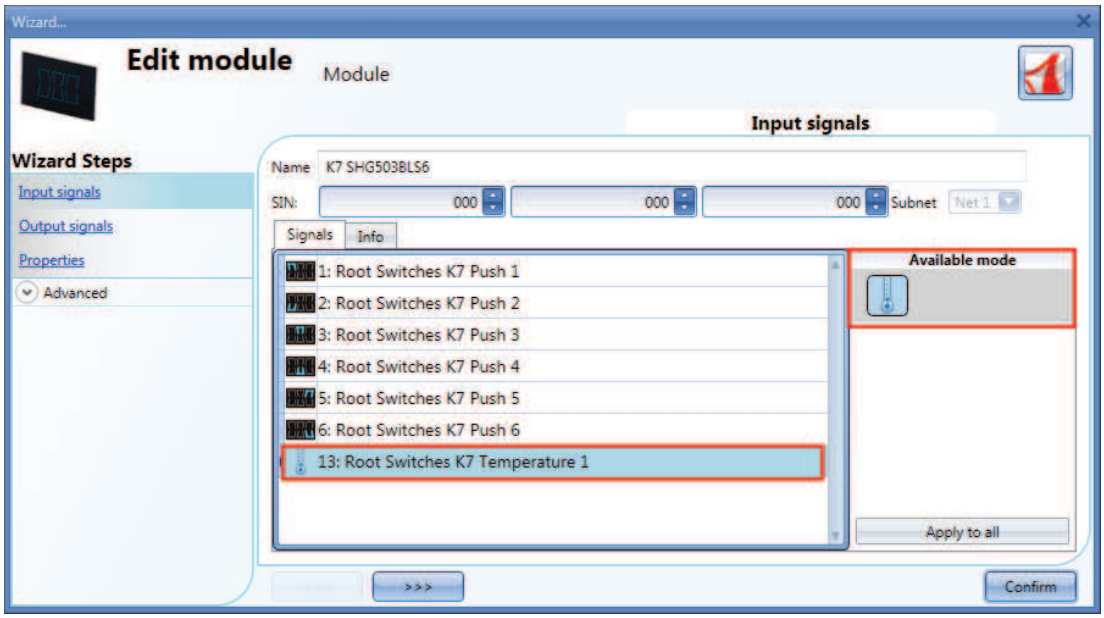
To configure these, click on the relevant picture once they are added to the project:

	SHG503BLS6	Net 1	K7 SHG503BLS6	000.000.000	Root	
	SHG503WLS6	Net 1	K2 SHG503WLS6	000.000.000	Root	

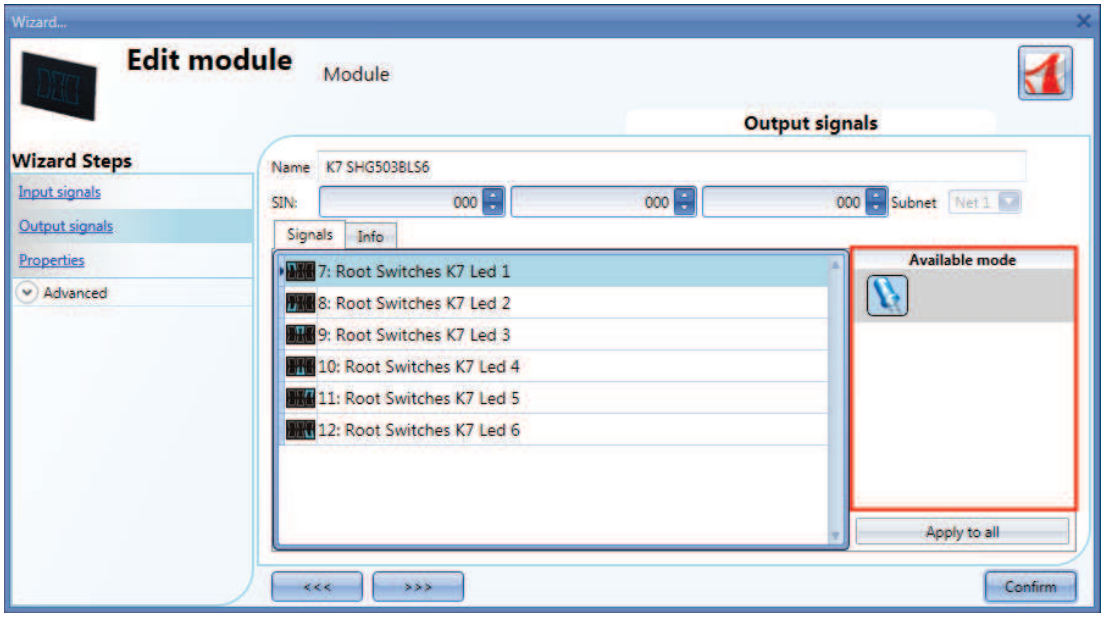
The configuration wizard will appear:



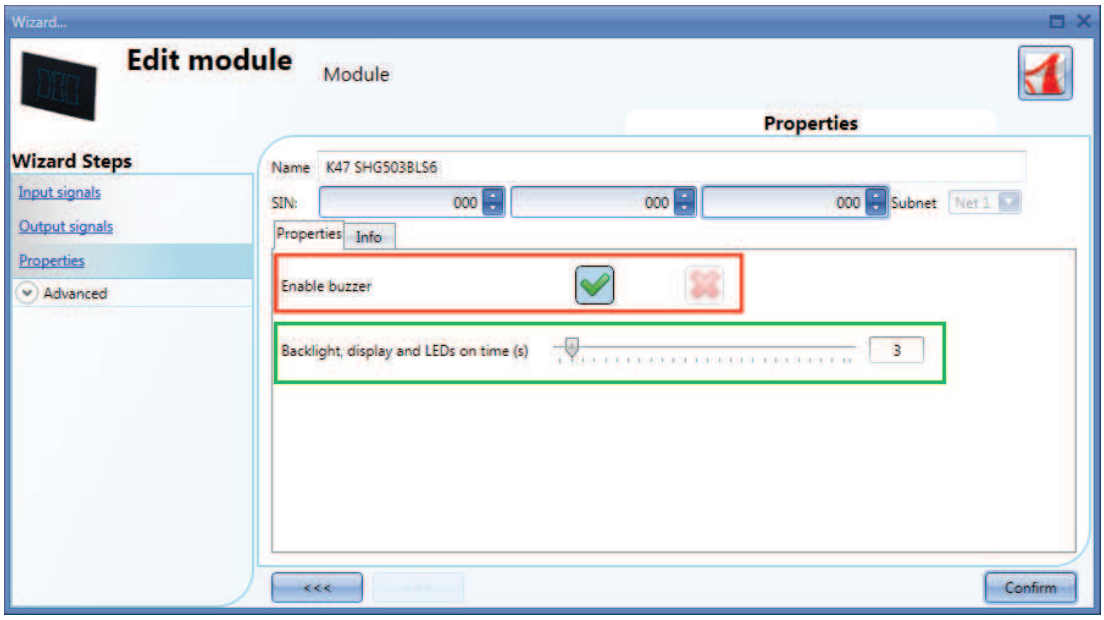
In the *Input signals* field, the *Long activation* and the *Very long* activation time has to be defined.
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and it is always set by the system 3 seconds longer than the *Long activation* time. The short press and long press are recognized when the push button is released.
The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*
If the *Very long activation time* is set shorter than 4 seconds, the long press is disabled: in this situation, the function associated with the very long press will be activated as soon as the push button is pressed for the selected time.



The SHG503WLS6 and SHG503BLS6 are glass switches with temperature sensors that can be used in any temperature function.



In the *Output signals* window, all the available feedback LEDs are shown: they can be freely programmed as feedback status LEDs for any smart-house function.



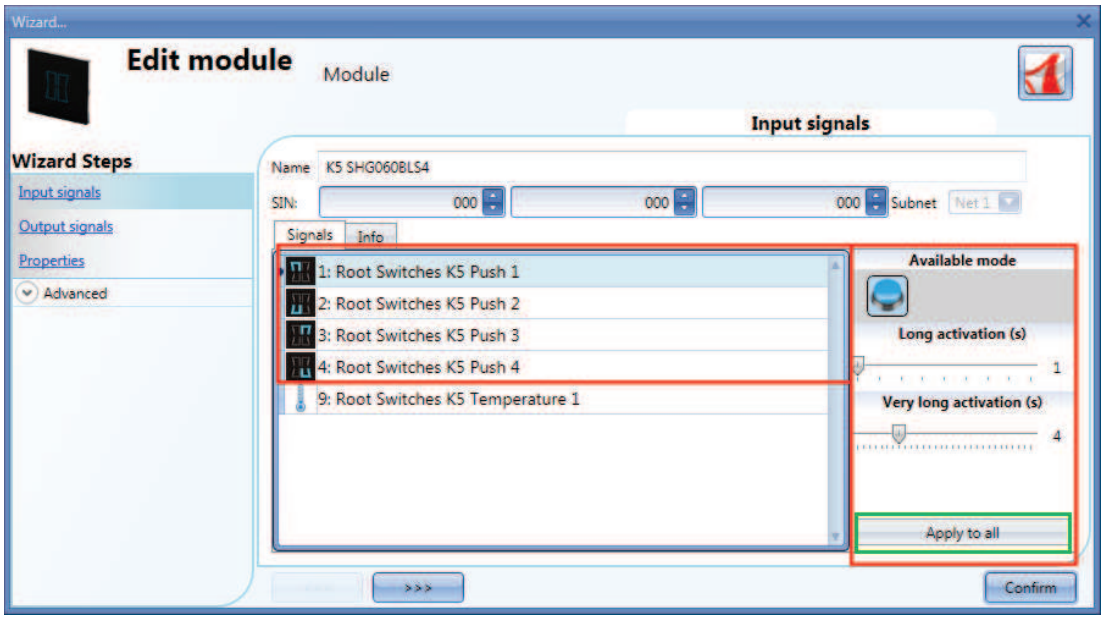
In the *Properties* field, the acoustic feedback and the back light can be set as described here.
The module has a built-in buzzer that can be enabled or disabled by the user (red rectangle). If it is enabled, when a key is pressed, an acoustic feedback will be emitted.
The glass has a backlight that can be configured: it can be set always ON (slider to the far right), always OFF (slider to the far left) or programmed with a delay off timer (once the timer set by the slider expires, the backlight is switched off automatically).

SHG060BLS4 and SHG060WLS4

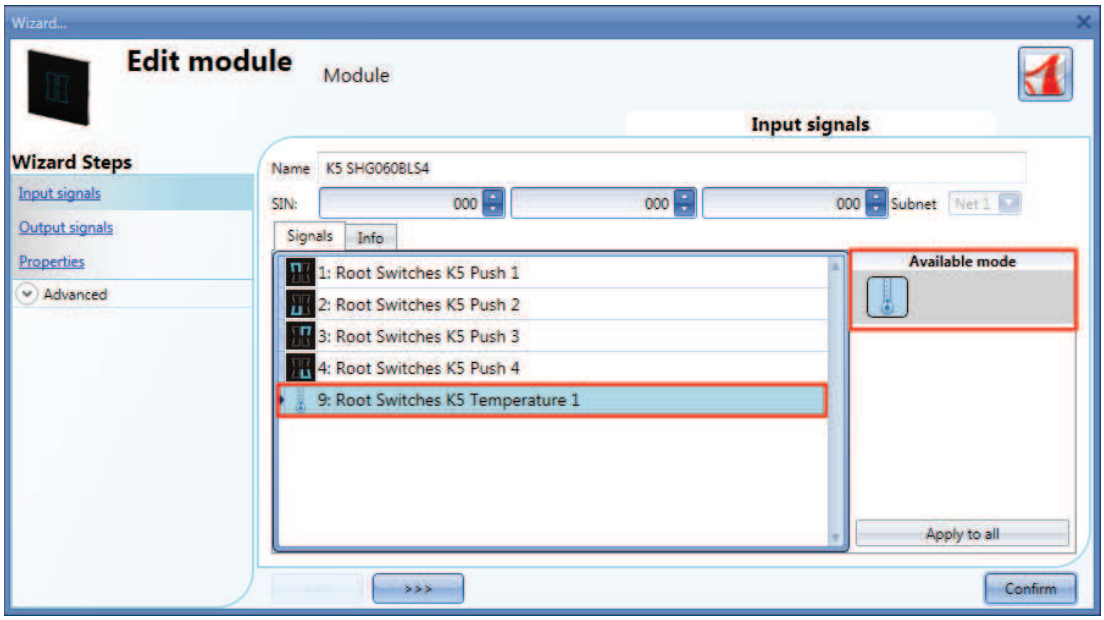
To configure these, click on the relevant picture once they are added to the project:

	SHG060BLS4	Net 1	K36 SHG060BLS4	000.000.000	Root	
	SHG060WLS4	Net 1	K40 SHG060WLS4	000.000.000	Root	

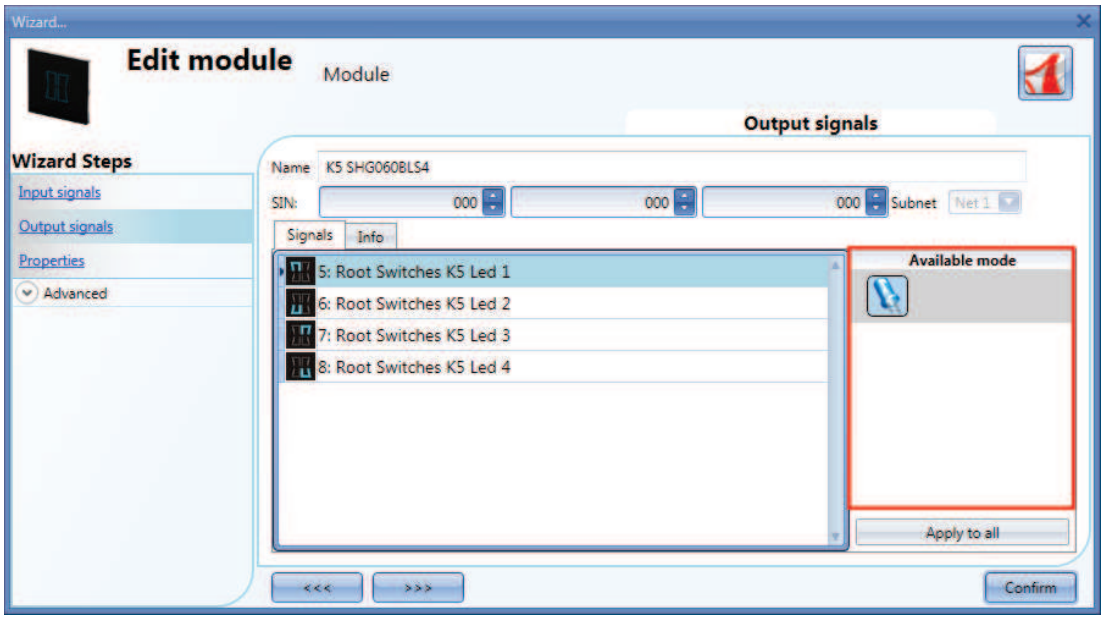
The configuration wizard will appear:



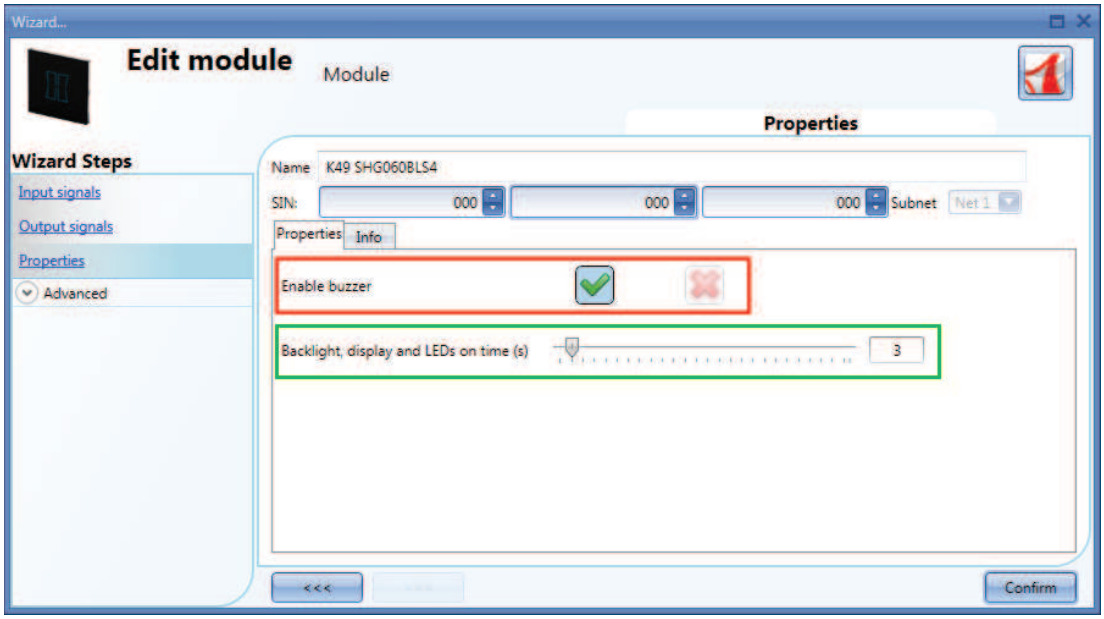
In the *Input signals* field, the *Long activation* and the *Very long* activation time has to be defined.
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and it is always set by the system 3 seconds longer than the *Long activation* time. The short press and long press are recognized when the push button is released.
The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*
If the *Very long activation time* is set shorter than 4 seconds, the long press is disabled: in this situation, the function associated with the very long press will be activated as soon as the push button is pressed for the selected time.



The SHG060WLS4 and SHG060BLS4 are glass switches with temperature sensors that can be used in any temperature function.



In the *Output signals* window, all the available feedback LEDs are shown: they can be freely programmed as feedback status LEDs for any smart-house function.



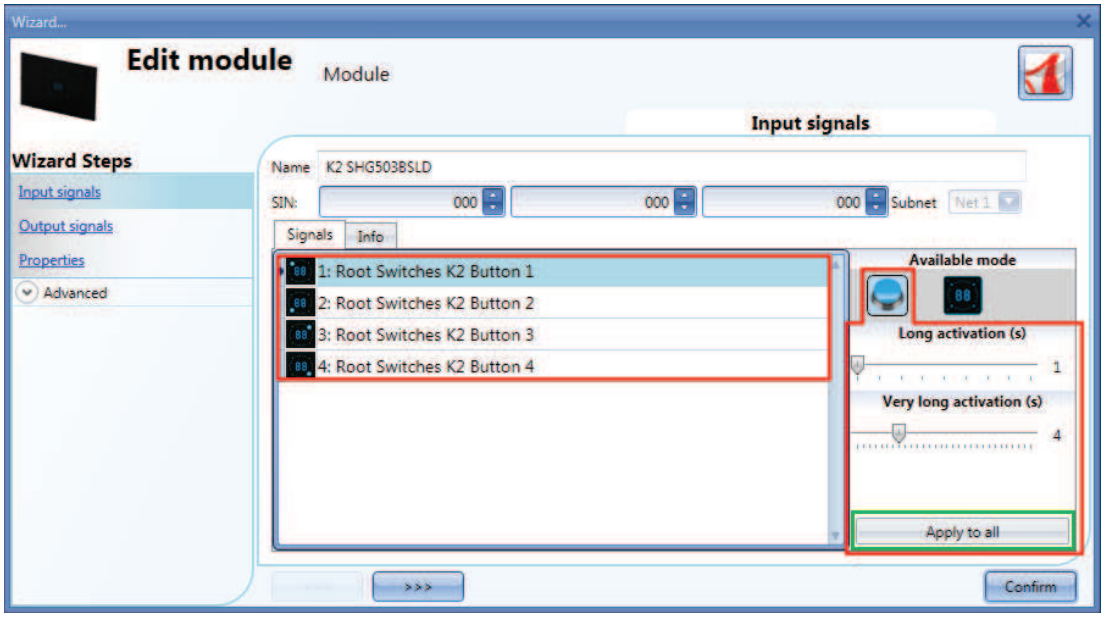
In the *Properties* field, the acoustic feedback and the backlight can be set as described here.
The module has a built-in buzzer that can be enabled or disabled by the user (red rectangle). If it is enabled, when a key is pressed, an acoustic feedback will be emitted.
The glass has a backlight that can be configured: it can be set always ON (slider to the far right), always OFF (slider to the far left) or programmed with a delay off timer (once the time set by the slider expires, the backlight is switched off automatically).

To configure the SHG503BSLD, SHG503WSLD, SHG060BSLD, SHG060WSLD , click on the relevant picture once they are added to the project:

	SHG503BSLD	Net 1	K2 SHG503BSLD	000.000.000	Root	
	SHG503WSLD	Net 1	K4 SHG503WSLD	000.000.000	Root	

The SHG503BSLD and SHG503WSLD have the same technical specs as the SHG060BSLD and SHG060WSLD: they differ only in front panel dimensions.

To configure these, click on the relevant picture once they are added to the project:



In the *Input signals* field, each key can be used in 2 different ways: as a **Push button** or as a **Dimmer Interface**.

7.6.1 How to configure the key as a standard push button

Click on the icon showing a push button (red rectangle in the figure above).
This can be used in all the on/off functions apart from the rollerblind functions.
If the user wants to change the working mode of a key, the key must not be used in any function. Should it be already being used, the user has to delete it from the function.

If the key is set as *push button*, the *Long activation* and the *Very long activation* time have to be set in the same way as that of the mechanical push button.

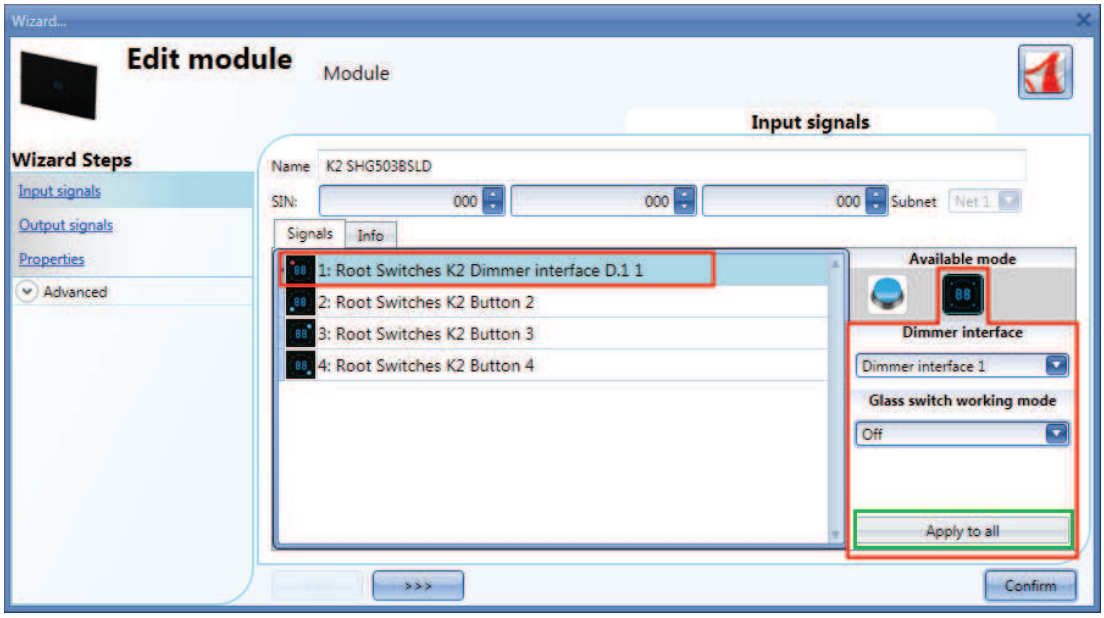
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and it is always set by the system 3 seconds longer than the *Long activation* time. The short press and long press are recognized when the push button is released.

The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*

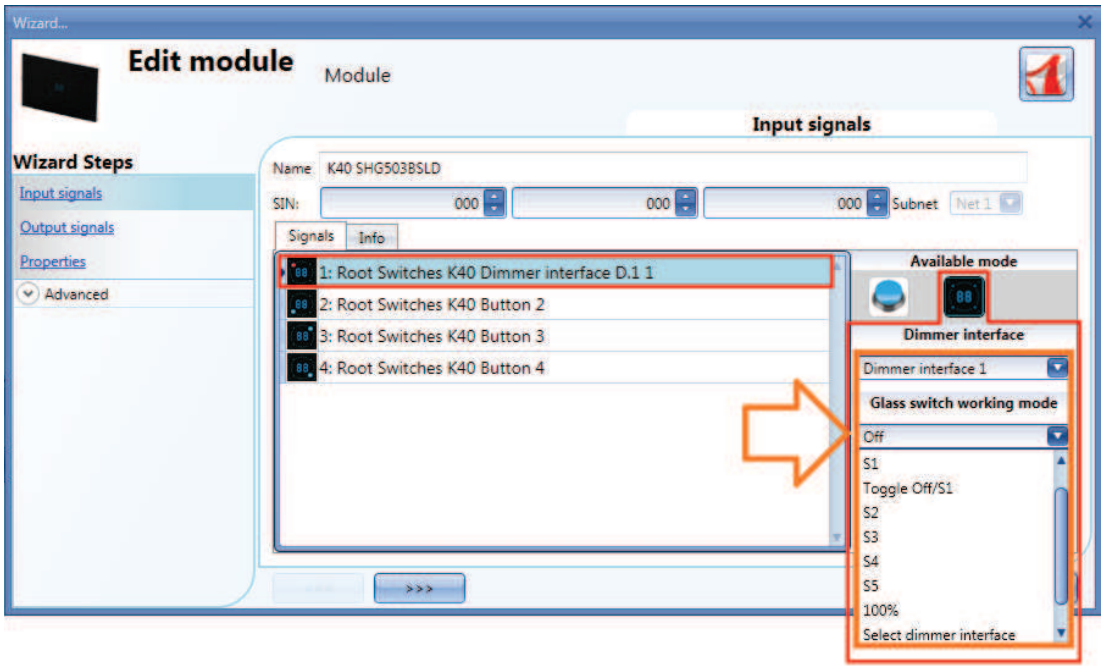
If the *Very long activation time* is set shorter than 4 seconds, the long press is disabled: in this situation, the function associated with the very long press will be activated as soon as the push button is pressed for the selected time.

7.6.2 How to configure the key as *Dimmer interface*

Click on the icon showing the image of the glass switch (red rectangle in the figure below).



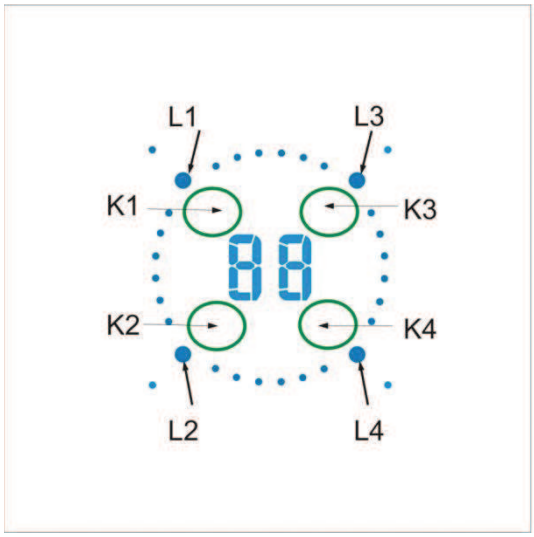
The *Dimmer interface* mode can be configured as shown in the following steps.
To indicate that a key is configured as *Dimmer interface,* the corresponding icon will be marked with a red dot.

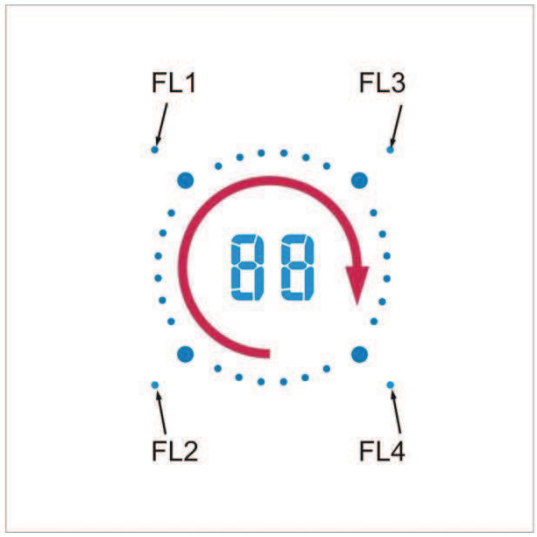


Since this panel can control up to 4 dimming functions, also called dimmer interface, each key can be freely associated to one of them. More than one key can be associated to the same dimmer interface (or dimmer function).
By means of the drop down list *Dimmer interface*, the user can associate the one required to the selected key.

Dimmer Interface	
Dimmer interface 1	It is possible to freely associate each key to a dimmer interface. Press *Apply to all* (green rectangle) to assign the same dimmer interface to all the keys not already used . If a key is already used in a function, the dimmer interface or the working mode cannot be changed.
Dimmer interface 2	
Dimmer interface 3	
Dimmer interface 4	

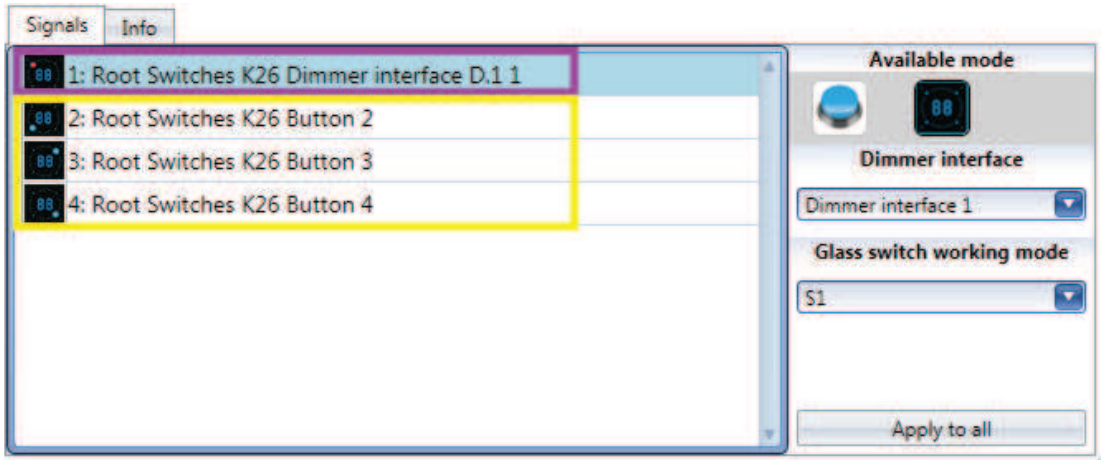
If a key is programmed in dimming mode (dimmer interface), when it is pressed it switches on or selects the relevant dimming group. When a group is selected, moving the finger on the slider will immediately change the corresponding light level. The display shows the dimming percentage of the selected group of lamps.
If the finger rotates clockwise over the slider, the light of the selected group is increased up to 100% (the display shows HI) in 10 steps; if the finger rotates anticlockwise over the slider, the light of the selected group is decreased down to 00% in 10 steps.





Some examples of the configuration of the keys are shown below:

One dimmer interface, three on/off keys
This example is shown below, where push button 1 is set as dimmer interface (purple box), while the other three push buttons are programmed as standard on/off keys (yellow box).
Since only one dimmer interface is programmed, the display and the slider are always associated with only one linked dimming function (see *How to use a dimmer interface in a dimmable light function).*
When K1 is pressed, the action, selected in *Glass switch working mode,* will be carried out. The corresponding FL1 LED will be on if the light level is higher than 0%.
The Ln LEDs, associated with the other Kn keys programmed as on/off push buttons, will be off.



Two dimmer interfaces, two on/off keys

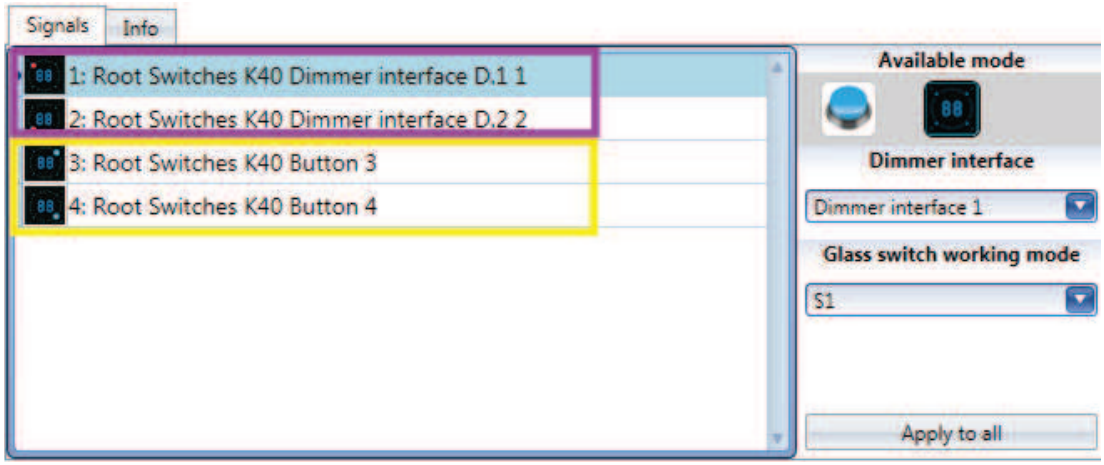
This example is shown below, where keys 1 and 2 are set as dimmer interfaces (purple box), while the other two push buttons are programmed as standard on/off keys (yellow box).

When two dimmer interfaces are programmed the display, the slider and L*n* Led are always associated with the last linked dimming function (see *How to use a dimmer interface in a dimmable light function).*

When K2 is pressed, dimmer interface 2 will be selected, L2 will be on and the display and the slider will be associated with the dimmer function to which K2 is linked. If K1 is pressed, dimmer interface 1 will be selected, L1 will be on and the display and the slider will be associated with the dimmer function to which K1 is linked. The Ln LED indicates to which dimmer interface the slider and the display are linked in that moment.

The push buttons 3 and 4, programmed as on/off, can be used at any time, without changing the association of the slider and the display.

The Ln LEDs, associated with K3 and K4 programmed as on/off push buttons, will be off.

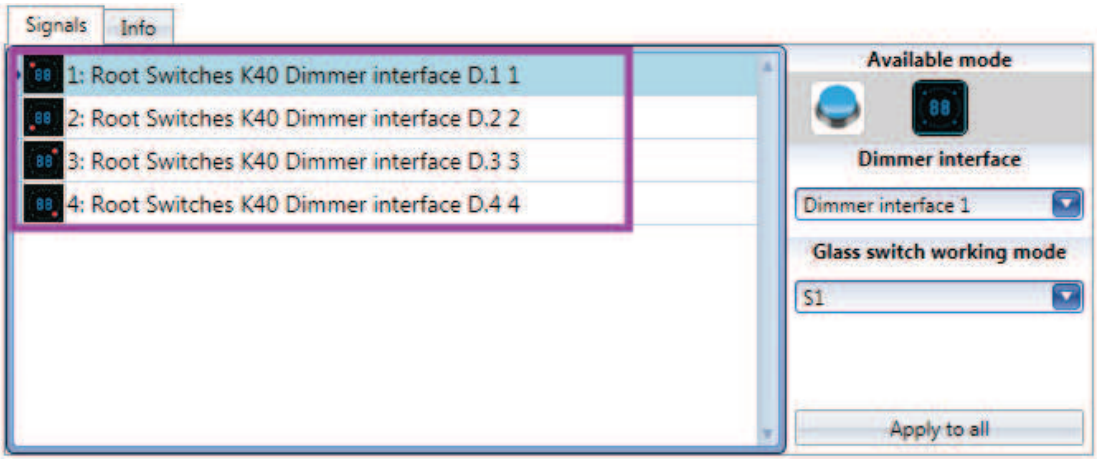


Four dimmer interfaces

This example is shown below, where all keys are set as dimmer interfaces (purple box) and there aren't any push on/off buttons.

When all the keys are programmed as dimmer interfaces, only one dimmer function can be selected at a time: the display and the slider are always associated with the last one in use and the corresponding Ln LED will be on. When, for example, K3 is pressed, dimmer interface 3 will be selected, L3 will be on and the display and the slider will be associated with the dimmer function to which K2 is linked. If K4 is pressed, dimmer interface 4 will be selected, L4 will be on and the display and the slider will be associated with the dimmer function to which K4 is linked.

The Ln LED indicates to which dimmer interface the slider and the display are linked in that moment.

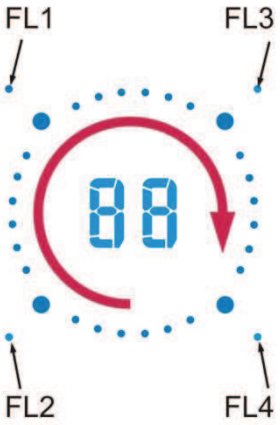


When a dimmer interface is selected, the following working modes are available:

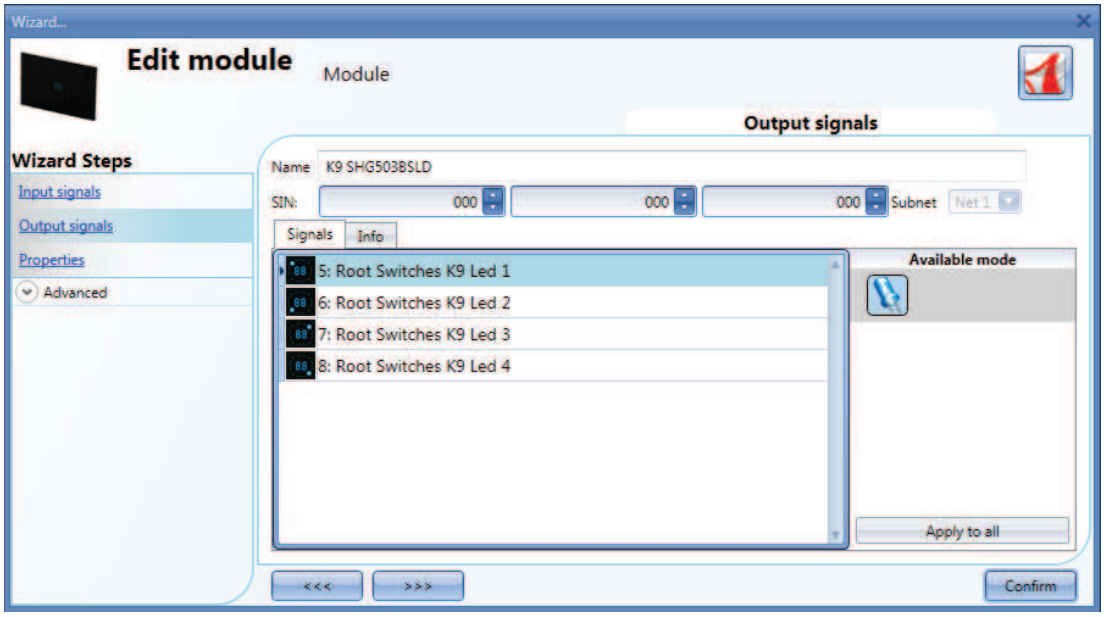
Glass switch working mode	Behaviour
Off	If the key is pressed, it will switch the light off.
S1	If the key is pressed, the light is switched on at the last saved level. If the light level is set down to 0% acting on the slider, and then switched on via a key associated to this working mode, the level is set at 10%.
Toggle Off/S1	If this working mode is selected, the light is toggled on/off. When it is switched on, the light level will be the last saved. If the light level is set down to 0% acting on the slider, and then switched on via a key associated to this working mode, the level is set at 10%.
S2	If the key is pressed, the light is set at Scenario 2 (S2 by default is equal to 20%, and it can freely be changed)
S3	If the key is pressed, the light is set at Scenario 3 (S3 by default is equal to 40%, and it can freely be changed)
S4	If the key is pressed, the light is set at Scenario 4 (S4 by default is equal to 60%, and it can freely be changed)
S5	If the key is pressed, the light is set at Scenario 5 (S5 by default is equal to 80%, and it can freely be changed)
100%	If the key is pressed, the light is set at the highest light level
Select dimmer interface	If the key is pressed, it associates the slider and the display with the linked dimmer function. It will not switch the light on or off.

7.6.3 How to set the feedback LEDs

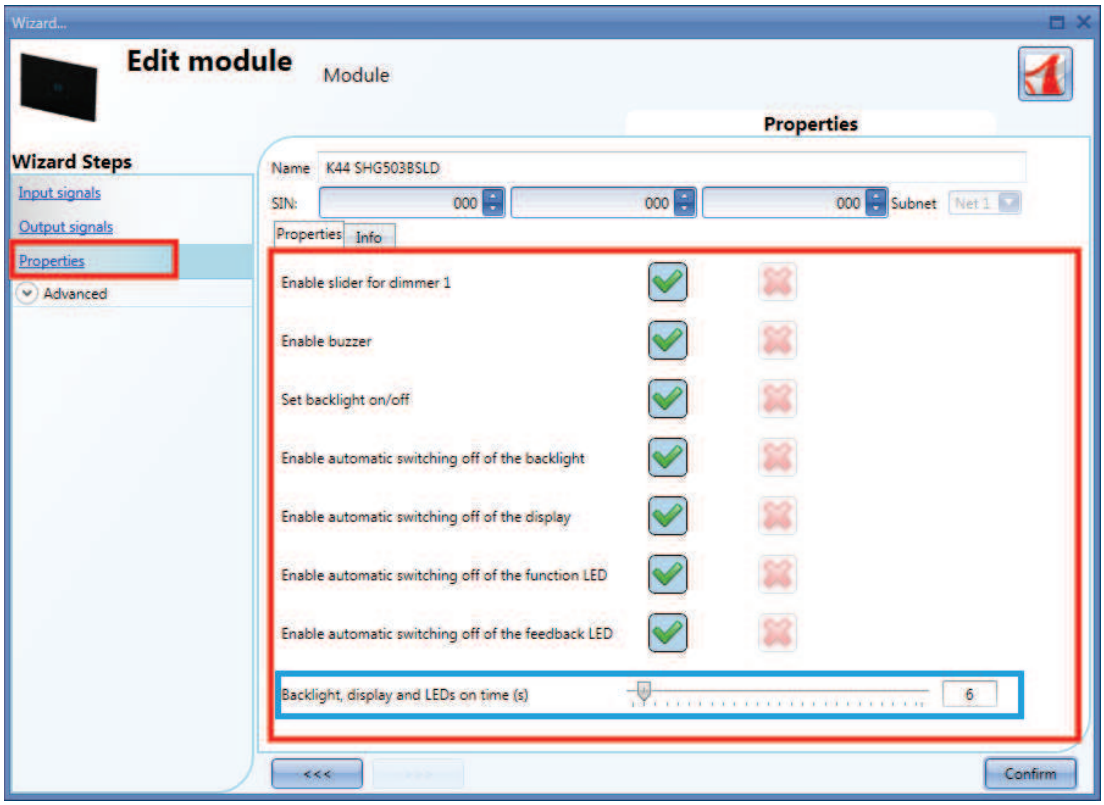
In the glass panel there are four small LEDs that can be freely programmed as feedback of any function.
As shown in the figure below, they are called FL1, FL2, FL3, FL4.



In the *Output signals* window, all the available feedback LEDs are shown and they can be used in the corresponding *Feedback* field of any function.



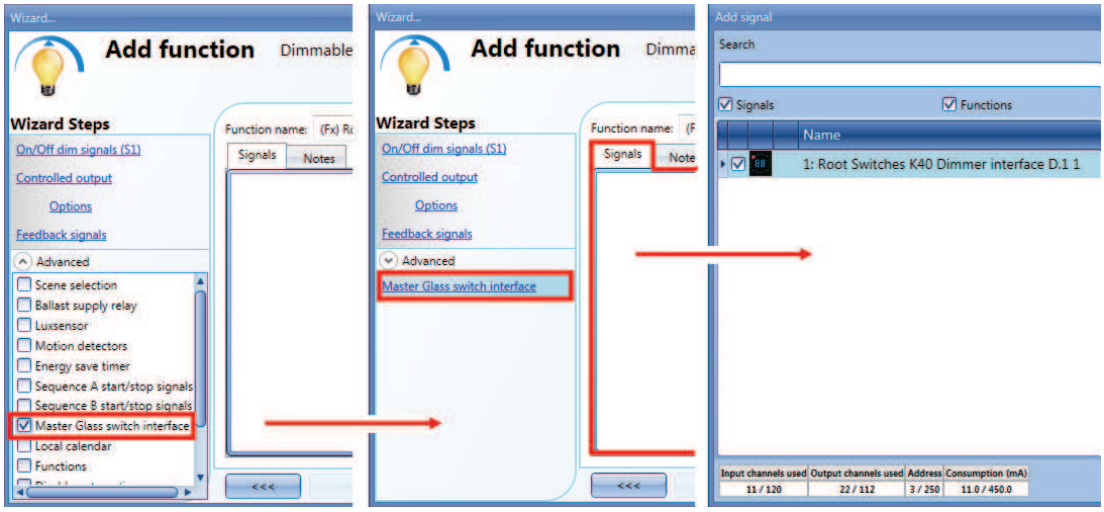
7.6.4 How to set the glass panel properties



In the *Properties* field, the acoustic feedback and the backlight can be set as described here.
The module has a built-in buzzer that can be enabled or disabled by the user: if it is enabled, when a key is pressed or the finger is moved over the slider, an acoustic feedback will be emitted. The glass has a backlight, two 7-digit displays, four function LEDs (L1, L2, L3, L4) and four feedback LEDs (FL1, FL2, FL3, FL4) which can be configured in this field:

Field name	Description
Enable slider for dimmer 1	By default when a key is set as dimmer interface in the *Inputs Signals* field, the slider for the corresponding dimmer is enabled. It can be disabled in order not to use it.
Enable slider for dimmer 2	
Enable slider for dimmer 3	
Enable slider for dimmer 4	
Enable buzzer	The module has a built-in buzzer that can be enabled or disabled by the user. If it is enabled, when a key is pressed, an acoustic feedback will be emitted.
Set backlight on/off	The backlight of the glass can be enabled or disabled.
Enable automatic switching off of the backlight	If this property is enabled, the back light is switched off when the timer, set in *Backlight on time,* expires.
Enable automatic off of the display	If this property is enabled, the display is switched off when the timer, set in *Backlight on time,* expires.
Enable automatic switching off of the function LED	If this property is enabled, the LED function is switched off when the timer, set in *Backlight on time,* expires.
Enable automatic switching off of the feedback LED	If this property is enabled, the feedback LEDs are switched off when the timer, set in *Backlight on time,* expires.
Backlight, display and LEDs on time (s)	This can be set always ON (slider to the far left) or programmed with a delay off timer (once the timer set with the slider expires, the backlight, display, function LED and feedback LEDs are switched off automatically).

7.6.5 How to use a dimmer interface in a dimmable light function



To use a key programmed as dimmer interface in a Dimmable light function, select *Master Glass switch interface* in the *Advanced* field, double click on *Signals* and select the required dimmer interface.

7.7 Masterglass temperature display

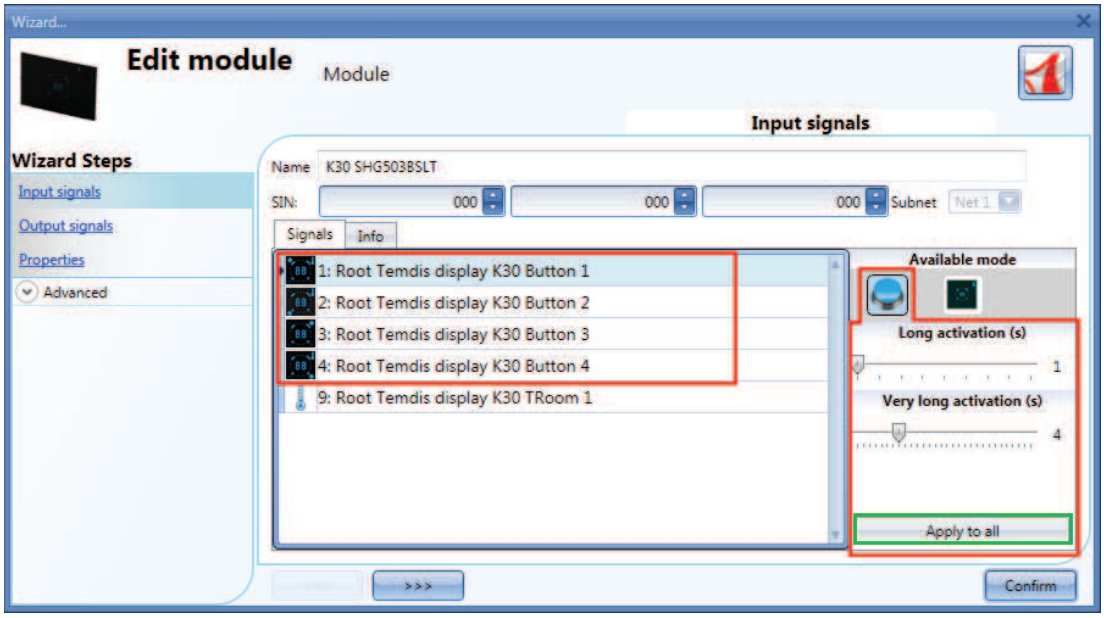
The following items belong to the Masterglass temperature displays:

SHG503WSLT
SHG503BSLT
SHG060WSLT
SHG060BSLT

	SHG503WSLT	Net 1	K29 SHG503WSLT	000.000.000	Root	
	SHG503BSLT	Net 1	K30 SHG503BSLT	000.000.000	Root	
	SHG060WSLT	Net 1	K31 SHG060WSLT	000.000.000	Root	
	SHG060BSLT	Net 1	K32 SHG060BSLT	000.000.000	Root	

The SHG503WSLT and SHG503BSLT have the same technical specs as the SHG060WSLT and SHG060BSLT: they differ only in the dimensions of the front panel.

To configure these, click on the relevant picture once it is added to the project:



In the *Input signals* field, each key can be used in 2 different ways: as a **Push button** or as a **Temdis interface.**

7.7.1 How to configure the key as a standard push button

Click on the icon showing a push button (red rectangle in the figure above).
To indicate that a key is configured as a push button, the corresponding icon will show a red dot. This configuration can be used in all the on/off functions apart from the rollerblind functions.
If the user wants to change the working mode of a key, it should not be in use in any function. Should it be already in use, the user must delete it from the function.

If the key is set as *push button*, the *Long activation* and the *Very long activation* times have to be set in the same way as that of the mechanical push button.

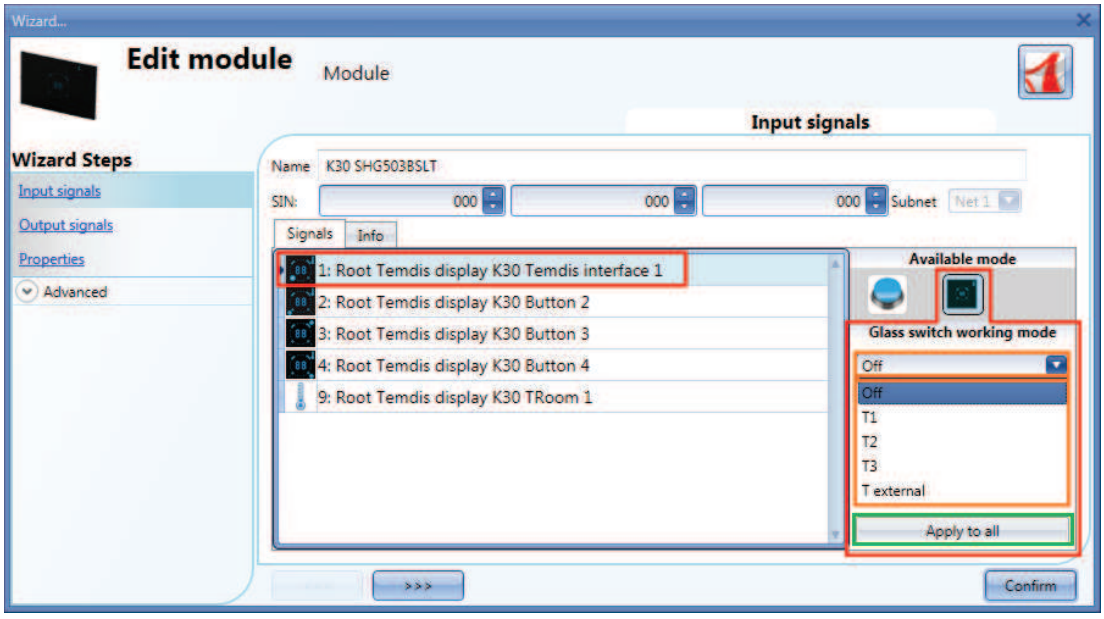
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and this is always set by the system for 3 seconds longer than the *Long activation* time. The short press and long press are recognized when the push button is released.

The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*

If the *Very long activation time* is set shorter than 4 seconds, the long press is disabled: in this situation, the function associated with the very long press will be activated as soon as the push button is pressed for the selected time.

7.7.2 How to configure the key as Temdis interface

Click on the icon showing the image of the glass switch (red rectangle in the figure below).



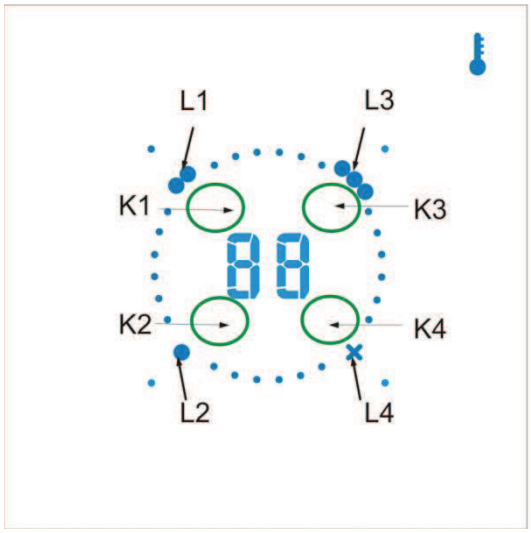
The *Glass switch working mode* can be configured as shown in the following steps.

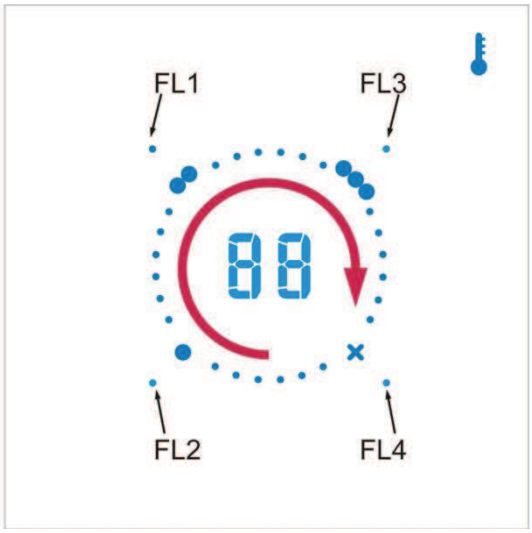
To indicate that a key is configured as *Temdis interface,* the corresponding icon will show a red dot.

Since this panel can control up to three temperature set points, one on/off command for the temperature function and one command to visualize an external temperature, each key can be freely associated to one of these functions. More than one key can be associated to the same functionality.
By means of the drop down list *Glass switch working mode*, the user can associate the key to the required working mode.

Glass switch working mode	Behaviour
Off	If the key is pressed, it will switch the temperature control off
T1	If the key is pressed, the set point 1 (T1) is selected: the temperature function, to which the panel is associated, will regulate the room temperature according to this setpoint.
T2	If the key is pressed, the set point 2 (T2) is selected: the temperature function, to which the panel is associated, will regulate the room temperature according to this setpoint.
T3	If the key is pressed, the set point 3 (T3) is selected: the temperature function, to which the panel is associated, will regulate the room temperature according to this setpoint.
T external	If the key is pressed, the display shows the external temperature for 10 seconds without changing the setpoint.

If a key is programmed as *Temdis interface*, when it is pressed the user can select the required temperature level, change the selected set point with the slider or switch the temperature control on/off. The display shows the room temperature in Celsius or Fahrenheit Degrees according to the Sx tool settings.

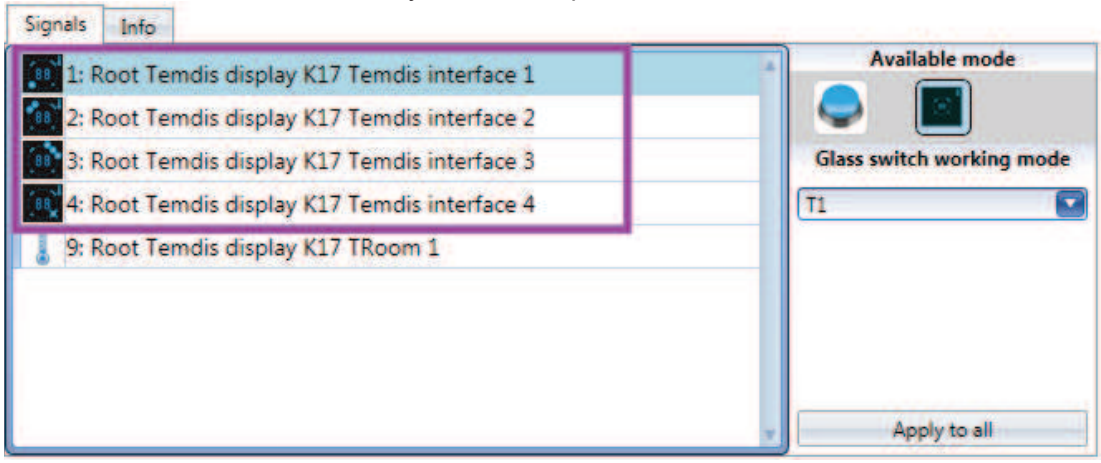




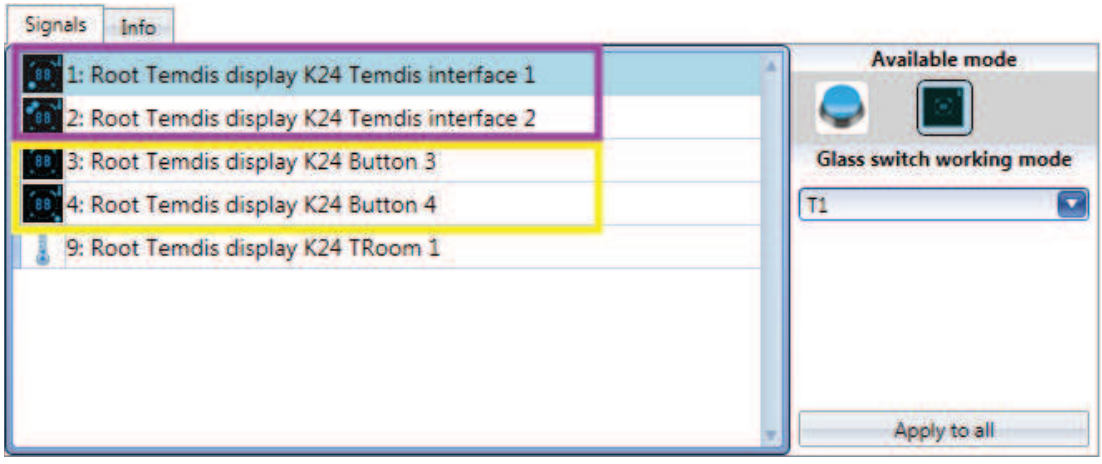
Some examples of the configuration of the keys are shown below:

Four Temdis interface keys
This example is shown below, where all the keys are set as *Temdis interface* (purple box) and there aren't any on/off push buttons. The display always shows the room temperature. When K1 is pressed, the display shows *t1* for 1 second, then it shows setpoint T1. L1 will be blinking: if the finger rotates clockwise over the slider, the selected setpoint is increased in 1 or 0.5 degree steps up to the maximum set value (see *How to set temperature range*). If the finger rotates anticlockwise over the slider, the selected setpoint is decreased in 1 or 0.5 degree steps down to the minimum set value (see *How to set temperature range*).If K2 is pressed, the display shows *t2* for 1 second, then it shows setpoint T2. L2 will be blinking: the user can select the required temperature level by means of the slider (as explained above for K1). If K3 is pressed, T3 set point is selected. Finally, when K4 is

pressed, the display shows *tE* for 1 second and then it will show the outdoor temperature for 10 seconds. *(see How to show the external temperature in the Masterglass temperature display).*
The Ln LED indicates the currently selected setpoint

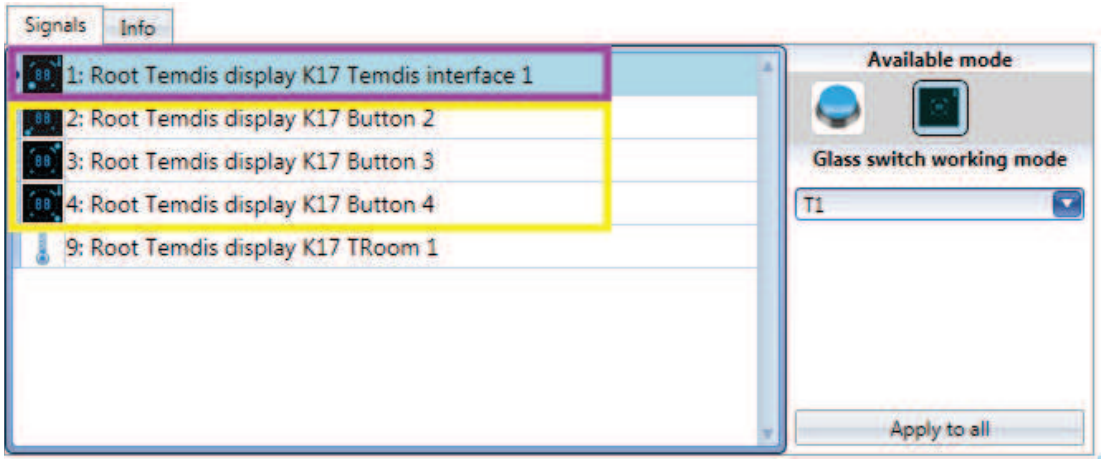


Two Temdis interfaces, two on/off keys
This example is shown below, where key 1 is set as *Temdis interface* (purple box), while the other three push buttons are programmed as standard on/off keys (yellow box).
When K1 is pressed, the display shows *t1* for 1 second, then it shows setpoint T1. L1 will be blinking: if the finger rotates clockwise over the slider, the selected setpoint is increased in 1 or 0.5 degree steps up to the maximum set value (see *How to set temperature range*). If the finger rotates anticlockwise over the slider, the selected setpoint is decreased in 1 or 0.5 degree steps down to the minimum set value (see *How to set temperature range*).If K2 is pressed, the display shows t2 for 1 second, then it shows setpoint T2. L2 will be blinking: the user can select the required temperature level by means of the slider (as explained above for K1). The push buttons 3 and 4, programmed as on/off, can be used at any time.
The Ln LEDs associated with K3 and K4 programmed as on/off push buttons will be less bright than the L1 or L2.



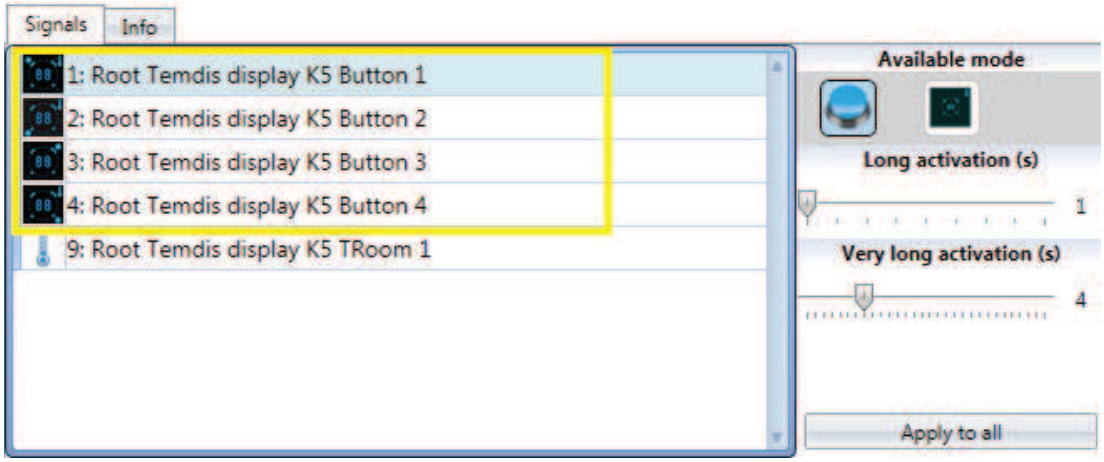
One Temdis interface, three on/off keys
This example is shown below, where key 1 is set as Temdis interface (purple box), while the other three push buttons are programmed as standard on/off keys (yellow box).
When K1 is pressed, the display shows *t1* for 1 second, then it shows setpoint T1. L1 will be blinking: if the finger rotates clockwise over the slider, the selected setpoint is increased in 1 or 0.5 degree steps up to the maximum set value (see *How to set temperature range*). If the finger rotates anticlockwise over the slider, the selected setpoint is decreased in 1 or 0.5 degree steps down to the minimum set value (see *How to set temperature range*). The push buttons 2, 3 and 4, programmed as on/off, can be used at any time.

The Ln LEDs associated with K2, K3 and K4 programmed as on/off push buttons will be less bright than the L1.



Four on/off keys

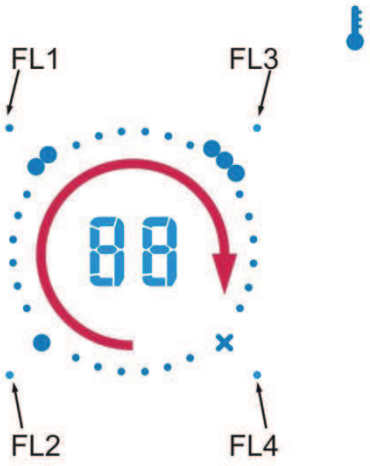
This example is shown below, where all the keys are set as push buttons (yellow box) and there aren't any *Temdis interface* keys. When all the keys are programmed as standard push button on/off, the display always shows the room temperature, but the slider is disabled. The push buttons are programmed as on/off and can be used at any time. All the Ln LEDs are on at the same brightness.



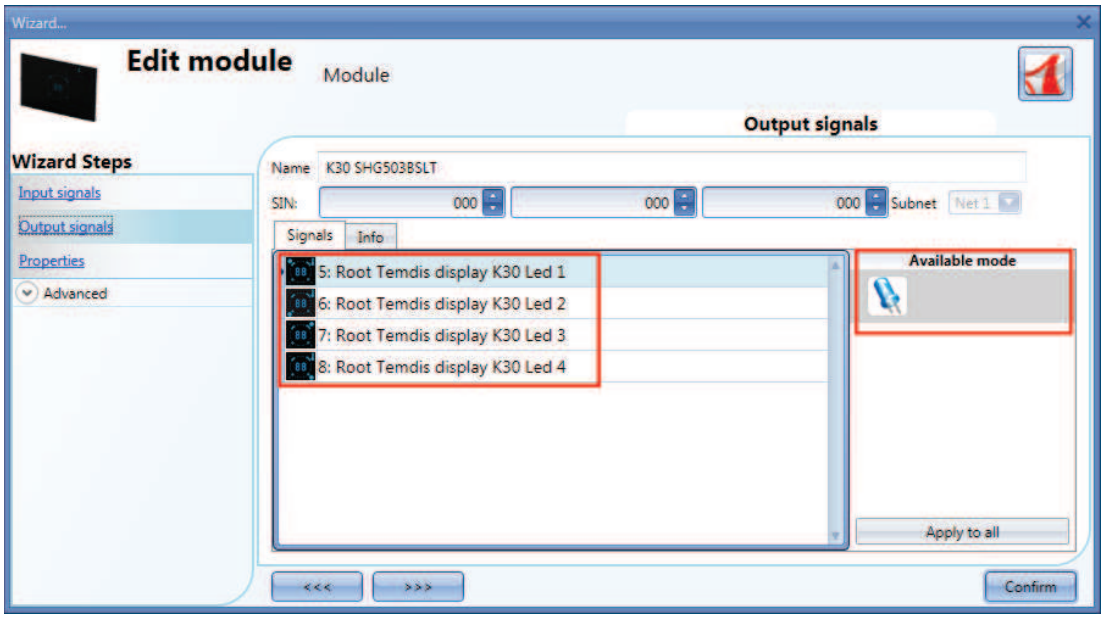
All this is fully programmable via the Sx tool, so the user can create any combination.

7.7.3 How to set the feedback LEDs

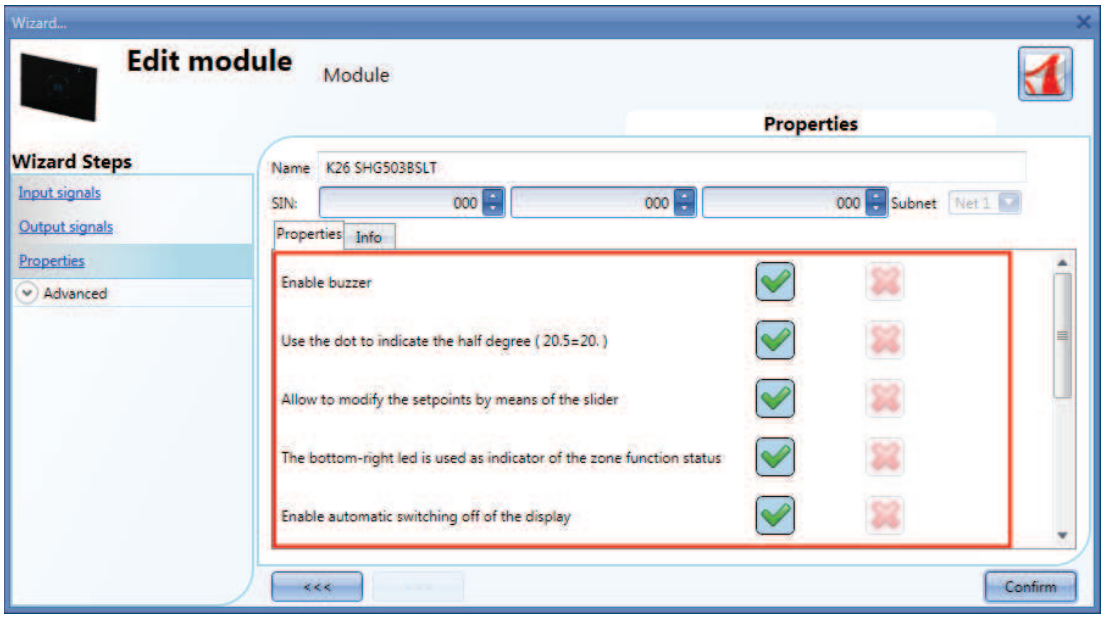
In the glass panel there are four small LEDs that can be freely programmed as feedback of any function.
As shown in the figure below, they are named FL1, FL2, FL3, FL4.

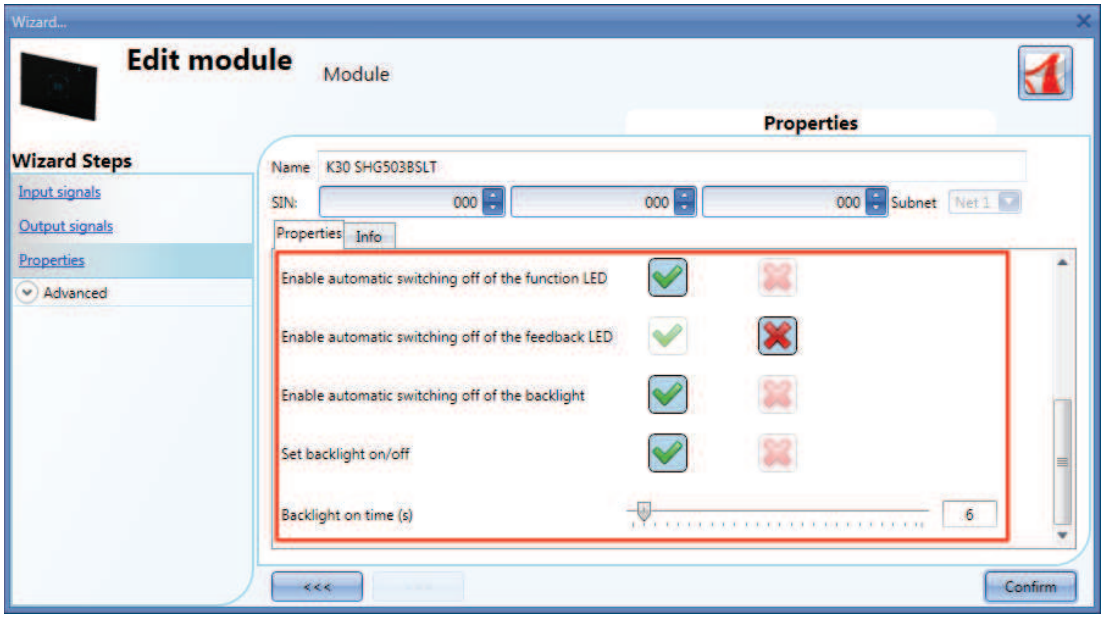


In the *Output signals* window, all the available feedback LEDs are shown and they can be used in the corresponding *Feedback* field of any function.



7.7.4 How to set the glass panel properties

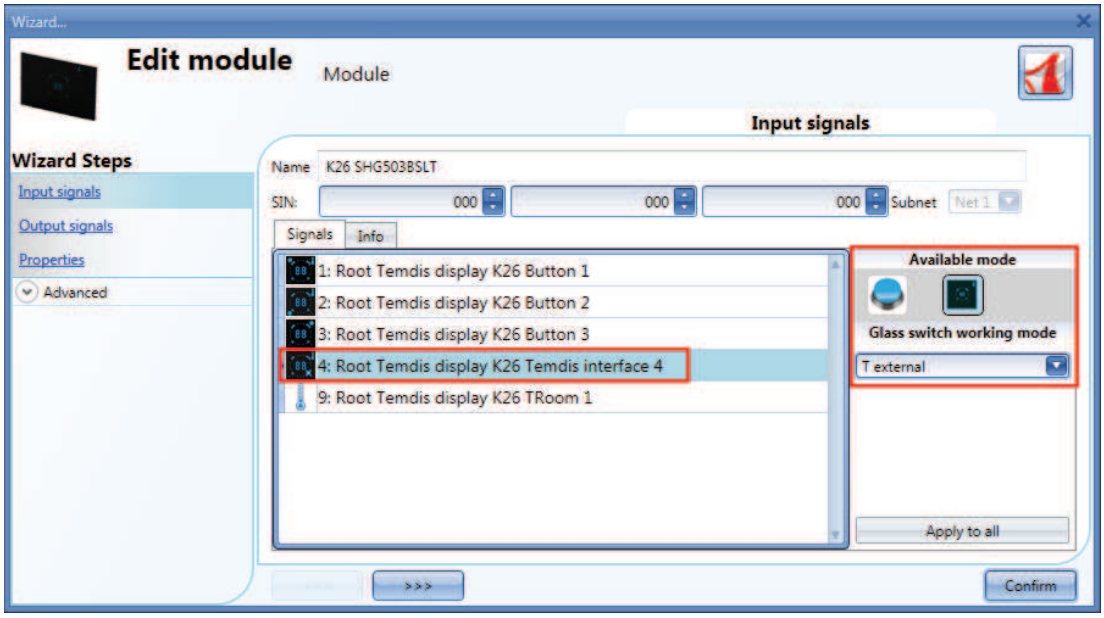




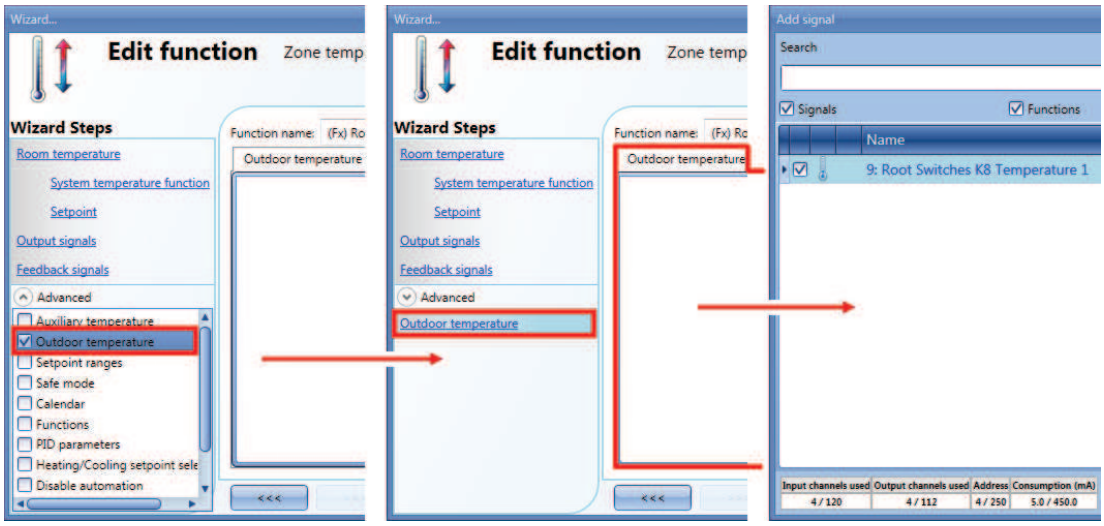
In the *Properties* field, the acoustic feedback and the backlight can be set as described here.
The module has a built-in buzzer that can be enabled or disabled by the user: if it is enabled, when a key is pressed or the finger is moved over the slider, an acoustic feedback will be emitted. The glass has a backlight, two 7-digit displays, four function LEDs (L1, L2, L3, L4) and four feedback LEDs (FL1, FL2, FL3, FL4) which can be configured in this field:

Field name	Description
Enable buzzer	The module has a built-in buzzer that can be enabled or disabled by the user. If it is enabled, when a key is pressed, an acoustic feedback will be emitted.
Use the dot to indicate the half degree (20.5 = 20.)	If this property is enabled, the display shows the dot to indicate the half degree.
Allow to modify of the setpoints by means of the slider	If this property is enabled, the user can select the desired temperature level and change it by means of the slider
The function LED associated to Off is used to indicate the zone function status	If this property is enabled and Kn is associated to the OFF function, the corresponding function LED Ln is ON when the relevant zone temperature function is ON.
Enable automatic switching off of the display	If this property is enabled, the display is switched off when the timer, set in *Backlight on time,* expires.
Enable automatic switching off of the function LED	If this property is enabled, the function LED is switched off when the timer, set in *Backlight on time,* expires.
Enable automatic switching off of the feedback LED	If this property is enabled, the feedback LEDs are switched off when the timer, set in *Backlight on time,* expires.
Enable automatic switching off of the backlight	If this property is enabled, the back light is switched off when the timer, set in *Backlight on time,* expires.
Set backlight on/off	The backlight of the glass can be enabled or disabled.
Backlight, display and LEDs on time (s)	This can be set always ON (slider to the far left) or programmed with a delay off timer (once the timer set with the slider expires, the backlight, display, function LED and feedback LEDs are switched off automatically).

7.7.5 How to show the external temperature in the Masterglass temperature display



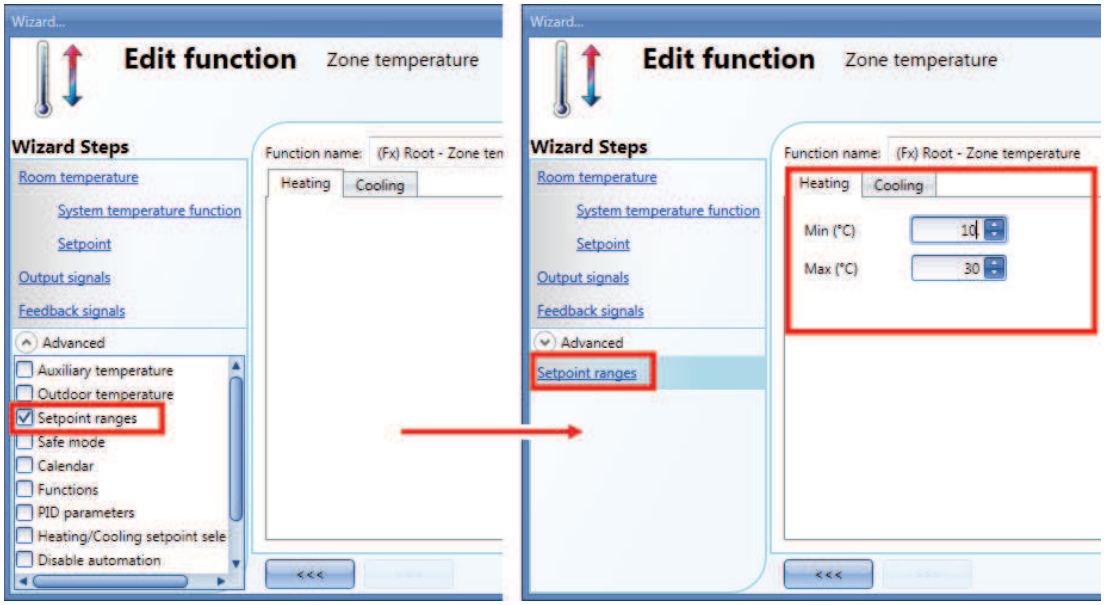
To see an external temperature, the user has to configure a key as *temdis interface* and then select *T external* in *Glass switch working mode*.



To add the external temperature signal, the user should select the relevant section in the wizard of the zone function, then double click on the Signals window and select the *input signal* from the list of those available (see picture below).
In the *Outdoor temperature* signals window, the user can add one or more temperature signals from the sensor modules (e.g. BSI-TEMANA-U, SHA4XLS4TH, SHE5XLS4TH, SHGxxxW-BSLT and SHGxxxW-BLSx).

When K4 is pressed in the Masterglass temperature display, the display shows *tE* for 1 second and then it will show the outdoor temperature for 10 seconds. Once this time has expired, the room temperature can be seen.

7.7.6 How to set the temperature range

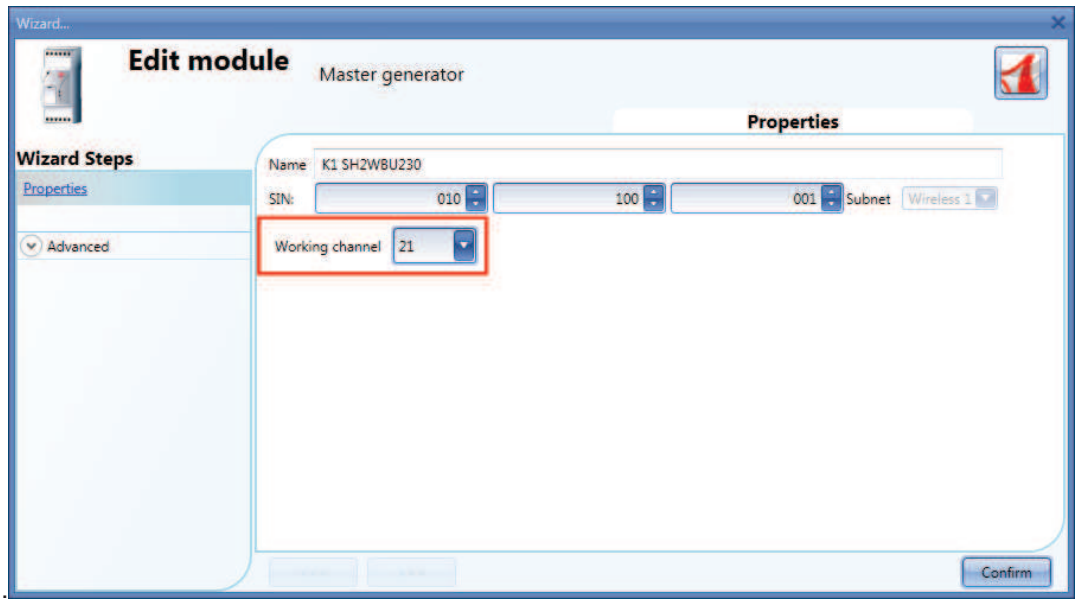


To change the predefined set point values, the user should click on the relevant field in the wizard of the zone temperature function. In the Advanced section, in *Set point ranges*, the user can select the operating range for the set points (min is 10°C and max is 30°C by default).

Refer to - *10.11.2 How to configure the set points* - for more details.

7.8 Wireless modules

In the *Properties* field of the wireless base unit SH2WBU230, the user can select the working channel of the wireless network.
If more than one SH2WBU230 is used, it is advisable to program them to work on different channels so that they don't interfere with each other (for more info see also the manual *How to install the wireless system*).



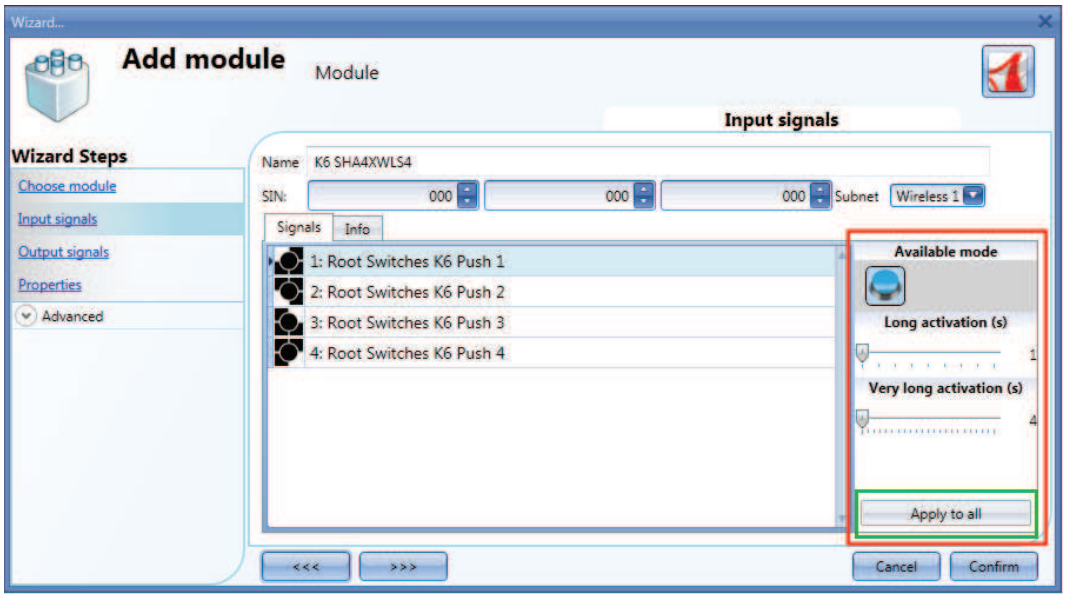
The following items belong to the *wireless light switches modules*:

SHA4XWLS4
SHE5XWLS4

To configure them, click on the relevant picture once they are added to the project:

	SHA4XWLS4	Wireless 1	K6 SHA4XWLS4	000.000.000	Root

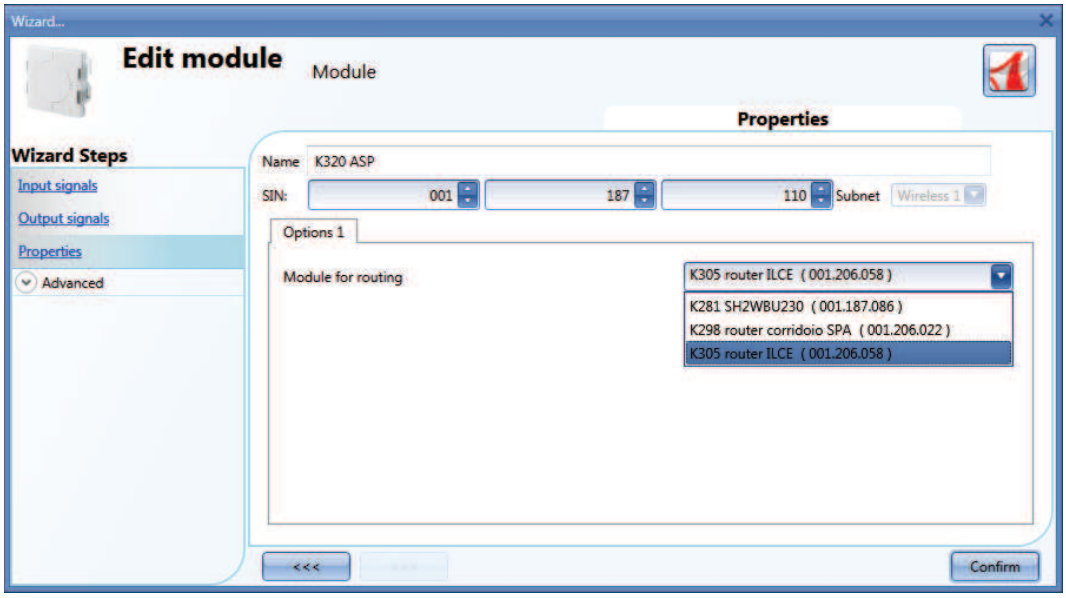
The configuration wizard will appear:



In the *Input signals* field, the *Long activation* and the *Very long* activation time has to be defined.
The *Long activation* time can be set from 1 to 5 seconds, while the *Very long activation* time can be set from 0.5 to 15 seconds and it is always set by the system 3 seconds longer than the *Long activation* time.
The user can configure different times for each push button, or can set them to the same values by clicking on *Apply to all.*

The *Output signals* field is blank because the wireless light switches do not manage the feedback LEDs, in order to increase the lifetime of the battery.

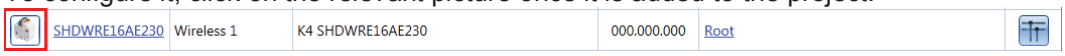
In the *Properties* field, the user can choose the module to use for routing if the light switch is placed in an area not covered by the SH2WBU230: in this situation it is possible to extend the operating distance using a SHDWRE16AE230 as router/repeater, as described below.



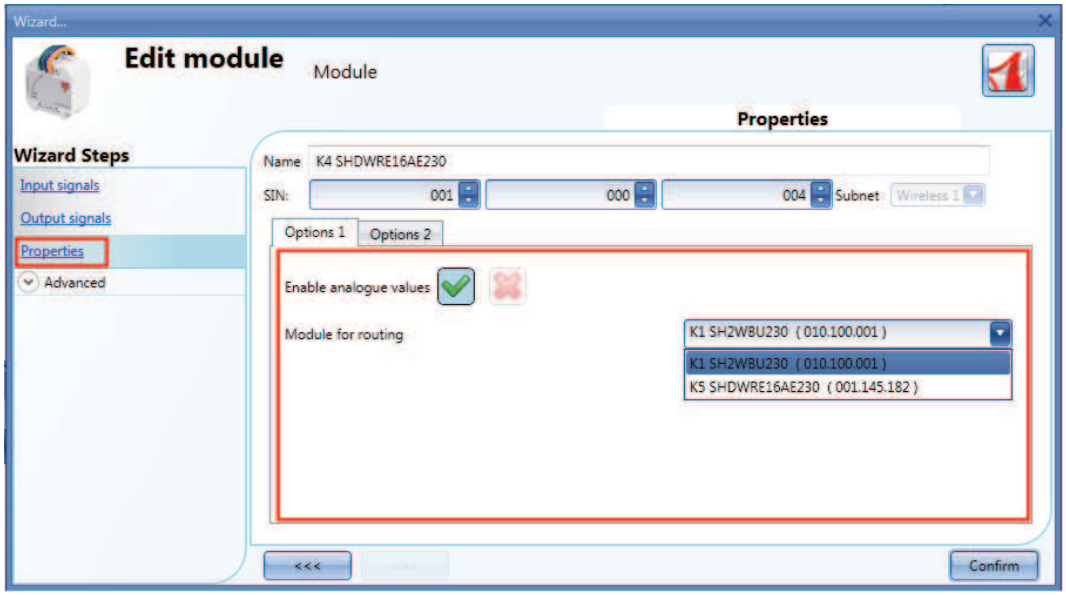
The following item belongs to the *wireless relay module*s:

SHDWRE16AE230

To configure it, click on the relevant picture once it is added to the project:

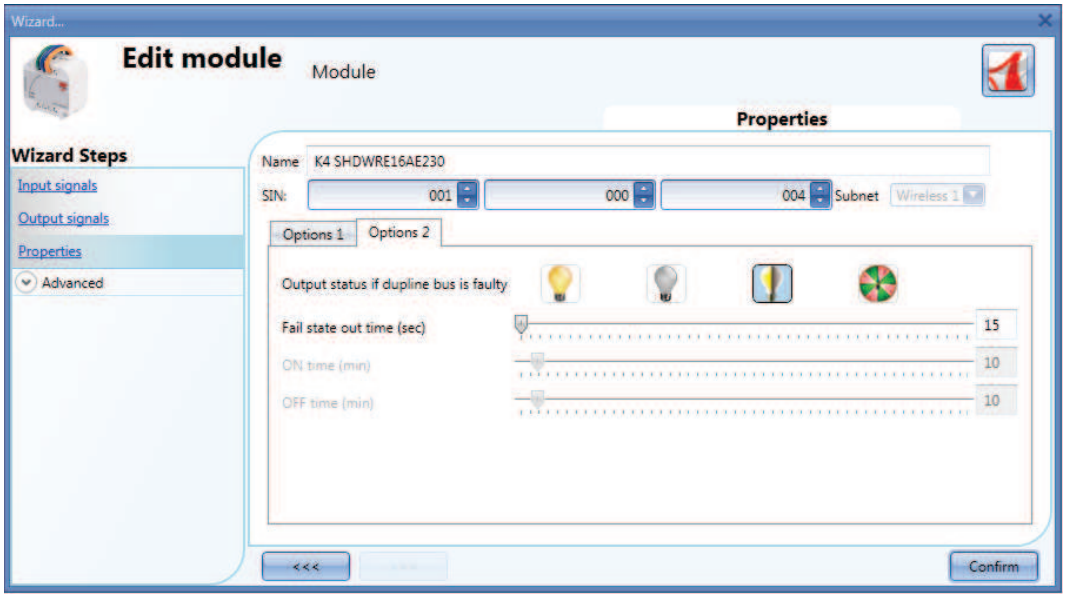


The configuration wizard will appear:



In the *Properties* field the user can choose to enable the analogue values transmission: when the green V is selected, the relay module will transmit all the read data such as current, voltage, power factor and many others to the Sx2WEB24.
In the same way as shown before for the settings of the SHA4XWLS4 and SHE5XWLS4, the user can select the way the modules connect to the SH2WBU230: either directly or via a router.

In the *Options2* tab-window, the user has to select the fail-safe working mode if the connection with the wireless base unit is faulty.



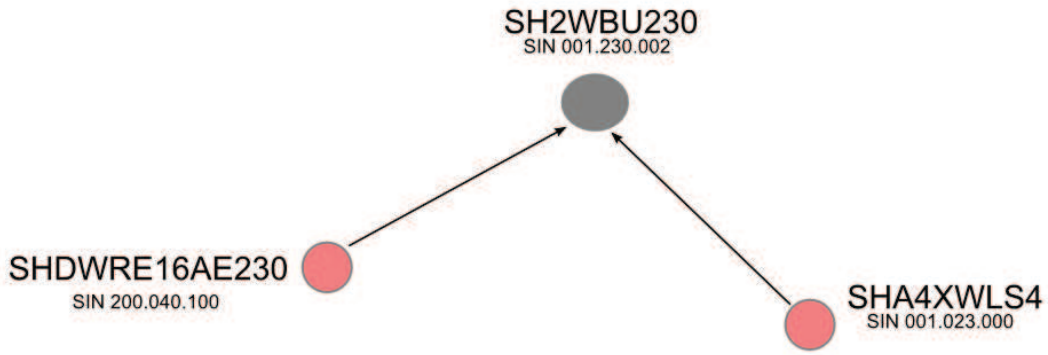
There are four available setups:

1) Output always on (yellow bulb)
2) Output always off (grey bulb)
3) The output maintains the status it had before the disconnection (yellow and grey bulb)
4) The output recycles: it will be on for the *On time*, and off for the *Off time.*

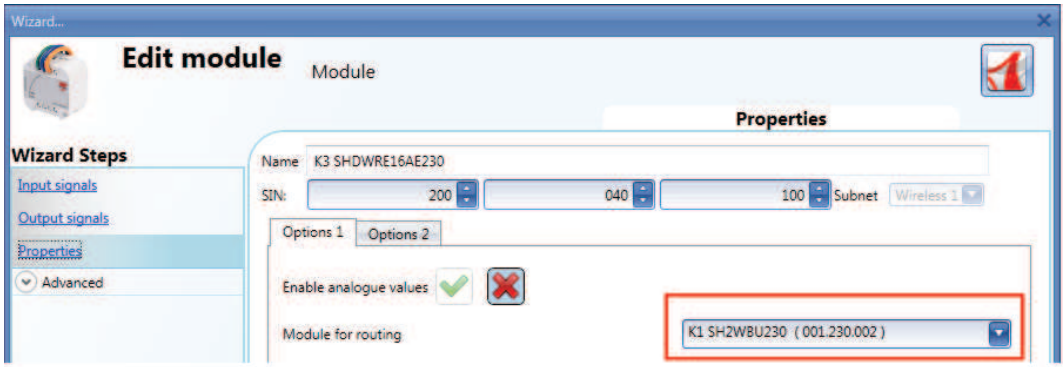
Fail state out time (sec): when the module loses communication with the wireless base unit for a time value longer than the entered value, the fail state condition is activated (it is possible to set the time from 15 to 240 minutes).

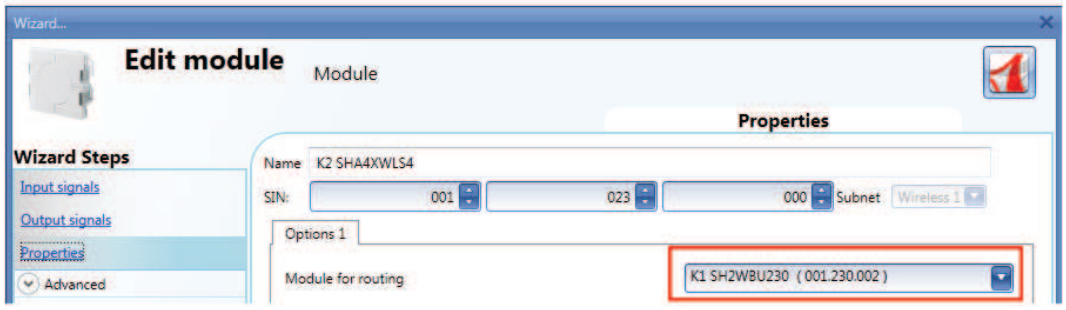
7.8.1 How to connect a module directly to the wireless base unit

The picture below shows a simple example of a direct connection of two modules to the Wireless Base unit SH2WBU230.



The picture below shows how to manage the Properties in the two modules in order to perform the direct connection of the example above (both modules use the wireless base unit as router).

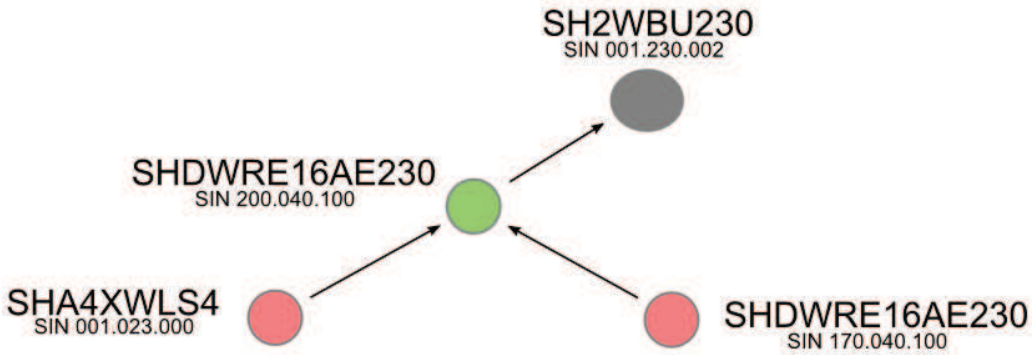




7.8.2 How to indirectly connect a module to the Wireless base using a relay as router

The picture below shows a simple example of an indirect connection of two modules to the wireless base unit SH2WBU230.
One relay module is used as router and it is directly connected to the wireless base unit (green dot). The pushbutton and the other relay are connected indirectly and they use the relay to communicate with the wireless base

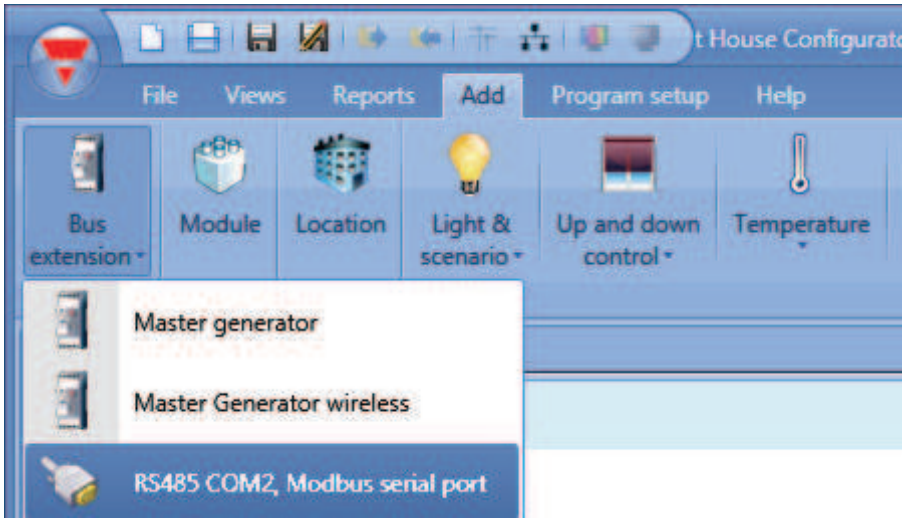
NOTE: Only one level of routing is allowed. The modules that use a router might not be seen by the SH2WBU230 so they will not appear in the network discovery. In this situation they have to be added manually.



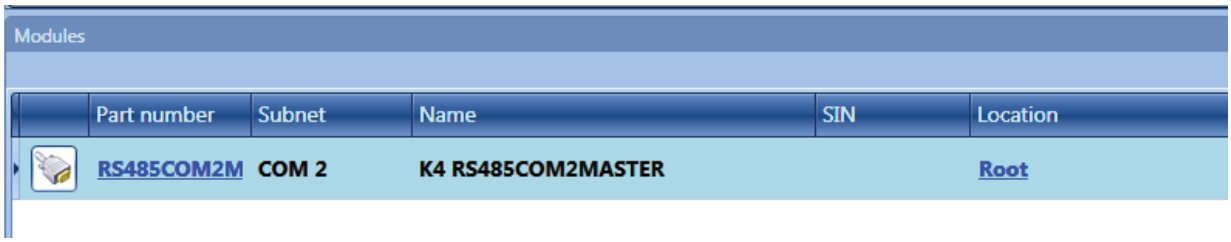
This picture shows how to set the Properties of the two modules in order to perform the indirect connection of the above example where a relay module is used as router.

7.9 How to add an energy meter

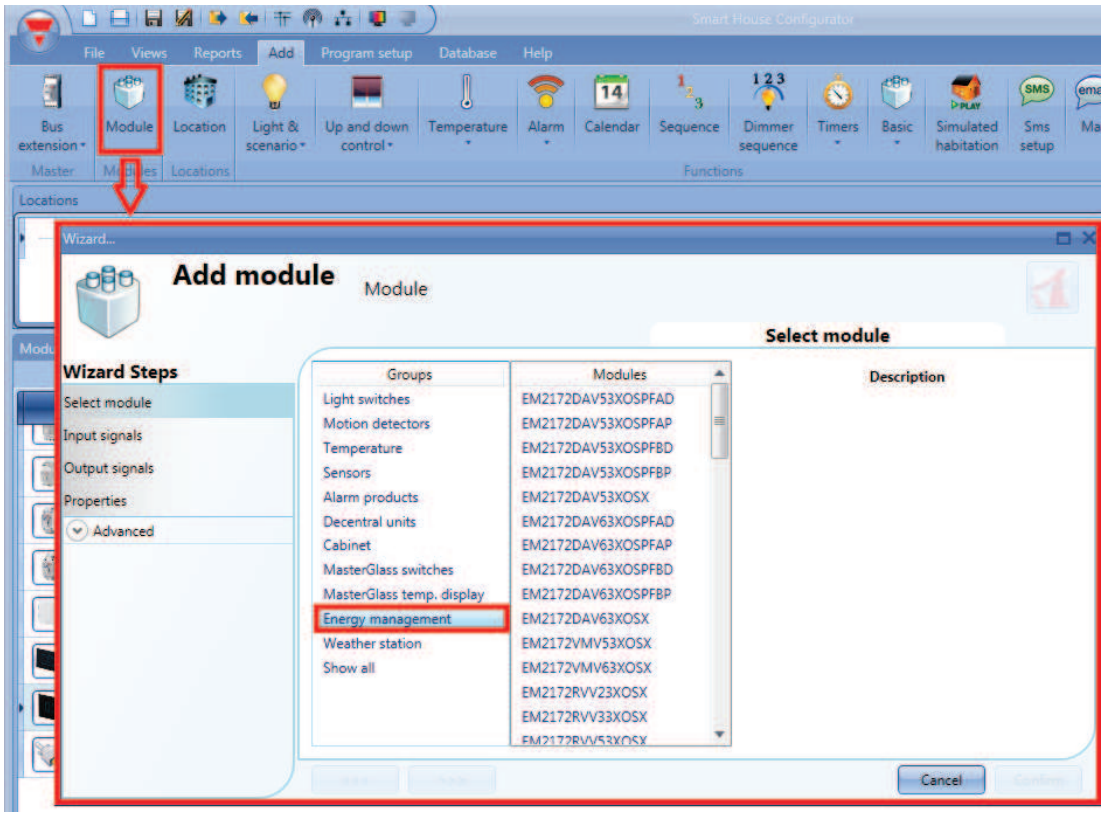
To add an energy meter, the serial bus extension Com port 2 has to be added.



The virtual device RS485COM2MASTER is added in the module list.

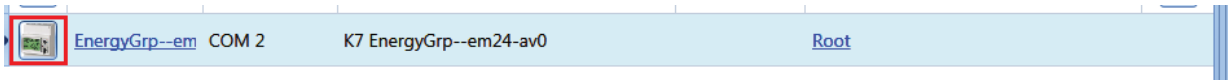


To select the energy meter needed, the user has to click on *Add* and then to *Module.*

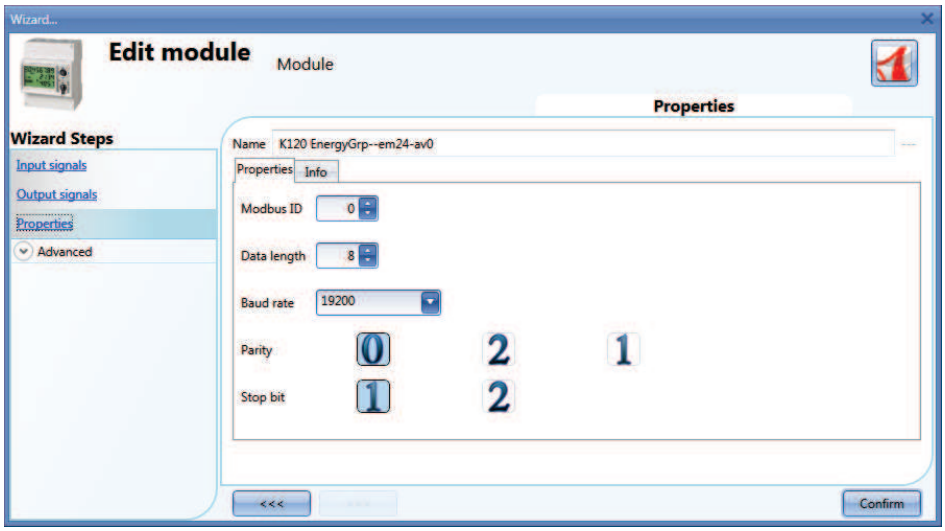


In the wizard Add module a new line *Energy management* will appear.
By clicking on it, the list of available energy meters will be shown.

To configure the serial parameters of an energy meter, click on the relevant picture once it is added to the project:

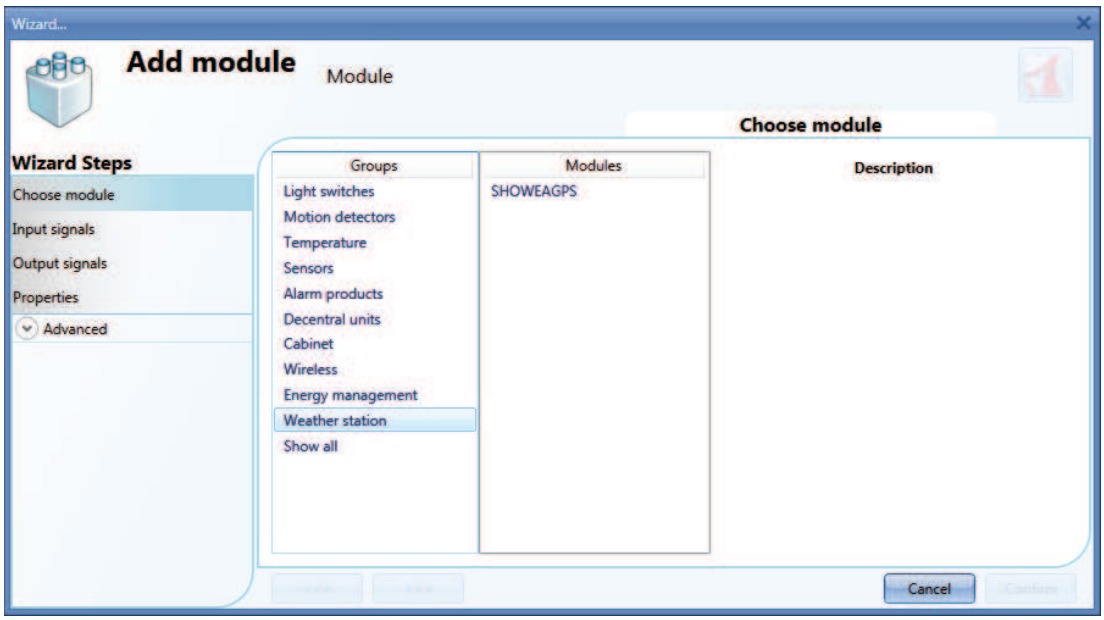


The configuration wizard will appear where the serial parameters can be configured: Modbus address, data length, baud rate, parity, number of stop bits.



7.10 How to add the weather station

To add the weather station SHOWEAGPS, the user should first add the serial bus extension Com port 2, as described in the previous paragraph. In the add menu the *Weather station* selection will appear.



8 How to add modules in project

8.1 How the Sx2WEB24 discovers the devices in the network

One of the most innovative features in the smart-house system is that no addressing of modules is needed: the installer only has to mount all the modules, launch the network scan and the system will find and automatically recognise the connected devices without needing to go around the whole installation making association or addressing.

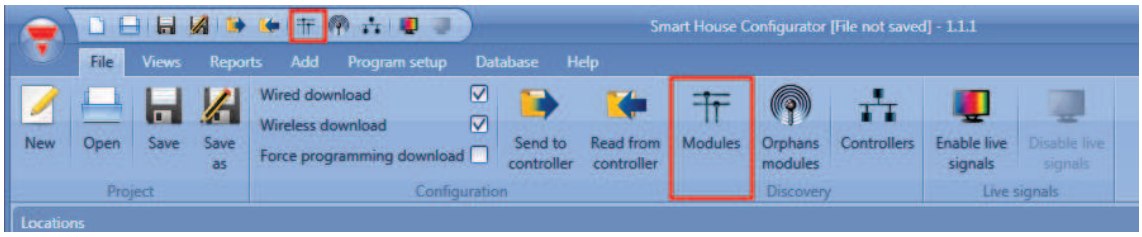
Three different approaches can be used to add the modules to the project:

- The first is to connect to the Sx2WEB24, launch the network scan to find all the modules and then create the configuration, adding the modules in the relevant functions and locations.
- The second is to add them manually and also fill in the SIN manually.
- The third is to manually insert all the modules in the project with SIN 000.000.000, then create the project by linking the modules to the functions and locations. Once the project is finished, connect to the Sx2WEB24 controller, launch a network analysis and then associate all the modules.

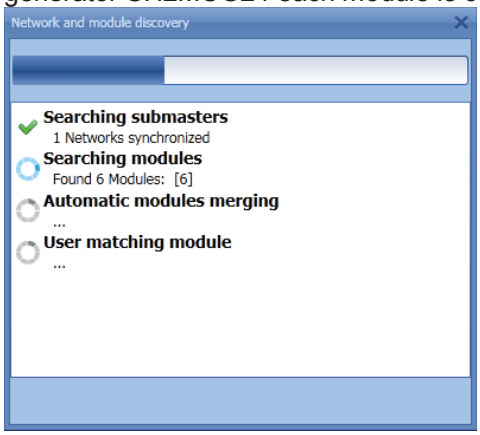
8.2 Global discovery of the network

The global discovery of the network is used to find all the modules connected to the Dupline bus. Every time a new module is added to the bus, the global scan must be used to find the new module.

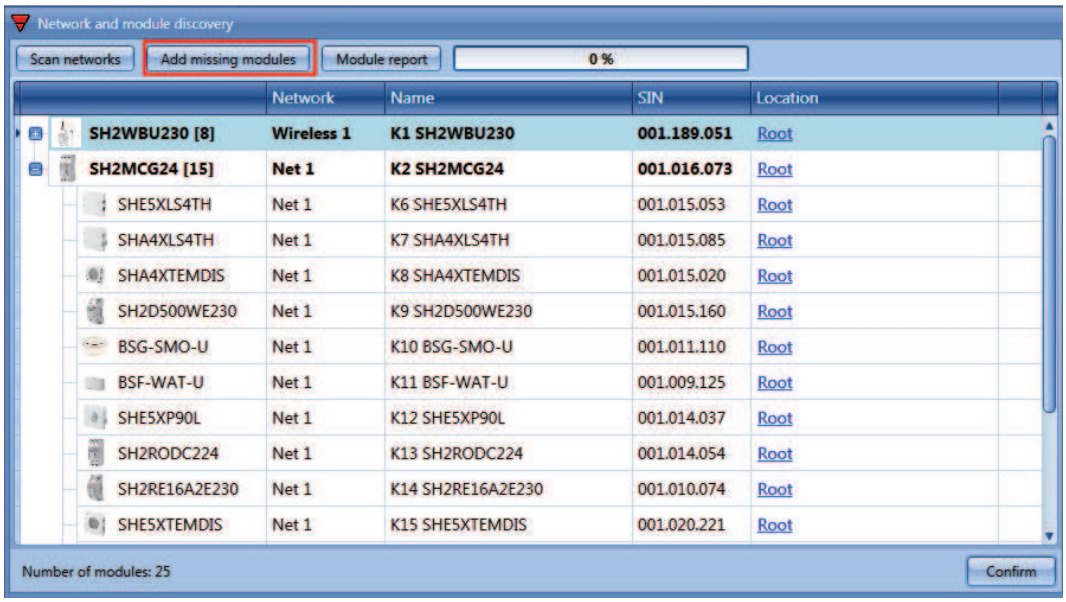
To launch the global scan of the network, the user should click on the icon at the top (see picture below).



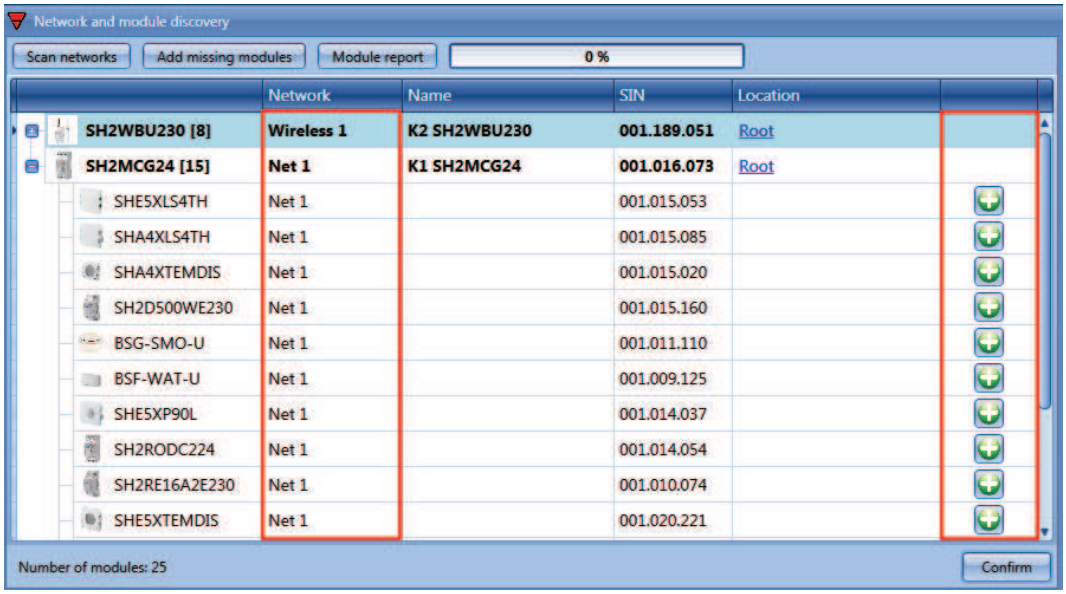
Once the scan is finished, the Sx tool will present the list of devices found, grouped according to the Dupline network they are connected to. This means that the system also shows which dupline generator SH2MCG24 each module is connected to.



When the scan of the network is finished, a window will appear showing all the modules found.
The user can decide to add them manually, using the + green icon at the right side of each device, or add all the modules with just one click on the *Add missing modules* button at the top of the window.



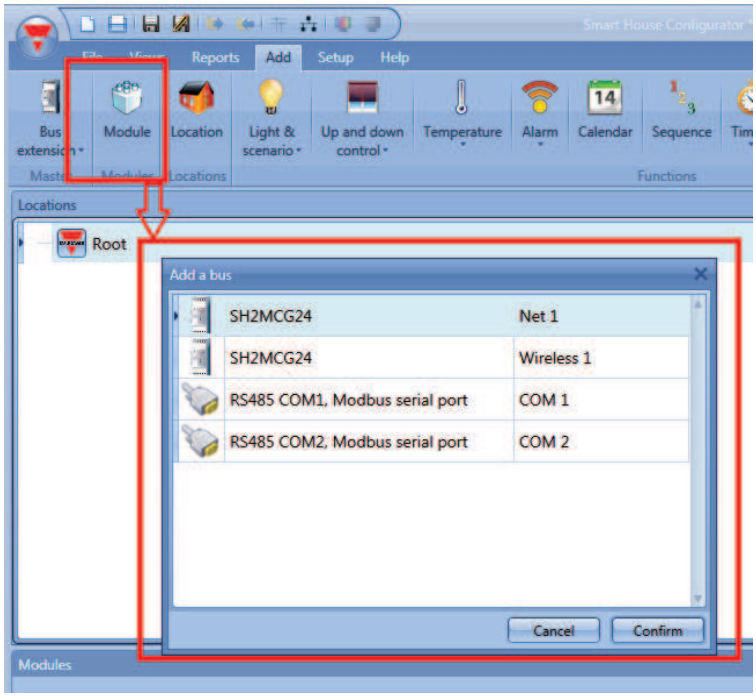
If the user wants to add them manually, the first thing to do is to add the dupline generator SH2MCG24: when presenting the devices found, the dupline sub-networks are identified as “undefined” since their number will depend on how they are added in the project, so that the user can decide the order.
The first SH2MCG24 added will be assigned to the sub-network 1 (Net 1), the second one to sub-network 2 (Net 2) and so on until all the dupline generators are added.
The sub-networks will automatically be assigned to the slave dupline devices. (see picture below)



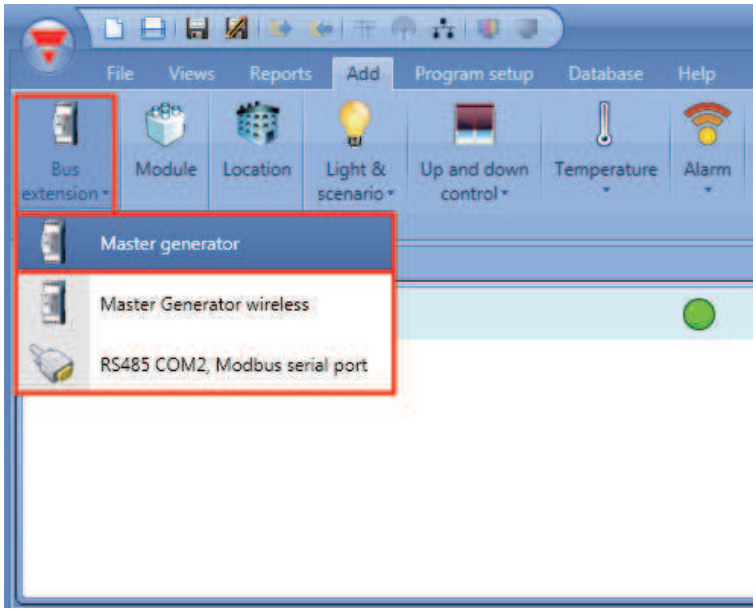
From this window it is possible to change the location of each module by clicking on the relevant row in the *Location column*.

8.3 How to add the modules manually

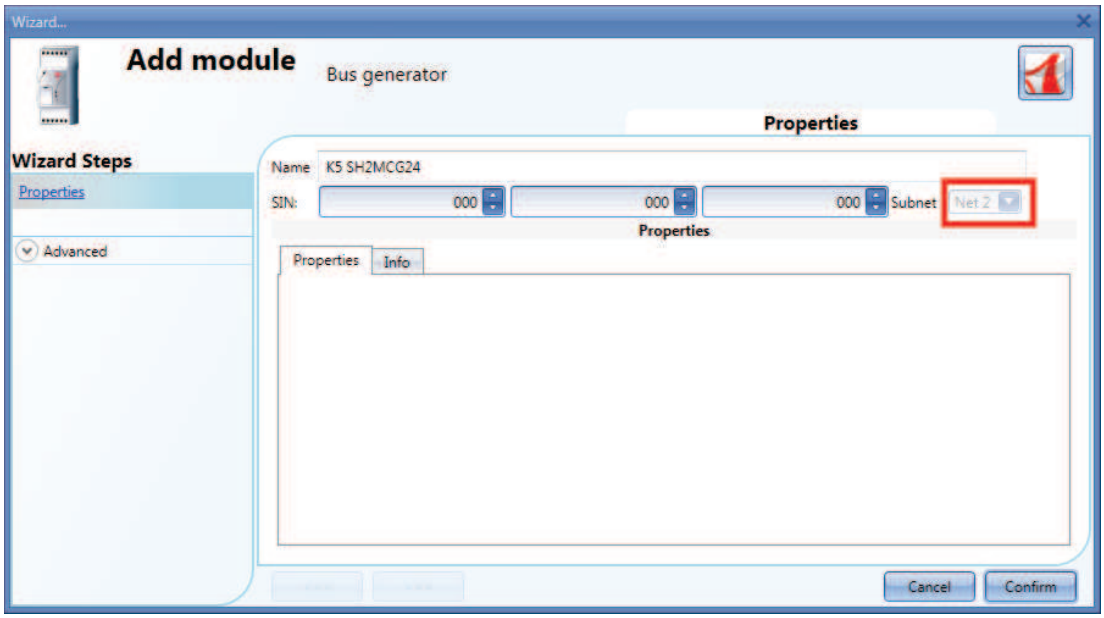
When the user creates the project without using the automatic discovery, the first thing to do is to add and configure the SH2MCG24 dupline generators and then add all the other modules, selecting the sub-network they belong to. In the figures below, how to add a new bus generator is shown.



Each added SH2MCG24 will be assigned to a **new sub-network,** up to 7 Master generator/Master generator wireless.
To add a master generator the user should select *Bus extension* from the Add menu, then select *Master generator* (see picture below). The new module will be added into the selected location.

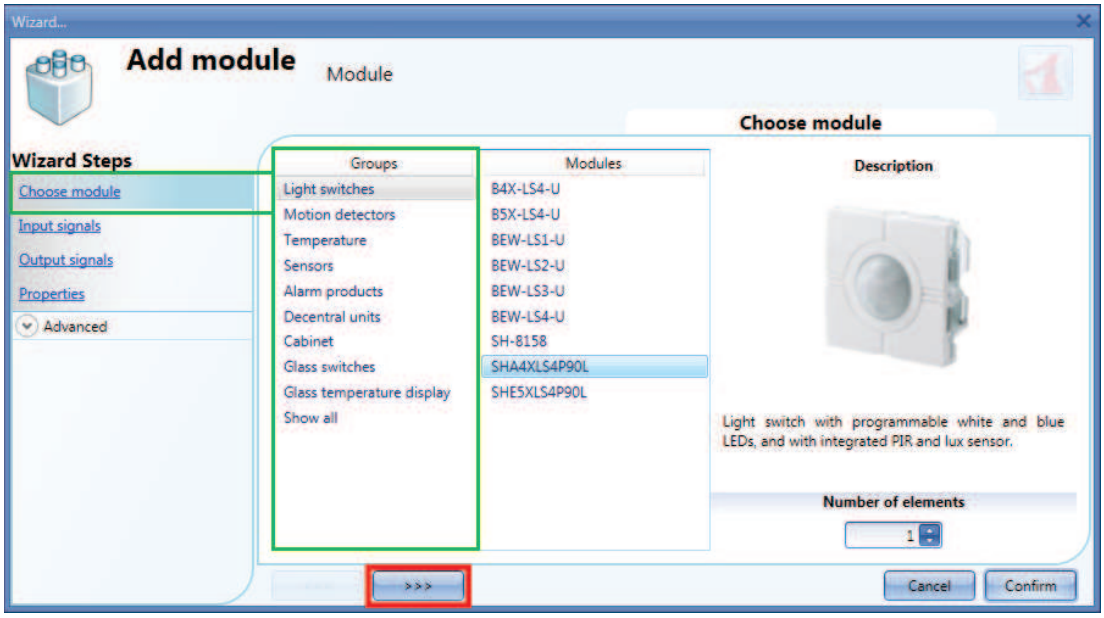


The wizard relevant to a Master generator can also be opened by typing Alt+F6. (See table of short cuts).

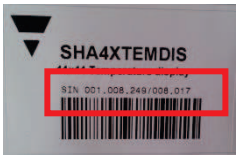


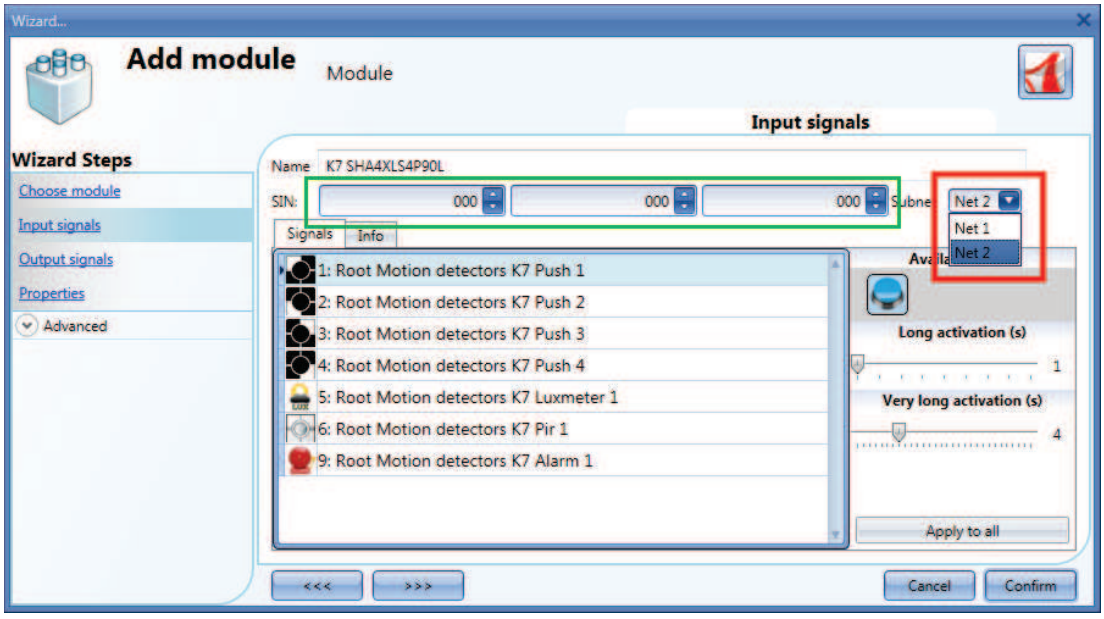
In the picture above, a new module is inserted with its associated new network (eg, Net 2)
As shown, each module that is added will be assigned to the next free sub-network (e.g. Net 2)

If the project has more than one SH2MCG24 dupline generator, the user must be careful to assign the correct sub-network to each module according to the network where it is physically placed: to do this press the *triple arrow* button (see picture below) highlighted with a red rectangle. If *Confirm* is pressed, the module is added to the sub-network 1 by default.



All the modules are added to the project with SIN 000.000.000, which can be set manually: this means that the installer can fill in the SIN by hand in the fields marked with a green rectangle. The SIN can be found on the module, on the box and on the label delivered with each device, which might be attached to the manual or in the location where the module is placed.

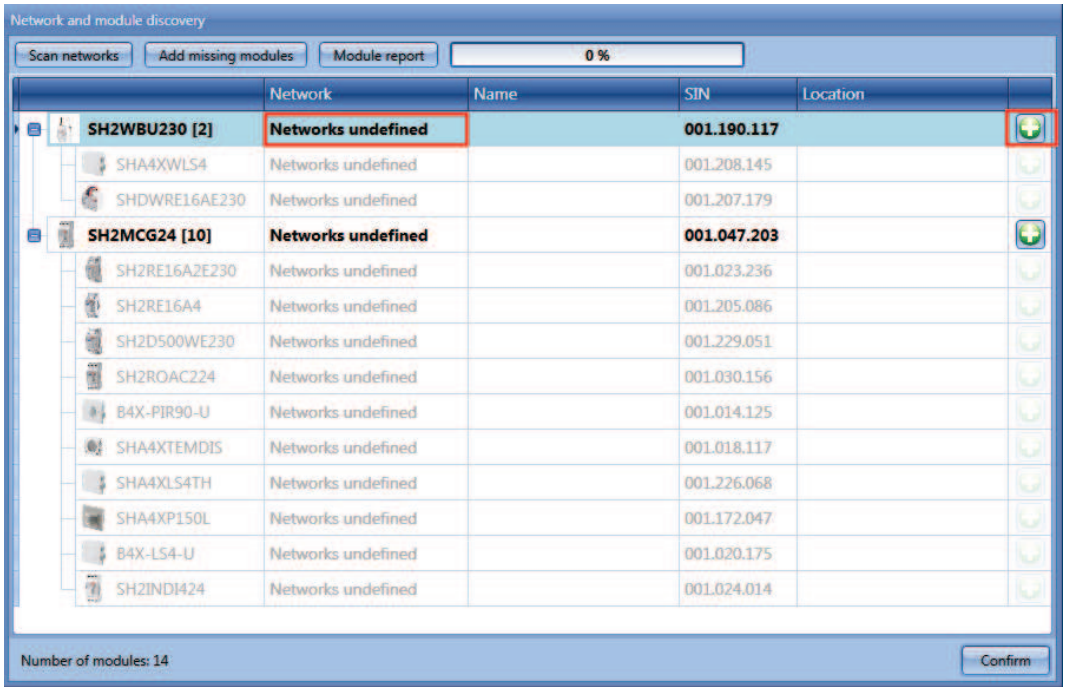




N.B. If a module is entered with a wrong Subnet, the user must delete it and add it correctly.

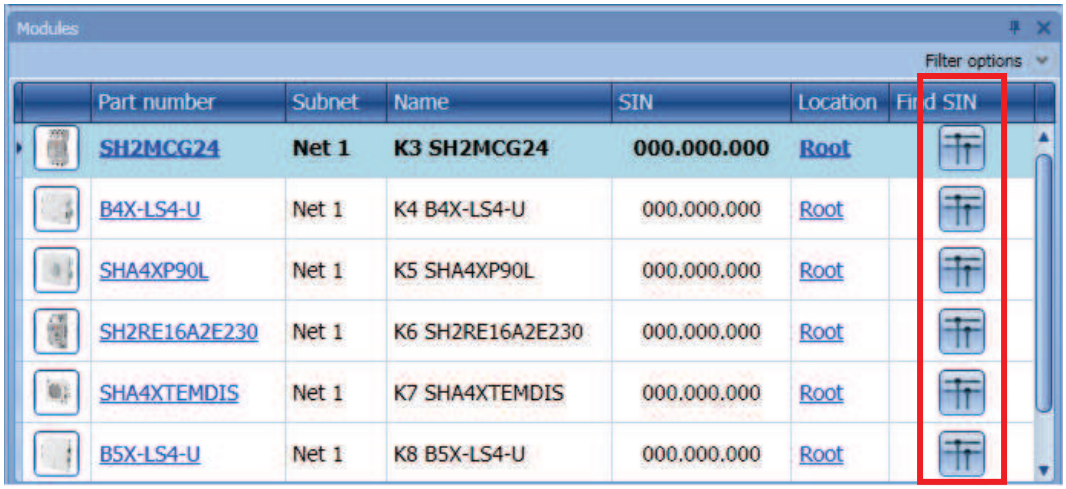
8.4 How to add the modules manually and then find them in the network

The user could prepare the configuration in the office without doing a network scan, and then associate the right SIN once he is at the installation site.
Once the configuration is ready with all the required modules, the user should launch a network scan: the following window will appear with the arrow instead of the "+", since the modules found are already present in the configuration.

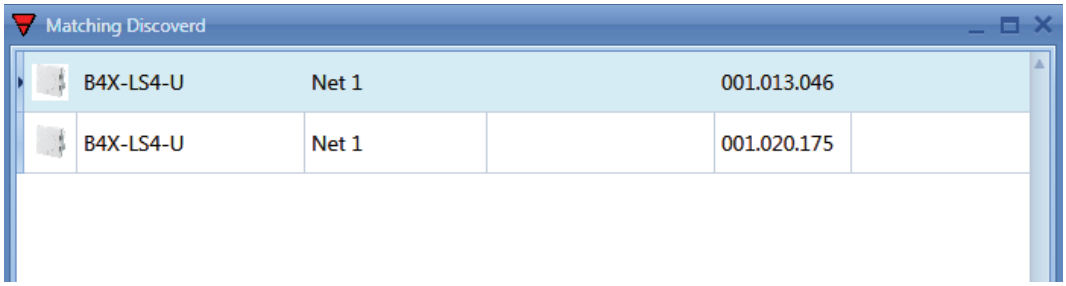


At this point there are two ways to proceed:

1) Clicking on the arrow and placing the module in the required location
2) From the *Modules* window, clicking on the icons marked with the red rectangle.

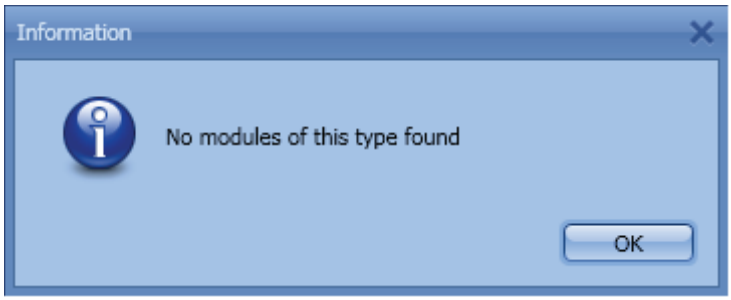


If the association is carried out from the *Module* window, when clicking on  , only the modules of the same type as the selected item are show in order to simplify the association.
For example, by clicking on the network scan icon of the B4X-LS4-U, the following window appears only with the B4X-LS4-U found.



By clicking on the required module, the association is carried out.

If the user tries to match a module that has been added in the project by selecting a wrong network, the Sx tool will show a message indicating that the module has not been found (see picture below).



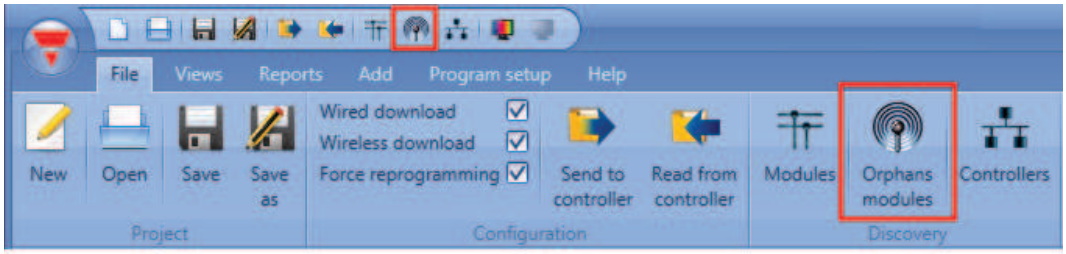
9 How to add wireless modules in the project

9.1 Global discovery of wireless modules

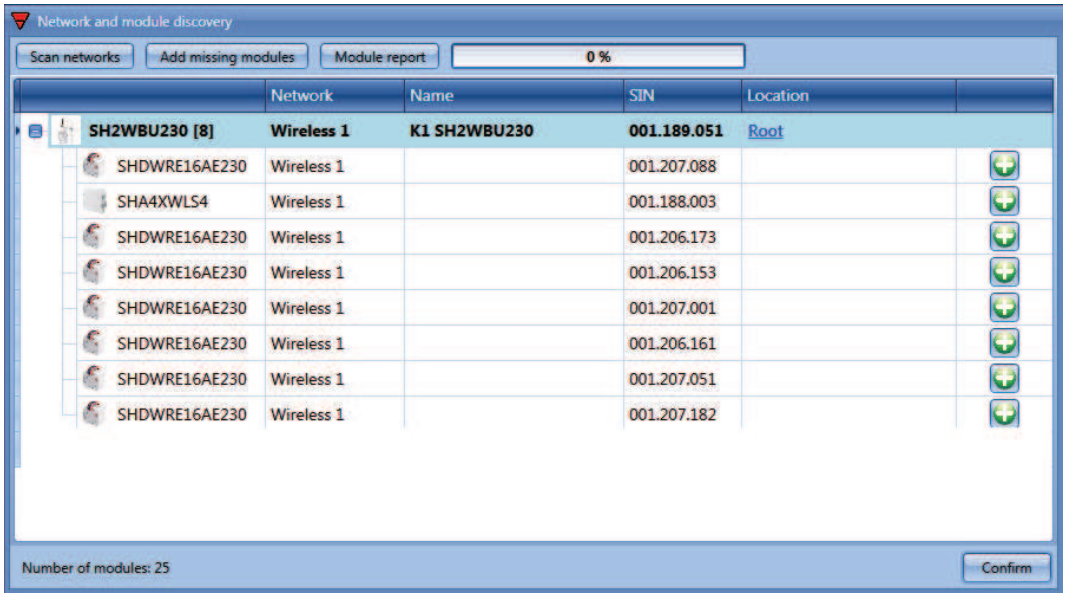
The global discovery finds all the wireless modules present in the wireless field covered by a SH2WBU230 base unit: it automatically shows only the “orphan” modules (an “orphan” module is a module that has never been programmed before as it is only just out of the factory).
Once a module is used in an installation (this means that it has been programmed at least once), it is no longer possible to find it using the discovery: if the user needs to add in another system, it has to be done manually.

To launch the wireless global scan of the network, the user has to click on the icon at the top (see picture below).
To save the battery, the wireless modules automatically send an acknowledgement every three minutes, so it might happen that if a wireless discovery is launched before an acknowledgement is received, the relevant module is not seen. The user can manually make a module send the acknowledgement in the following ways:

- By pressing a button in a light switch
- By switching off and then on again a wireless relay module



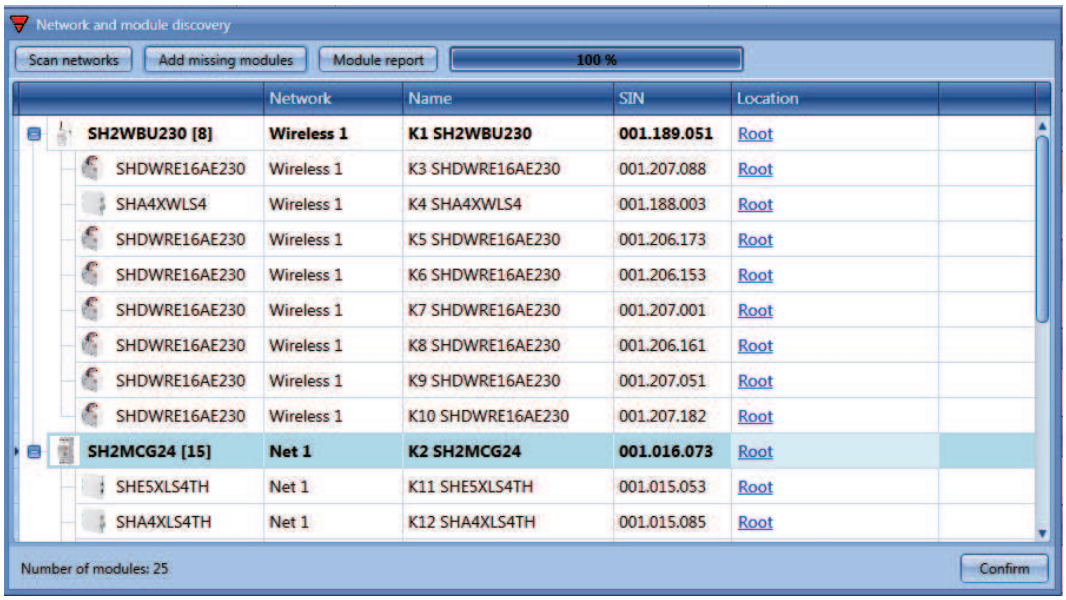
When the scan of the network is finished, a window will appear showing all the modules found.
The user can decide to add them manually, using the + green icon at the right side of each device, or add all the modules with just one click on the *Add missing modules* button at the top of the window.
If more wireless base units are installed, the Sx tool will show all the modules found in each network. If two or more SH2WBU230s cover the same area, they might find the same modules: it will then be the installer who associates the “orphan” modules to the required SH2WBU230.



As already explained, once the wireless modules are programmed they can no longer be considered "orphans" so they are not found by clicking on the icon *Orphan modules.*

They are shown together with the associated SH2WBU230 when a global network scan is launched by clicking on the icon *Modules*.

To program the wireless modules, the configuration has to be sent to the master unit Sx2WEB24 by selecting the option *Force reprogramming*.



If a wireless module is no longer present, the system needs three minutes to recognise this (this is the time that has to expire between two consecutive acknowledgments).

9.2 How to add the wireless modules manually

The user can manually add the wireless modules in the same way as described for the wired modules. Should the user create the project without using the automatic discovery, the first thing he has to do is to add and configure the SH2WBU230 base unit and then add all the other modules, selecting the wireless-network they belong to.

If the project has more than one wireless generator SH2WBU230, the user must be careful to assign the correct network to each module.

10 Functions

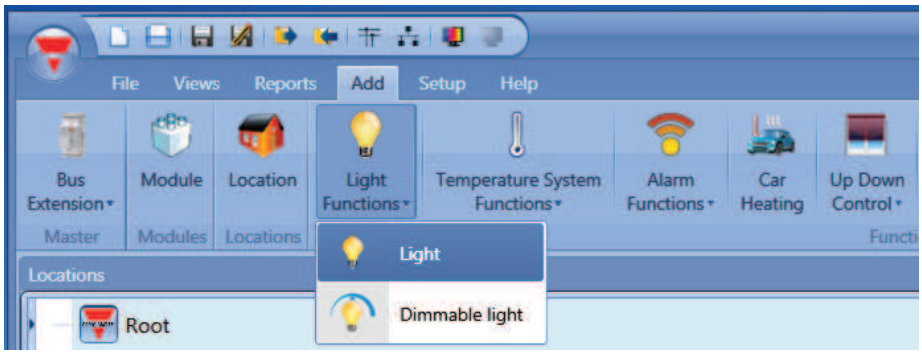
A function is defined as a series of instructions that, given some inputs, generates one or more outputs.
Every predefined function available in Sx2WEB24 is seen as a set of steps, some of which are mandatory, others optional, defining the behavior of the function itself.
Some objects are “public” and, being defined as a function, they can be used in other functions as well.
Each function automatically manages a status signal, which can be used by other functions.

Functions are divided into basic and predefined ones.
Basic functions are all the simple functions that the user can link together to create more complex functions, or that can be used to customize some of the predefined functions (e.g. two light functions are an input of one OR function).
The predefined functions are used to manage a whole series of automations, from lights to roller blinds.

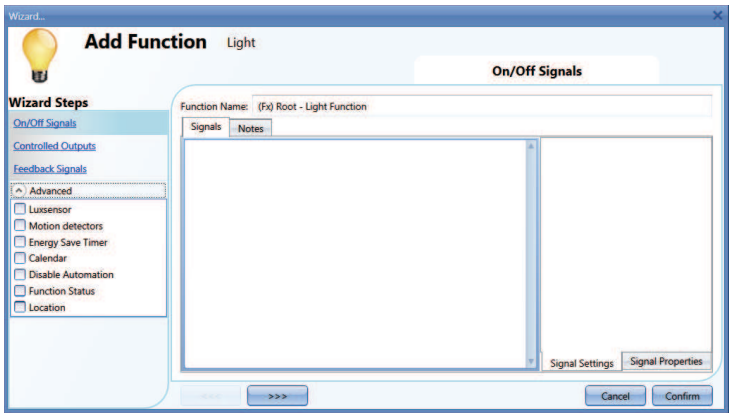
10.1 How to set a light function

This function allows the operator to manage one or more lights at the same time. The user can either configure a basic function to switch the light on manually, or implement an automatic system by programming the relevant objects of the function.

To set up a light function the user has to select *Light Functions* from the Add menu, then select *Light* (see figure below). The new function will be added into the selected location.
The wizard relevant to a Light function can also be opened by typing Alt+L. (See table of short cuts).

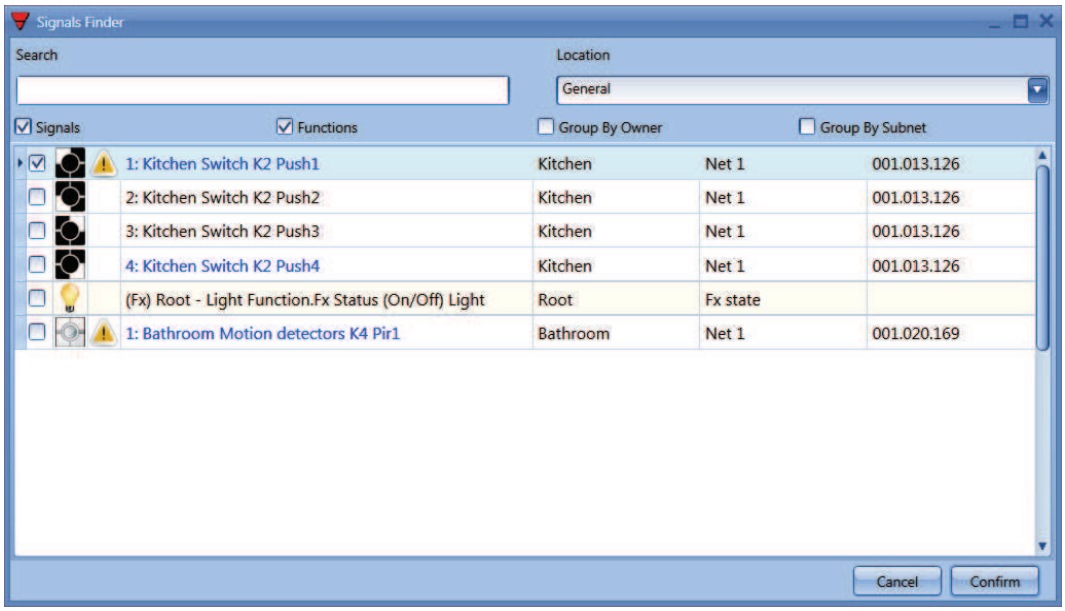


This function manages the ON/OFF switching of one or more outputs by means of one or more input commands. The input command might be a real signal, a function or a remote command (Webserver, sms, email, Modbus TCP/IP).
The automation of the light function is managed by accessing the *Advanced* section (see fig. below).
In the Advanced section the user can select different ways of controlling the light: according to the ambient light or the presence of people, with timers and/or schedulers.



10.1.1 How to switch a light ON/OFF with input commands

First, the user has to add the input signals to control the light in the *ON/OFF Signals* section.
By double clicking in the *Signals* area, a window will appear with all the available signals.



Select the signal/signals you want to control your light with. If more than one signal is selected in this window (you can chose up to 50 signals), the function will be activated/deactivated if at least one signal is active (the smart-house system does the logical OR).
The different colours have the following meanings:

- black signal → not used in any function
- blue signal → the signal is already used in another function
- blue signal + warning signal (yellow triangle)→ the signal is already used in this function

The available input signals are classified as:

- Push button
- Switch
- Function
- Remote

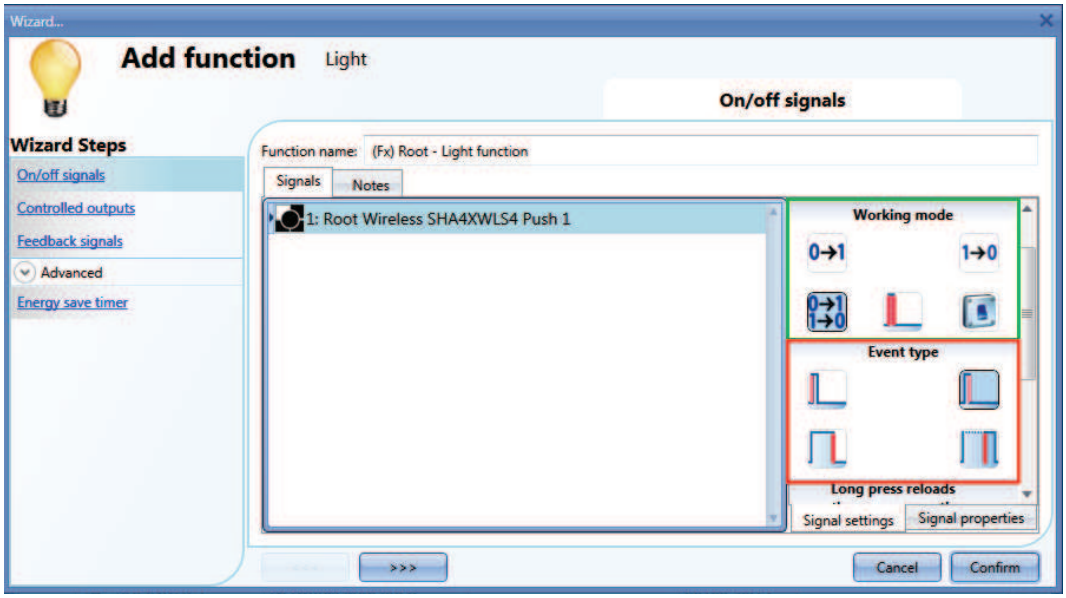
Push button:
This is a signal active for a short time following a human action (for example, a switch pressed or kept pressed).

Five different actions (*Working mode)* can be chosen: switching the function ON only , switching the function OFF only , toggle mode (every pulse toggles the function), level mode (a level signal such as a global calendar programmed as "level signal" will activate the light function when it is on and deactivate it when it is off), every change (every time the level of the signal changes, the function is toggled).
See figure below, green rectangle.
If one of the first five actions is selected, three different types of event are available to perform it, according to the duration of the activation of the push button: short pulse, long pulse, very long pulse.
See figure below, red rectangle.
The *short pulse* is predefined and corresponds to the short pressure people use to switch the light ON/OFF (shorter than 1 second). The user can select from two different types of short pulses: when the button is pressed or when the button is released . If the first option is selected, the long and very long pulses cannot be used.

The *long pulse* corresponds to the push button being kept pressed for a few seconds (from 1 to 8 seconds: this has to be predefined in the wizard relevant to the specific module).

The *very long pulse* corresponds to the push button being kept pressed for a time longer than the long press (from 0.5 to 15 seconds: this has to be predefined in the wizard relevant to the specific module).

Both these times can been seen by clicking on the *Signal Properties* tab window.



Here are some examples:

Working mode	Event type			
0→1	As soon as the push button is pressed, the function will be activated.	After a short press (less than 1 second), the function will be activated at the release of the push button.	After a long press, the function will be activated at the release of the push button.	After a very long press, the function will be activated at the release of the push button.
1→0	As soon as the push button is pressed, the function will be deactivated.	After a short press (less than 1 second), the function will be deactivated at the release of the push button.	After a long press, the function will be deactivated at the release of the push button.	After a very long press, the function will be deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be toggled.	After a short press (less than 1 second), the function will be toggled at the release of the push button.	After a long press, the function will be toggled at the release of the push button.	After a very long press, the function will be toggled at the release of the push button.
	The function is toggled when the push button is pressed and toggled again when the push button is released.			
	The function is switched on when the signal goes ON, and it is switched off when the signal goes OFF.			

Of course, only one of the event types can be selected to perform the required working mode.
If the combination marked in green is selected, i.e. toggle mode with short press acting on the release of the push button, and the energy-save timer is enabled in the *Advanced* section, the long press can be used to reload the timer and the very long press to disable it. This enabling can be carried out by using the icons in the purple rectangle.

An example could be: in a walk-in wardrobe, the light is switched ON/OFF by means of a light switch, but I want to be sure that after 5 minutes it is switched off automatically if I forget to do it manually. To achieve this, I have to enable the energy-save timer. But if I need to stay in the wardrobe room (see above), I would also like to reload the timer: if I keep the push button pressed, the timer will reload automatically and the light will be switched OFF 5 minutes after my long press (if I do not reload it again, of course). I might also stay there for a longer time and need to disable the timer: to do this I have to keep the push button pressed for a very long time, and the timer will be disabled. In this situation the light has to be switched off manually. The timer will be enabled at the next switching ON.
This kind of automation can also be used in some other applications, such as stairs or corridors.

The long and very long activation times can be set directly from this wizard, in the *Signal properties* tab window, without the need to re-open the wizard of the module.

In the Signal setting window, the user can also enable the reversing of the signal. See the yellow rectangle in the figure below.

Switch and Function:
The signals of this type perform the selected action when they change level, according to the table below:

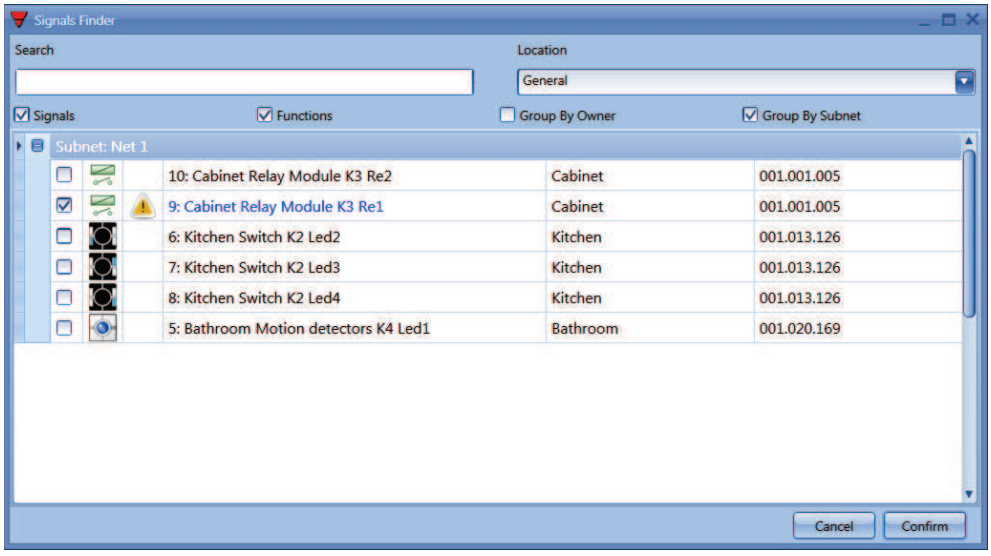
Working mode	Event type: Signal activated	Event type: Signal deactivated
0→1	The function is activated	No action
1→0	The function is deactivated	No action
0→1 1→0	The function is toggled	No action
	The function is toggled	The function is toggled
	The function is activated	The function is deactivated

If *Inverted* is enabled, the following table applies:

Working mode	Event type: Signal activated	Event type: Signal deactivated
1→0	The function is deactivated	No action
0→1	The function is activated	No action
0→1 1→0	The function is toggled	No action
	The function is toggled	The function is toggled
	The function is deactivated	The function is activated

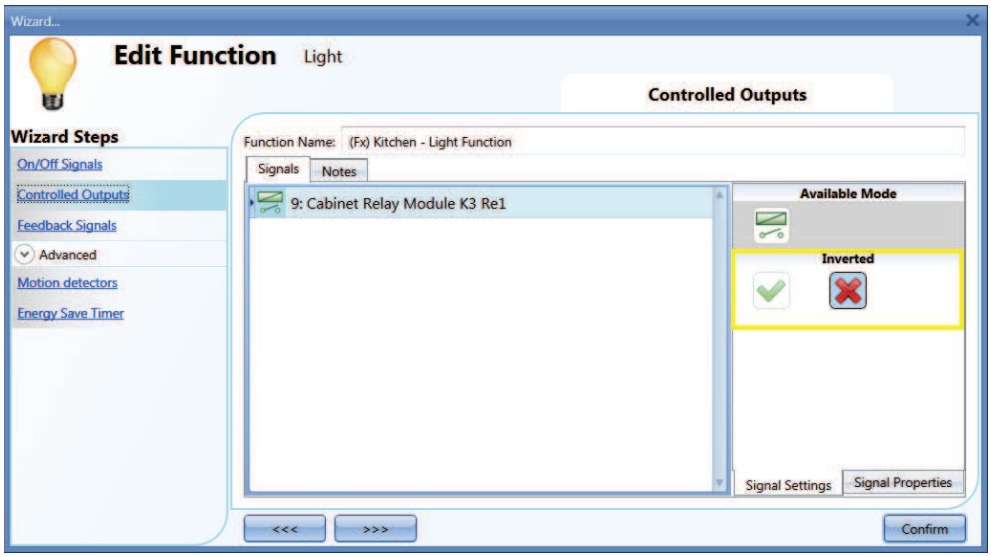
10.1.2 How to select the output that will control the light

To select the output signal that is connected to the light, click on *Controlled outputs* and then double click on the Signal window.



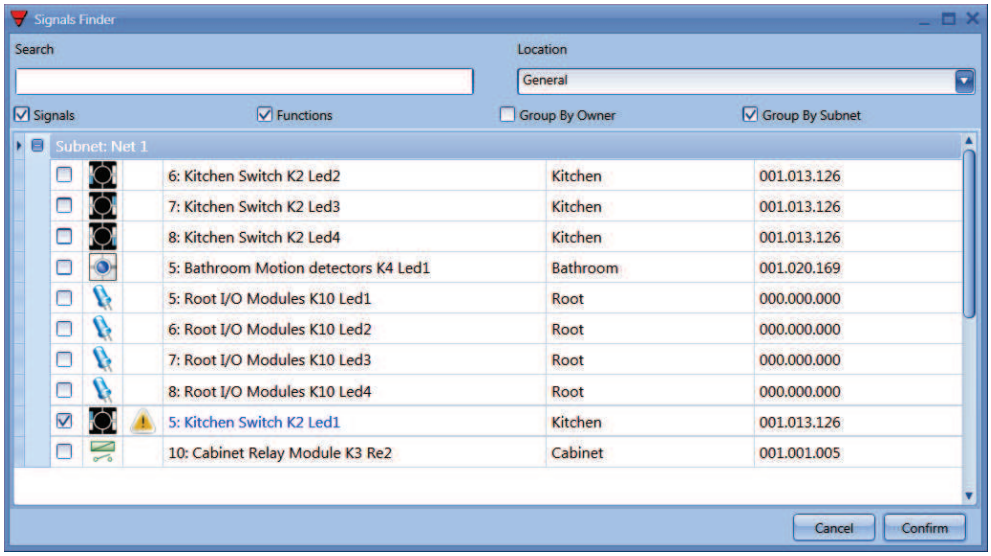
The signals available in this window are relays and LEDs.
Up to 50 signals can be chosen and they are managed in parallel.

The logic of each output signal can be set as normal or inverted (see yellow rectangle).



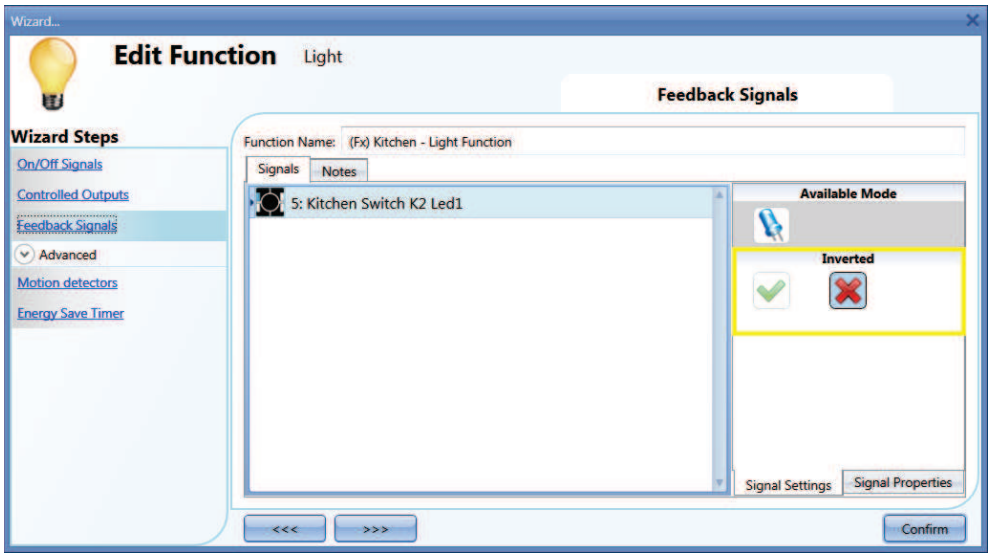
10.1.3 How to set a signal to be a feedback of the status of the function

To select the feedback signal that indicates the status of a function, click on *Feedback signals* and then double click on the Signal window.



The signals available in this windows are LEDs and relays.
Up to 50 signals can be chosen and they are managed in parallel.

The logic of each output signal can be set as normal or inverted (see yellow rectangle).

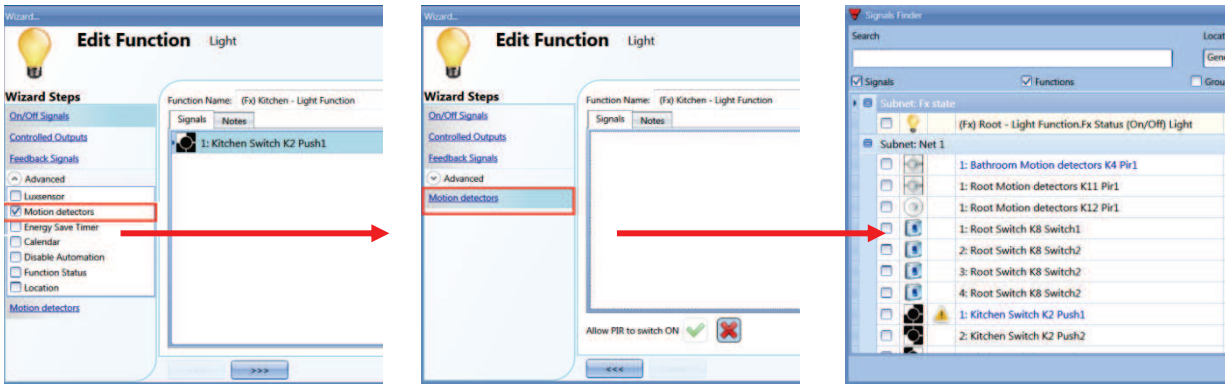


10.1.4 How to manage lights automatically

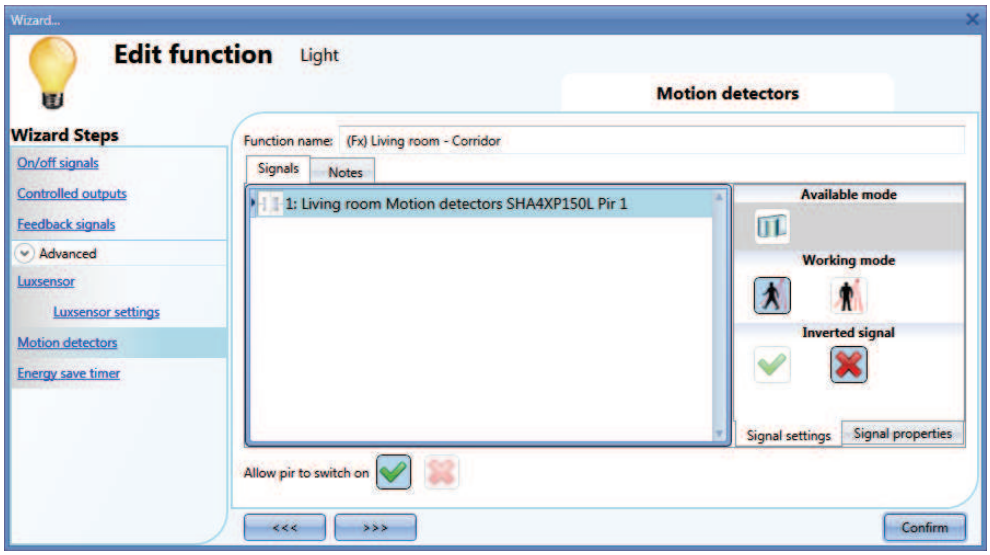
The automatic on/off switching of the light can be managed by PIR sensors (the light will be switched ON when the PIR sensor detects people movement/presence), by calendar functions (calendar to switch the light on/off at pre-defined time intervals) or by luxmeters which can switch the light on or off according to the levels of ambient light.
All the above have to be enabled in the Advanced section.

10.1.5 How to select PIR sensors to control lights

To correctly set and mount a PIR sensor, please refer to the Modules paragraph, in the PIR section..
The first thing to do when you need to use a PIR sensor in a light function is to enable it in the *Advanced* section.



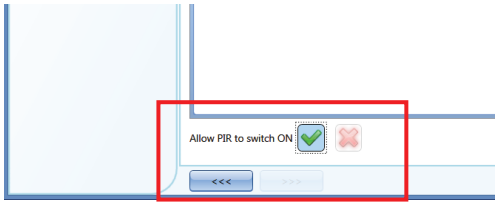
The *Motion detector* menu will appear. After selecting it, with a double click on the Signal window, the list of available signals will appear.
Select the required signal/signals and click on *Confirm*. Up to 50 signals can be selected and the system will do a logical OR of all of them.



You can also select to invert the signal, by checking the green *V* below *Inverted*, in the Signal Setting tab window.

10.1.6 How to turn on a light with PIR sensors, and turn it OFF manually

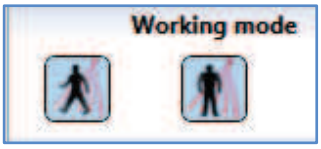
After selecting the required PIR signal as described above, to turn the light on as soon as movement is detected, you need only to enable *Allow PIR to switch ON*.



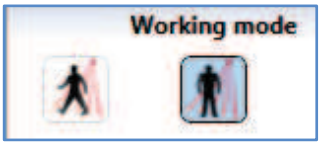
In this case the light will not be switched OFF if no presence is detected.
The energy-save timer should not be enabled.

10.1.6.1 Working mode of PIR signals

In this field, the user can define the action that any signal added in this will perform:

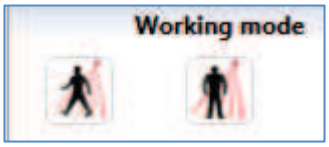


The PIR signal will switch the light ON if *Allow PIR to switch ON* is enabled, if movement is detected, and will reload the energy save timer if presence is detected.



The PIR signal will **not** switch the light ON even if *Allow PIR to switch ON* is enabled if movement is detected, and will reload the energy save timer if presence is detected.

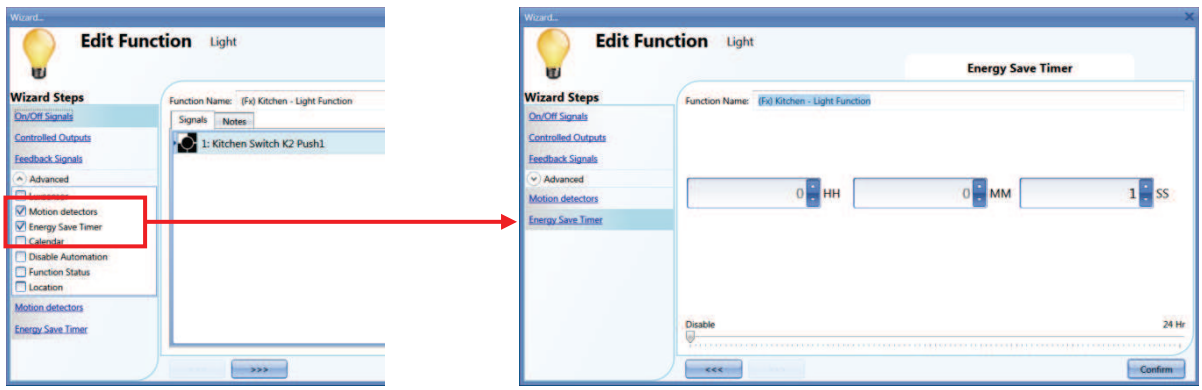
The PIR signal will switch the light ON if *Allow PIR to switch ON* is enabled, if movement is detected, and will **not** reload the energy save timer if presence is detected.



The PIR signal will do nothing.

10.1.7 How to turn a light on and off with PIR sensors

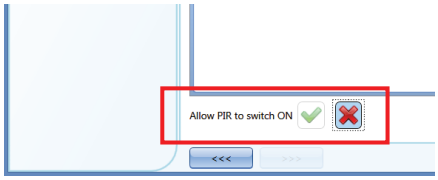
To allow the PIR sensor to turn the light on, just follow the previous paragraphs.
To turn the light off immediately or with a certain delay after the last presence has been detected, the energy-save timer has to be enabled.



A minimum time of 1 second has to be set to switch the light OFF. You can set the desired delay off timer by moving the slider or by typing the hours, minutes and seconds.

10.1.8 How to switch the light ON manually and OFF with the PIR sensor

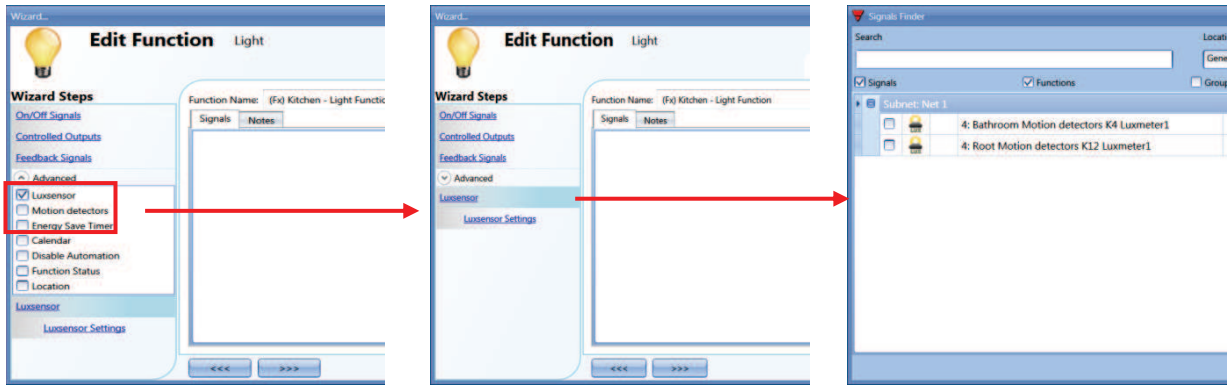
In order not to switch on the light with the PIR sensor, *Allow PIR to switch on* must not be enabled.



To allow the PIR to switch the light off, the energy-save timer has to be enabled.
Once this is done, by following the instruction described in the previous paragraph, you can set the required time with a minimum of 1 second.

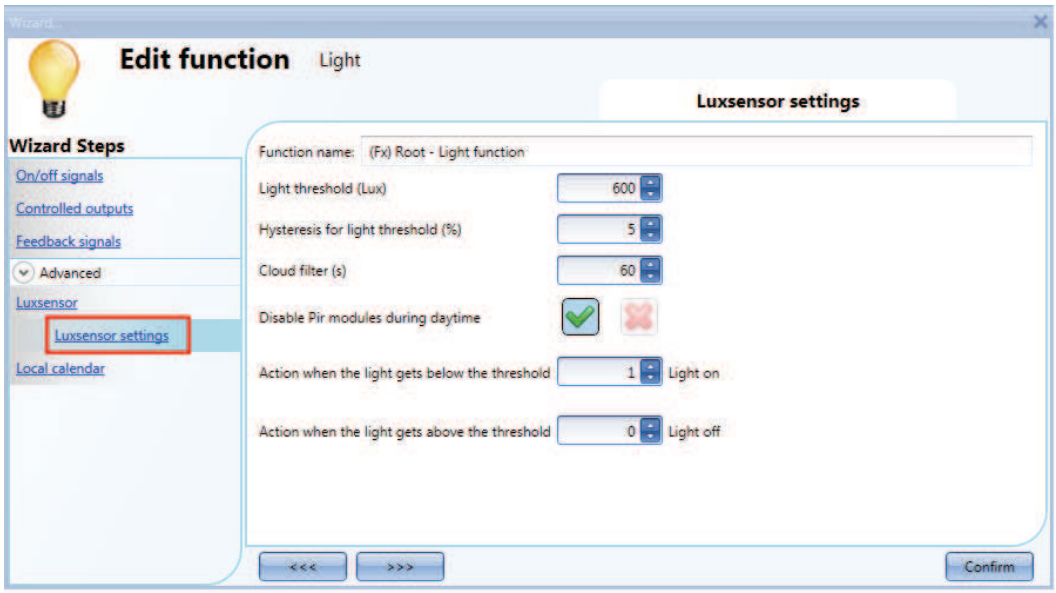
10.1.9 How to switch the light ON and OFF according to the daylight

The light can be managed in an automatic way by using lux meters: you can set a threshold in order to have the smart-house system switch the light ON if the daylight goes below this threshold, and switch the light OFF if the daylight goes above the threshold.
Since this is an advanced functionality, it has to be enabled in the *Advanced* section.



Once the *Luxsensor* is enabled, by clicking on it, the standard window to add signal will appear.
Up to 10 signals can be added: the smart-house system will calculate the average value.

As a second step, the threshold has to be set: click on Luxsensor settings.
The following window will appear.



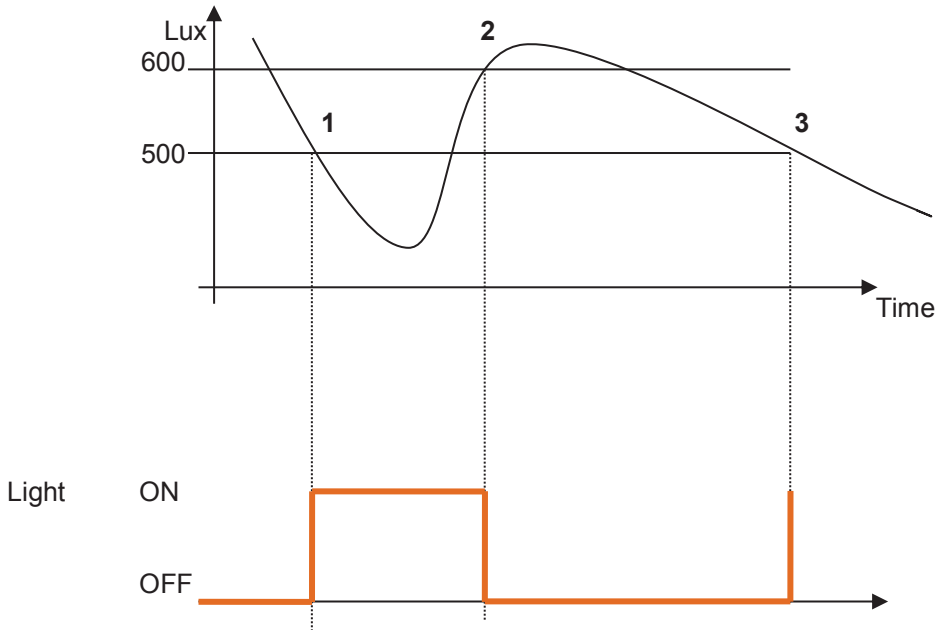
In the field *Light threshold (lux)*, the desired daylight level below which you want your light ON must be entered. A value between 0 and 5000 lux can be set.

In the field *Hysteresis for light threshold (%)*, the hysteresis you need to have the light level OFF threshold must be entered, that is the threshold above which the light has to be switched OFF.
This field is a percentage of the *Light level ON* threshold. A value between 5 and 50 % can be set.

In the example shown in fig. 1, the level OFF threshold can be calculated in the following way:

Level OFF= level ON+ 20% of Level ON= 500 + 100 = 600 lux

If the daylight goes above the threshold of 600 lux, the light will be switched OFF.
This example is also explained in the diagram below.
Fig. 1.



Due to clouds that might change the daylight level for a short period, we suggest setting the Cloud filter for at least 60 seconds, in order not to have the light turning ON/OFF continuously.

The field *Disable PIR modules during day time* must be considered if the lux meter is used in combination with PIR sensors.

If you want to switch the light ON when the light level goes below the threshold (points 1 and 3 in fig. 1), the field *Action when the light gets below the threshold* should be set to action 1 (light on).
If you want to switch the light OFF when the light level goes below the ON level threshold (points 1 and 3 in fig. 1), the field *Action when the light gets below the threshold* should be set to action 0 (light off).

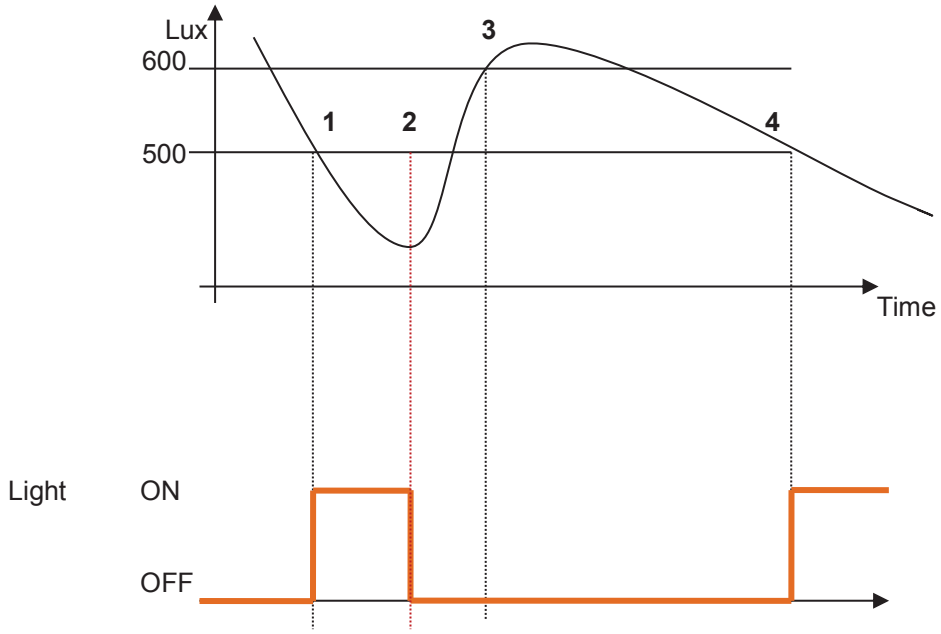
If you want to switch the light OFF when the light level goes above the threshold + hysteresis (point 2 in fig. 1), the field *Action when the light gets above the threshold* should be set to action 0 (light off).
If you want to switch the light ON when the light level goes above the ON level threshold + hysteresis (point 2 in fig. 1), the field *Action when the light gets above the threshold* should be set to action 1 (light on).

If these two green Vs are not checked, the system will not do anything when the thresholds are surpassed. This might be needed when lux meters are used in combination with PIR sensors or calendar.

The ON and OFF switching is done in the event of the thresholds being surpassed, so if the light status is changed manually by means of a light switch, or automatically e.g. by a scheduler, the automation of the lux sensor will not change it unless thresholds are surpassed another time.

Please see the example below: the light is switched ON automatically by the lux meter in point 1, then if it is switched OFF, for example manually, in point 2, it will be turned ON again by the lux meter only in point 4, when the daylight level again goes below the level ON threshold.

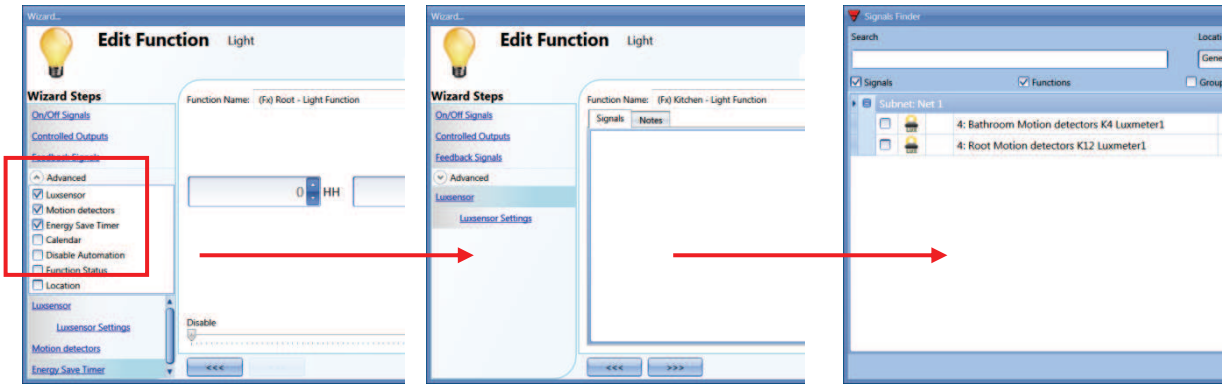
Fig.2



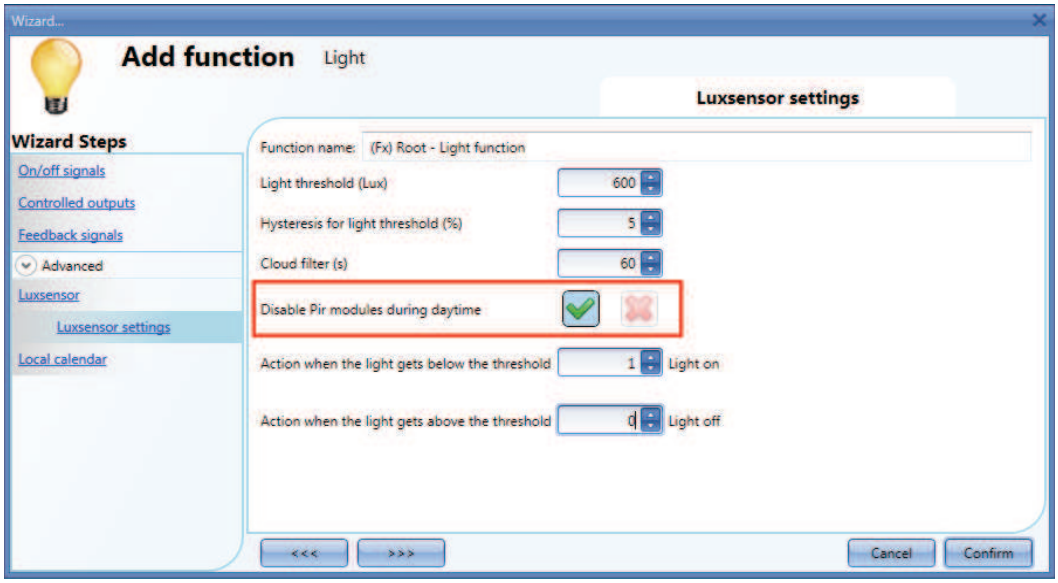
10.1.10 How to control light with PIR sensors in combination with lux meters

If PIR sensors are used in combination with lux meters, it means that if a people presence is detected, the light has to be switched ON only if the daylight level is below the OFF level threshold.
To achieve this, a PIR sensor and a luxsensor have to be added.
The steps are summarised below:

1. Enable Luxsensor, motion detectors and energy-save timer in the advanced section . Add the required luxmeter.

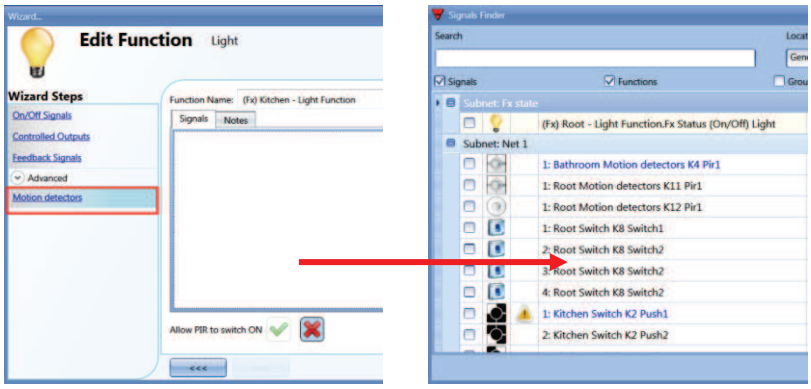


2. Set the required light threshold as described above.



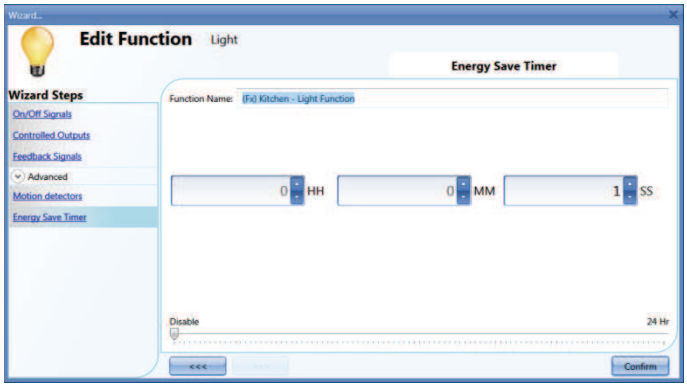
If for any reason the PIR sensor is enabled to switch the light ON also during day time, the red X in the red rectangle should be checked.

3. Add the PIR sensor

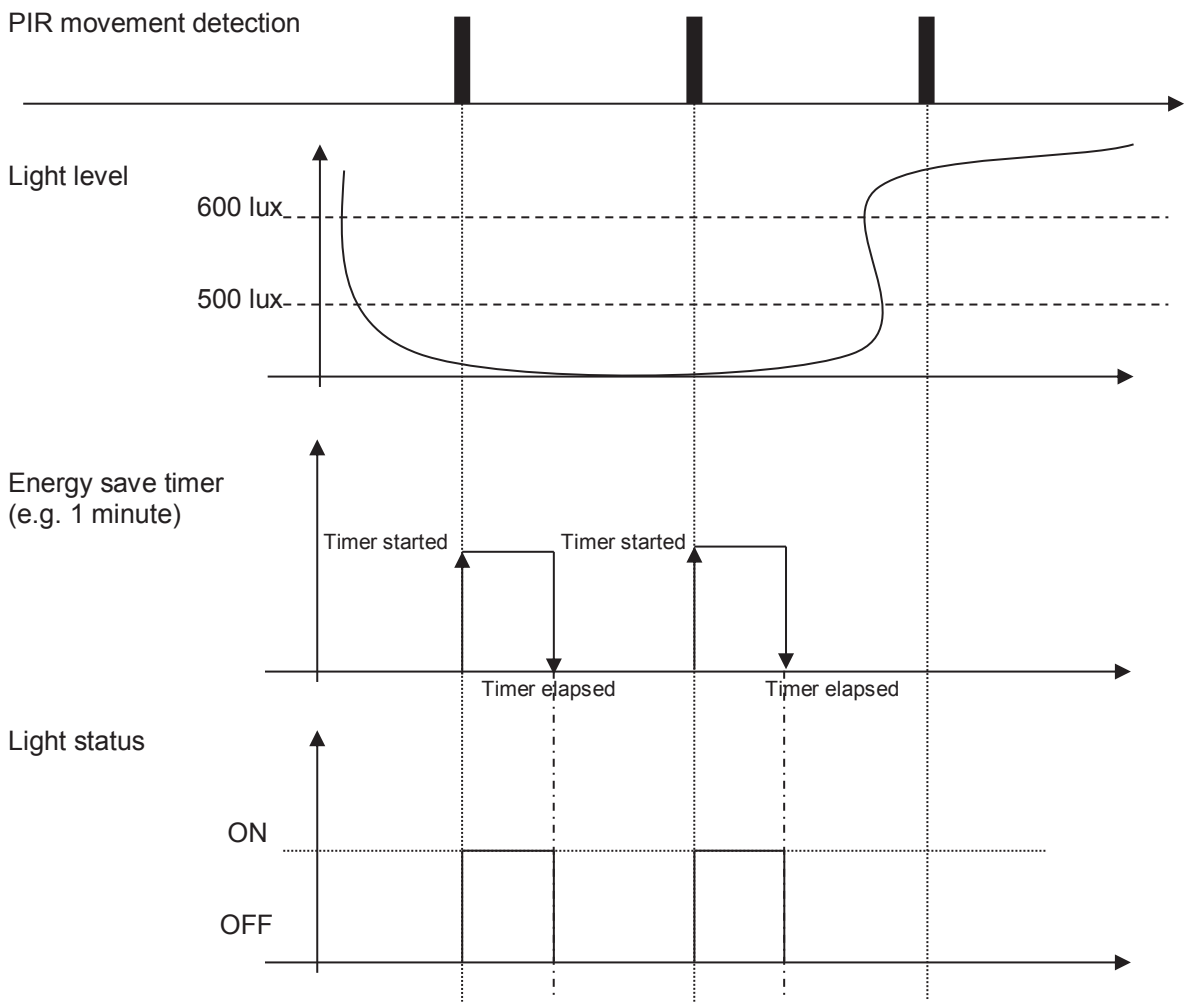


4. Enable it to switch the light ON

5. Set the time after which you want the light to turn off if no more presence is detected. Click on energy-save timer.

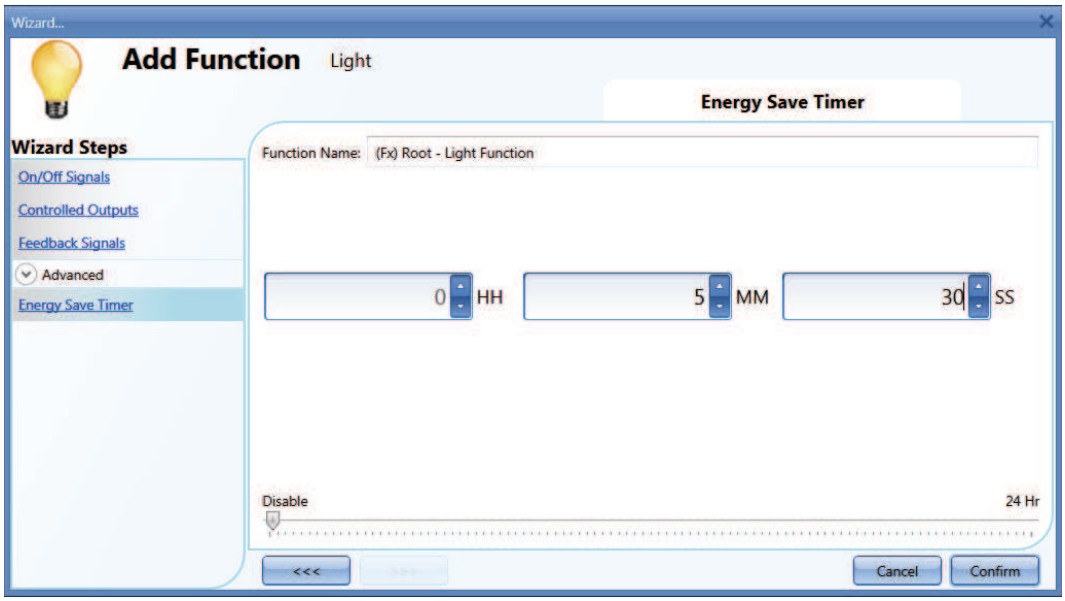


The diagram below shows what the smart-house system will do if the previous steps are followed:



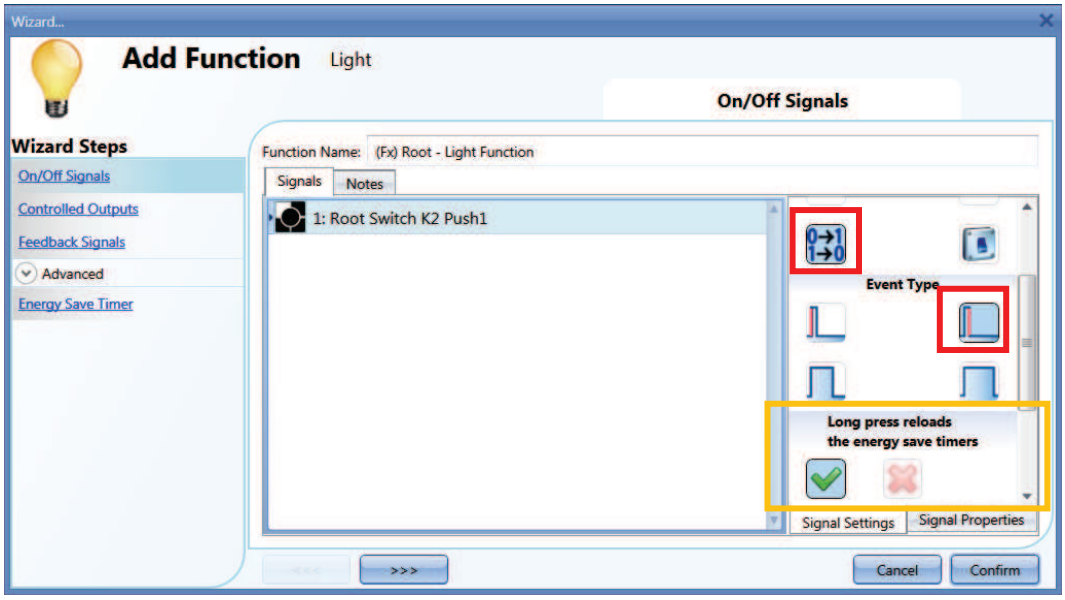
10.1.11 How to switch the light off after a predefined time period

If the user needs to be sure that the light is switched off to save energy, the energy-save timer should be selected in the advanced functionalities (the energy-save timer is selected by default when the user creates a new light function).
The energy-save timer starts every time the light is switched On, causing the light to go off automatically when the set time has expired.
The energy-save timer can be set up to a maximum value of 24 hours, while when it is set to 0 it does nothing. So the shortest time that can be set is 1 second.
The set timer value can be set and changed by means of the webserver.



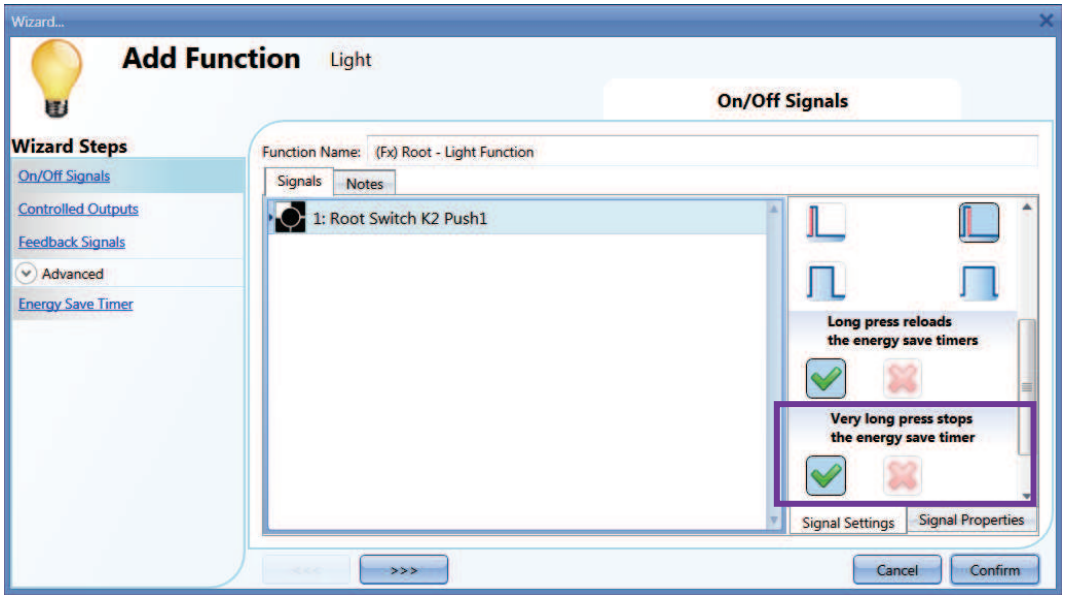
10.1.12 How to reload the energy-save timer

The reload of the timer is possible if the light is switched on/off in toggle mode and if the toggle event is set on the release of the push button (see red rectangles).
If these two settings are selected, a further field appears (see the orange rectangle) saying *Long press reloads the energy-save timer:* if the green V is checked, the timer is reloaded by means of a long press and it starts counting again (to see 'long press' click here).

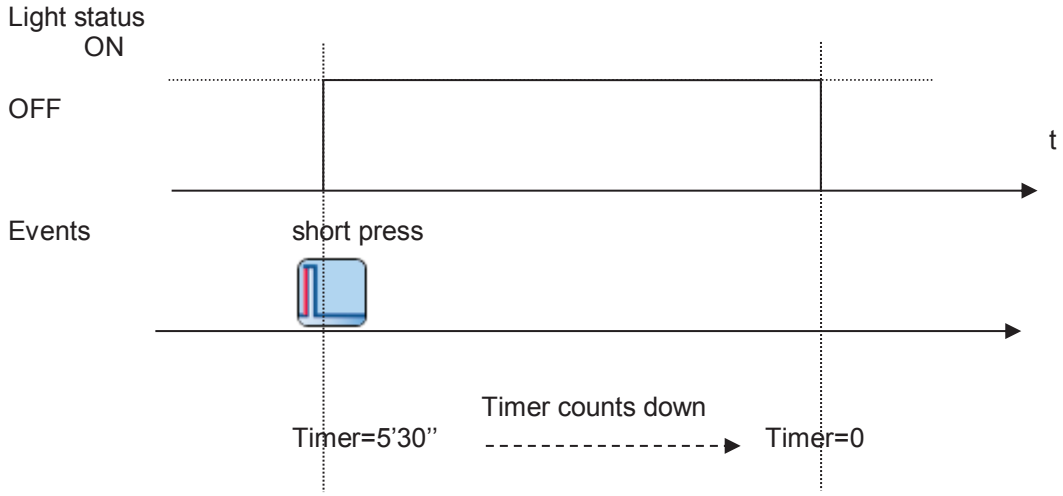


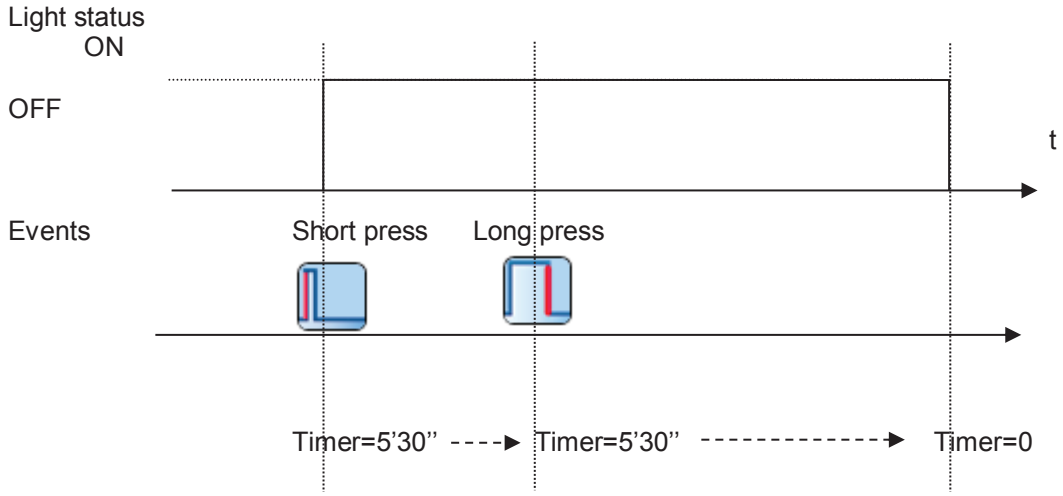
10.1.13 How to disable the energy save timer

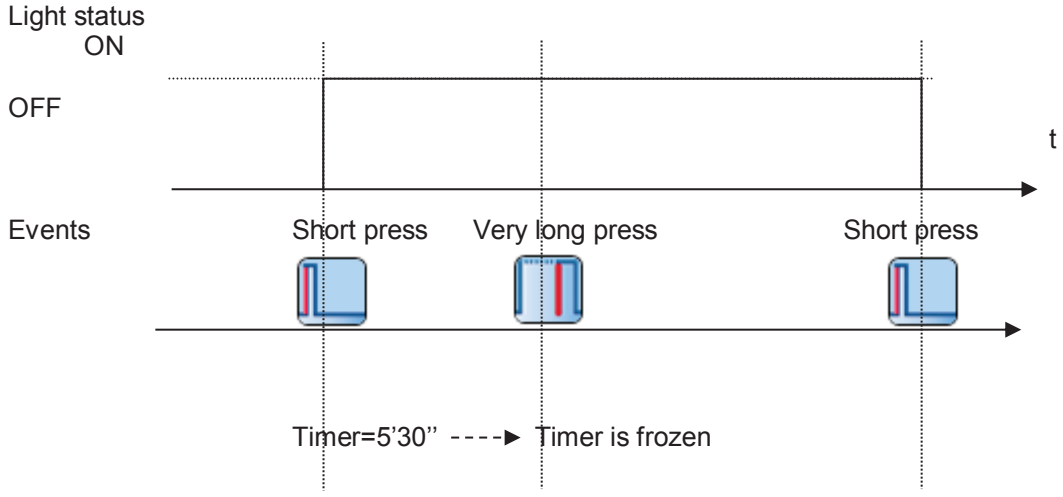
If the user wants to disable the energy-save timer, once the behaviour of the push button is set according to the figure below, the green V should be checked in the field *Very long press stops the energy save timer* (violet rectangle).
In this situation, with a very long press the timer will be disabled and the only way to switch the light off is manually, with a short press on the push button. The timer will be activated at the next switching on.



To understand better the behavior of the energy-save timer, if the light function is set according to the previous picture 5, the table below is valid:





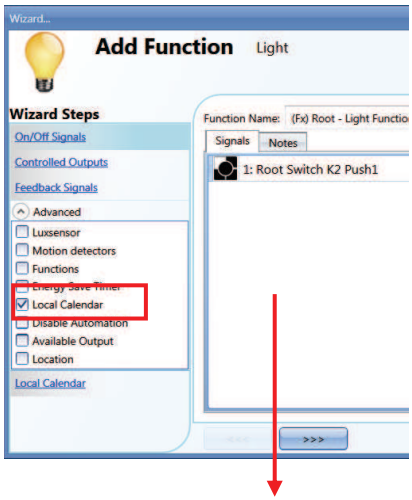


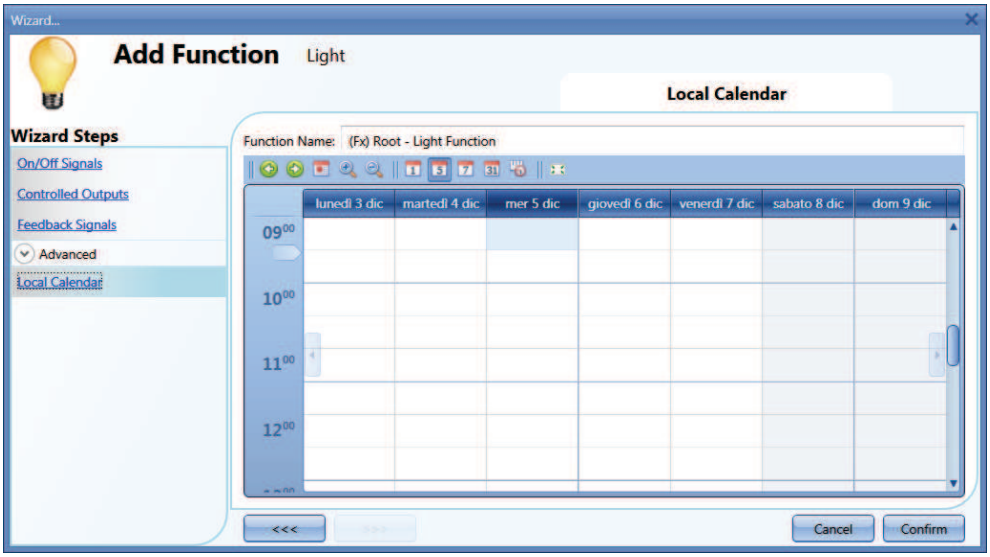
10.1.14 How to switch the light ON/OFF using the calendar

There are two ways of managing the lights with the calendar: by setting the “local” calendar inside the function or using a “global” calendar function.

10.1.14.1 The local calendar function

The relevant menu should be enabled in the Advanced section.





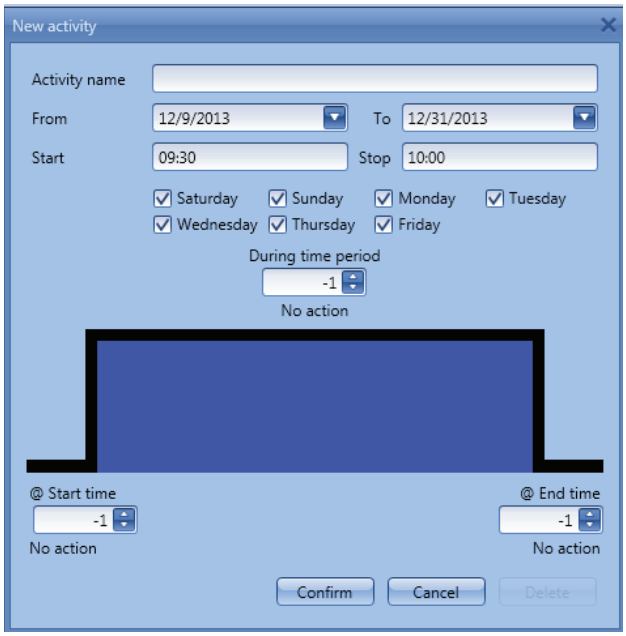
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons :

	One step back in the Calendar. e.g: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. e.g: if a week is visualized, this button allows the user to go to the next week.
	Go immediately to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally
	The calendar visualizes 7 days vertically
	Full screen view

10.1.14.2 Calendar activity

Once the user has selected his preferred type of visualization, he should double click to enter a time band on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar: this is a mandatory field.

From*:* Date at which the event will start.

To*:* Date at which the event will finish.

Start*:* Time at which the event will start.

Stop: Time at which the event will finish.

The activity will be repeated in the following years, using the same dates and times.

The action managed by the calendar can be of two types:

1) Event activity: the system will perform the selected action only at start time and end time and they are managed as an event
2) Level activity: during the time band, all the automation can be disabled.

If ***Event activity*** is selected, the user can decide what action he wants when the time band starts and finishes.

> ***@ start time***: in this field the user selects the action he wants performed when the period starts.
> The available actions are:
> - (-1) No action: nothing will be done at start time
> - (0) Light off: the light will be switched off at start time
> - (1) Light on: the light will be switched on at start time

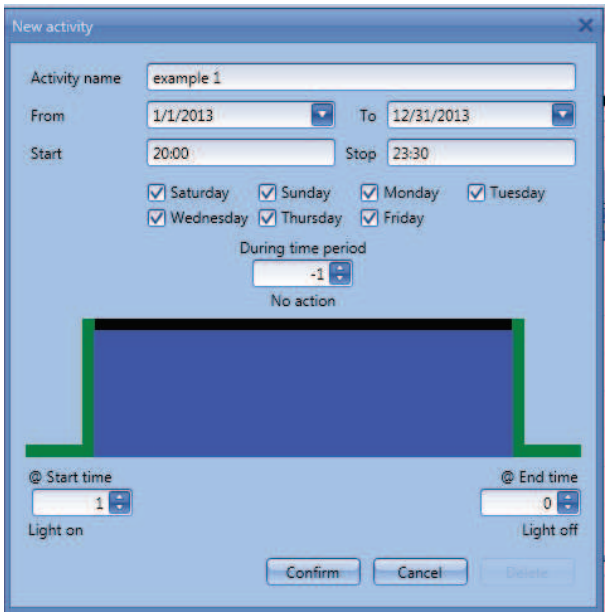
If ***Level activity*** is selected, the user can disable the automation of the PIR sensors and luxmeters (see paragraph Disable automation).

> ***During time period***: in this field the user selects the action he wants performed during the time band.
> - No action
> - Disable automations

When the user chooses a Level activity, the actions at start time is done first, then the automations are disabled and at the end time the selected action is performed.

Here are some examples.

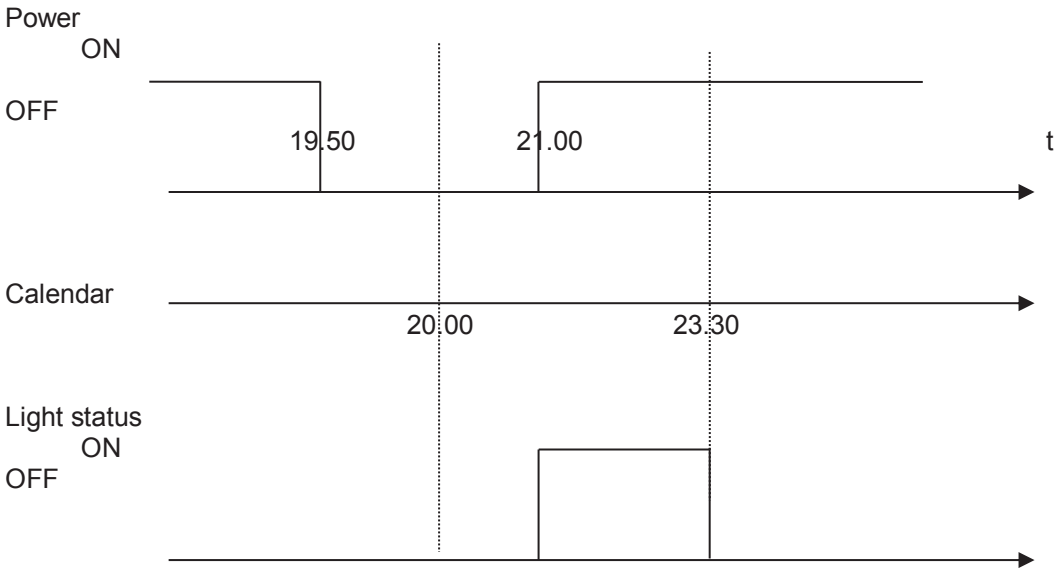
- Example 1
  A light has to be switched ON at 8 o'clock in the evening and then switched off at 23.30 every day of the year.



Since this action is to be performed every day of the year, the dates 1st January and 31st December have to be inserted in the fields **From** and **To**.
With the settings in figure above, every day of the year the light will be switched on at 20.00, and off at 23.30, from Sunday to Saturday.
If the light is switched off manually at 21.00, it will not be turned on again by the calendar until 8 o' clock the following day.

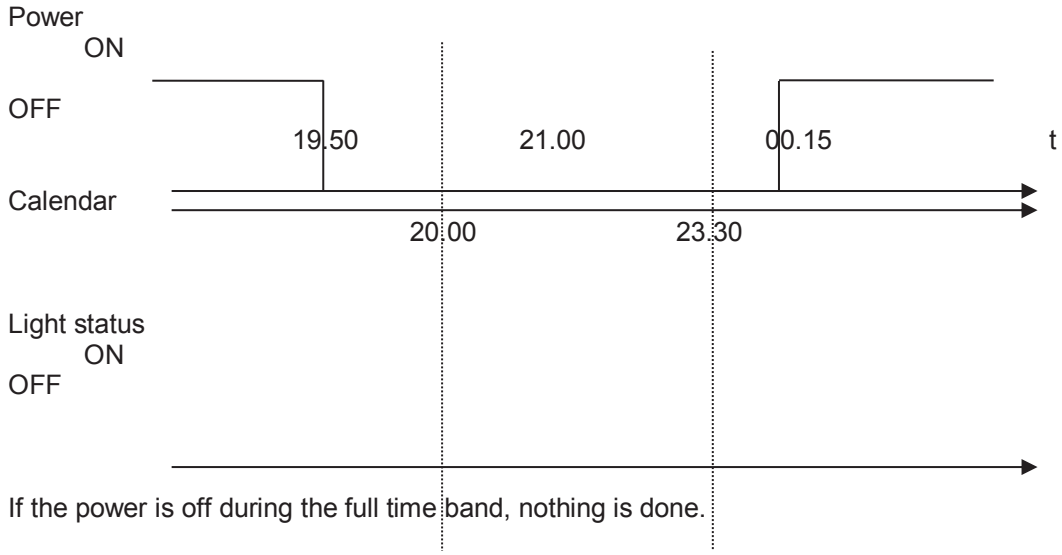
If a power-down occurs at the start time or at the end time, the system will behave according to the diagram below.

-



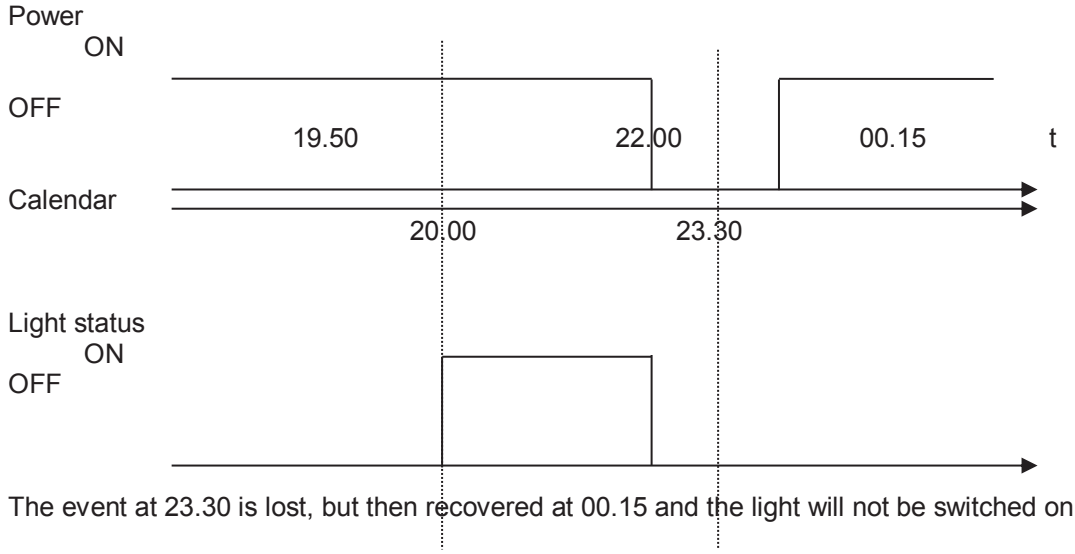
The event at 20.00 is lost but then recovered at 21.00. In general, if power is off during a period where the light is switched on by the calendar, if power returns before the activity has expired, the light is switched on again.

-



If the power is off during the full time band, nothing is done.

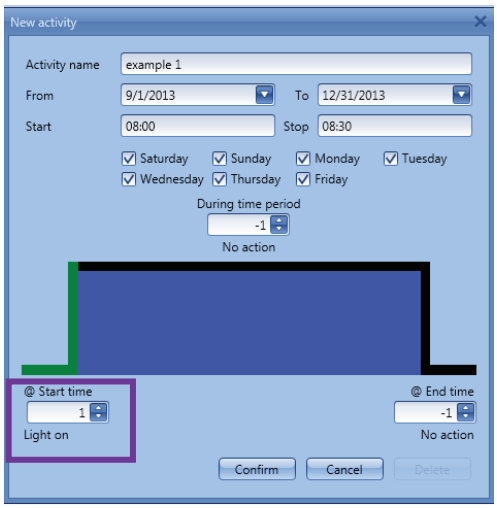
-

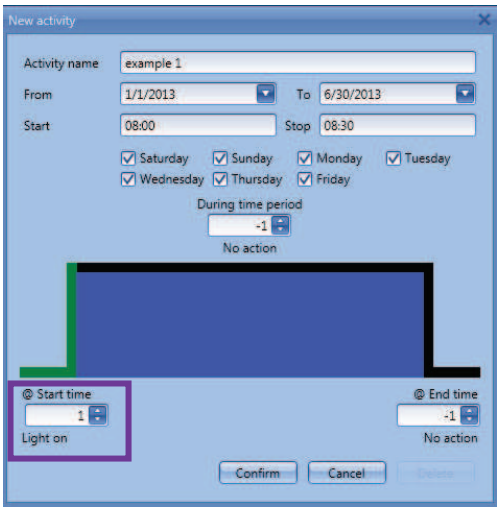


The event at 23.30 is lost, but then recovered at 00.15 and the light will not be switched on again.

- Example 2
  The light is switched on at 8 o clock in the morning, from September to June, from Monday to Friday..

  In this example, if an activity starts in one year and ends in the following year, two activities have to be created: the first one from September to December, the second one from January to June.



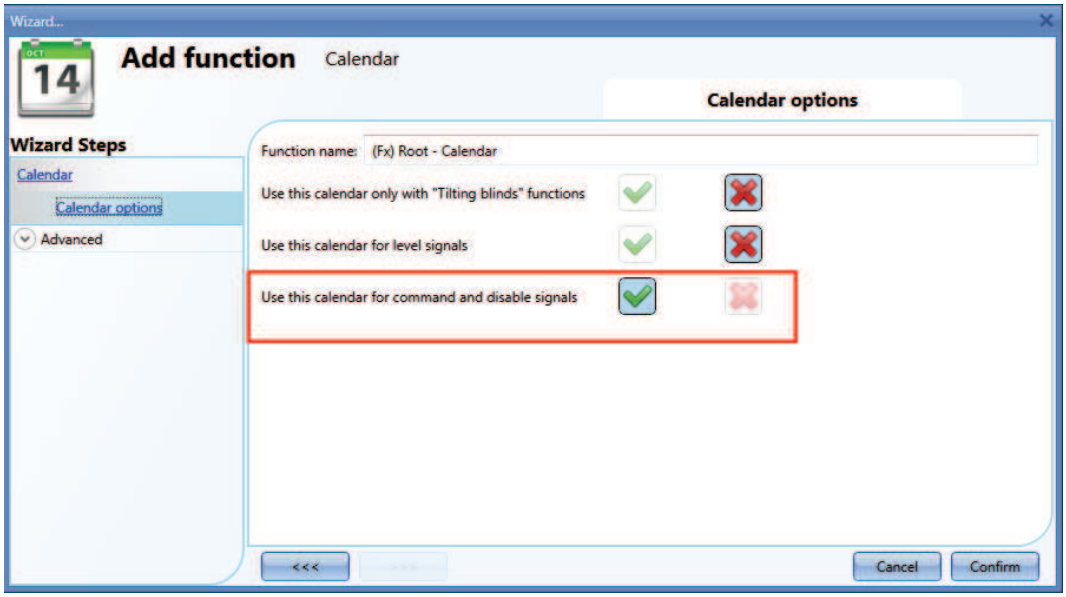


As shown in the violet rectangle, since no end action is needed, 'No action' is selected (-1).

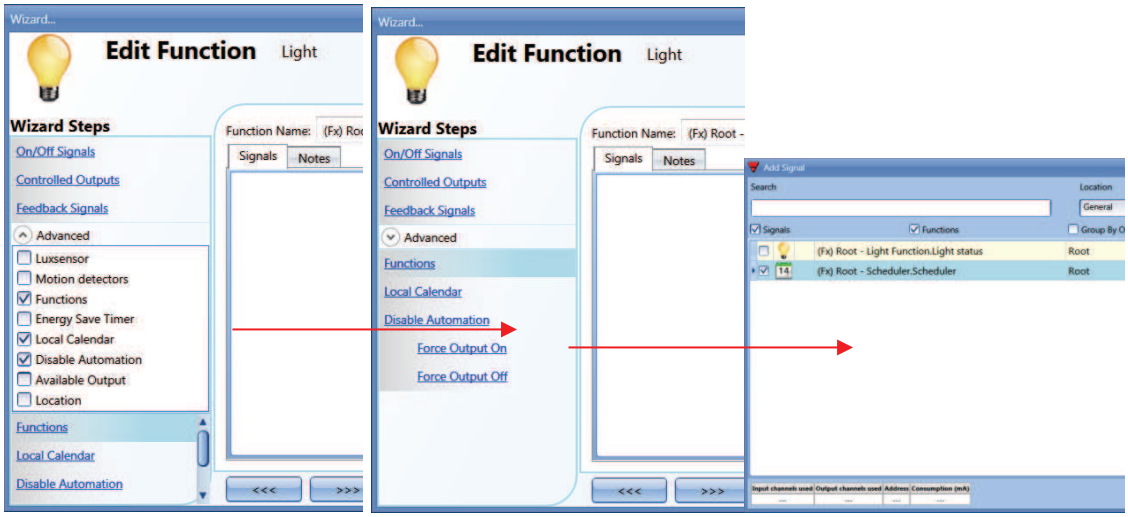
If a power-down happens at the start time, the event is lost, and the light will be switched on automatically at 8 o' clock the following day.

10.1.14.3 The global calendar

Before using a global calendar programmed as "*a calendar for command and disable signals"*, it has to be defined as a function (See **How to set a global calendar**).



The field function then has to be selected in the *Advanced* menu.
By clicking on Functions and then double clicking in the *Signal* window, the *Add signal* window will appear. The required calendar function can be selected.
The behaviour will be the same as the one described for the local calendar.



If the calendar is programmed as "*a calendar for level signal*", it has to be added in the On/Off signal field.

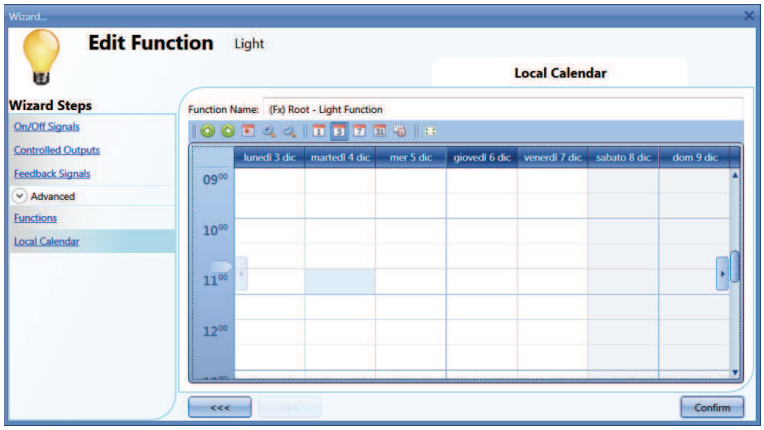
10.1.15 How to stop the automation

There are two ways of disabling the automation of the PIR sensors, luxmeter and energy-save timer: the first one with the calendar, the second one with signals.
If an automation carried out with the energy-save timer is disabled, the energy-save timer is frozen and it will finish counting when the disabling is removed.

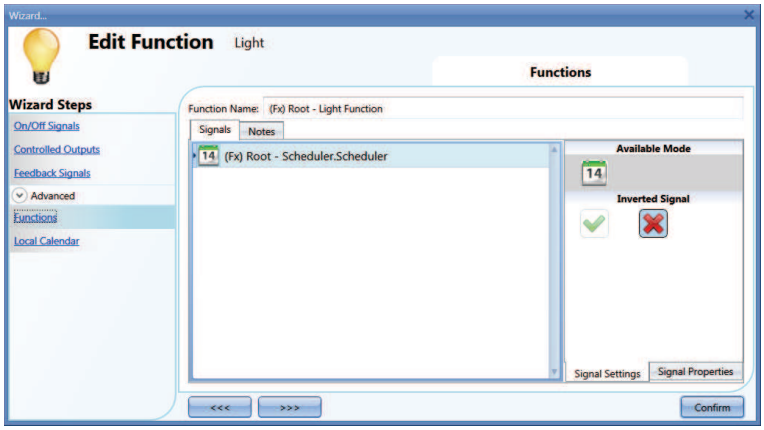
10.1.15.1 Disabling automation using the calendar

To disable the automation, the user can also select the local or the global calendar.
The local calendar has to be enabled, using the advanced functionality *Local calendar*, while the global calendar has to be added as a signal in the *Functions* menu of the advanced functionalities.

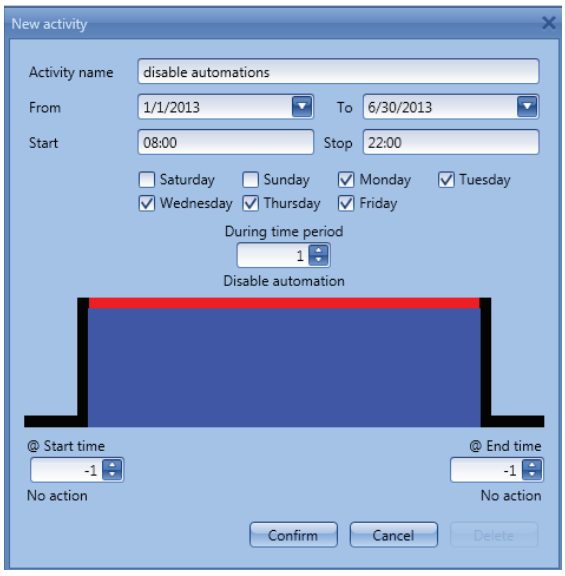
Local calendar



Global calendar



Once the type of calendar is set, the activity has to be defined.

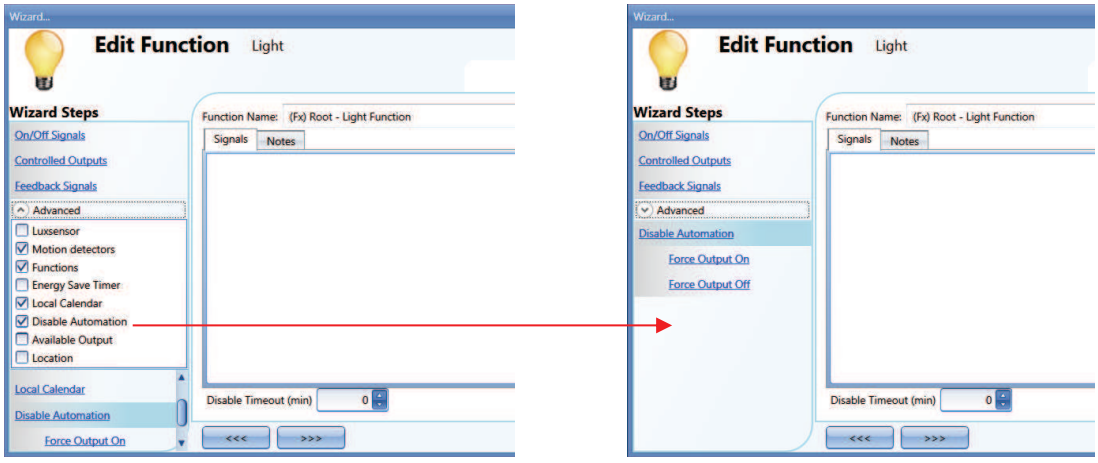


Level activity has to be selected.

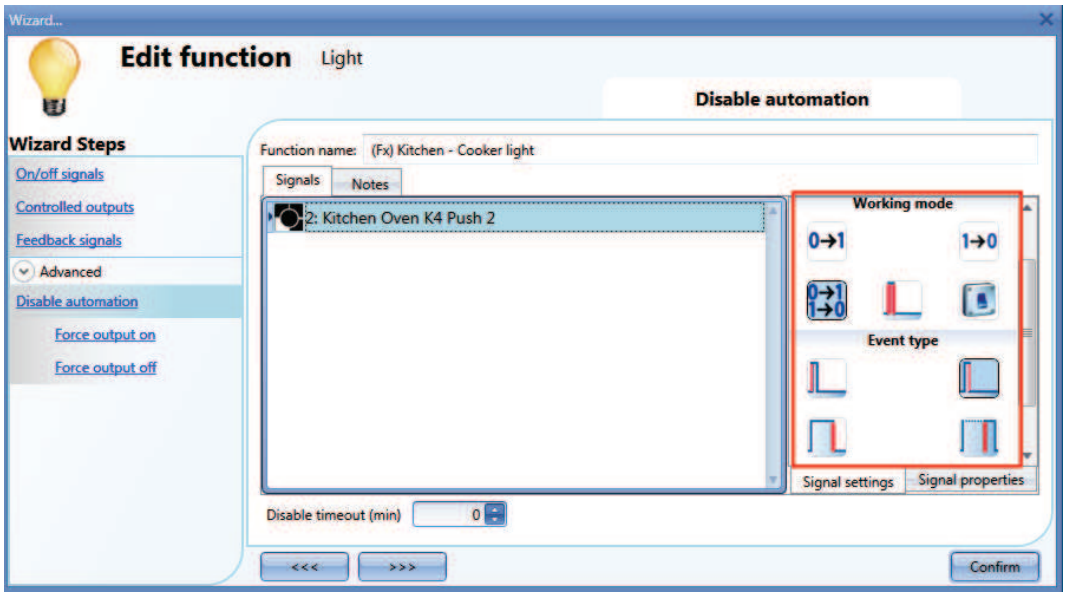
According to the activity set in the figure above, the automation of the light by PIR sensors and luxmeter will be stopped in December, from 8 to 10 o'clock in the evening, from Monday to Friday. During this period the light can be switched on/off only manually.

10.1.15.2 Disabling automation using signals

The second way of disabling automation is by using signals: please check *Disable automation* in the *Advanced* section.



The required signal has to be added by double clicking in the Signal window.



If a push button type is selected, the working mode, marked by the red rectangle, follows the table below.

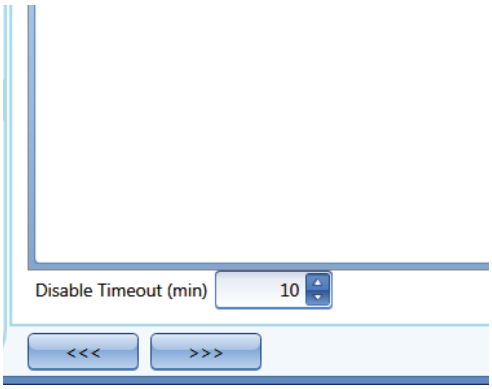
	Event type			
Working mode				
	As soon as the push button is pressed, the automation is disabled.	After a short press (less than 1 second), the automation is disabled at the release of the push button.	After a long press, the automation is disabled at the release of the push button.	After a very long press, the automation is disabled at the release of the push button.
	As soon as the push button is pressed, the automation is enabled again.	After a short press (less than 1 second), the automation is enabled again at the release of the push button.	After a long press, the automation is enabled again at the release of the push button.	After a very long press, the automation is enabled again at the release of the push button.
	As soon as the push button is pressed, the automation will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the automation will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the automation will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the automation will be enabled/disabled in toggle mode at the release of the push button.
	The automation will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the settings of the working mode are as follows:

	Event type	
Working mode	**Signal activated**	**Signal deactivated**
0→1	The automation is disabled	No action
1→0	The automation is enabled again	No action
0→1 1→0	The automation is disabled/enabled in toggle mode	No action
	The automation is disabled/enabled in toggle mode	The automation is disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

The user might need to set a time after which the automation is enabled again even if the selected signal is still active: to achieve this the Disable timeout field should be set.

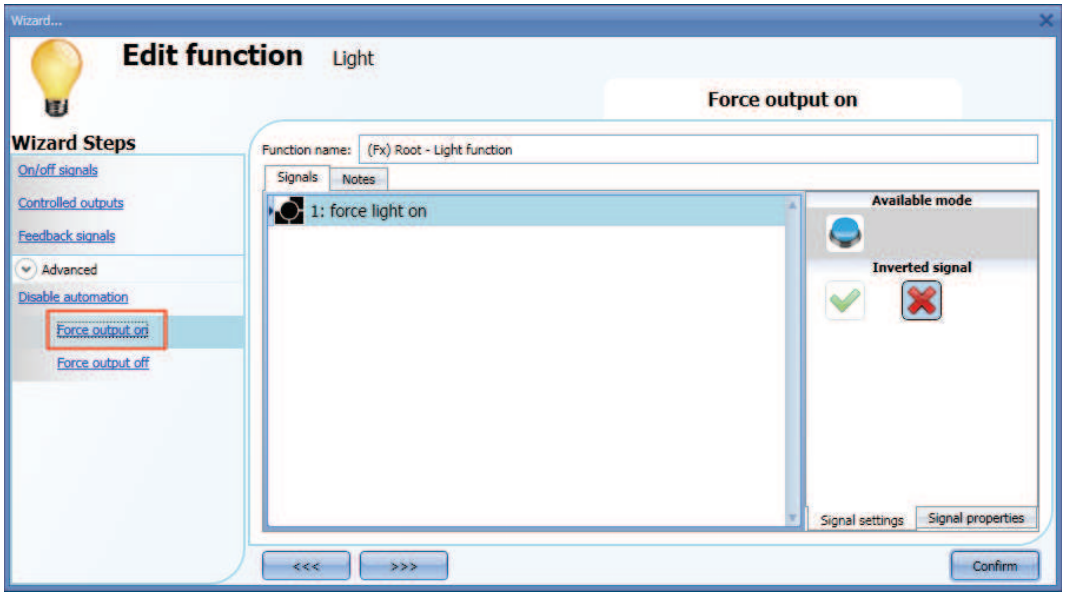
To access the stop automation functionalities, they must be enabled in the Advanced section field.
If the user needs to be sure that 'disable' is automatically removed, the *disable automation timer* should be set.



The timer starts every time the disable status becomes activated: the disable status is automatically deactivated as soon as the time has elapsed.
In the figure above a disable timeout of 10 minutes is set. The maximum delay is 59minutes.

10.1.16 How to force the output ON

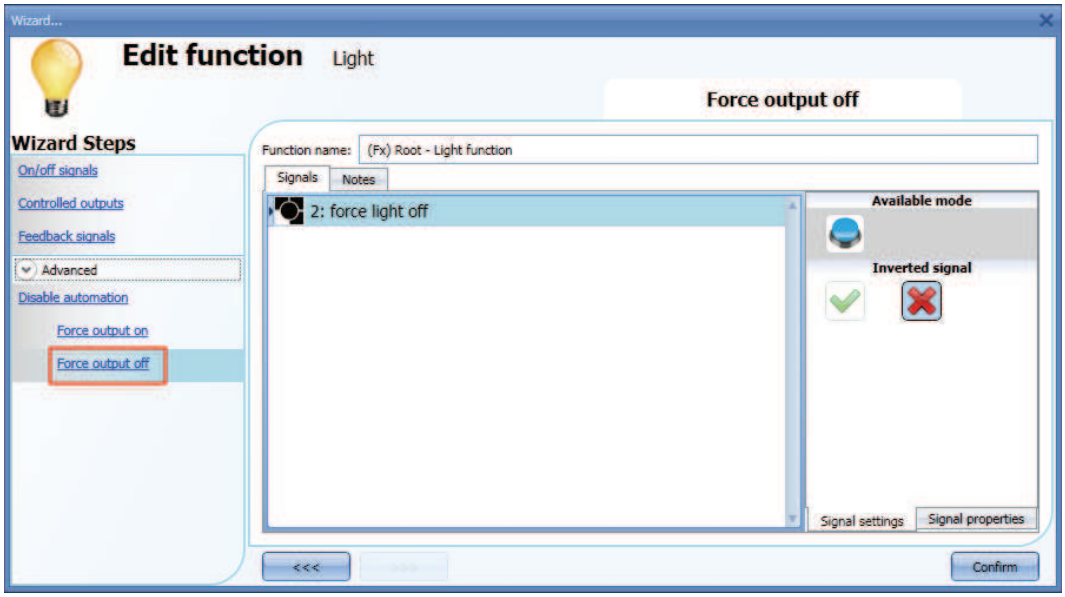
If the user wants to force the output on regardless of all other signals used in the function, the *Force output on* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output on*, then double click on the signal window and select the right signal to use.



Each signal used in the *Force output on* window works as a level signal: until the signal is active, the light function is forced on.
When the *force output on* signal is activated and the *force output off* signal is activated, the force to output on signal has the priority.

10.1.17 How to force output off

If the user wants to force the output off regardless of all other signals used in the function, the *Force output off* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output off*, then double click on the signal window and select the right signal to use.

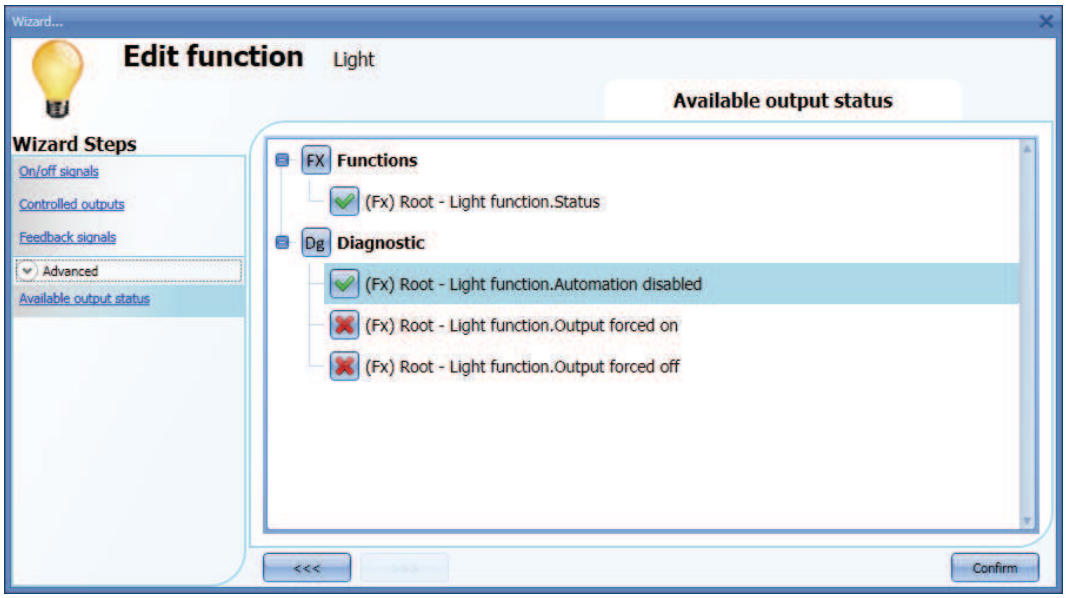


Each signal used in the *Force output off* window works as a level signal: until the signal is active, the

light function is forced off. When the *force output on* signal is activated and the *force output off* signal is activated, the force to output on signal has the priority.

10.1.18 How to enable the function diagnostic

In the *Available output status* the user can decide which information from the light function he needs to use in the configuration of his system, for example as an input in another function or in a sequence. Like all the other advanced functionalities, this one also has to be enabled.

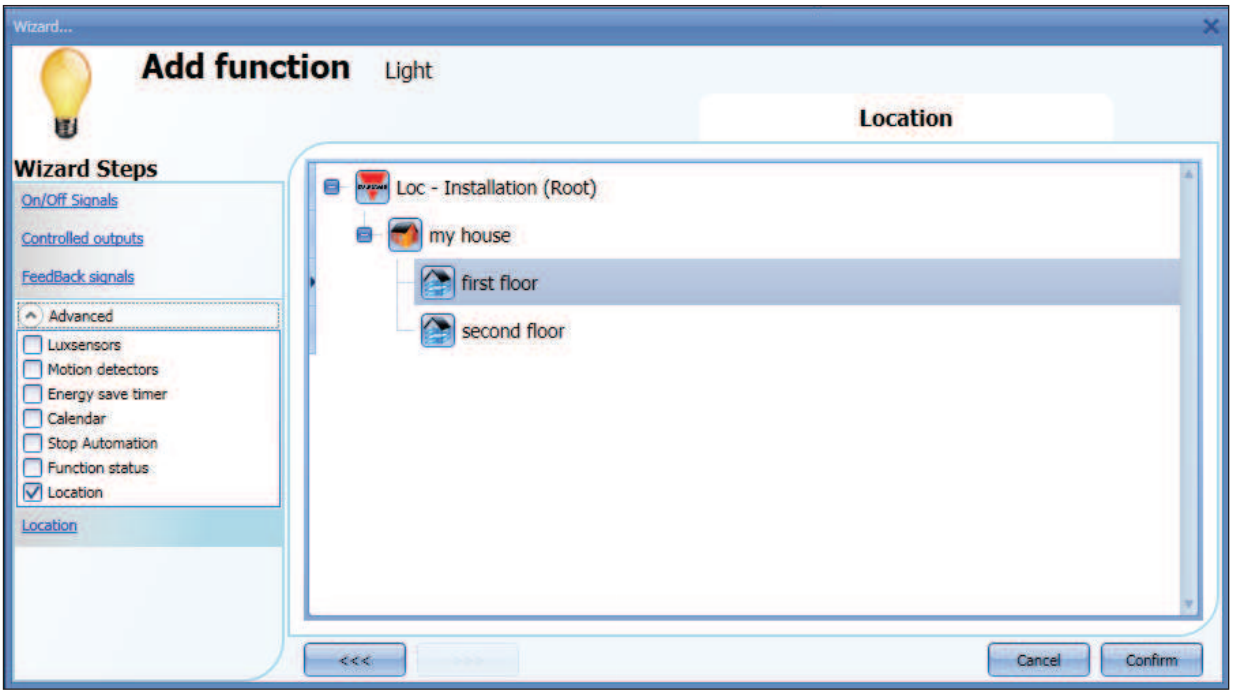


The statuses that can be enabled and used in other functions are:

- **Automation disable**: indicates if the automations are disabled.
- **Output forced on**: indicates if the light is forced in the On status.
- **Output forced off**: indicates if the light is forced in the off status .

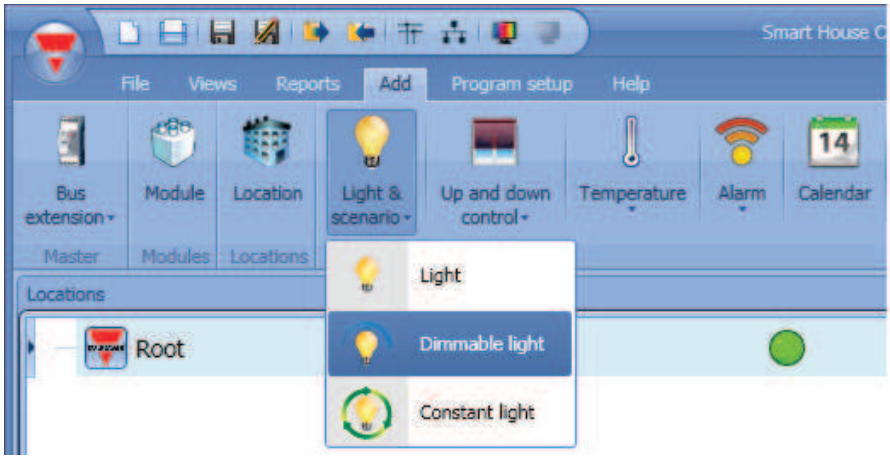
10.1.19 How to change the location of a function

To access the *Location* menu, the user should enable it in the advanced functionalities.
From this window the location where the function is placed can be changed by simply selecting and clicking on the required one.



10.2 How to set a Dimmer function

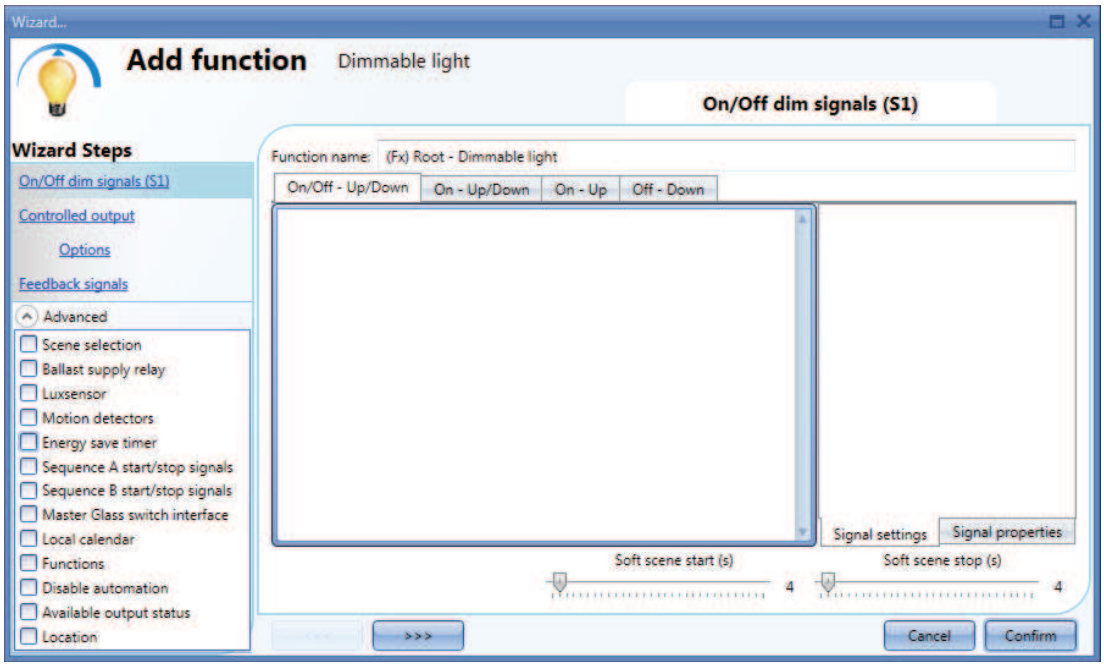
This function allows the installer to manage one or more lights at the same time.
The user can either configure a basic function to switch the light on /off and adjust the light intensity, or implement an automated system by programming the relevant objects of the function by using the *Advanced* section.
To set up a dimmable light function the user should select *Light Functions* from the Add menu, then select *Dimmable Light* (see picture below). The new function will be added into the selected location.
The wizard relevant to a Dimmable Light function can also be opened by typing Alt+D. (See table of short cuts).



This function manages one or more dimmer outputs controlled by one or more input commands. The

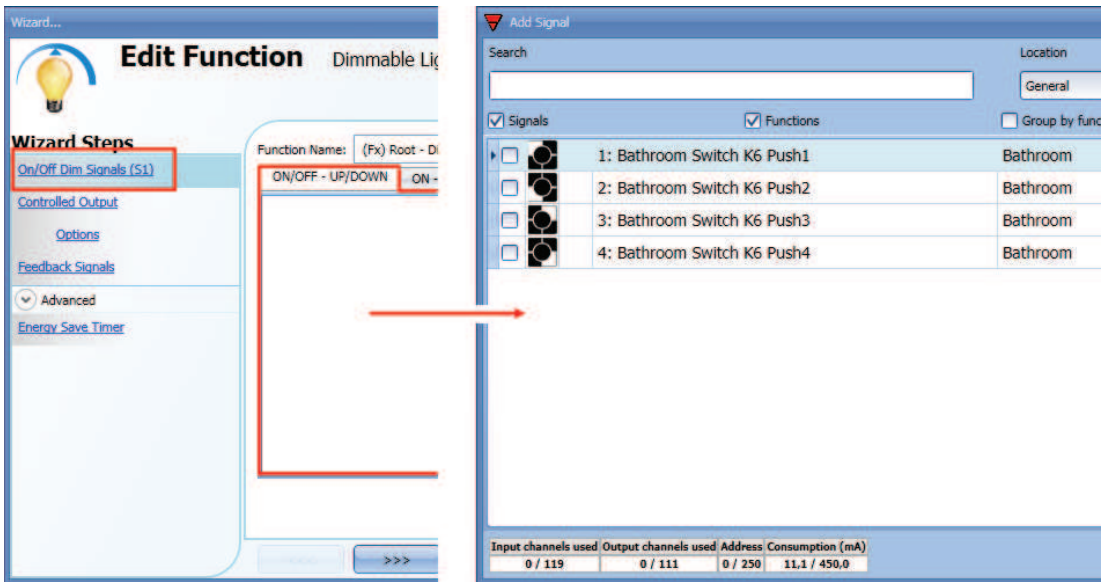
command might be a real signal such as a pushbutton, a function or a remote command (Webserver, sms, email, Modbus TCP/IP)

The automation of the Dimmable light function is managed by accessing the *Advanced* section (see picture below).
In the Advanced section the user can select different ways of controlling the dimmable light: according to the ambient light, the presence of people, with timers and/or schedulers. Up to 5 different predefined scenarios can be set.

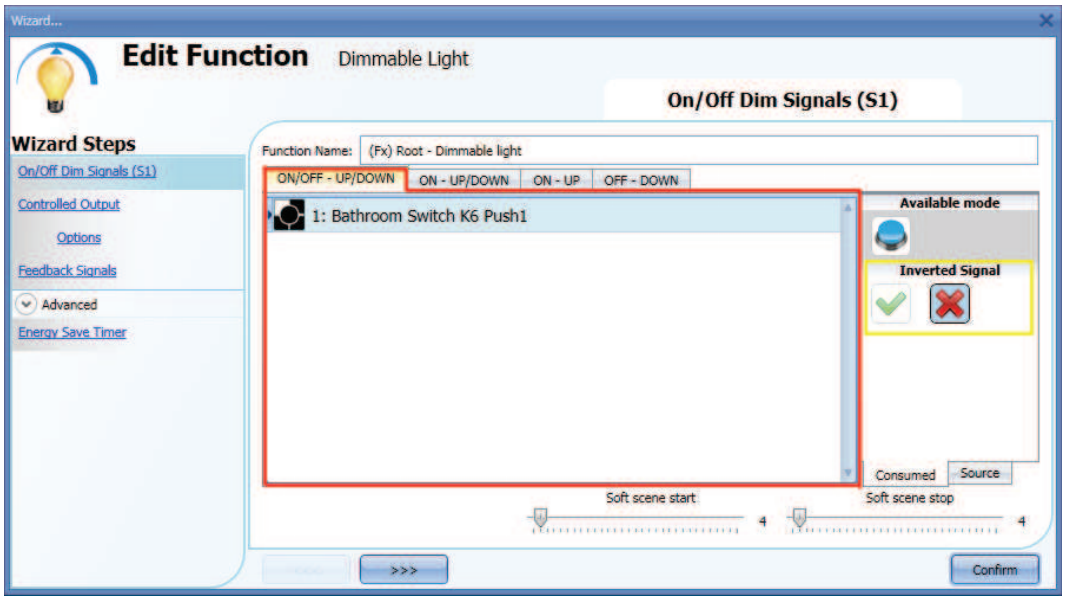


10.2.1 How to dim a light with input commands

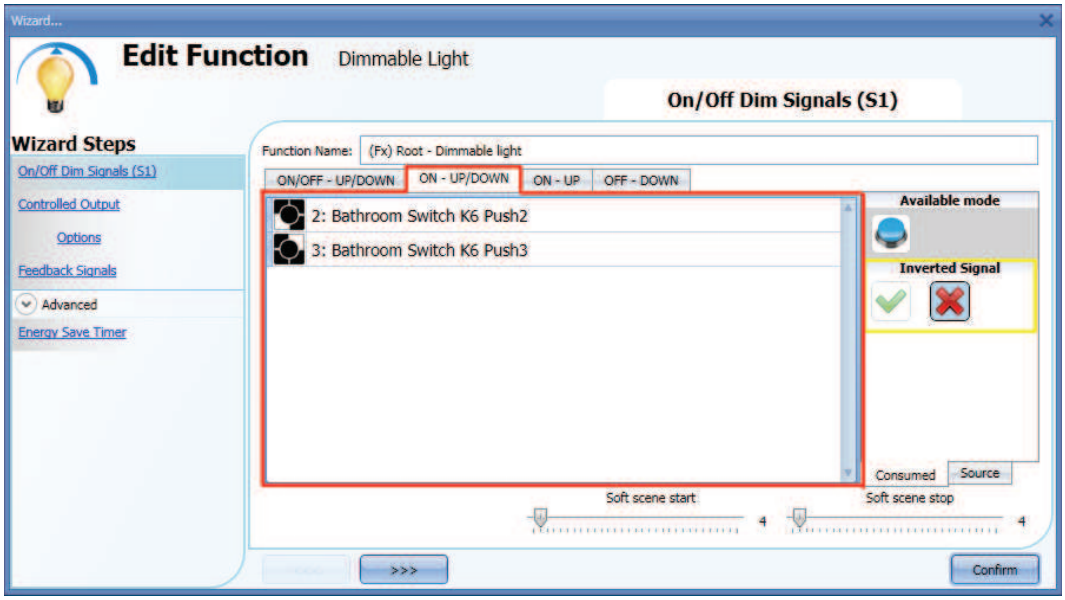
First of all, the user has to add the input signals to control the dimmable light in the *On/Off Dim Signals (S1)* field.
The input signal can be a pushbutton or a switch and can manage both the ON/OFF switching and the light level adjustment in different ways, according to the field where it is added.
The input signal window is split into four sections: each section has different ways to manage the output. The user should select the required one, then double click on it and add the input signal from the list.



Section 1: ON/OFF-UP/DOWN
The light is switched On/Off with a short click (input active for a period shorter than 1 second). When the light is on, by keeping the input active for more than 1 second, the light level starts going up/down.
Each time the light reaches the maximum/minimum level, the ramp is inverted. In the Signal setting window, the user can also enable the reversing of each added signal (See yellow rectangle).

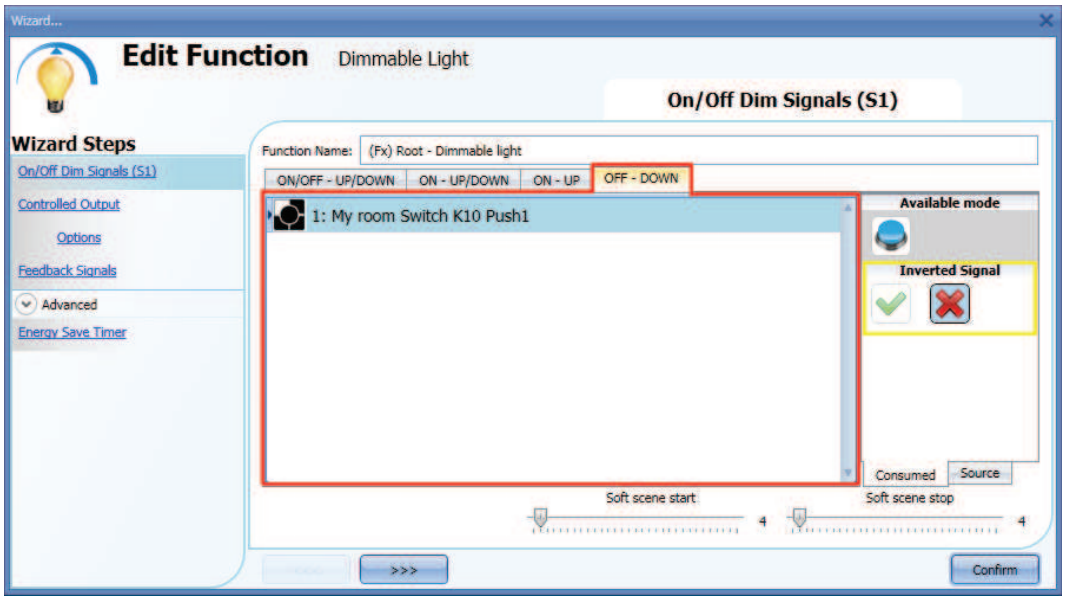


Section 2: ON-UP/DOWN
The short click only switches on the light (input active for a period shorter than 1 second). When the light is on, by keeping the input active for more than 1 second, the light level starts going Up/Down. Each time the light level reaches the maximum/minimum level, the ramp is inverted. In the Signal setting window, the user can also enable the reversing of each added signal (See yellow rectangle)



Section 3: ON-UP
The short click only switches on the light (input active for a period shorter than 1 second). When the light is On, by keeping the input active for more than 1 second, the light level will start going up until the maximum level is reached. In the Signal setting window, the user can also enable the reversing of each added signal (See yellow rectangle).

Section 4:OFF-DOWN
The short click only switches off the light (input active for a period shorter than 1 second). When the light is On, by keeping the input active for more than 1 second, the light level will start going down until the minimum level is reached. In the Signal setting window, the user can also enable the reversing of each added signal (See yellow rectangle)

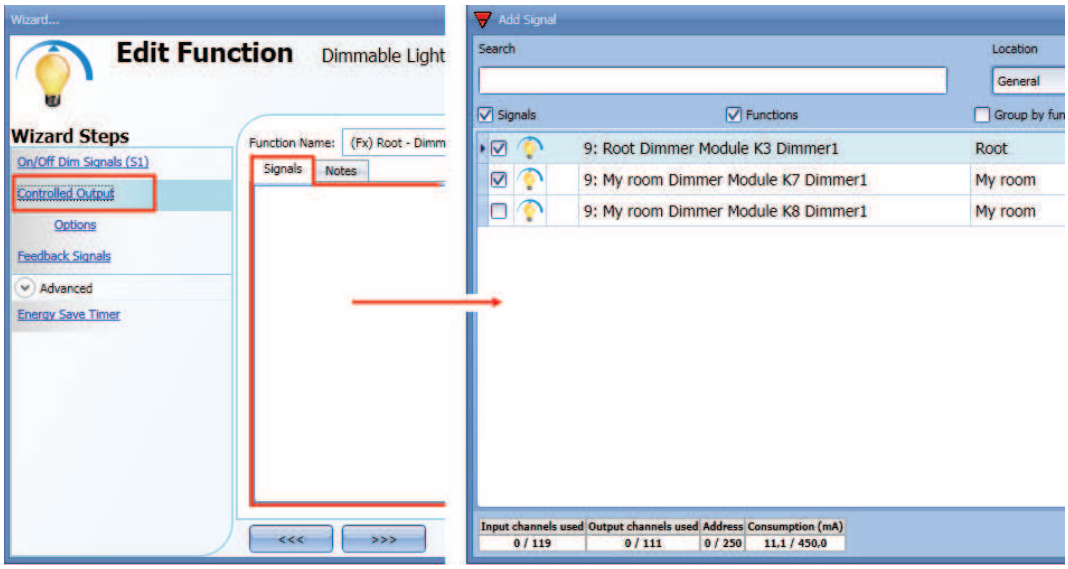


The user can set the soft scene start/stop: this is a common setting used for all input signals.

Soft scene start (s):
the user can define the ramp time for switching on the light (see Scene selection paragraph for more details).
Soft scene stop (s):
the user can define the ramp time for switching off the light (see Scene selection paragraph for more details).

10.2.2 How to select a dimmable output

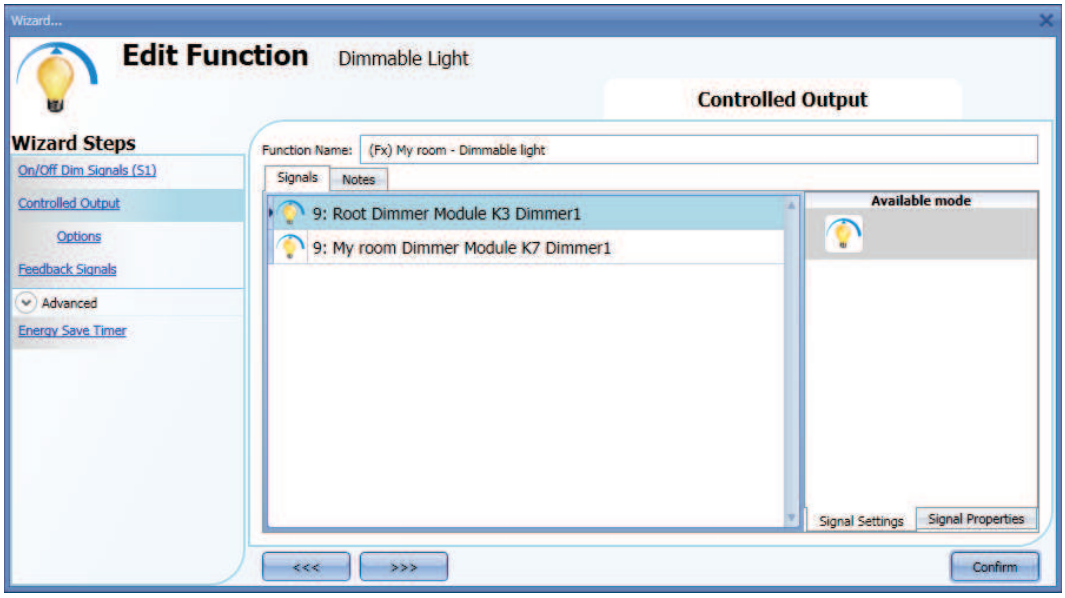
To select the output signal that is controlled by the dimmable light function, click on *Controlled output* and then double click on the Signal window. Once the output window is opened, select the relevant outputs from the list.



The signals available in the output window are only Dimmer output type.
Up to 50 signals can be chosen and they are managed in parallel.

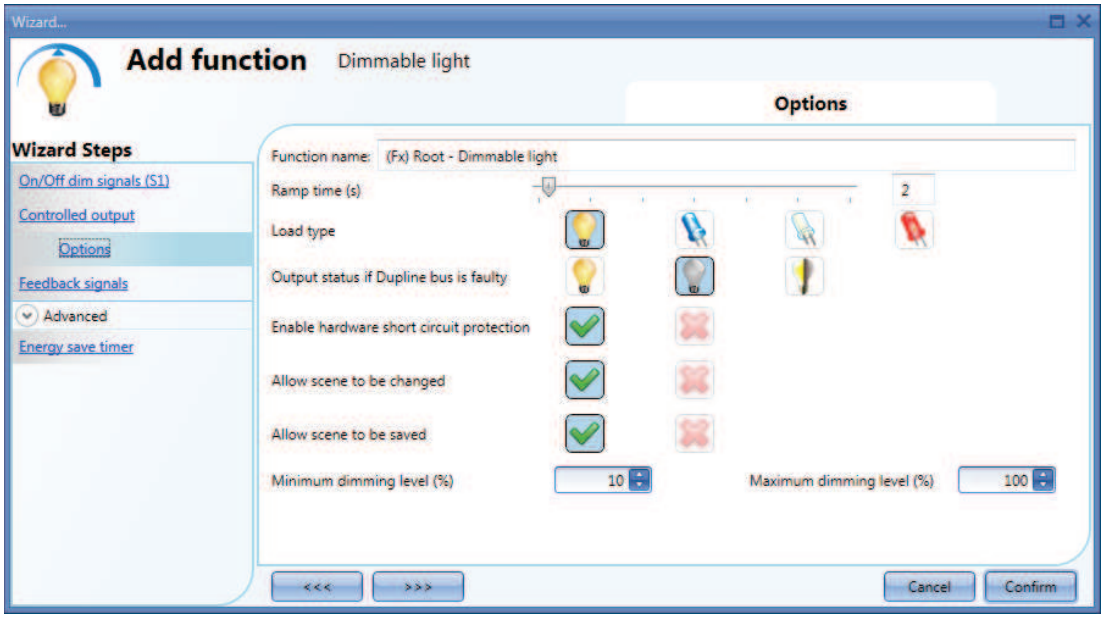
If an output from a 1-10V dimmer is selected, a relay output has to be connected to the relevant ballast to control ON and OFF. The relay output should be added in the advanced field *Ballast supply relay*.

N.B.: If more outputs are selected, they should be placed in the same dupline network.
Dimmer outputs placed in different networks cannot be added together in the same Dimmable function.



10.2.3 How to change settings and load type of the output

To select the settings of the output, the user has to click on *Options*.
If more outputs are selected, the settings are applied to all of them.



Ramp Time (s):
This is the required time to go from 0% to 100% when at least one input is active.
For example, if 10 seconds is set, once the light is on, this is the time the light will take to go from 0% to 100% and from 100% to 0% when the push button is kept pressed.
The ramp time is the same for all the dimmer outputs belonging to the same function.

Load type:
In this field the type of load connected to the dimmer module has to be selected. The load can be a standard RLC one (halogen lamp, inductive or electronic transformer, …), or a LED lamp.
The user can select from three different types of LEDs: please see the dimmer datasheet for more details on how to select the correct LED load.

Output status if the Dupline bus is faulty:
In this field the user can select the status of the output if the bus is faulty. The possible actions are: force the output into on status, force the output into the off status and memory: when the user selects memory, the output remains in the status it had before the loss of connection with the Dupline Bus. Each selected fail state action will be kept active until the Dupline bus signal returns.

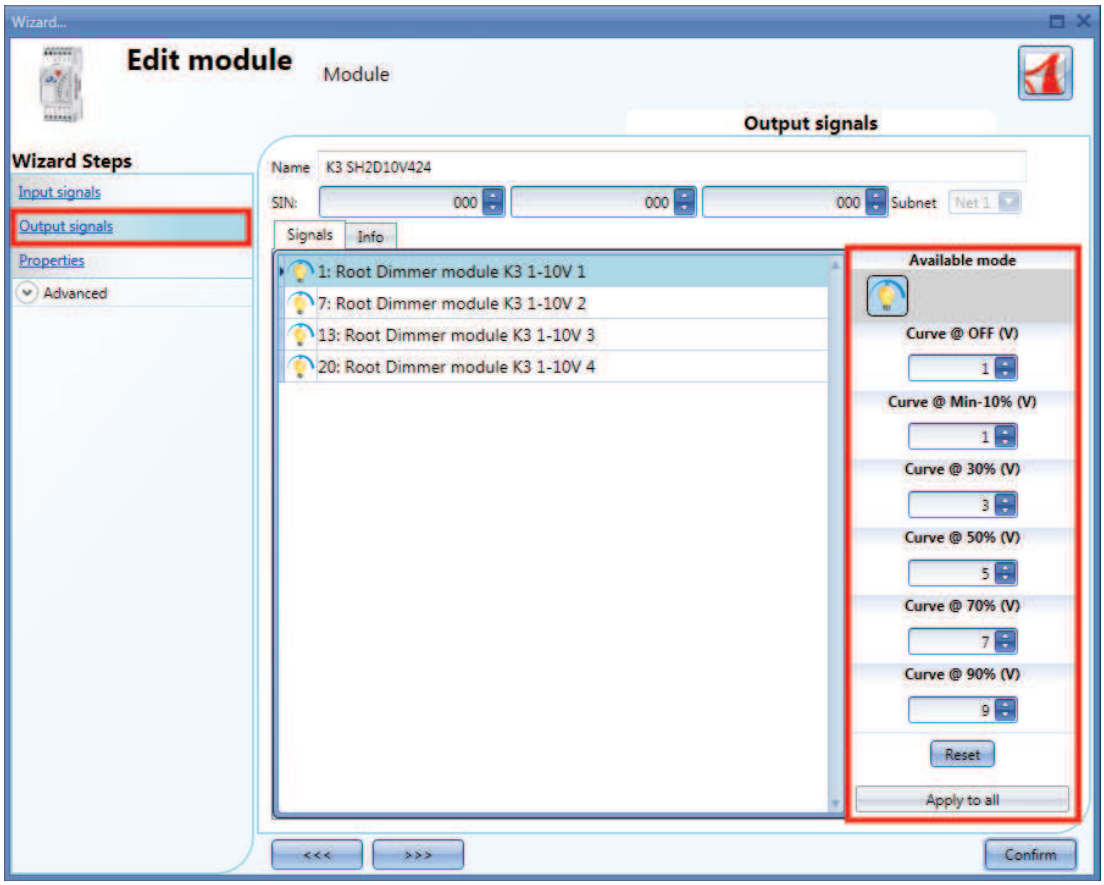
Enable hardware short circuit protection:
When this option is enabled (the green "V" is selected), the user will enable the hardware short circuit protection of the output Dimmer module. Otherwise (when the red "cross" is chosen), the user will disable the hardware protection.

Allow scene to be changed:
When this option is enabled (the green "V" is selected), the light level in all the scenarios will be modifiable when the input signal is activated. Otherwise (when the red "cross" is chosen), the user will not be able to change it (with the exception of scenario S1).

Allow scene to be saved:
When this option is enabled (the green "V" is selected), every time the dimmer is powered OFF, the current light level value is saved in the memory before the switching off of the module. Otherwise (when the red "cross" is chosen) the scenario is not saved and the power is switched OFF.

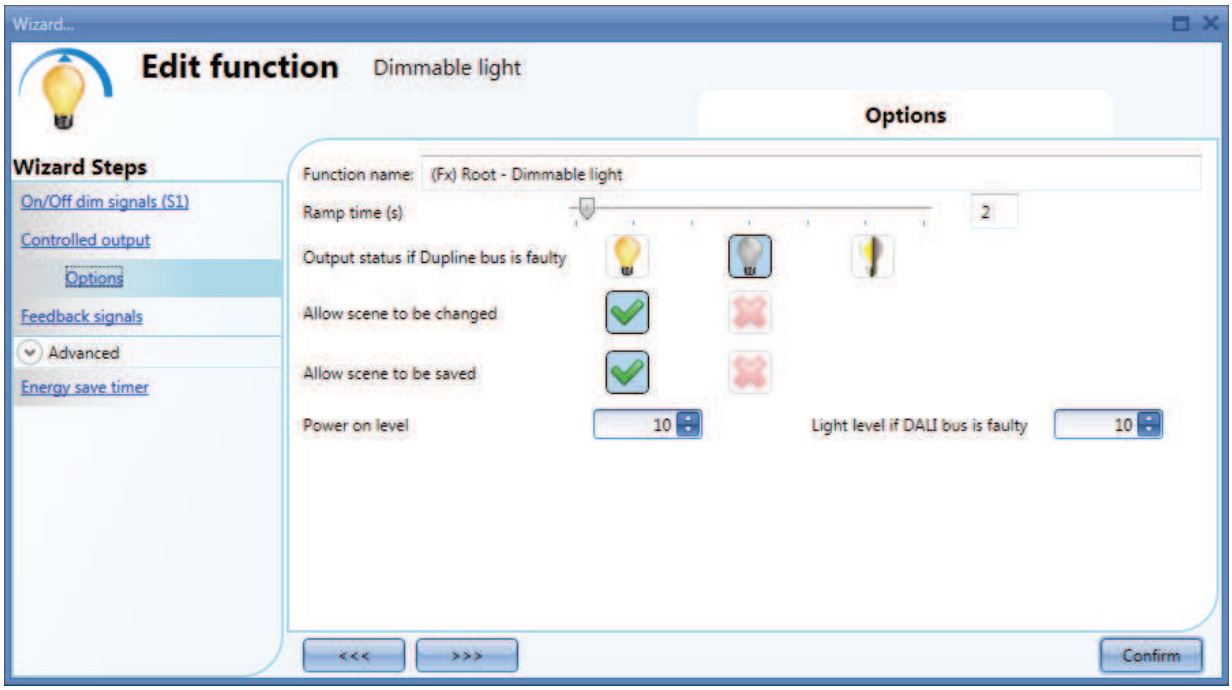
Minimum dimming level (%) and Maximum dimming level (%):
In the graph below the dimming curves are shown according to different type of loads.
By default, the minimum value that the dimmer can manage is 10% (values from 0 to 9 are reserved for scenarios), while the maximum value is 100%. This settings are valid for the 500 W dimmer.

N.B. If the SH2D10V424 dimmer is used, the relevant options of load type, enable hardware short circuit protection, min/max value, are not shown in the field Options of the dimmer function. The minimum-maximum value has to be managed in the wizard of the module, in the menu Output signals (see picture below):



10.2.4 How to change settings and load type of the DALI output

If the SB2DALI230 dimmer is used, the settings *Load type*, *Enable hardware short circuit protection*, *Min/max value* are not shown in the field *Options* of the dimmer function.
The available settings are shown in the picture below:



Ramp Time (s):
This is the required time to go from 0% to 100% when at least one input is active.
For example, if 10 seconds is set, once the light is on, this is the time the light will take to go from 0% to 100% and from 100% to 0% when the push button is kept pressed.
The ramp time is the same for all the dimmer outputs belonging to the same function.

Output status if the Dupline bus is faulty:
In this field the user can select the status of the output if the bus is faulty. The possible actions are: force the output into on status, force the output into the off status and memory: when the user selects memory, the output remains in the status it had before the loss of connection with the Dupline Bus. Each selected fail state action will be kept active until the Dupline bus signal returns.

Allow scene to be changed:
When this option is enabled (the green “V” is selected), the light level in all the scenarios will be modifiable when the input signal is activated. Otherwise (when the red “cross” is chosen), the user will not be able to change it (with the exception of scenario S1).

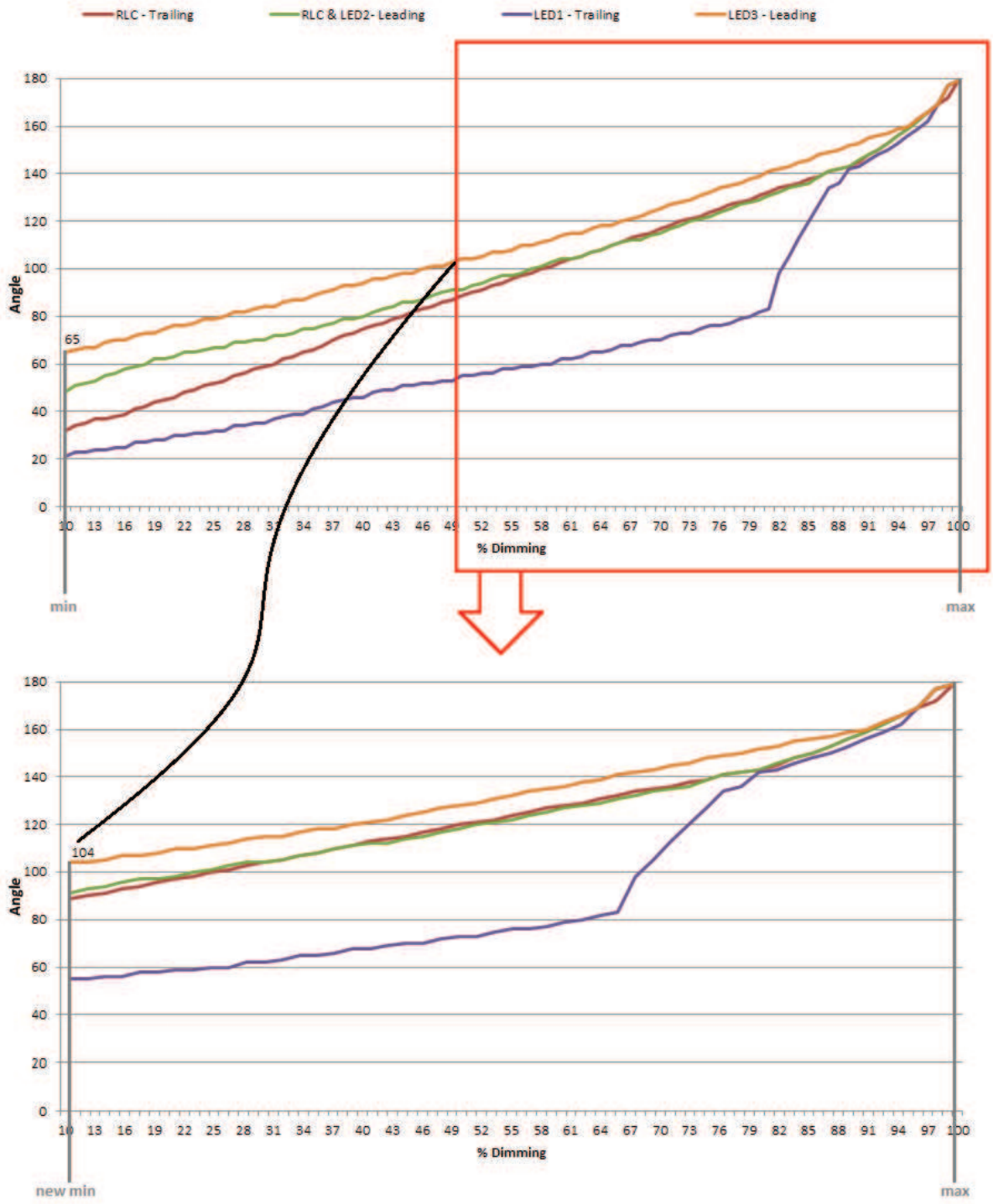
Allow scene to be saved:
When this option is enabled (the green “V” is selected), every time the dimmer is powered OFF, the current light level value is saved in the memory before the switching off of the module. Otherwise (when the red “cross” is chosen) the scenario is not saved and the power is switched OFF.

Power on Level:
In this field the user can select the value of the light when the ballast turns on waiting for the first DALI command.

Light level if DALI bus is faulty:
In this field the user can select the value of the output if the DALI bus is faulty. The output will be kept at the value set until the DALI bus signal returns.

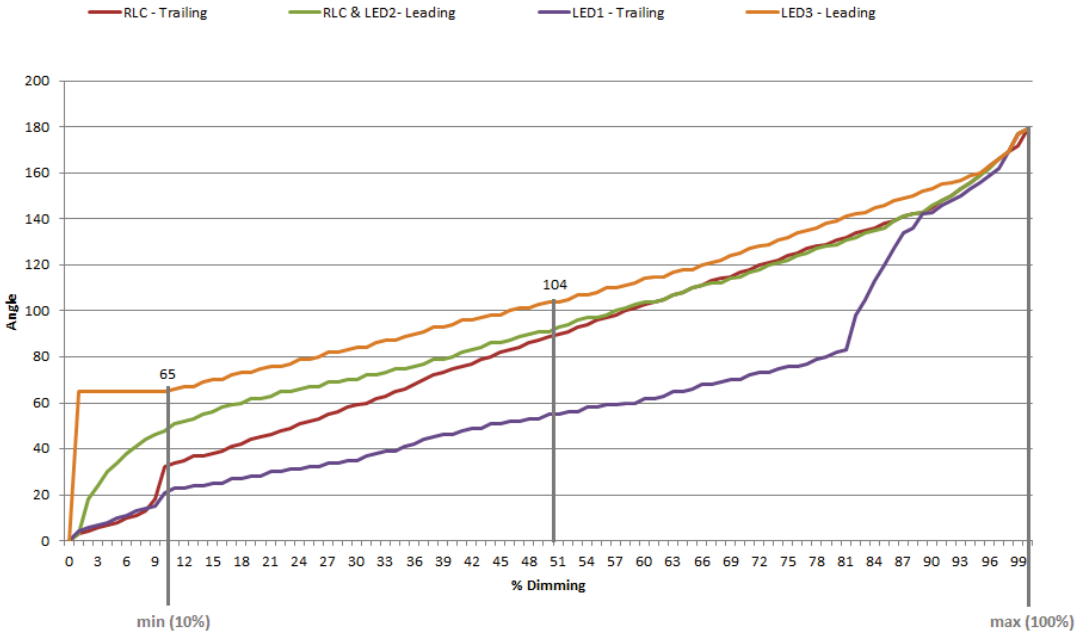
10.2.5 How to modify the minimum/maximum values of the dimming range

In the graph below, the minimum value has been changed to 50% and the new dimming output range is adapted according to the new minimum-maximum values; in this example the previous 50% now corresponds to the lower value the dimmer can manage (new min 10%), while the maximum level is still the same (100%).



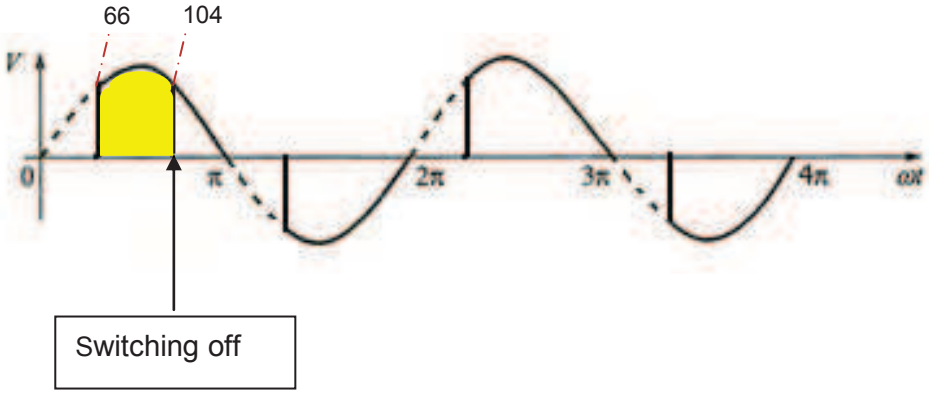
10.2.6 How the dimmer works

The technology used by SH2D500Wx230 is called phase cutting technology, which works by cutting off part of the mains voltage to modify the RMS voltage fed to the lamp. The brightness of the lamp can thus be controlled by increasing or decreasing the RMS voltage and thereby the power supplied to the lamp.



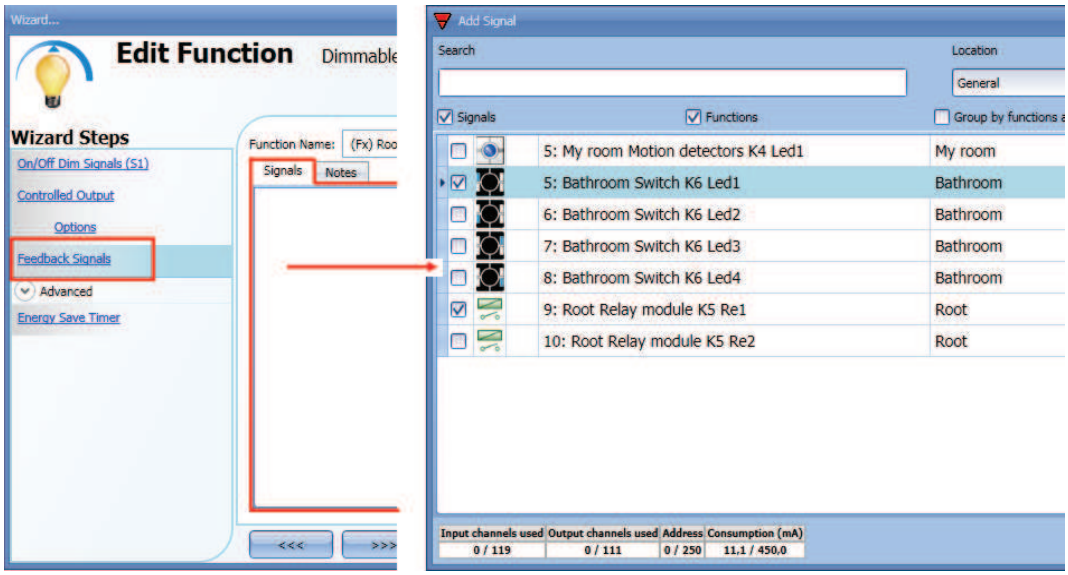
In this example the lighting circuit turns on at a phase angle of 66° (if 60° is the minimum angle to switch the lamp on, 66=60+10% is the minimum angle to switch it on without any flickering). Afterwards, if the minimum dimmer output is set at 50%, the minimum switching on angle will be 104° (see the graph above).
The maximum output is at 180°.

LEADING EDGE CUT OFF (L, R LOADS)

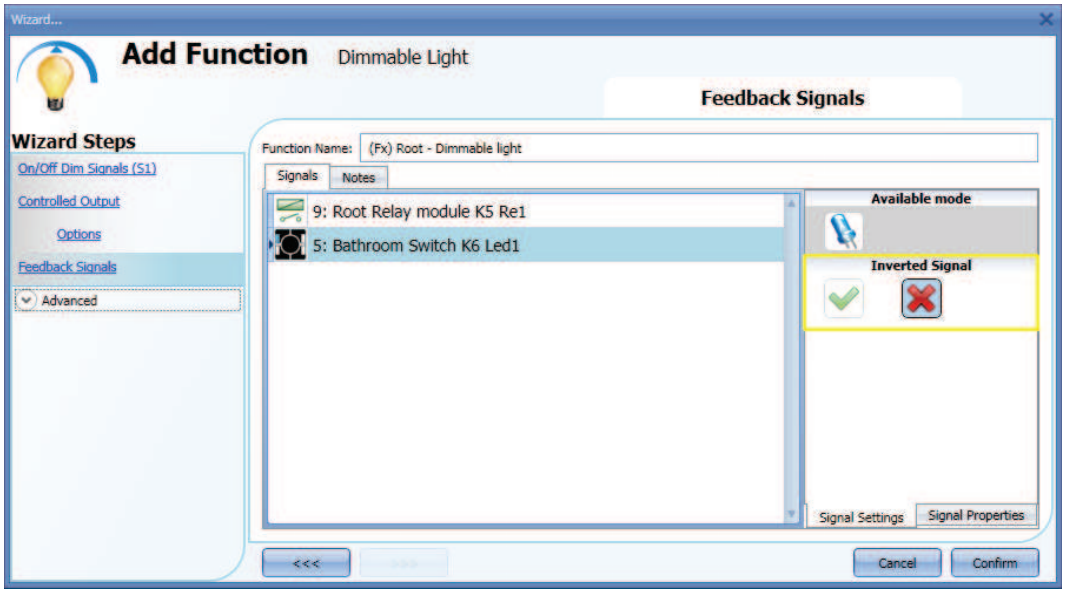


10.2.7 How to set a signal as feedback of the status of the function

To select the feedback signal that indicates the status of a function, click on *Feedback signals* and then double click on the Signals window.



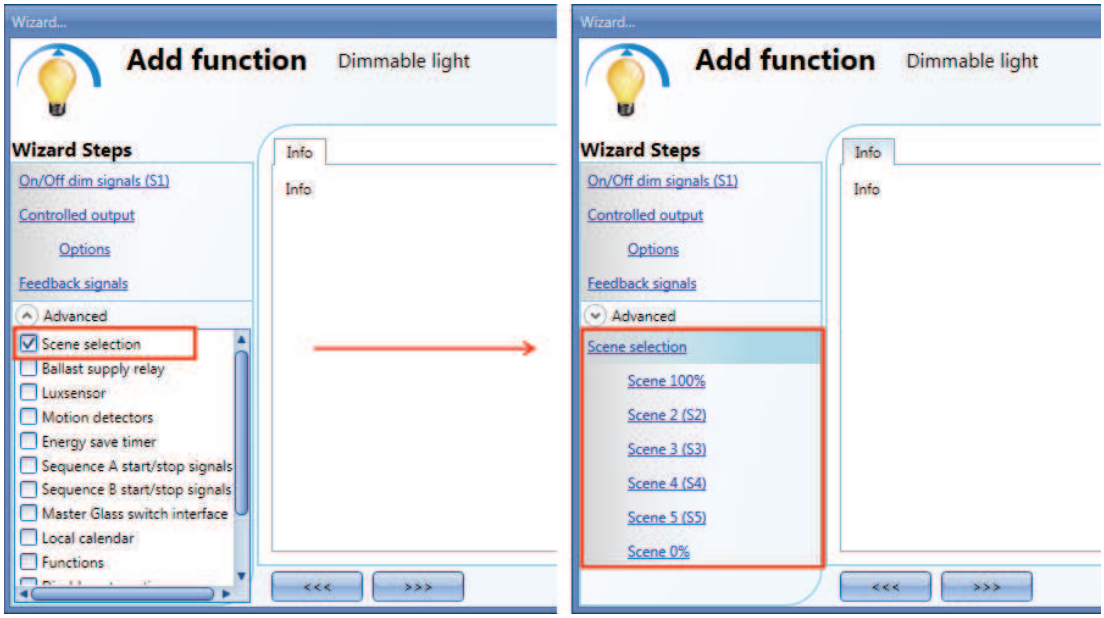
The signals available in this windows are LEDs and relays.
Up to 50 signals can be chosen and they will be managed in parallel.
The logic of each feedback signal can be set as normal or inverted (see yellow rectangle).



10.2.8 How to set predefined scenarios with input signals

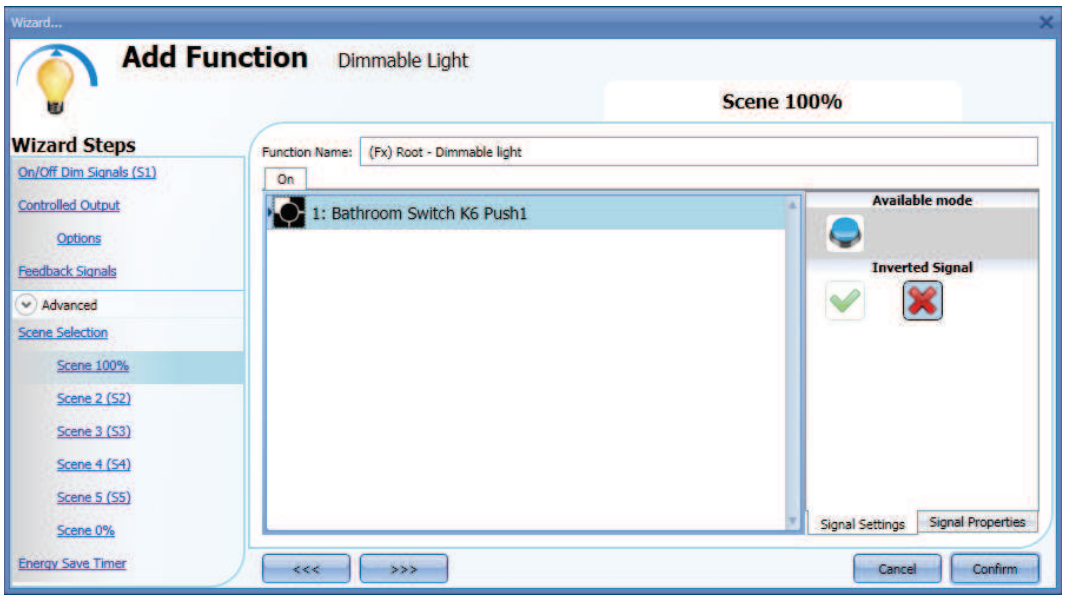
In this section, the user can customize different scenarios and select different input signals to activate them. There are two scenarios that are not editable (Scene 100% and scene 0%). Here the user can only set the signals that activate them.
All other scenarios are editable. The user can set different output percentages and different timings for the soft start/stop.
Each scenario can be activated manually by adding an input signal in the signals window, or it can also be activated by different automations such as PIR sensors, Lux sensors or Calendar.

The first thing to do to use different Scenarios is to enable them in the *Advanced* section.
The user should go to the advanced steps of the function and then check *Scene selection*. The user can select the scenario from the list, then with a double click in the signals field can add one or more inputs to activate the scenario.



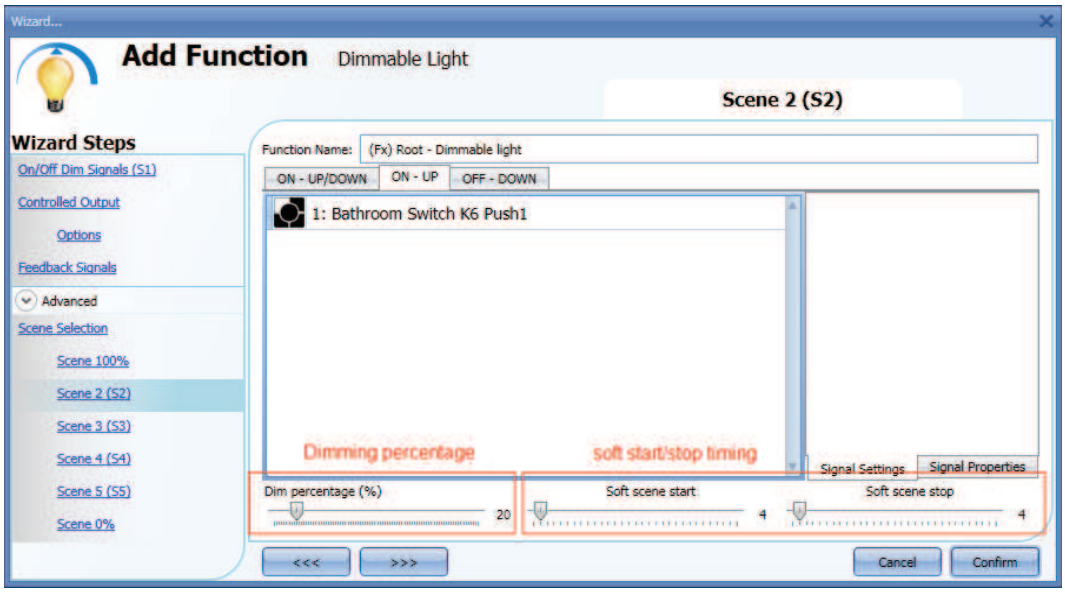
10.2.8.1 Scene 100%

When the scenario scene 100% is selected, all signals added in the window 'signals' will switch the light ON at the highest light level with a short press (input activated and deactivated within 1 s).
It is not possible to dim this scenario and the soft start and soft stop times are the same as scenario S1.
In the picture below, a simple example is shown of how to set a pushbutton to activate the scenario 100%. Each time the pushbutton 1 is activated, the light level will be increased to the maximum value.



10.2.8.2 Scene 2 (S2)

The *Scene 2* window is split into three sections: each section has a different way to manage the output. The user should select the relevant sections, then add an input signal with a double click on the *Signal* window and then select the input from the list of available signals.



Section 1: ON-UP/DOWN
The light is switched On with a short press (input activated and deactivated within 1 s). When the light is on, by keeping the input active for more than 1 second, the light level will start going Up/Down until the

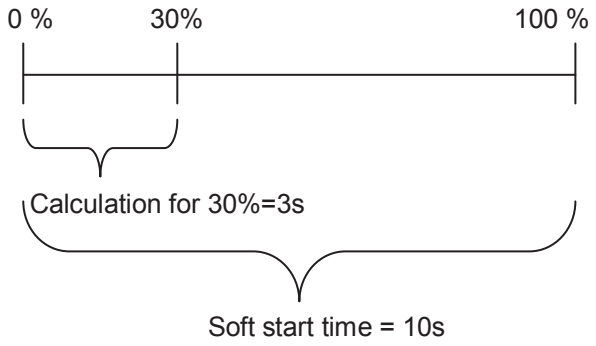
input signal is active. In the Signal setting window, the user can also enable the reversing of each added signal.

Section 2: ON-UP
The light is switched On with a short press (input activated and deactivated within 1 s). When the light is on, by keeping the input active for more than 1 second, the light level will start going up. When the light level reaches the maximum level (100%), the dimming is stopped.

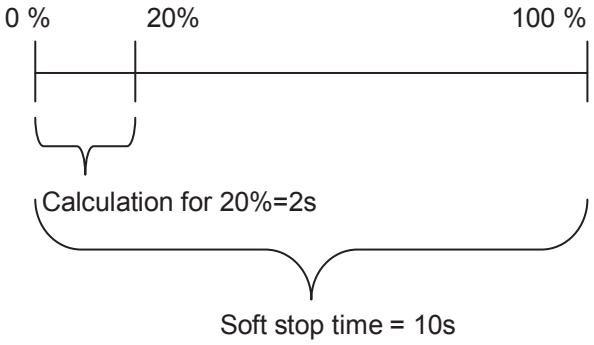
Section 3: OFF-DOWN
The light is switched Off with a short press (input activated and deactivated within 1 s). When the light is on, by keeping the input active for more than 1 second, the light level will start going down. When the light level reaches the minimum level (10%), the dimming is stopped.

Dim percentage (%)
The user can set the dimming percentage value when scenario 2 is activated.
This value is stored in the dimmer module but can be overwritten with a long press on the input signal (if the option “Allow to change scenes” is enabled in the Controlled output options).

Soft scene start (s)
The soft start time is the time the dimmer output takes to change the output from a value of 0% to a value of 100%. This time is adapted according to the percentage value set in the scenario.
For example, if the soft start time of scene 2 is set to 10s and the percentage is set to 30%, the light will be switched on at 30% after 3s (calculation 100:10=30:x).

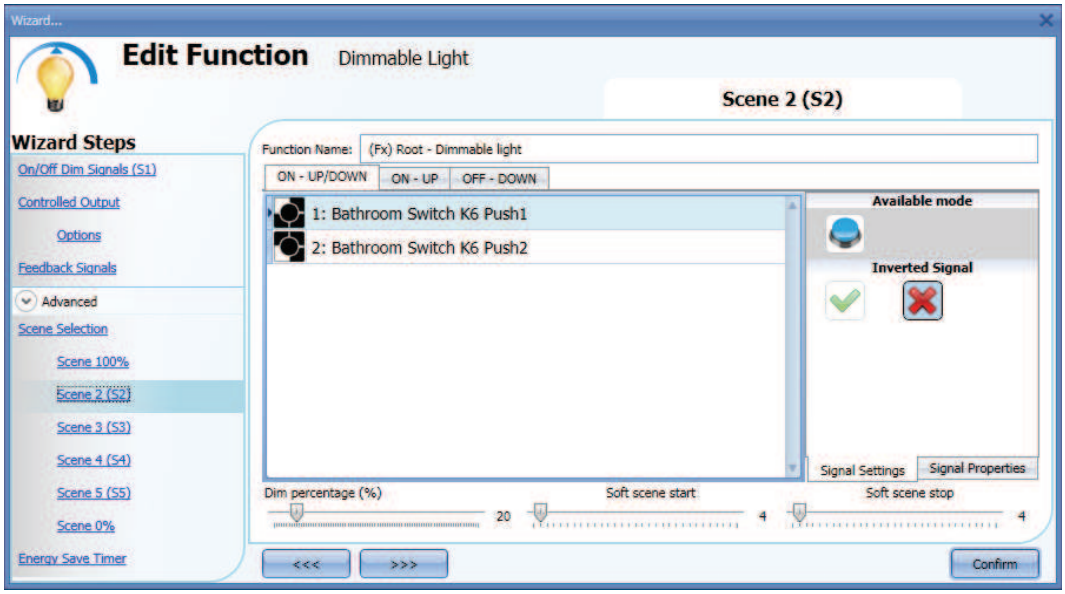


Soft scene stop (s)
The soft stop time is the time the dimmer output takes to change the output from a value of 100% to a value of 0%. This time is adapted according to the percentage value set in the scenario.
For example, if the soft stop time of scene 2 is set to 10s and the percentage is set to 20%, the light will be switched off after 2s (calculation 100:10=20:x).



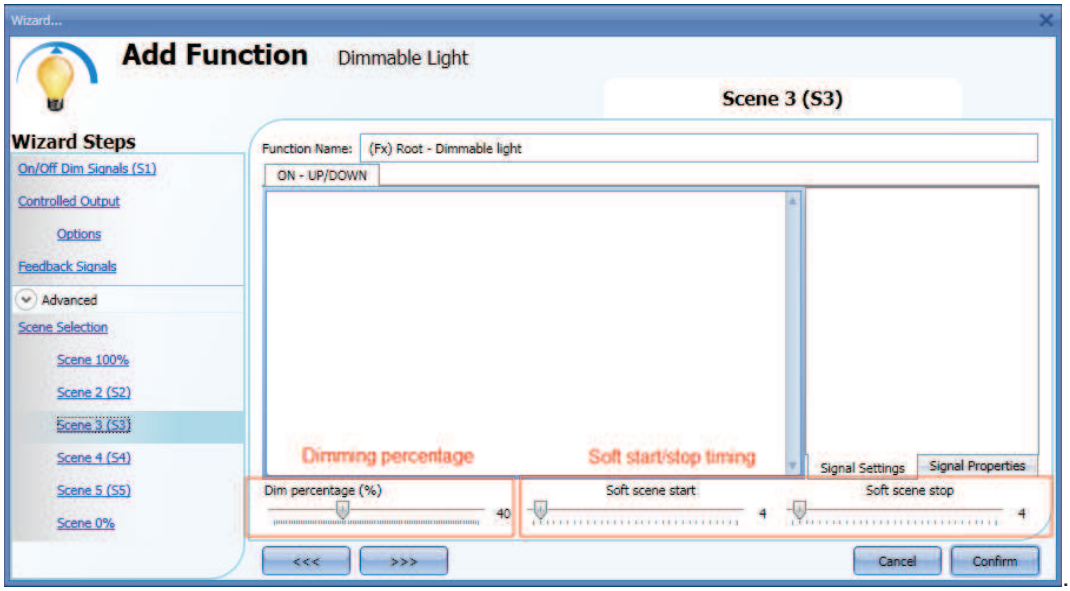
In the example below, the user has set two pushbuttons for the manual activation of scenario 2, the dimming percentage is set to 20% and both soft start and stop are set to 4 s.

Each time the pushbuttons 1 or 2 are activated with a short press, the light level will be set to 20 %. If they are activated with a long press, the light level starts dimming Up/Down.



10.2.8.3 Scene 3 (S3)

The *Scene 3* window has a single section. The user can add one or more input signals with a double click on the *Signal* window and then select the input from the list of available signals.

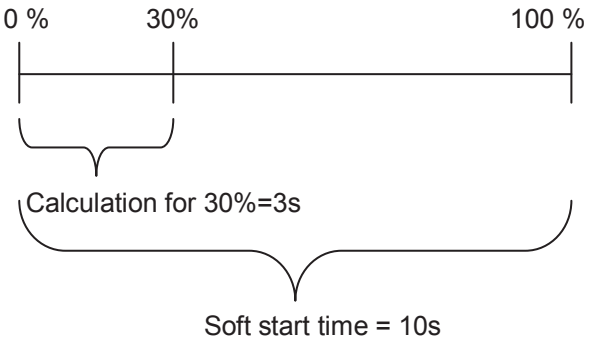


Section 1: ON-UP/DOWN

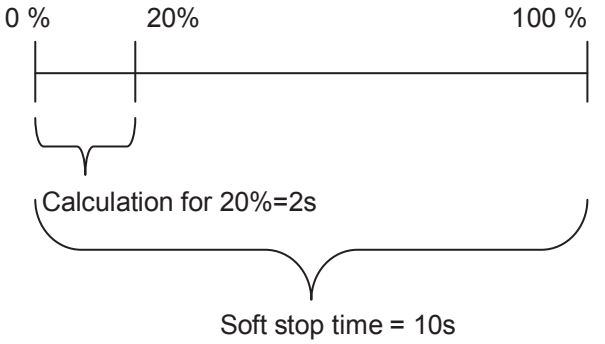
The light is switched On with a short press (input activated and deactivated within 1 s). When the light is on, by keeping the input active for more than 1 second, the light level will start going UP/Down. Every time the light level reaches the maximum/minimum level, it starts going UP/Down again until the input signal is active. In the Signal setting window, the user can also enable the reversing of each added signal.

Dim percentage (%)
The user can set the dimming percentage value when scenario 3 is activated.
This value is stored in the dimmer but can be overwritten with a long press on the input signal (if the option *Allow to change scenes* is enabled in the Controlled output options).

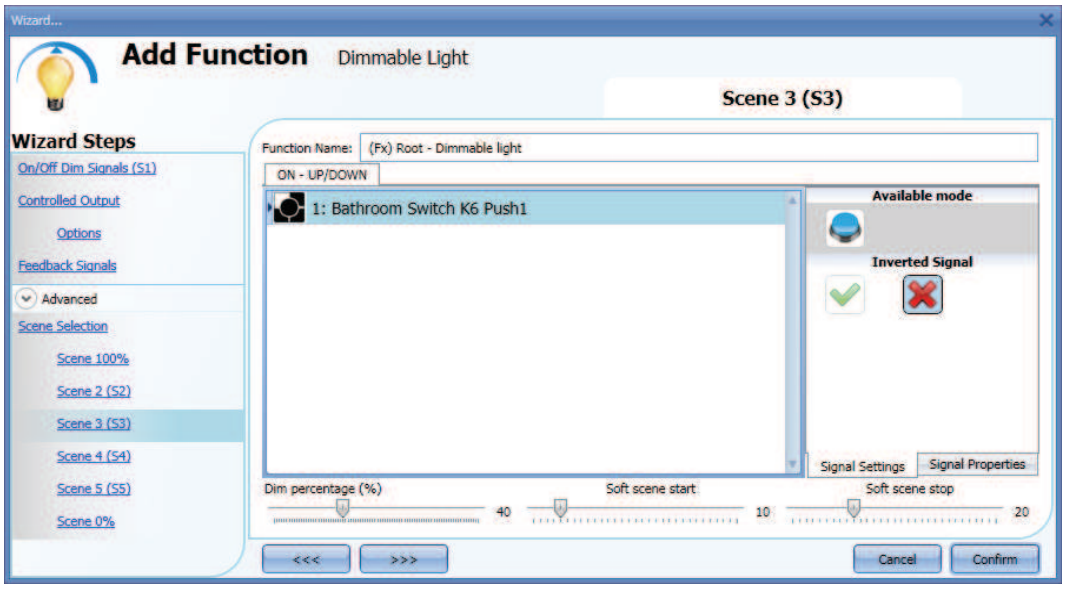
Soft scene start (s)
The soft start time is the time that the dimmer output takes to change the output from a value of 0% to a value of 100%. This time is adapted according to the percentage value set in the scenario.
For example, if the soft start time of Scene 3 is set to 10s and the percentage is set to 30%, the light will be switched on at 30% after 3s (calculation 100:10=30:x).



Soft scene stop (s)
The soft stop time is the time that the Dimmer output takes to change the output from a value of 100% to a value of 0%. This time is adapted according to the percentage value set in the scenario.
For example, if the soft stop time of Scene 3 is set to 10s and the percentage is set to 20%, the light will be switched off after 2s (calculation 100:10=20:x).



In the example below, the user has set one pushbutton for the manual activation of scenario 3. The output dimming percentage is set to 40%, the soft start is 10s and the soft stop is 20s.
Each time pushbutton 1 is activated with a short press, the light level will be set to 40%. If the light is on and the input signal is kept activated, the light level starts dimming Up/Down until the pushbutton is released.



10.2.8.4 Scene 4 (S4)

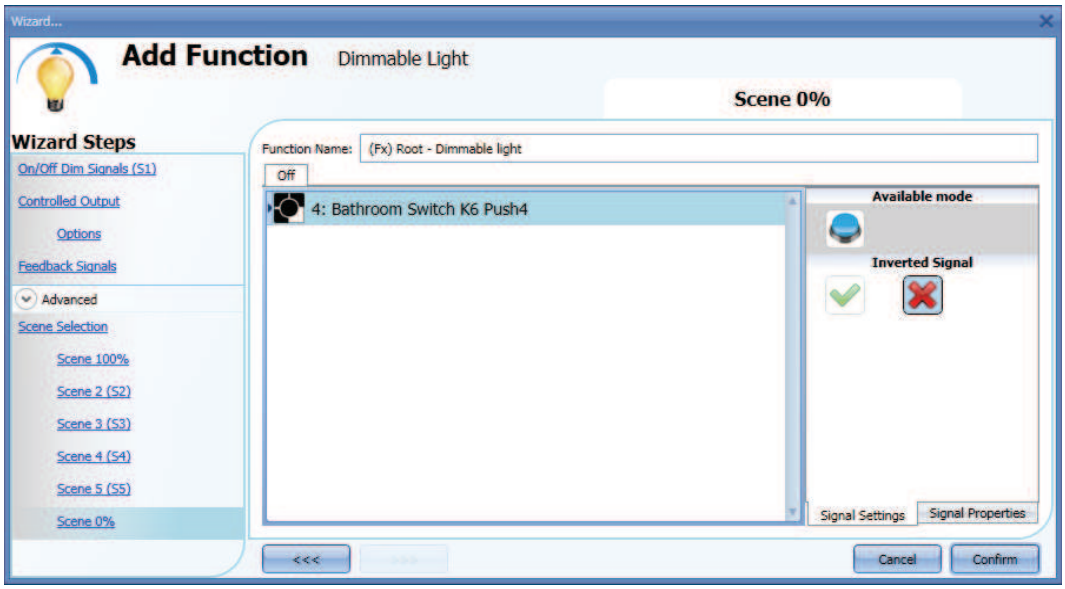
This scenario is managed in the same way as scenario 3.

10.2.8.5 Scene 5 (S5)

This scenario is managed in the same way as scenario 3.

10.2.8.6 Scene 0%

When scenario *Scene 0%* is selected, all signals added in the window Signals will switch the light off with a short press (input activated and deactivated within 1 s).
It is not possible to dim this scenario. The soft start and soft stop timing used are the same as scenario S1.
In the screen below, a simple example is shown of how to set a pushbutton to activate the scenario 0%. Each time pushbutton 4 is activated, the light is switched off.



10.2.9 How to manage lights automatically

The automatic on/off switching of the light can be managed by PIR sensors (the light will be switched ON when the PIR sensor detects people movement/presence), by calendar functions (calendar to switch the light on/off at pre-defined time intervals) or by lux meters switching the light on or off according to the level of ambient light.
All these automations can be enabled in the *Advanced* section.

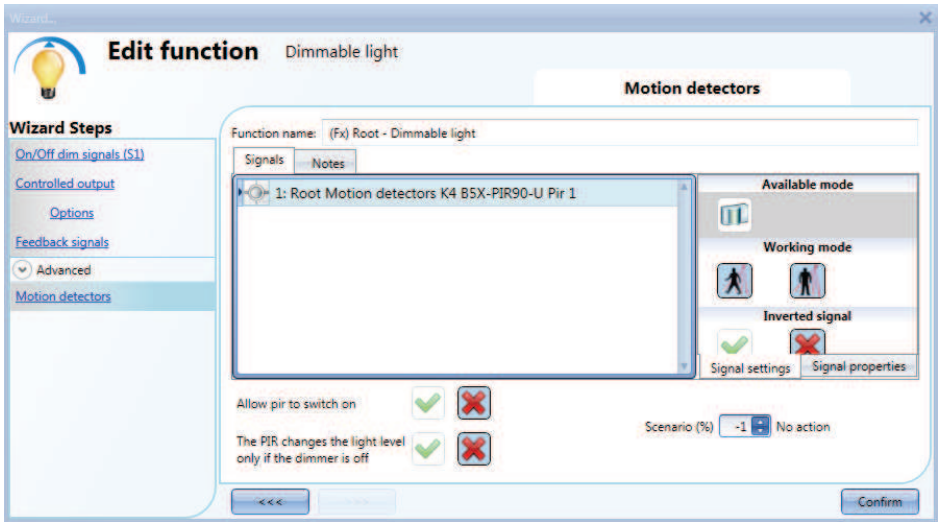
10.2.10 How to select a PIR sensor to control scenario

The motion detector sensor can be used to perform different functions:

- switching the light on, on movement detection.
- adjusting the light level to a predefined value.
- switching the light off if no presence is detected within a time interval.
- Starting a sequence that manages the activation of different scenarios

To set and mount a PIR sensor correctly, please read here.
The first thing to do when a PIR sensor needs to be used in a dimmable function is to enable it in the *Advanced* section.
The *Motion detector* menu will appear. After selecting it, with a double click on the Signal window, the list of available signals will appear.
Select the required signal/signals and click on *Confirm*. Up to 50 signals can be selected and the system will perform a logical OR of all of them.

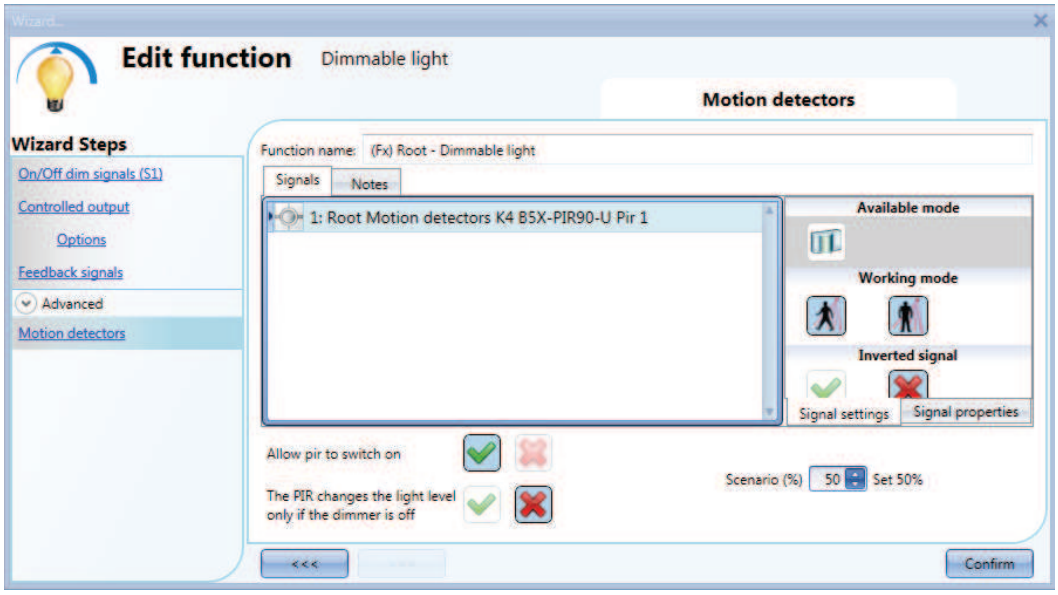
Once the PIR sensor is added, the user can also choose to invert the signal by selecting the green *V* below *Inverted signal*, in the Signal Setting tab window.



10.2.11 How to turn a light ON with PIR sensors, and turn it OFF manually

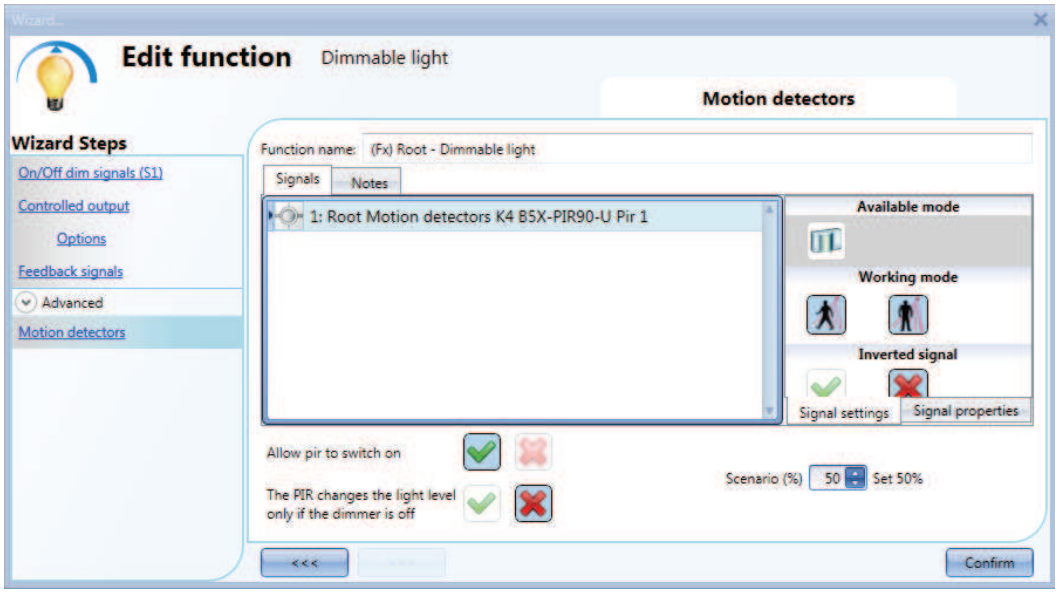
In order to create this easy automation, the user must select at least one input signal for the manual command, one output signal to control the load and then a PIR sensor in the Advanced section.
In this case the light will not be switched OFF automatically if no presence is detected, so the energy-save timer must not be used in the Advanced section.

Once the PIR signal is entered, the user should select the green “V” in the option “Allow the PIR to switch on”. In this way, each time the PIR detects movement, the light will automatically be switched ON.
The user can also select the light percentage value of the output when the PIR detects movement and switches the light on. The event command can be selected from: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 10% to 100% (6-7-8-9 set to 10% that is the minimum value in order not to have the LED bulb flickering).
In the example below, the PIR is set to switch the light on at 50%.



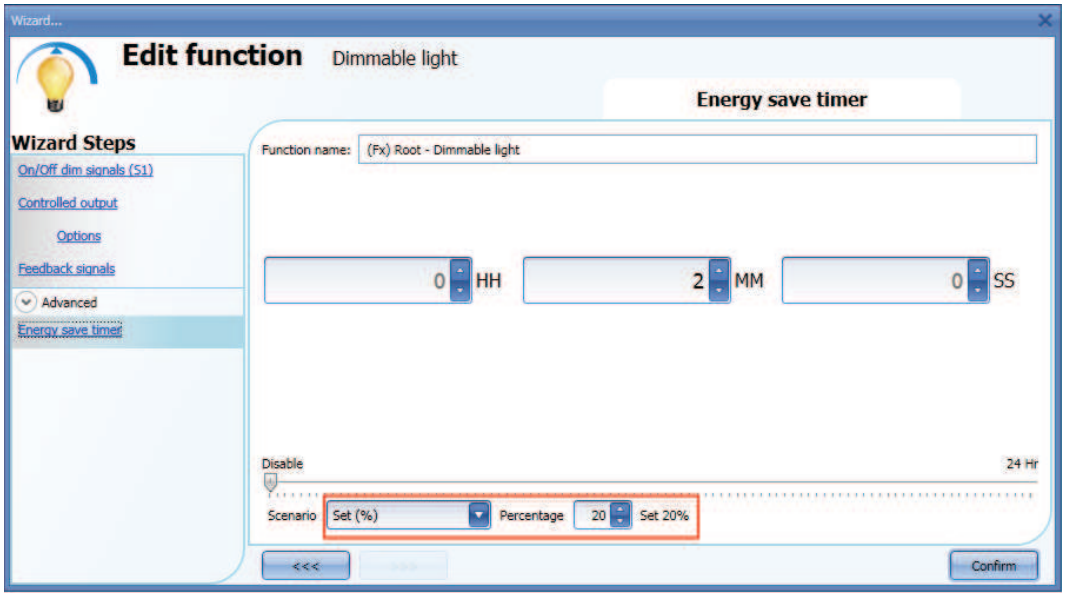
10.2.12 How to turn a light ON with PIR sensors, and change the scenario after a predefined period

The first step is to add the output signal, then to add a PIR sensor with the option “Allow PIR to switch on” enabled, in the picture below the PIR is set to switch the light on at 50% when movement is detected.



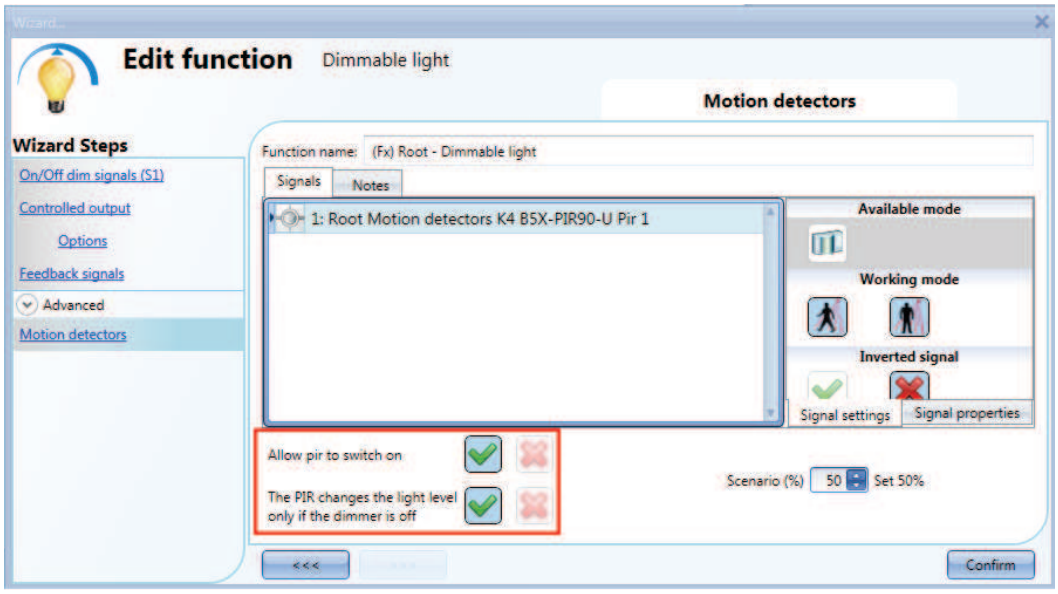
Every time the PIR detects movement, the light level is set to 50%, regardless the previous level reached by the function.

When the PIR is entered the energy-save timer must be set in order to change the current scenario when time elapses.
To set an energy-save timer, select *Energy save timer* from the Advanced section, change the timing by moving the slider or typing hours, minutes and seconds, select the action to be performed at the end of the timer (Set %), select the percentage and then press confirm.
In the picture below the energy save timer is configured to set the light level to 20% 2 minutes after the PIR stop detecting presence.

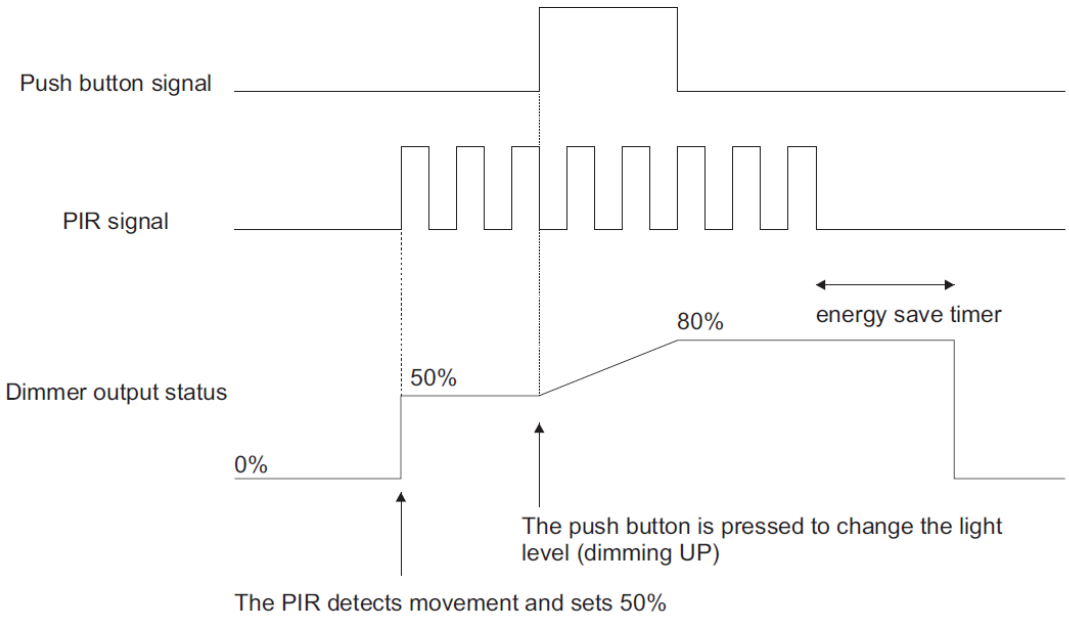


10.2.13 How to turn a light ON with PIR sensors, and change the light scenario manually when PIR detects movement

The first step is to add the output signal, then to add a PIR sensor with the options “Allow to switch on” and “The PIR changes the light level only the dimmer is OFF” enabled, in the picture below the PIR is set to switch the light on at 50% when movement is detected.



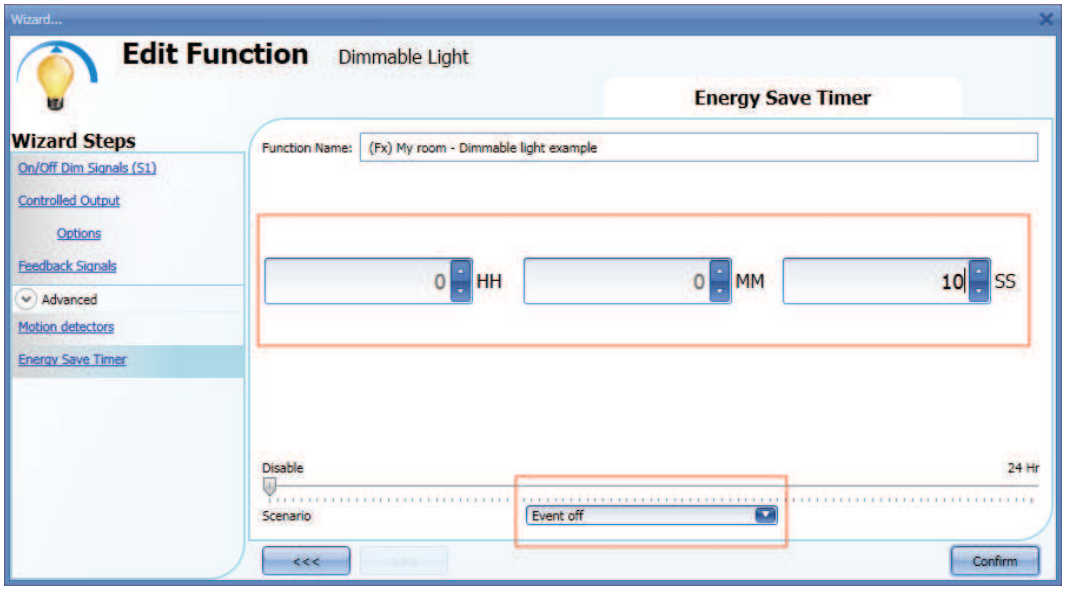
By using the above settings the Dimmer function will work in this way: if the light is OFF and the PIR detects the movement, the light level is set to 50%, then it is possible to adjust the light level of the function using the pushbuttons, for example to 80%. When the light is ON and the light level is changed, the PIR doesn’t set the 50% when the movement detected.
If an energy save action is used, the light is switched off automatically when time elapses.



10.2.14 How to turn a light on and off with PIR sensors

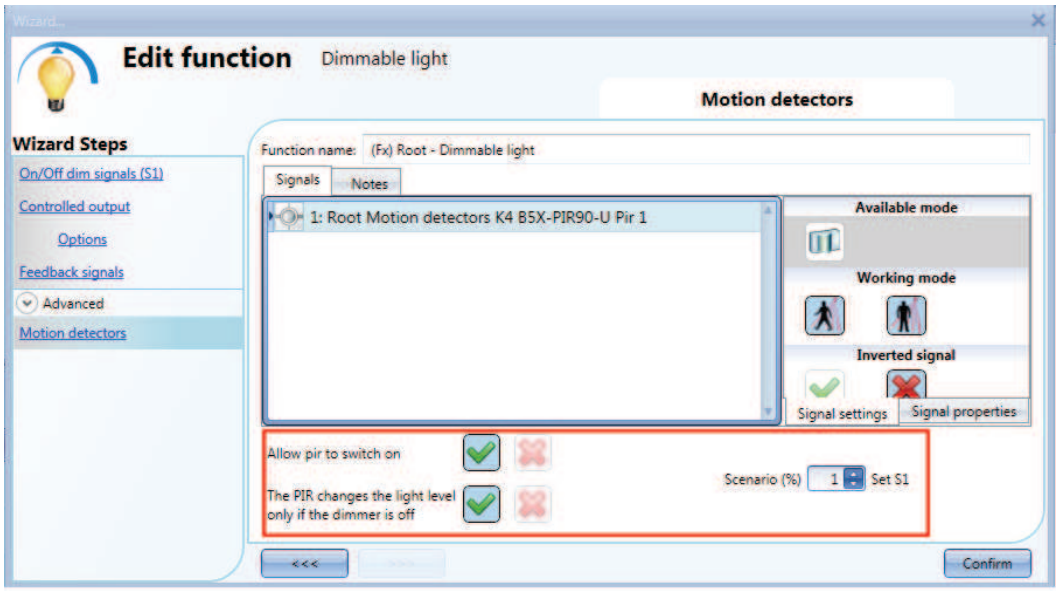
An example of this automation could be in a corridor: when the user enters the corridor the light is switched on and the energy-save timer starts counting; while the user is in the corridor the light stays on and the energy-save timer is continuously reloaded; when the user leaves the corridor and the timer expires, the light is switched off automatically.

The first step is to add the output signal, then to add a PIR sensor with the option “Allow to switch on” enabled, and then to set an energy-save timer to switch the light off automatically when no presence is detected.
To set an energy-save timer, select *Energy save timer* from the Advanced section, change the timing by moving the slider or typing hours, minutes and seconds, select the action to be performed at the end of the timer (event off), then press confirm.
The energy-save timer starts counting when no presence is detected. Each time presence is detected the timer is reloaded. When the timer expires the light is switched off.



10.2.15 How to change scenario with a PIR

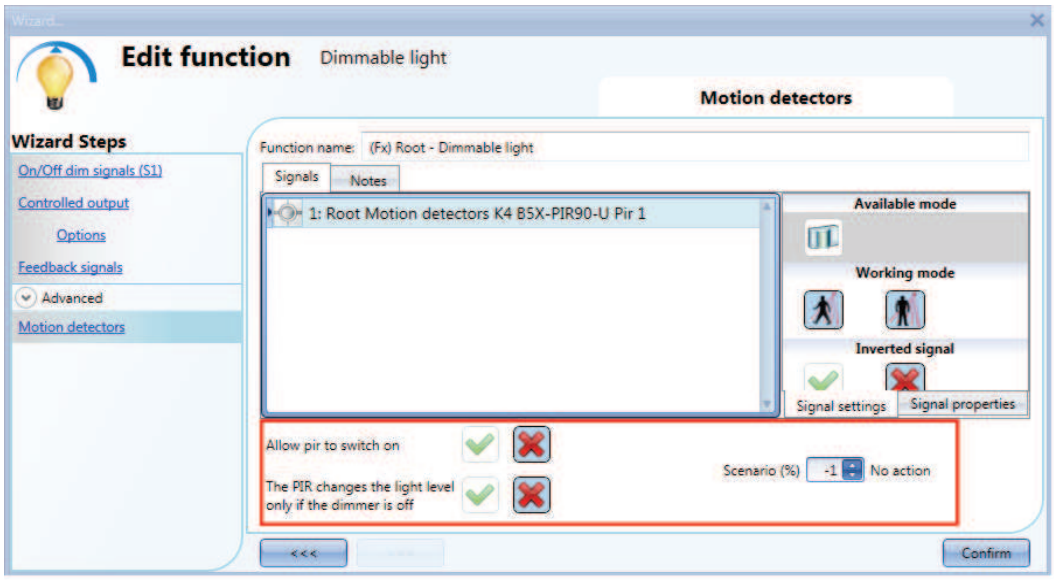
The PIR sensor can change the current scenario when movement is detected. The user should type the value of the scenario in the *Scenario %* field: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 6% to 100%.
In the example below, the user has set the PIR K4 to switch the light on at scenario S1: each time the PIR switches the light On, the light level of the output is the last valid value stored in scenario S1. The same rule is valid for all other scenarios.



10.2.16 How to switch the light on manually and off with the PIR sensor

An example of this automation is an office where the employees sometimes forget to switch the light off when they leave the office. When the PIR stops detecting presence in the office, the energy-save timer starts counting and when it expires, the light is turned off.

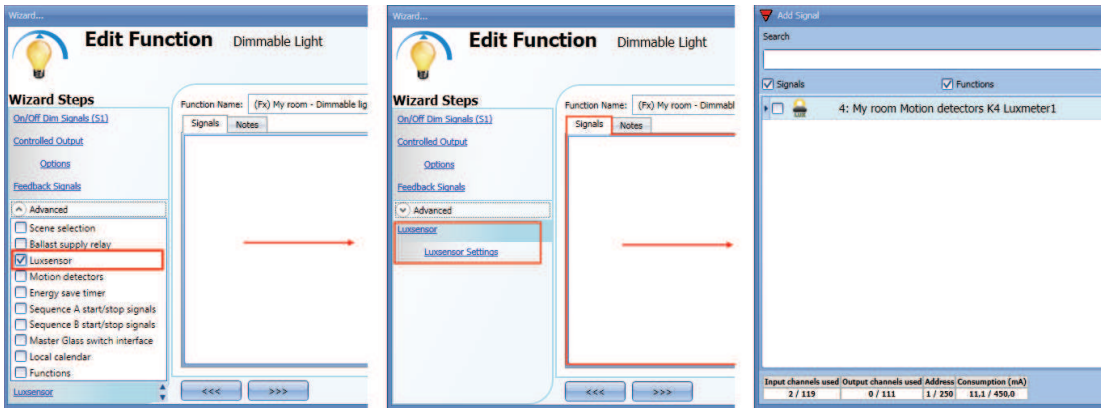
If the user wants to use the PIR sensor to switch the light off automatically, the following settings should be used.
Add a PIR sensor and an energy-save timer from the Advanced section.
In the PIR settings, the red cross in the *Allow to switch on* field must be selected because the light has to be switched on manually. In the *Scenario %* field, the value -1 must be selected (-1 means no action when movement is detected); with these two settings the PIR cannot switch the light on and cannot set a different light percentage when it detects movement.
The energy-save timer must be set differently from zero, and will be triggered when the light is switched on. While the PIR detects presence, the timer is reloaded. When the PIR stops detecting presence, the timer starts counting down and when it expires the light is switched off accordingly.



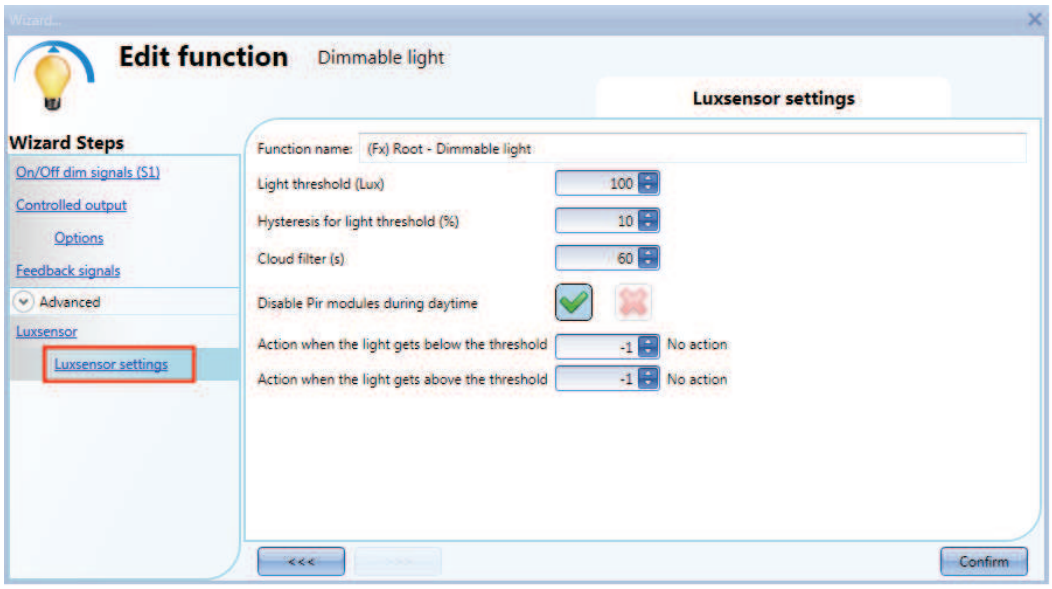
10.2.17 How to switch the light on and off according to the daylight

An example of this automation could be an outdoor light that has to be switched on at sunset and stay on during the night.

To create this kind of automation, lux meters have to be used: the user can set a threshold value so that the smart-house system switches the light ON when the measured daylight goes below this threshold, and switches the light OFF when the daylight goes above this threshold.
Since this is an Advanced functionality, the *Luxsensor* field has to be enabled in the *Advanced* section.



The user can add up to ten lux sensors: if more lux signals are linked to the function, the average lux value is calculated and then used.
Once a lux sensor is selected, the user can change the settings as shown in the picture below:



Light threshold (Lux)
In this field the user can set the threshold for the night time condition. When the measured light level goes below the night time threshold, the night time condition is activated. The day condition is activated when the measured light level goes above the night threshold + the hysteresis value.

Hysteresis value for light thresholds (%)
In this field the user should enter the hysteresis value needed to establish the light level OFF threshold, that is the threshold above which the night time condition ends and the day time condition starts. (A value between 5 and 50% can be set).

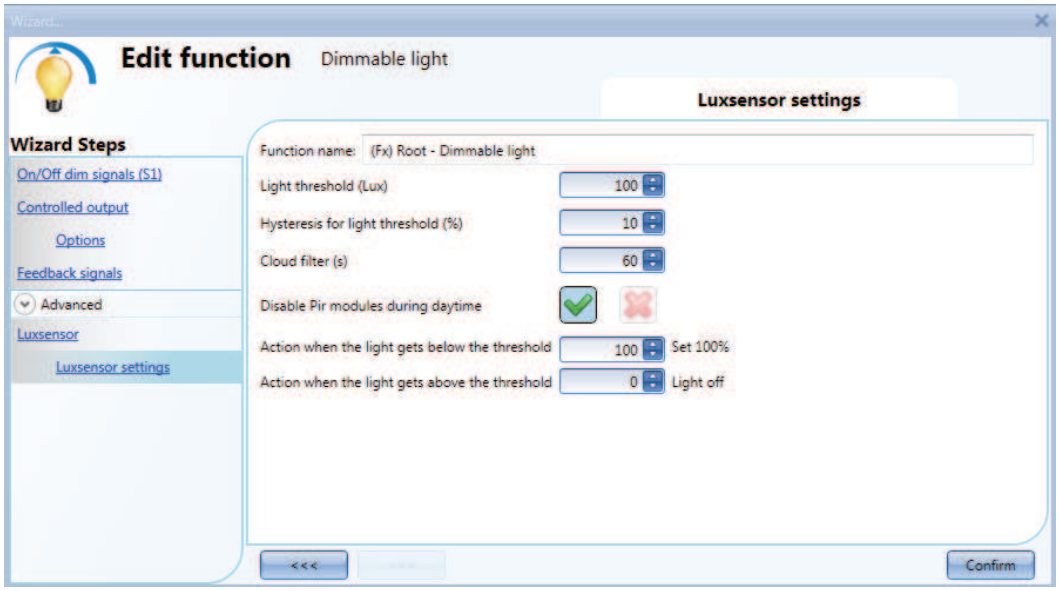
Cloud filter (s)
In this field the user can set up a delay (in seconds) to avoid the turning on/off of the light if a cloud shields the sun for a short time. If the time is set to 0, the filter is disabled.
We suggest setting the Cloud filter at at least 60 seconds in order not to have the light turning ON/OFF continuously.

Disable PIR during day time
If the green V is selected, this functionality is enabled and the PIR sensors are disabled to switch the light on and off during day time. The field *Disable PIR modules during day time* must be used if the lux meter is used in combination with PIR sensors.

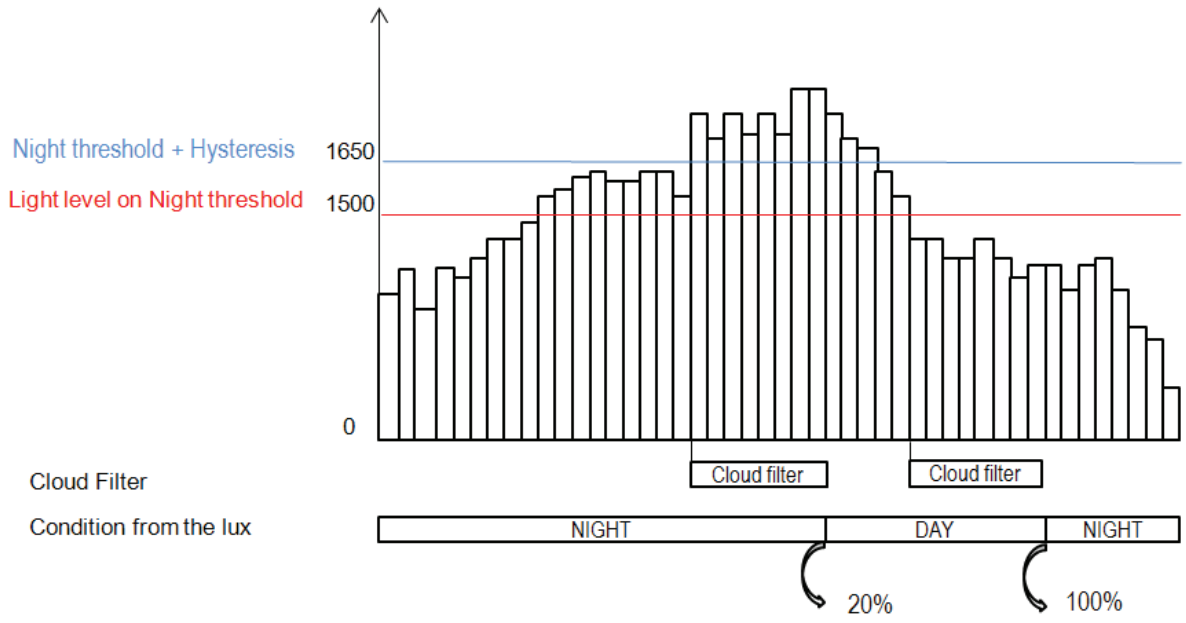
Action when the light gets below the threshold
The user can select the action to be performed when the light level goes below the threshold. The available actions are: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 6% to 100%.
If the value -1 is selected, the system will not do anything at the surpassing of the threshold. This might be needed when lux meters are used in combination with PIR sensors or calendar.

Action when the light gets above the threshold
The user can select the action to be performed when the goes above the threshold. The available actions are: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 6% to 100%.
If the value -1 is selected, the system will not do anything at the surpassing of the threshold. This might be needed when lux meters are used in combination with PIR sensors or calendar.

The ON and OFF switching is done in the event of the thresholds being surpassed, so if the light status is changed manually by means of a light switch or automatically e.g. by a scheduler, the automation of the lux sensors will not change it unless thresholds are surpassed another time.



Please see the example in the picture above:
The night threshold is set to 1500 Lux, the hysteresis is 10 %, the level OFF threshold is calculated in the following way: Level OFF= level ON+ 10% of Level ON, which means Level OFF= 1500 + 150 = 1650 lux.
The cloud filter is set to 60 seconds, and the action set for the night time condition is “Set the dimmer output at 100%”. The action for the day time condition is “Set the dimmer output at 20%”.

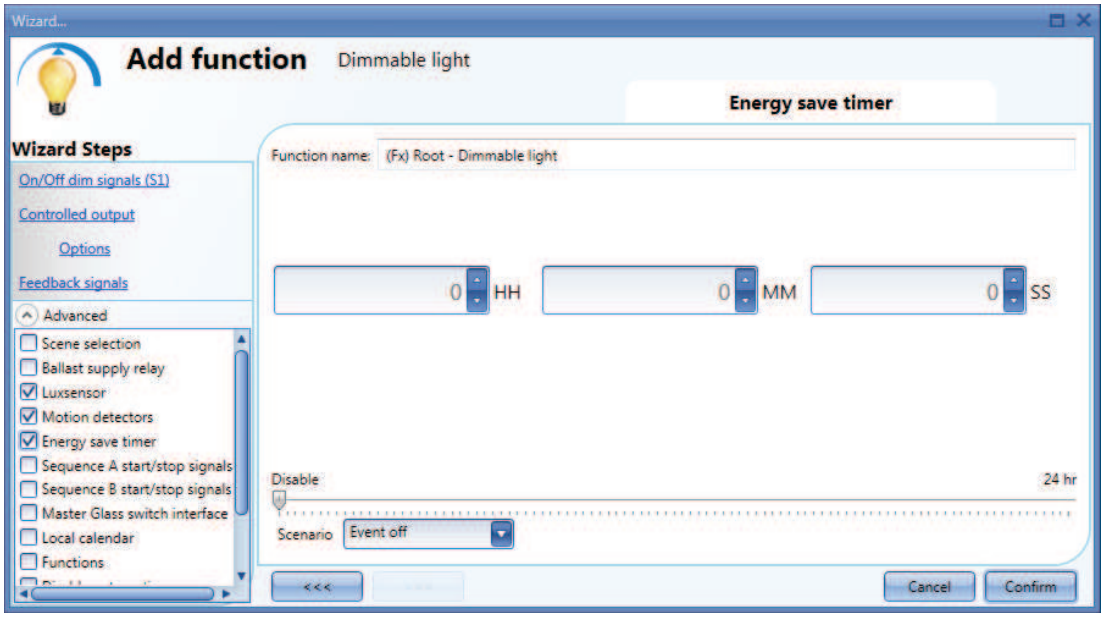


10.2.18 How to control light with PIR sensors in combination with lux sensor

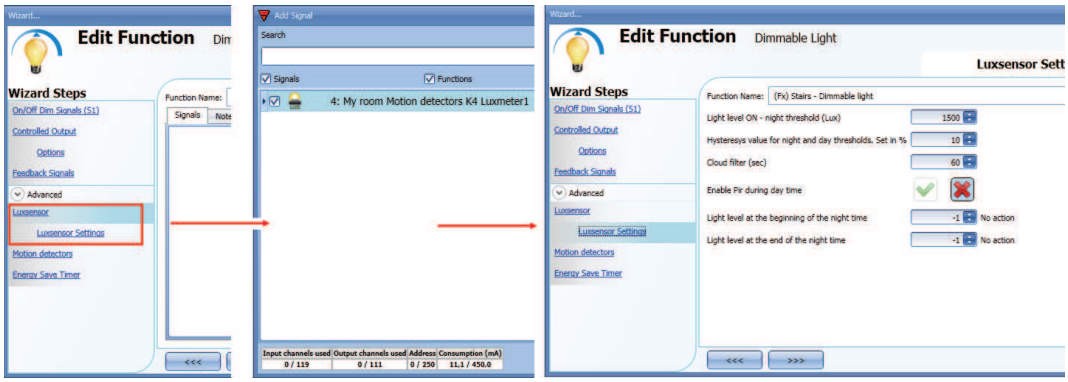
An example of this automation could be a corridor with a lot of windows.
During the day the sunlight enters the corridor and it is not necessary to switch the light on: in the evening, when the sun goes down, the light level decreases and is it is necessary to switch the light on. When the light level is low, the PIR switches the light on automatically and the energy-save timer is started: when the corridor is no longer in use and the time expires, the light is switched off automatically.
If PIR sensors are used in combination with lux meters, it means that if a people presence is detected, the light is switched ON according to the daylight level. To achieve this, a PIR sensor and a lux sensor have to be added.

The steps are summarised below:

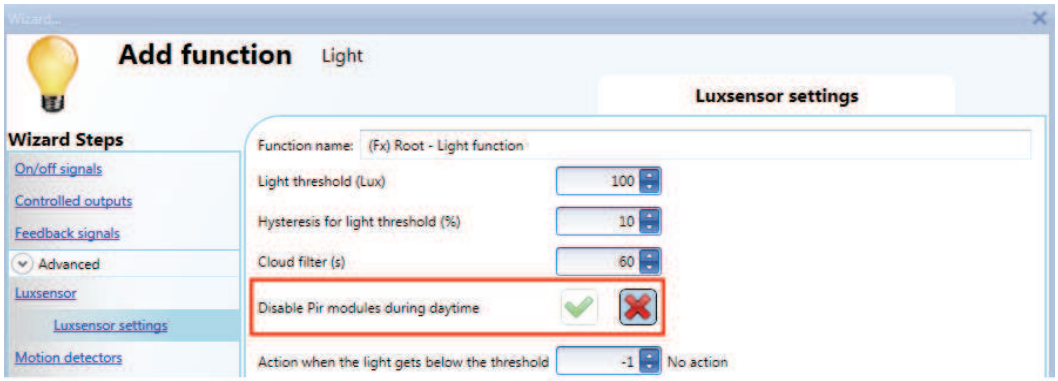
A) Enable Lux sensor, Motion detectors and energy-save timer in the advanced section



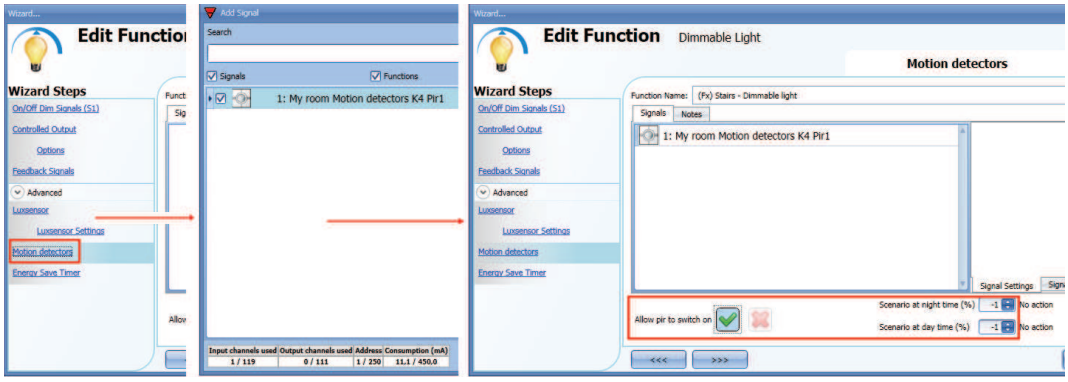
B) Add the lux sensor and set the threshold values for light



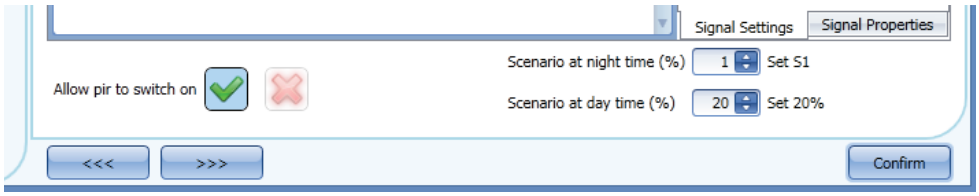
If the user wants to enable the PIR during day time, the green "V" should not be selected in the relevant setting (see picture below). If this option is not enabled, the PIR will work only during night time (when the lux level is below the night threshold).



C) When the lux sensor is entered, add the PIR sensor

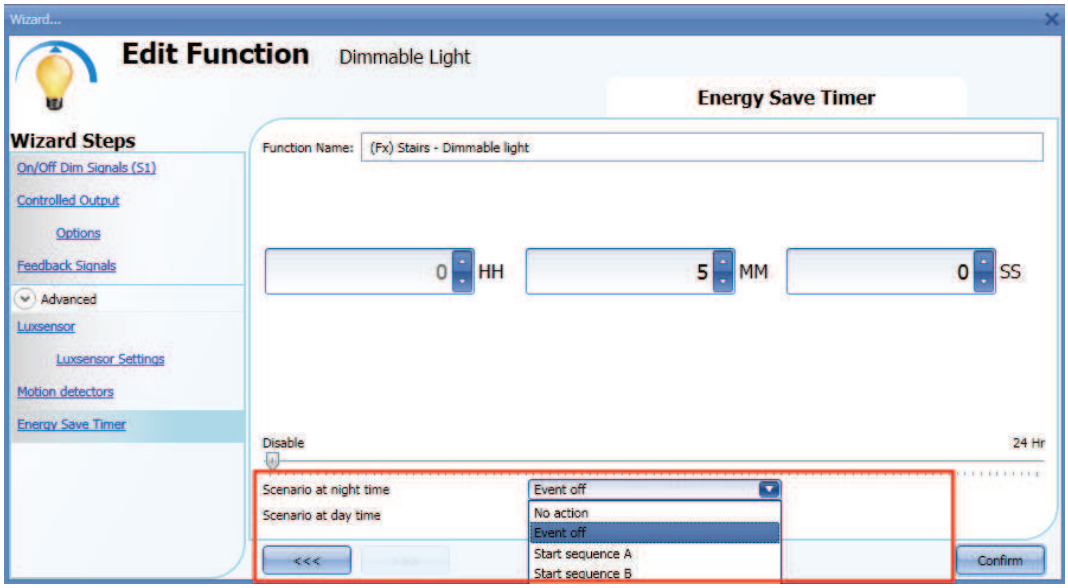


When the PIR sensor is entered, the user must select the green "V" in *Allow PIR to switch on*, then he can set two different actions according to the time of day: one light level for night time and another for day time.
In the *Scenario at night time,* the user can set the action to be performed when the PIR detects movement during the night time.
In the *Scenario at day time*, the user can set the action to be performed when the PIR detects movement during the day time.



The picture above shows an example of a PIR sensor that switches the light on at Scenario 1 when the night time condition is active, and switches the light on at 20% when the day time condition is active.

D) The last thing to set is the energy-save timer
When the lux sensor is combined with other automations, the energy-save timer window changes and offers the possibility of selecting two different actions to be performed when the timer expires.

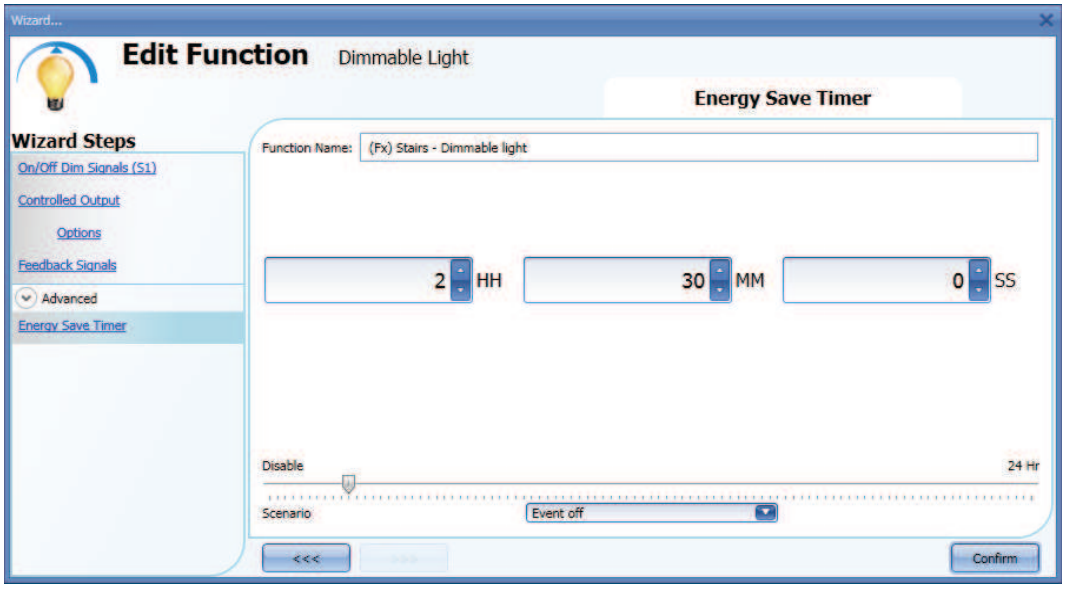


The user can set an action to be performed when the timer expires during the daytime, and another one when the timer expires during the nighttime.
If the option *No action* is selected, the light level is not changed when the timer expires; if *Event off* is selected, the light is switched off when the timer expires.
The user can also choose to start a sequence A or B or set a predefined scenario with the selection *Set (%).*

10.2.19 How to switch the light off after a predefined period without lux meter

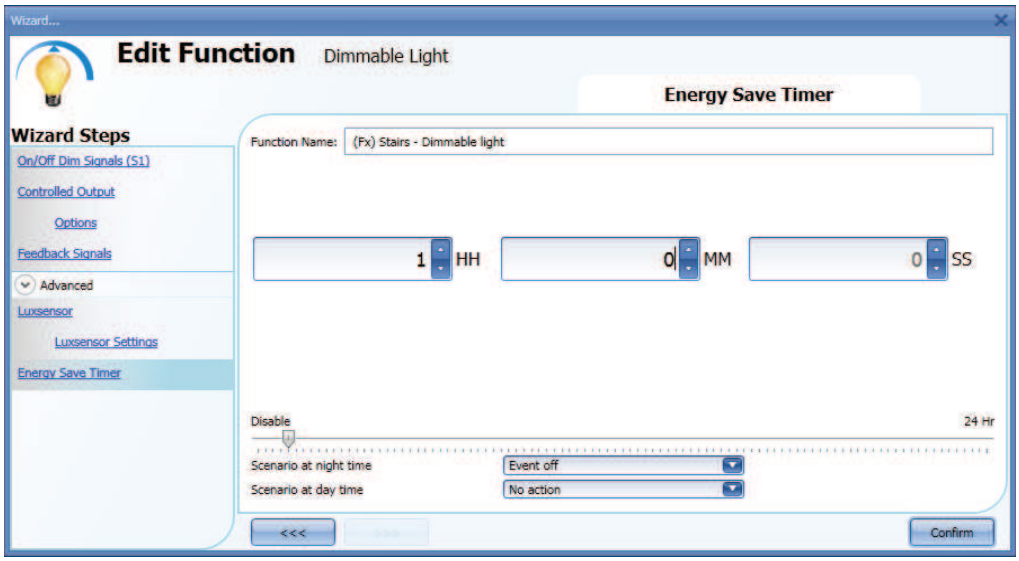
If the user needs to be sure that the light is switched off to save energy, the energy-save timer should be selected in the advanced functionalities (the energy-save timer is selected by default when the user creates a new Dimmer function).
The energy-save timer starts counting each time the light is switched On manually or by using the PIR sensor, causing the light to go off automatically when it expires.
The energy-save timer can be set up to a maximum value of 24 hours, whilst when it is set to 0 it is disabled. For this reason, the shortest time that can be set is 1 second.
The energy-save timer value can be changed by means of the webserver.

In the example below, the user has set a function with a pushbutton to switch the light on and an energy-save timer of 2 hours 30 minutes to switch the light off automatically (*Event off* is selected as the action to be performed).



10.2.20 How to switch the light off after a predefined time period with the lux meter

If the lux sensor needs to be used combined with the energy-save timer, the energy-save timer window changes and offers the possibility of selecting two different actions to be performed when the timer expires, according to day or night time condition.
The example below shows an application of this: during the day the light is controlled manually, and it is not necessary to switch it off automatically if the user forgets to do so (no action is selected in the energy-save timer actions).
If the light is manually (with a push button) switched on during the night and the user forgets to switch it off, the energy-save timer automatically turns it off when the time expires.

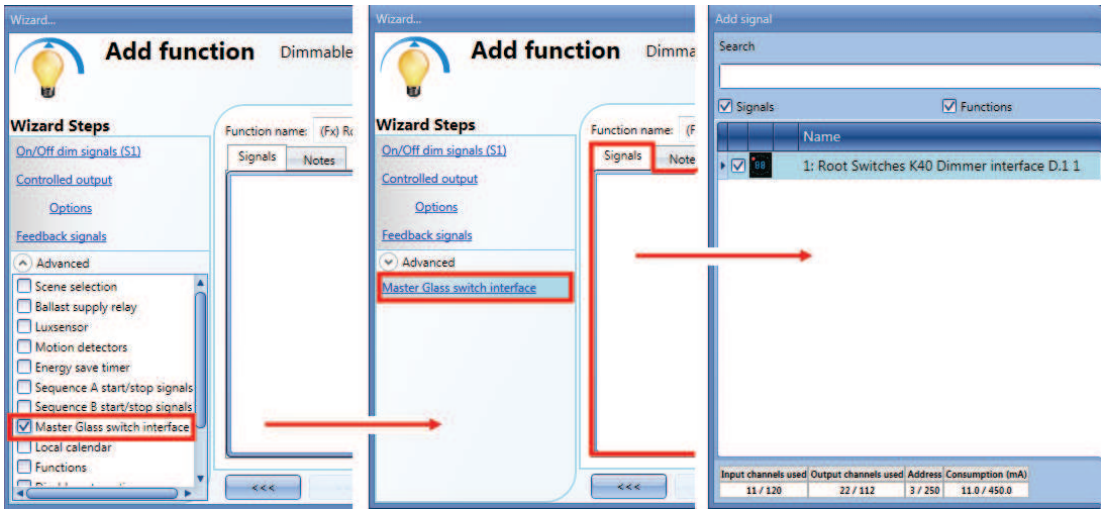


10.2.21 How to switch the light on/off using the calendar

An example of this automation could be a calendar that switches all lights off at a pre-set time in the night.

There are two ways of managing dimmable lights with the calendar: by setting the “local” calendar inside the function or using a “global” calendar function.
If the function uses an energy-save timer, the calendar does not affect it in anyway.

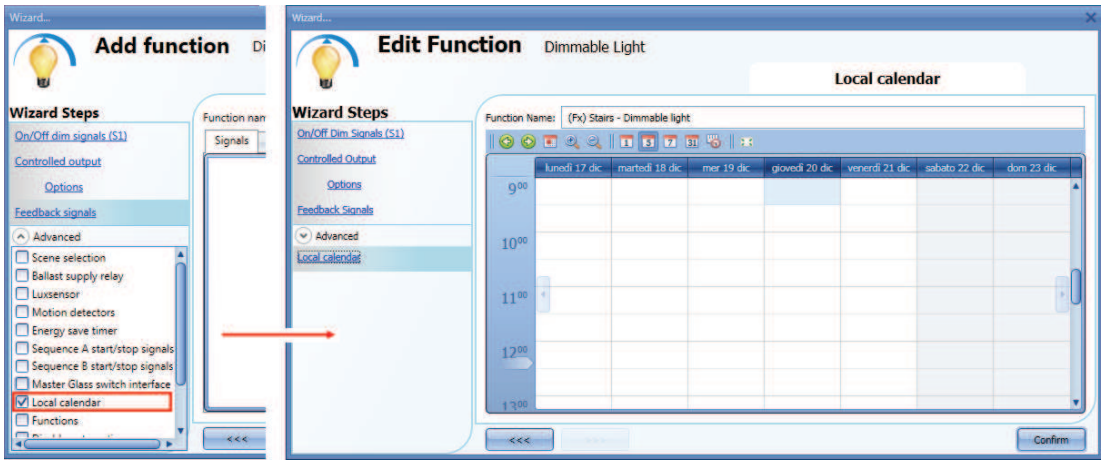
10.2.22 How to use a MASTER GLASS dimmer interface in a dimmable light function



To use a key programmed as dimmer interface in a Dimmable light function, select *Masterglass switch interface* in the *Advanced* field, double click on *Signals* and select the required dimmer interface.

10.2.22.1 The local calendar

To enable it, the relevant menu has to be enabled in the Advanced section.



The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* shown below:

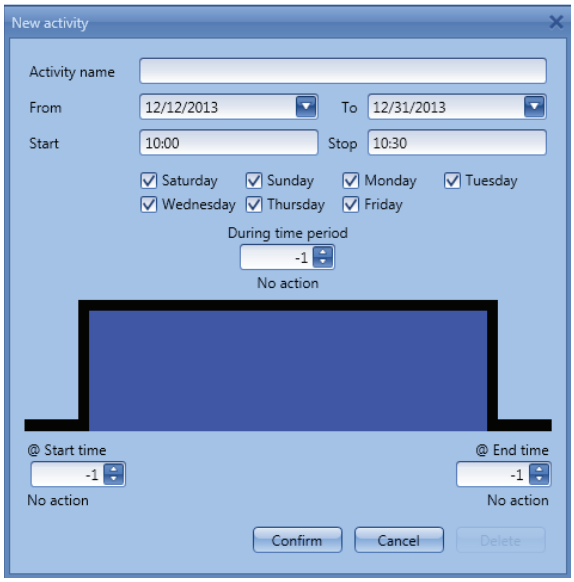
Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week
	One step forward in the calendar. E.g: if a week is visualized, this button allows the user to go to the next week
	Go to the current day
	Magnifying lens to see more/fewer time bands
	The calendar visualizes one day horizontally
	The calendar visualizes 5 days horizontally
	The calendar visualizes 7 days horizontally
	The calendar visualizes 31 days horizontally
	The calendar visualizes 7 days vertically
	Full screen view

Calendar activities:

Event activity

Once the user has selected his preferred type of visualization, to enter a time band he should double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that is to appear on the calendar. This is a mandatory field.

From: This is the starting date for the activity.

To: This is the end date of the activity.

Start: This is the start time of the activity.

Stop: This is the end time of the activity.

@ start time: in this field the user can select the action to be performed at the start time.
The selectable actions are:

- No action (-1)
- Switch the light off (0)
- Set the light to Scenario 1 (1)
- Set the light to Scenario 2 (2)
- Set the light to Scenario 3 (3)
- Set the light to Scenario 4 (4)
- Set the light to Scenario 5 (5)
- Set the light level to a fixed value between 6% and 100% (6-100)

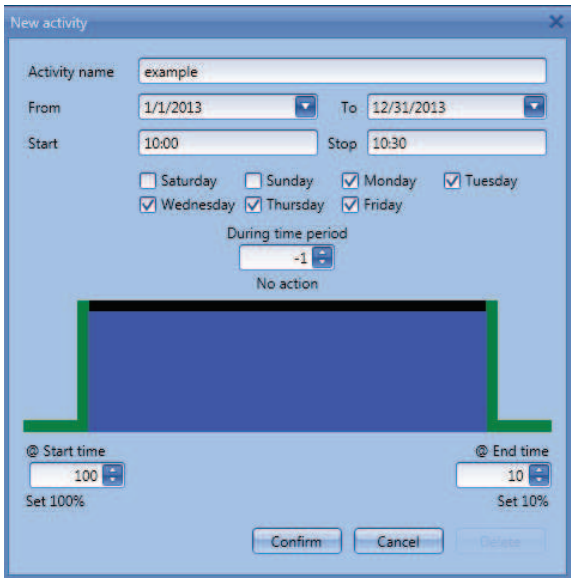
@ end time: in this field the user can select the action to do at the end time.
The selectable actions are:

- No action (-1)
- Switch the light off (0)
- Set the light to Scenario 1 (1)
- Set the light to Scenario 2 (2)
- Set the light to Scenario 3 (3)
- Set the light to Scenario 4 (4)
- Set the light to Scenario 5 (5)
- Set the light level to a fixed value between 6% and 100% (6-100)

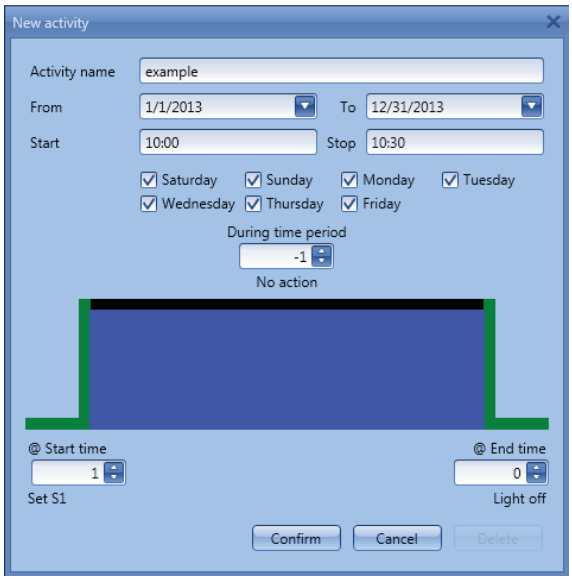
Days: The user should select the week days when the actions are to be performed.

If ***During time period*** is selected, the user go to disable all the automations of the function (PIR sensors, lux meters, calendars).

- No action (-1)
- Disable automations (1)



In the first example, the calendar is set to work all the year round (from 1st January to 31st December) . The working days are: Monday, Tuesday, Wednesday, Thursday and Friday (the calendar does not work on Saturday and Sunday)
At the start time (10:00) the light is switched on at 100%: at the stop time the light level goes down to 10%. All the activities are repeated automatically each year, so looking at the example below, once 2013 is finished, the activity will go on in the same way into 2014 and so on.

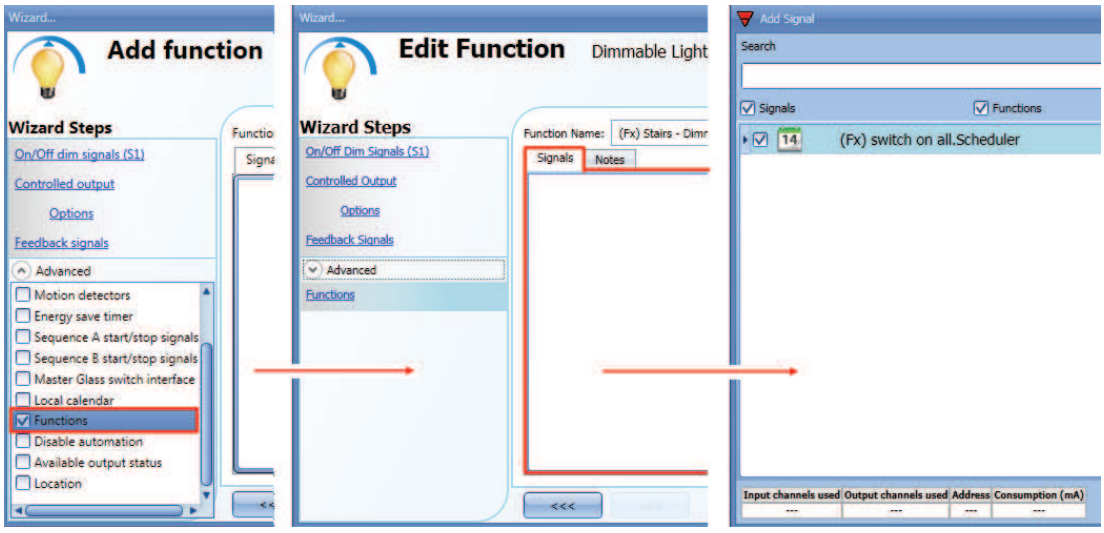


In the second example, the calendar is set to work all the year round (from 1st January to 31st December), every day.
At the start time (10:00) the light is switched on at scenario 1: at the stop time of 10:30 the light is switched off.

10.2.22.2 The global calendar function

Before using a global calendar, the user should define it as a function (See How to set a global calendar).
The field function then has to be selected in the *Advanced* menu.
By clicking on Functions and then double clicking in the *Signal* window, the *Add signal* window will appear. Select the required calendar function.

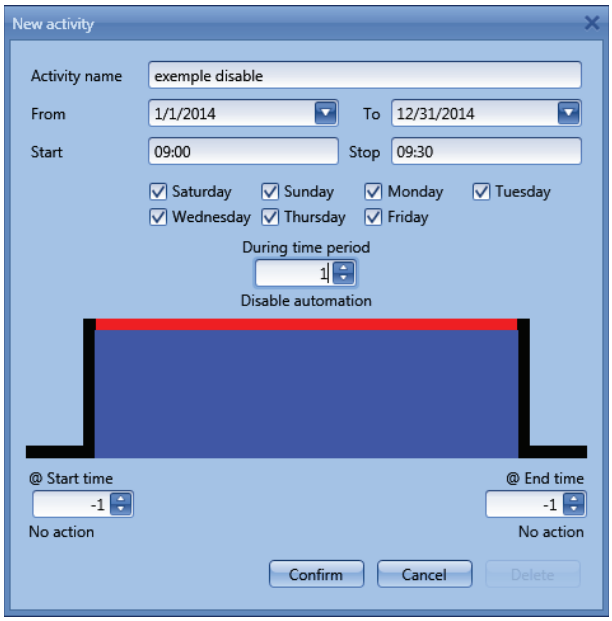
In the example below, the global calendar added is a calendar created for switching on all the lights.
Its behaviour is the same as that described for the local calendar.



10.2.23 How to stop an automation

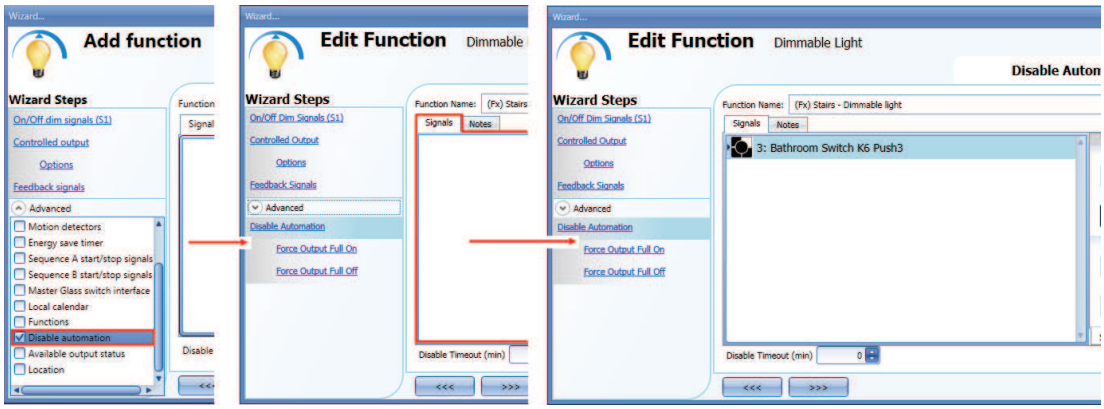
There are two ways of disabling the automation performed by PIR sensors, lux meter, calendar and energy-save timer: the first is with the calendar, the second with signals.

Disabling automation using the calendar
To disable the automation, the user can select the local or the global calendar.
The local calendar should be enabled, using the advanced functionality *Local calendar*, while the global calendar should be added as a signal in the *Functions* menu of the *Advanced* functionalities.
Regardless of the type of calendar added, the settings to disable all the automations are shown below.

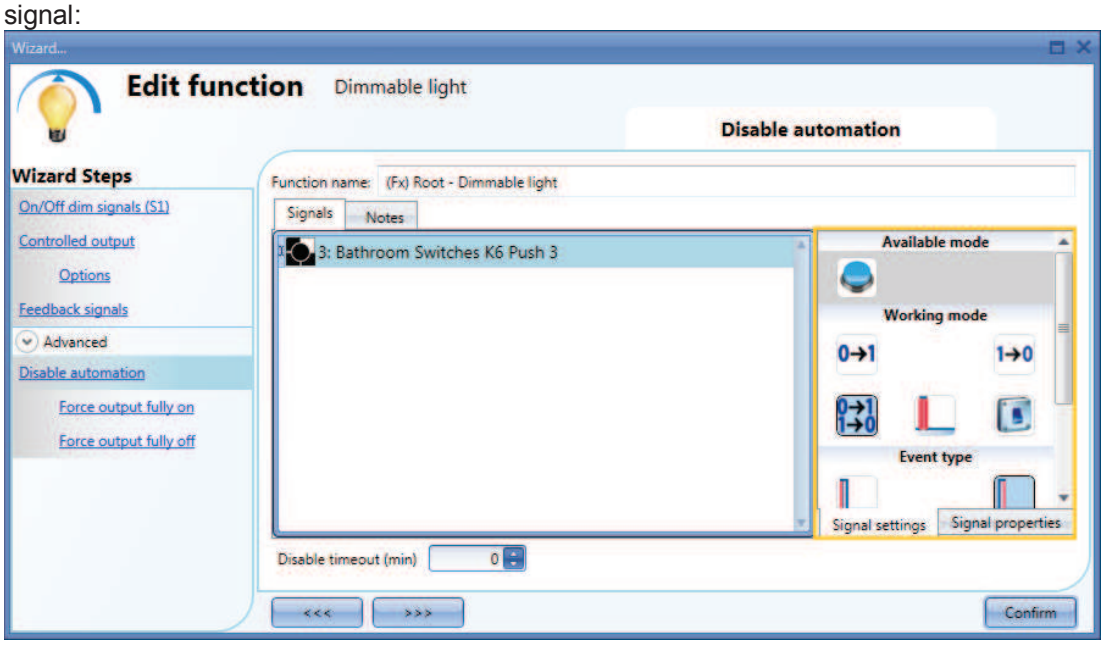


In the level activity the disabling of the automation is selected by entering the value 1. In this way, during the entire period when the calendar is active, all automations are disabled.

Disabling automation using signals
The second way of disabling an automation is by using signals: to enable it, select *Disable automation* in the *Advanced* section, double click on the signal window and select the right signal to use.



When the signal is added, the user should select the working mode and the type of the event for the signal:



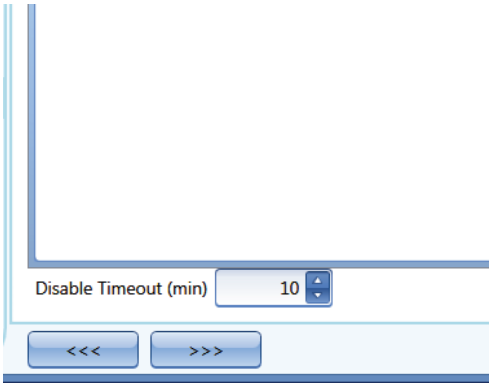
If a push button type is used, the way of working marked by the yellow rectangle should be selected following the table below.

	Event type			
Working mode				
	As soon as the push button is pressed, the automation is disabled.	After a short press (less than 1 second), the automation is disabled at the release of the push button.	After a long press, the automation is disabled at the release of the push button.	After a very long press, the automation is disabled at the release of the push button.
	As soon as the push button is pressed, the automation is enabled again.	After a short press (less than 1 second), the function automation is enabled again at the release of the push button.	After a long press, the automation is enabled again at the release of the push button.	After a very long press, the automation is enabled again at the release of the push button.
	As soon as the push button is pressed, the automation will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the automation will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the automation will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the automation will be enabled/disabled in toggle mode at the release of the push button.
	The automation will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode has to be carried out following the table below:

	Event type	
Working mode	Signal activated	Signal deactivated
1→0	The automation is enabled again	No action
0→1	The automation is disabled	No action
0→1 1→0	The automation is disabled/enabled in toggle mode	No action
	The automation is disabled/enabled in toggle mode	The automation is disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

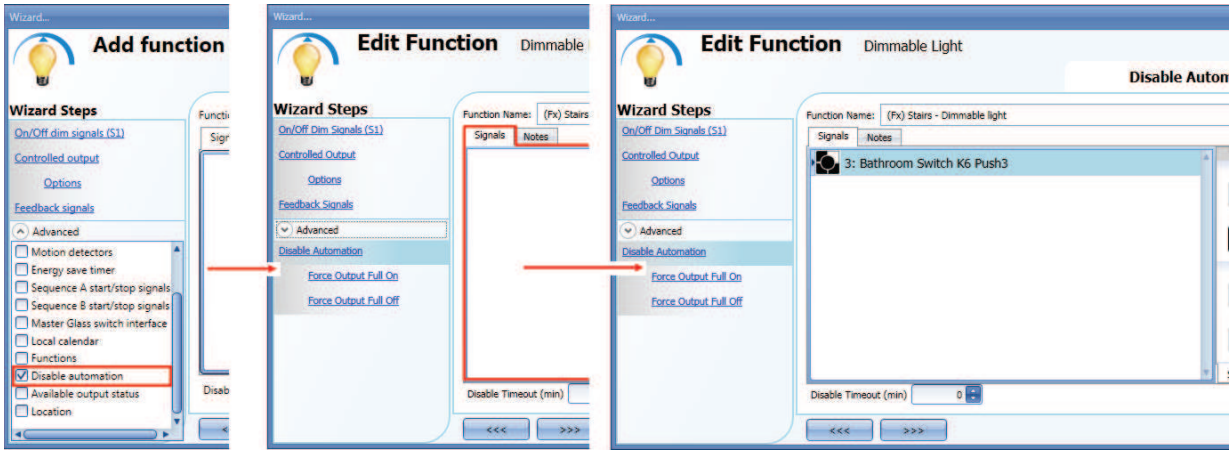
The user might need to set a time after which the automation is to be enabled again, even if the selected signal is still active. To do this the *Disable timeout* field has to be set.



In figure above, a disable timeout of 10 minutes is set. The maximum delay is 59minutes.

10.2.24 How to force the output fully ON

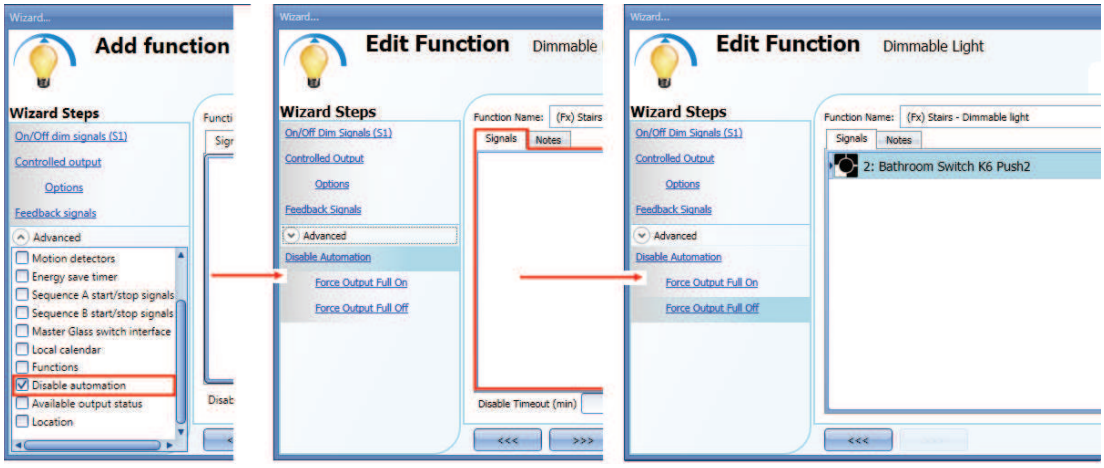
If the user wants to force the output On regardless of all other signals used in the function, the *Force output fully on* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output fully on*, then double click on the signal window and select the right signal to use.



Each signal used in the “Force output fully on” window works in level mode. Until the signal is active, the light is forced to the fully on status. When the signal is non-active, the light returns to the previous status.
When the *force to fully on* signal is activated and at the same time the *force fully off* signal is activated, the *force to on* status has priority.

10.2.25 How to force the output OFF

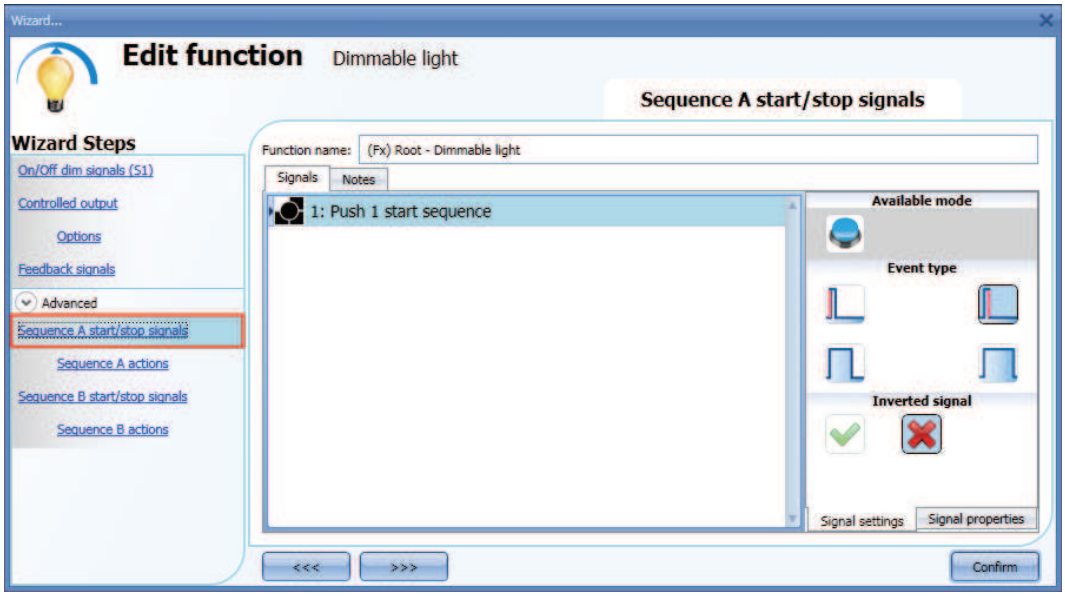
If the user wants to force the output Off regardless of all other signals used in the function, the *Force output fully off* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force the output fully off*, then double click on the signal window and select the right signal to use.



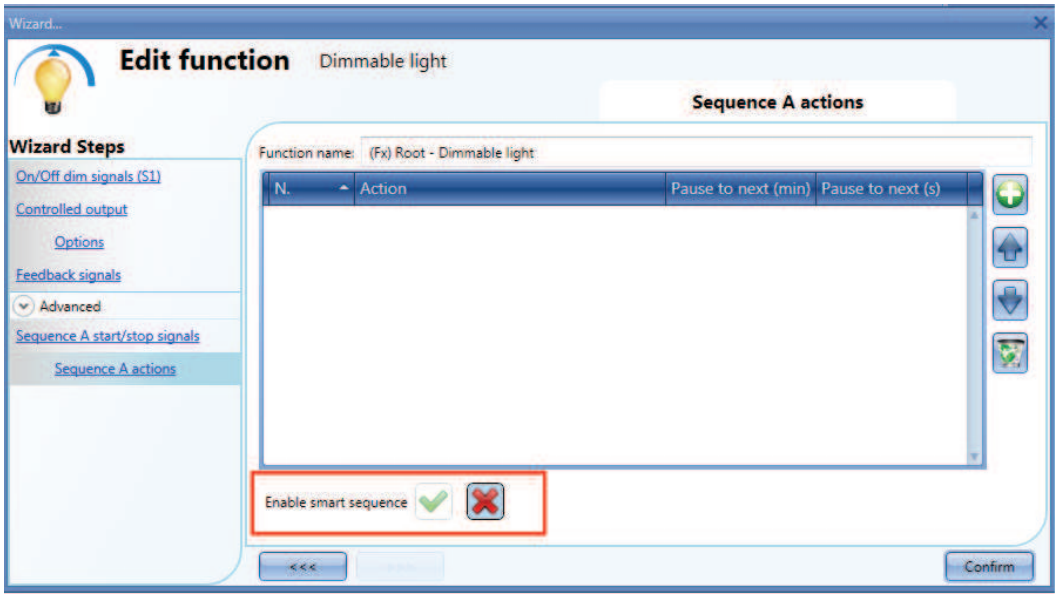
Each signal used in the *Force output fully* off window works in level mode.
Until the signal is active, the light is forced to the off status; when the signal is non-active, the light returns to the previous status.
When the force to fully on signal is activated and at the same time the force to fully off signal is activated, the *force to on status* has priority.

10.2.26 How to configure Sequence A

Sequence A automation is a list of commands for changing the light level and it can be used to create dynamic scenarios.
First it has to be enabled in the *Advanced* section.
The sequence is started when an On event occurs: the start/stop signal can be a pushbutton, a function or a remote command. The user can select short, long and very long activation of the input to start the sequence (see picture below).



The sequence is stopped when any dimmer command is generated.
For each signal the inverted logic can be enabled.

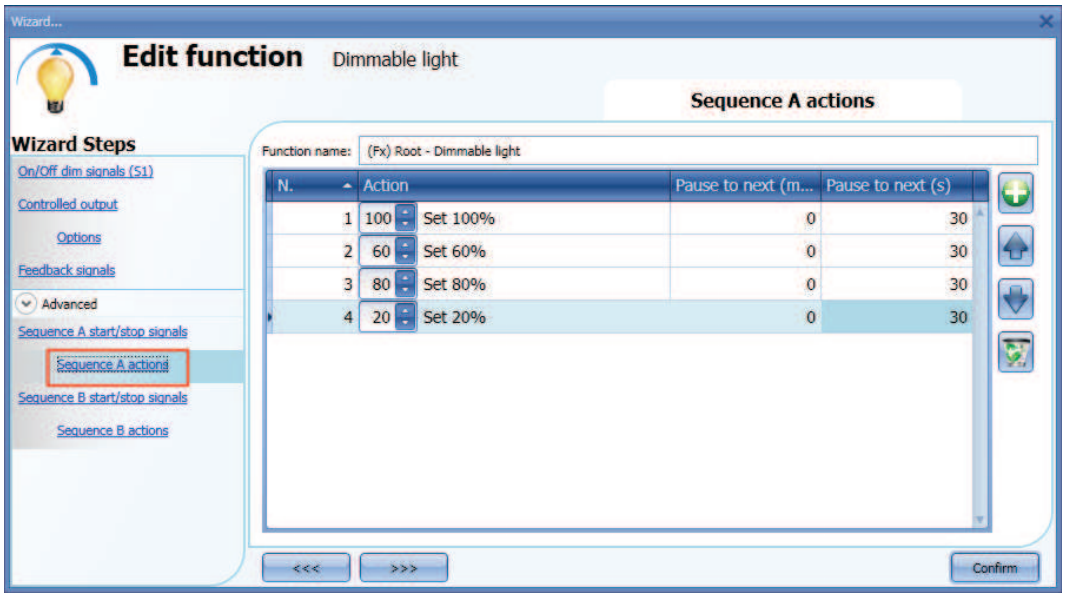


In the bottom of the window, the user can select to run the sequence as a “standard sequence” (executing all the steps added one after the other), or can select to run it as a “smart” sequence (see the dimmer sequence function behavior).
N.B. In the “smart” sequence the added scenarios must all make the light level go in the same direction either up or down. If the light has to go up and down, different sequences must be created.

10.2.26.1 Sequence A actions

In the sequence options window the user can manage each scenario of the sequence list.
In the window the user can set:

- The order of the scenario in the list.
- The percentage of dimming of each single scenario in the list.
- The pause to next time of each scenario in the list.



Sequence actions icons :

	Add a new Scenario step to the sequence list
	Move the selected Scenario step UP one position in the list
	Move the selected Scenario step DOWN one position in the list
	Delete the selected Scenario step from the sequence list

Pause to next (s): in this field the user can set the delay between one scenario and the following one.

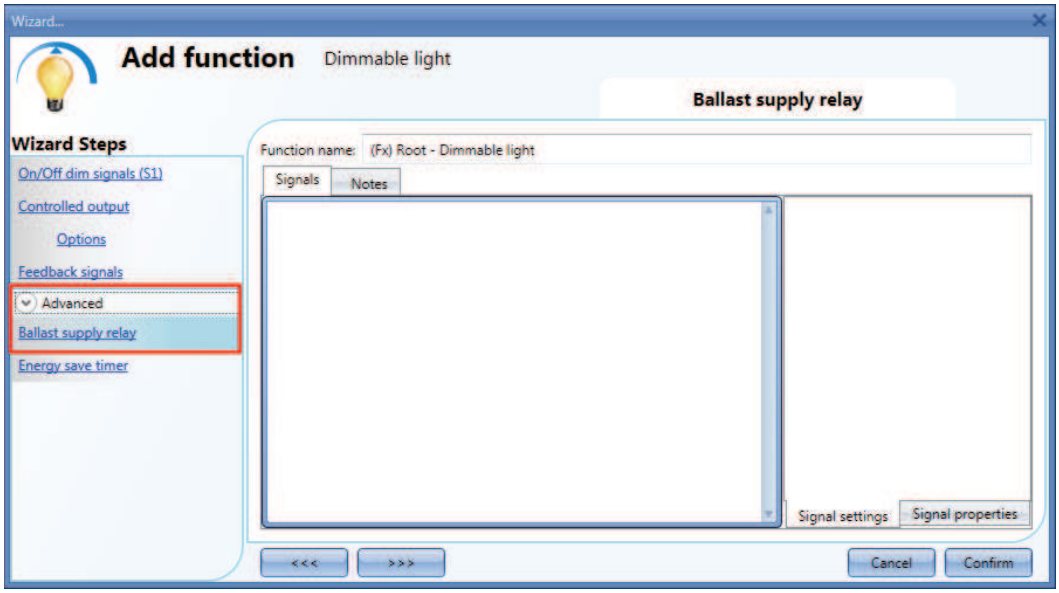
Scenario (Set%): in this field the user can select the percentage of dimming of each command. (0=OFF, 100%=fully ON) can be selected.

10.2.27 How to configure Sequence B

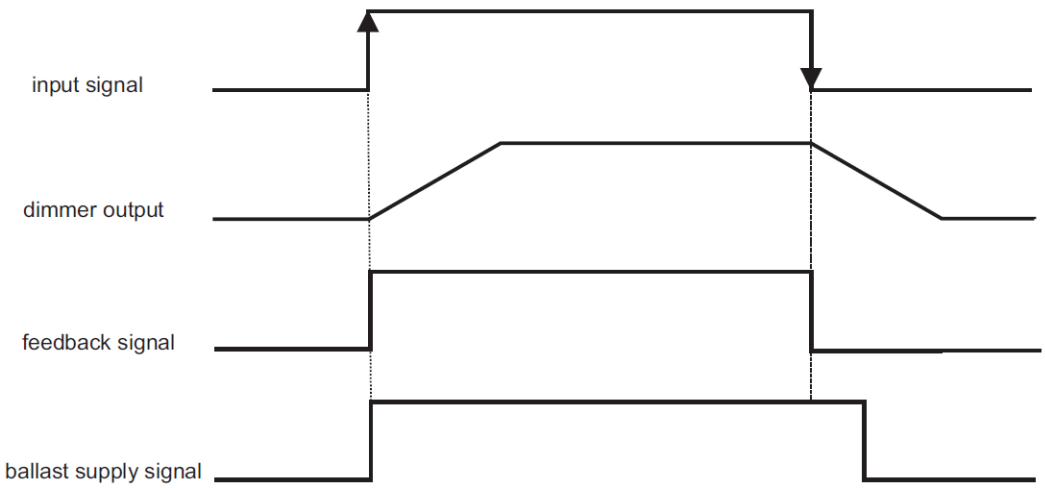
This sequence B is managed in the same way as sequence A.

10.2.28 How to manage the power supply of a ballast

If a 1-10 V dimmer is selected, a relay output has to be connected in serial of the power supply of the ballast to switch it off, since the 1-10V just dimmer it.
The relay output has to be added in the advanced field *Ballast supply relay*, in this way the system will manage automatically the switching of the relay.

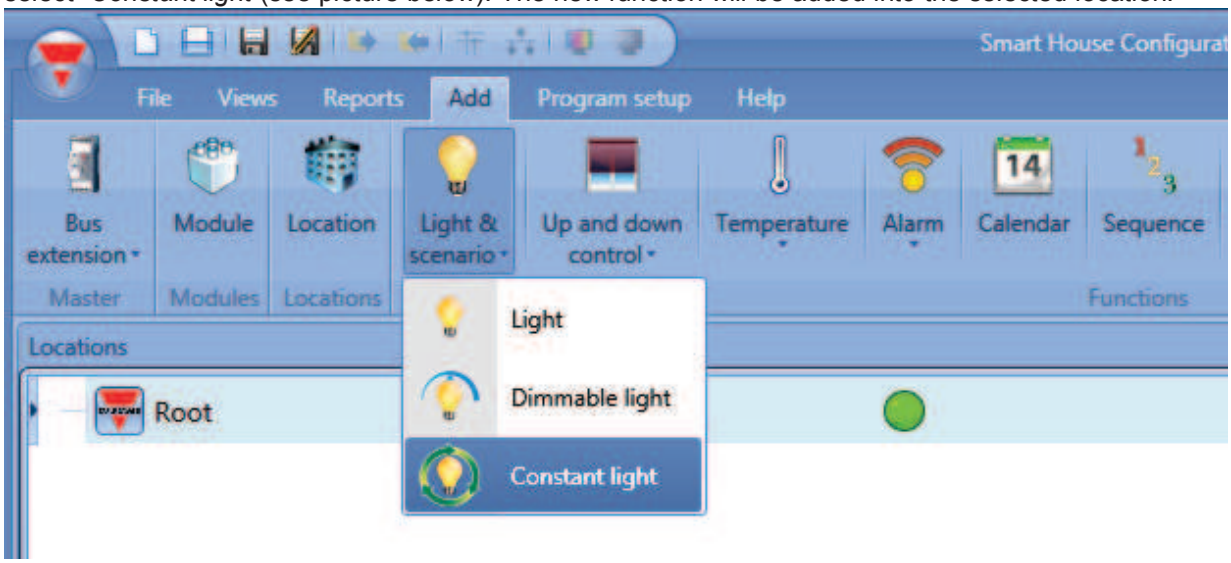


In the picture below it is showed the behavior of the signals according to the status of the dimmer function.



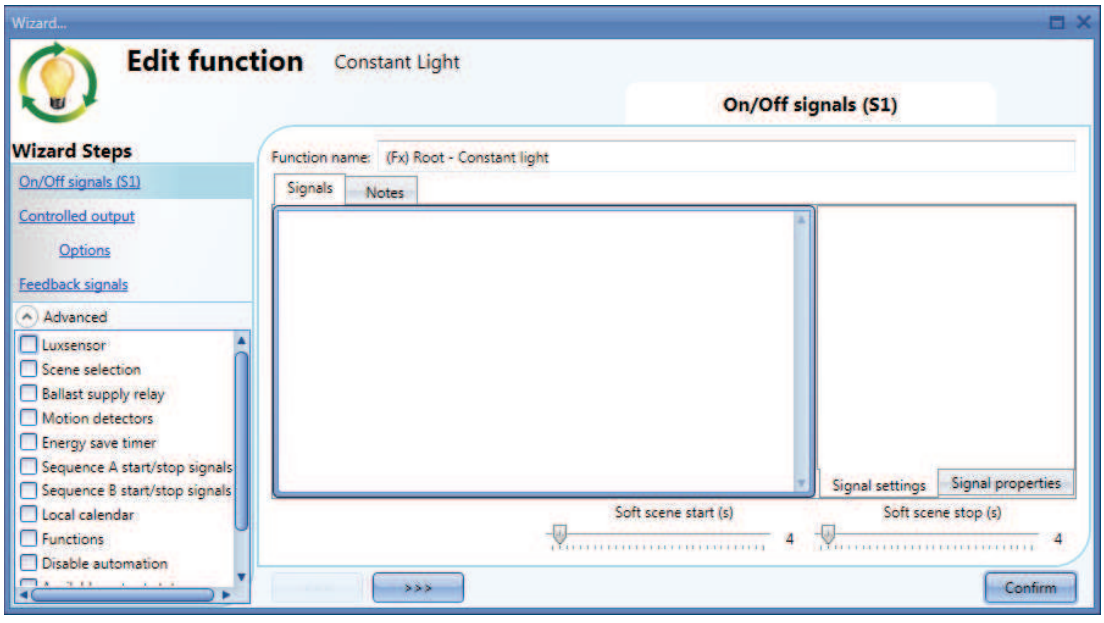
10.3 How to set a Constant light function

This function regulates automatically a constant light level using dimmers. This function needs a luxmeter to measure the light level.
To set up a constant light function the user should select *Light Functions* from the Add menu, then select *Constant light* (see picture below). The new function will be added into the selected location.



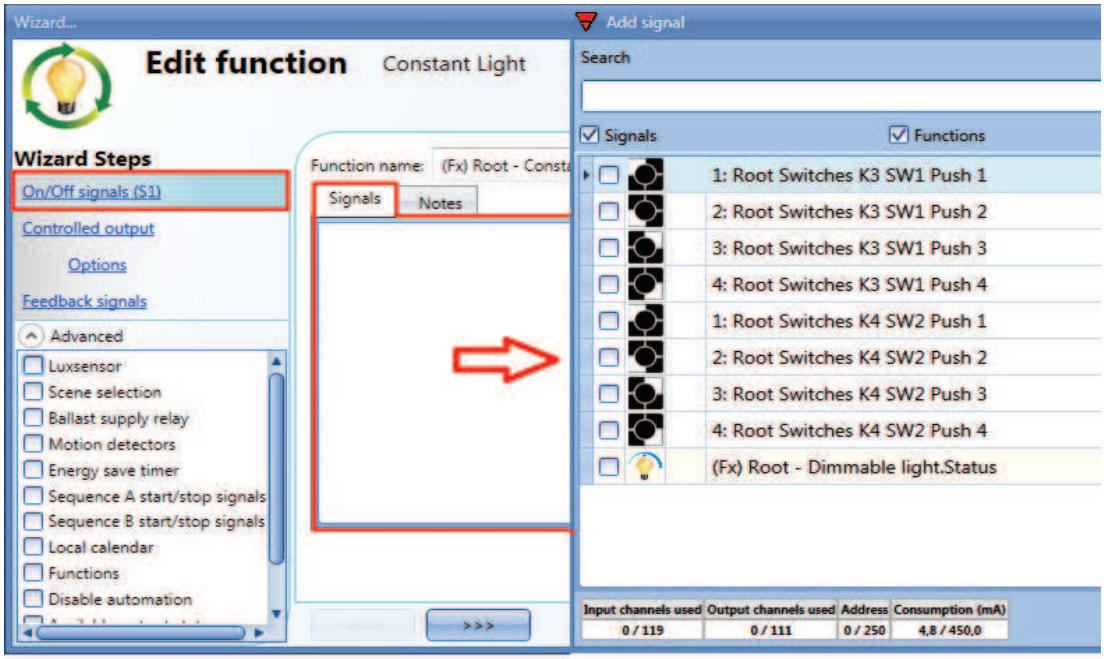
This function manages one or more dimmer outputs controlled by one or more input commands. The command might be a real signal such as a pushbutton, a function or a remote command (Webserver, sms, email, Modbus TCP/IP)

The automation of the Constant light function is managed by accessing the *Advanced* section (see picture below).
In the Advanced section the user can select different ways of controlling the constant light: according to the presence of people, with timers and/or schedulers. Up to 5 different predefined scenarios can be set.



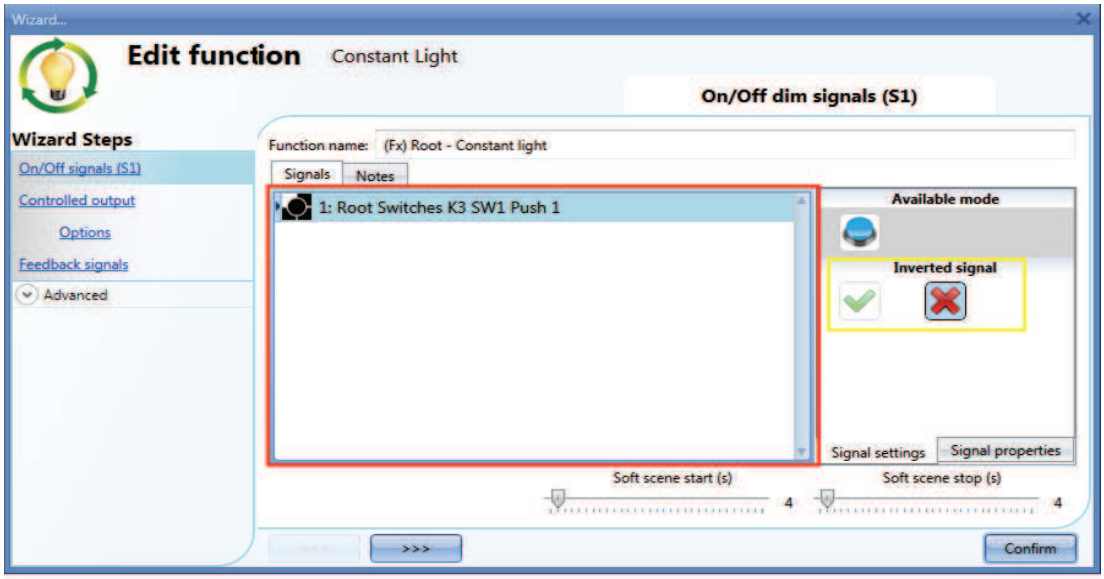
10.3.1 How to set a light with input commands

First of all, the user has to add the input signals to control the dimmable light in the *On/Off Dim Signals (S1)* field.
The input signal can be a pushbutton or a switch and can manage both the ON/OFF switching and the light level adjustment.



14.

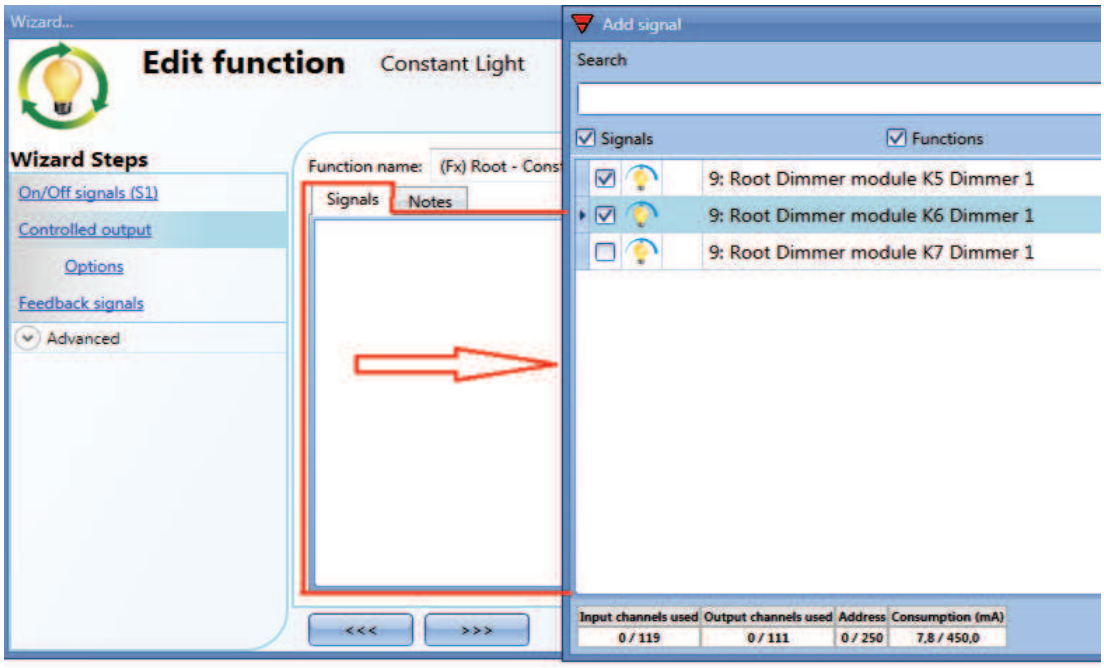
The light is switched On/Off with a short click (input active for a period shorter than 1 second) while long pressure of the switch does nothing.
In the Signal setting window, the user can also enable the reversing of each added signal (See yellow rectangle).



The first time the light is switched on, the output will be set at the 50% of the full scale value configured in the *Controlled output options*. Then the scenario S1 will memorize the last set level. The user can change the light level using other scenarios, the last level selected is stored in the scenario1 (S1).

10.3.2 How to select a dimmable output

To select the output signal that is controlled by the dimmable light function, click on *Controlled output* and then double click on the Signal window. Once the output window is opened, select the relevant outputs from the list.

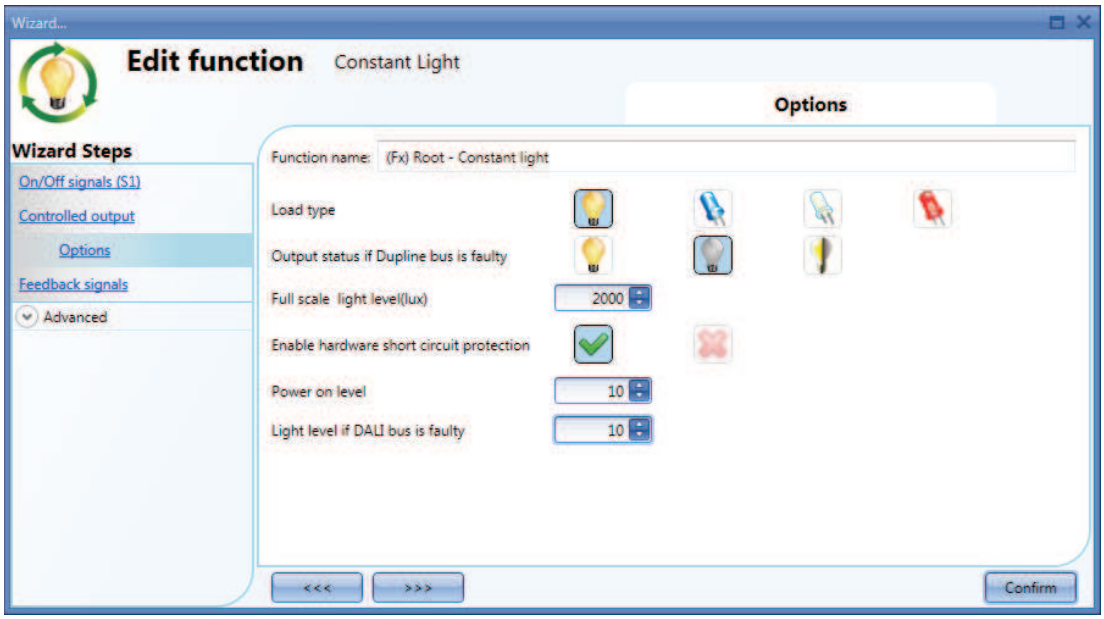


The signals available in the output window are only Dimmer output type.
Up to 50 signals can be chosen and they are managed in parallel.
If an output from a 1-10V dimmer is selected, a relay output has to be connected to the relevant ballast to control ON and OFF. The relay output should be added in the *Feedback signals* field.

N.B.: If more outputs are selected, they should be placed in the same dupline network. Dimmer outputs placed in different networks cannot be added together in the same Dimmable function.

10.3.3 How to change settings and the load type of the output

To select the settings of the output, the user has to click on *Options*.
If more outputs are selected, the settings are applied to all of them.



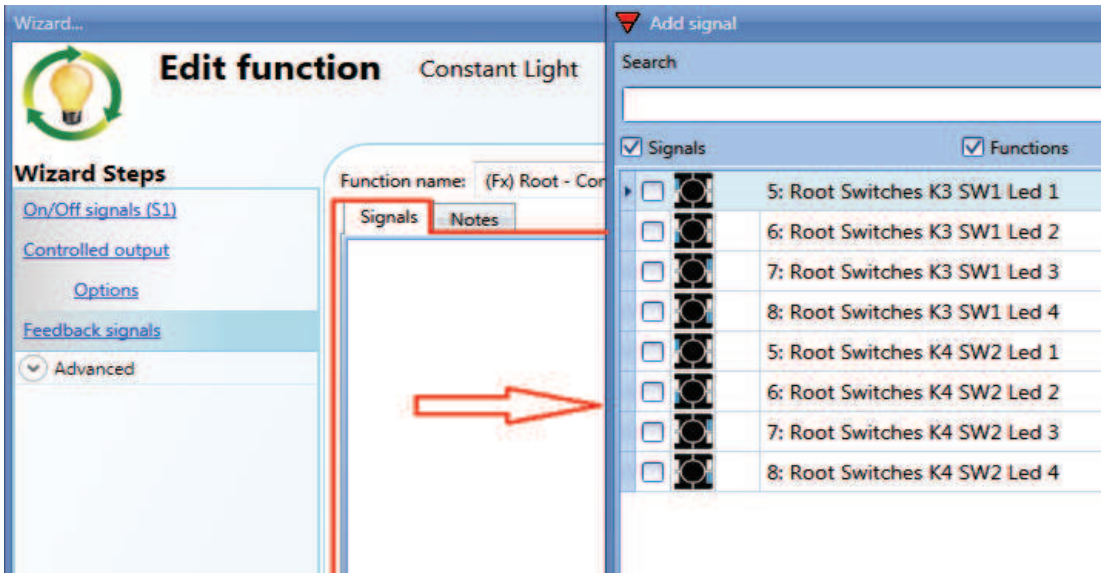
Load type:
In this field the type of load connected to the dimmer module has to be selected. The load can be a standard RLC one (halogen lamp, inductive or electronic transformer, …), or a LED lamp.
The user can select from three different types of LEDs: please see the dimmer datasheet for more details on how to select the correct LED load.

Light level full scale (lux):
In this field the user has to set the maxim light level that corresponds to the 100 % of the dimmer output.

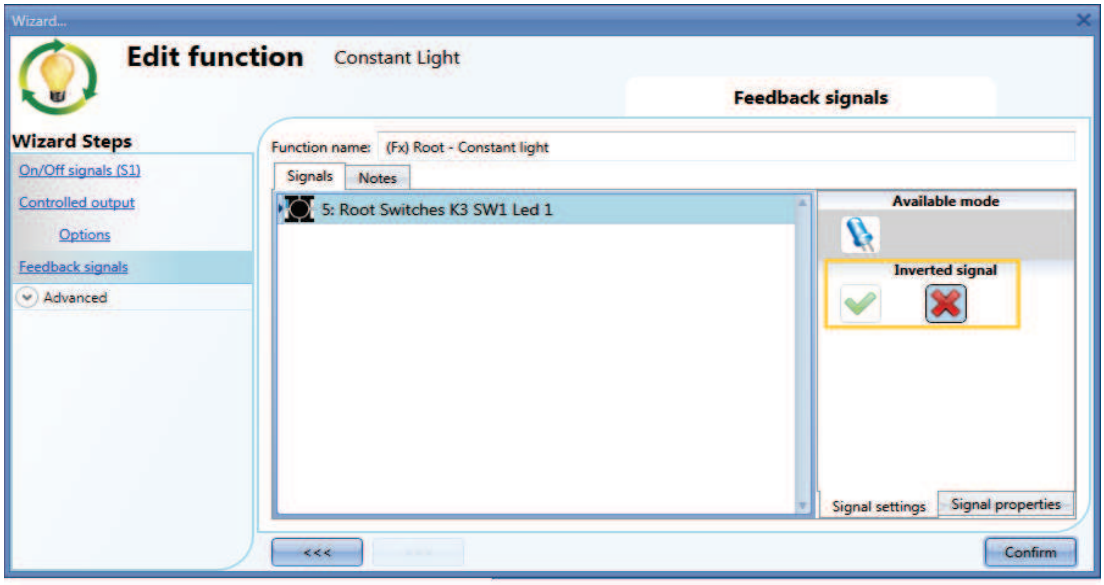
Enable hardware short circuit protection:
When this option is enabled (the green "V" is selected), the user will enable the hardware short circuit protection of the output Dimmer module. Otherwise (when the red "cross" is chosen), the user will disable the hardware protection.

10.3.4 How to set a signal as feedback of the status of the function

To select the feedback signal that indicates the status of a function, click on *Feedback signals* and then double click on the Signals window.

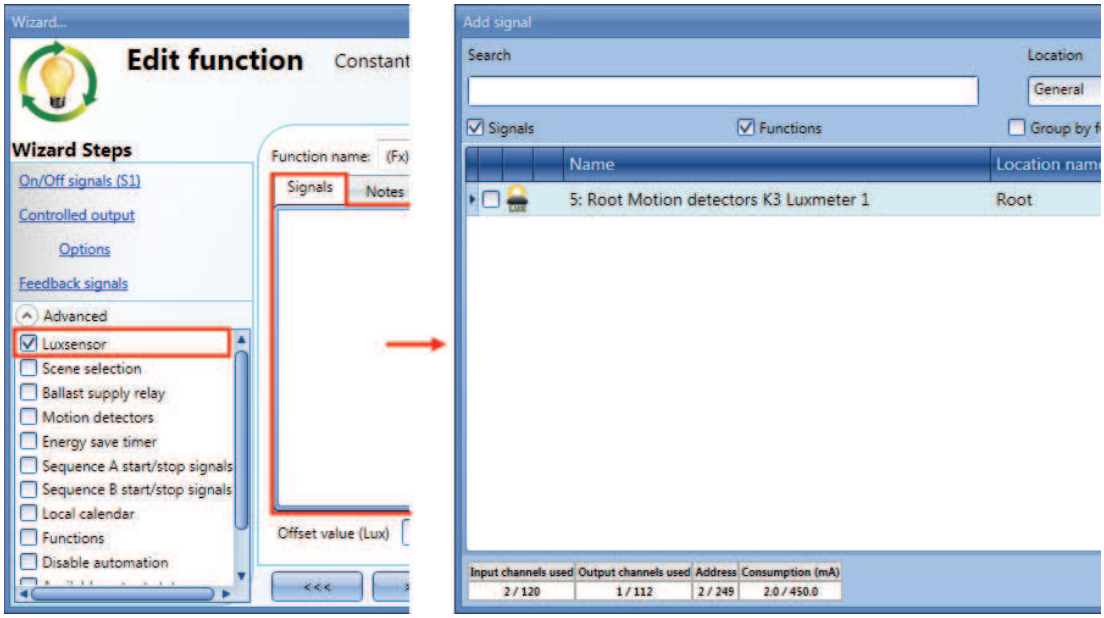


The signals available in this windows are LEDs and relays.
Up to 50 signals can be chosen and they will be managed in parallel.
The logic of each feedback signal can be set as normal or inverted (see yellow rectangle).



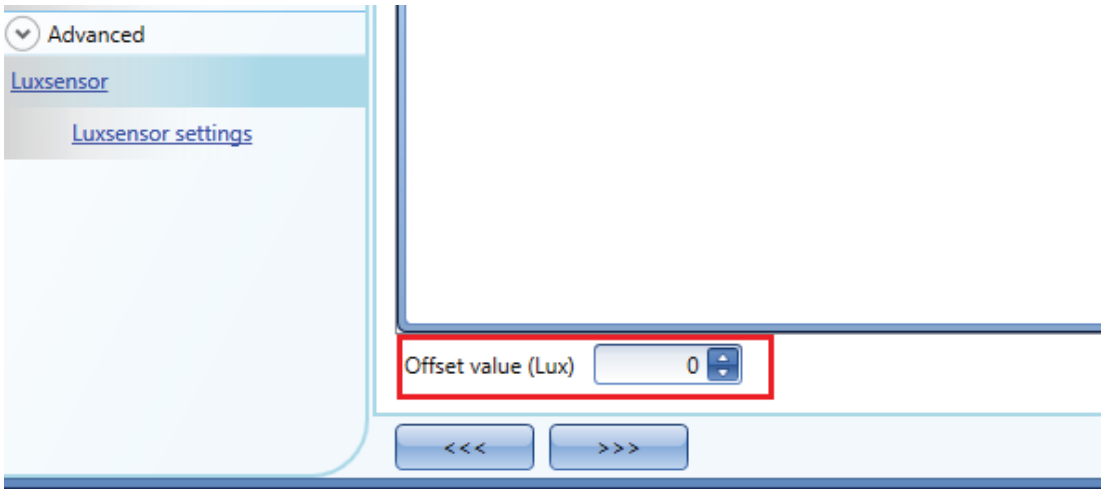
10.3.5 How to add the luxsensor

Since in the Constant light function the light level has to be measured, the user must add *Luxsensor* in the *Advanced* section.

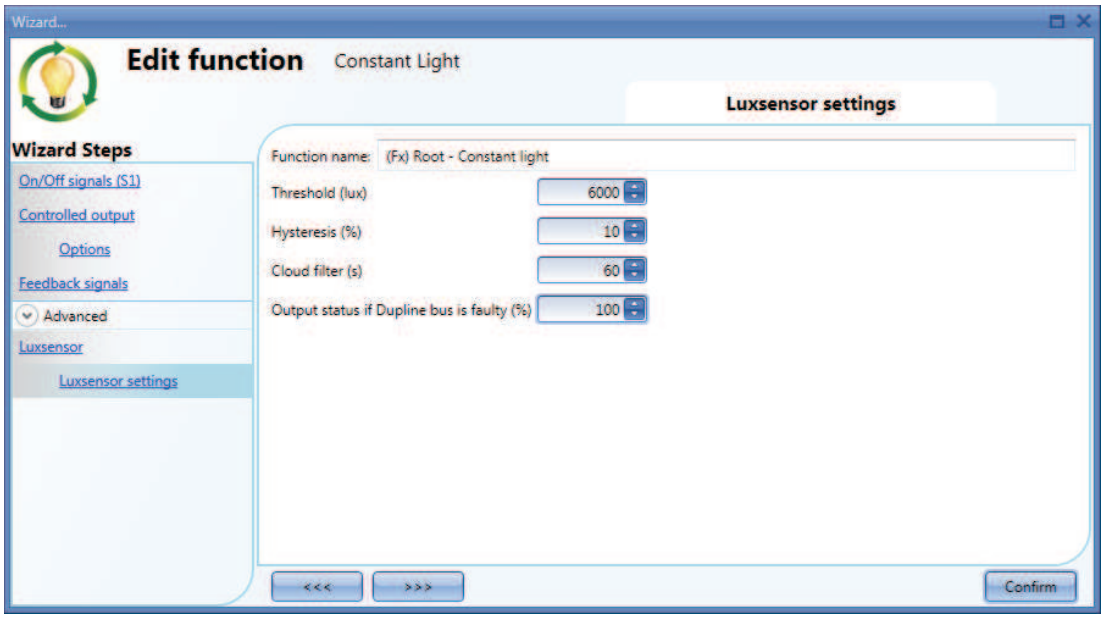


The user can add up to ten lux sensors: if more lux signals are linked to the function, the average lux value is calculated and then used.

The user can set the *Offset value (Lux)*: this is an offset added to the real level read from the luxmeter.



Once a lux sensor is selected, the user can change the settings as shown in the picture below:



Threshold (Lux)
In this field the user can set the light threshold above which the output is switched off to save energy (of course the status of the function stays on to regulate the light level).
The minimum value is set to the full scale value +20%.

Hysteresis (%)
In this field the user should enter the hysteresis value needed to switch the light ON again when its level goes below the (Threshold – Hysteresis value). (A value between 5 and 50% can be set).

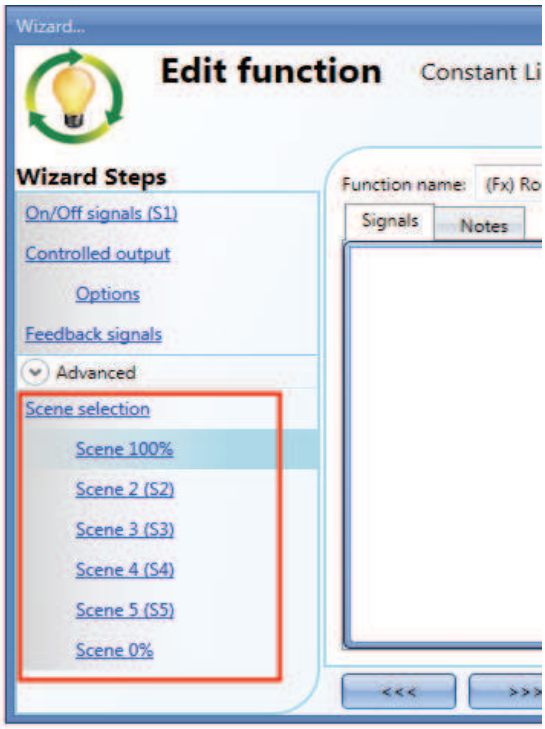
Cloud filter (s)
In this field the user can set up a delay (in seconds) to avoid the turning on/off of the light if a cloud shields the sun for a short time. If the time is set to 0, the filter is disabled.
We suggest setting the Cloud filter at least 60 seconds in order not to have the light turning ON/OFF continuously.

Output status if dupline bus is faulty (%)
In this field the user can set up the output value if the dupline bus or the lux sensor should be faulty.

10.3.6 How to set predefined scenarios with input signals

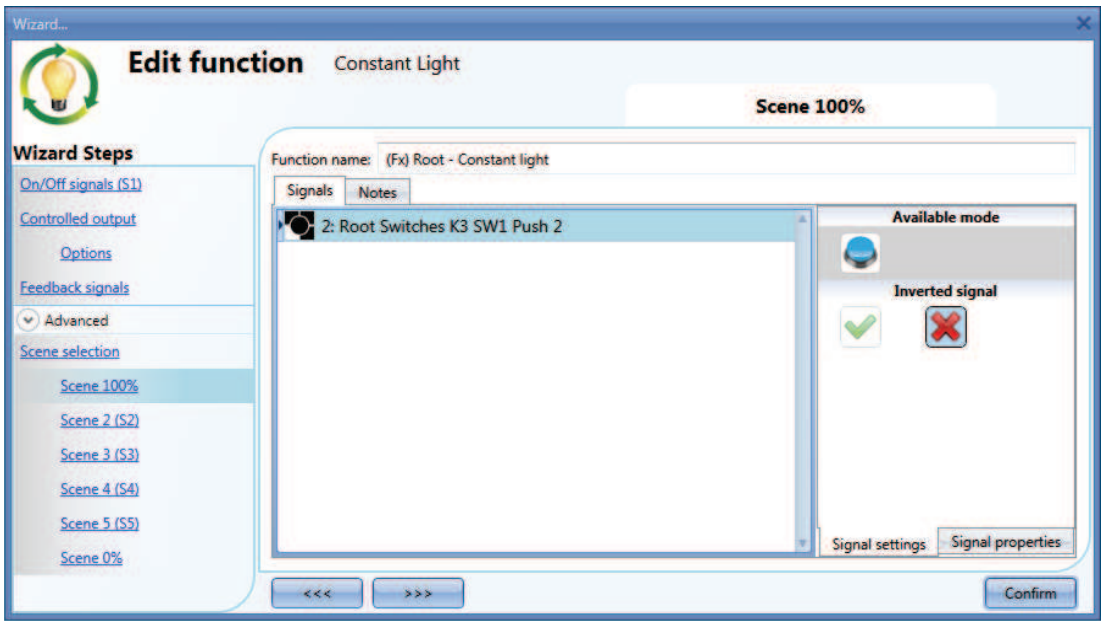
In this section, the user can customize different scenarios and select different input signals to activate them.
The user can set different output percentages and different timings for the soft start/stop.
Each scenario can be activated manually by adding an input signal in the signals window, or it can also be activated by different automations such as PIR sensors and calendar.

The first thing to do to use different Scenarios is to enable them in the *Advanced* section.
The user should go to the advanced steps of the function and then check *Scene selection*. The user can select the scenario from the list, then with a double click in the signals field can add one or more inputs to activate the scenario.



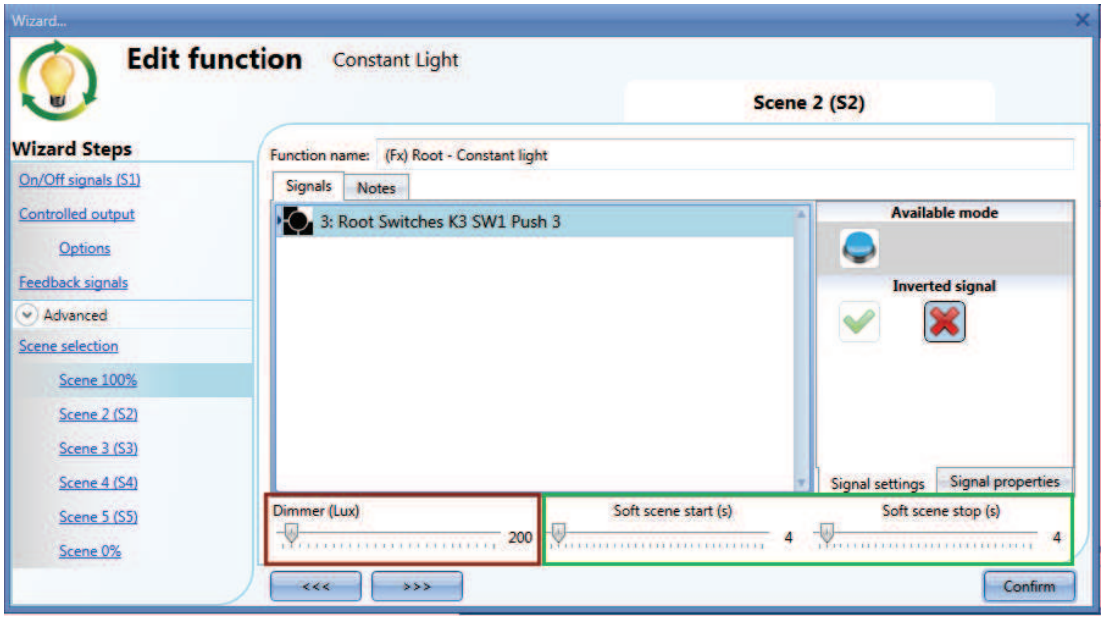
10.3.6.1 Scene 100%

When the scenario scene 100% is selected, all signals added in the window 'signals' will switch the light ON at the highest light level with a short press (input activated and deactivated within 1 s).
It is not possible to dim this scenario.
In the picture below, a simple example is shown of how to set a pushbutton to activate the scenario 100%. Each time the pushbutton 1 is activated, the light level will be increased to the maximum value.
N.B. If this scenario is used, the Off threshold has to be set properly in order not to have the light switching on and off continuously.



10.3.6.2 Scene 2 (S2)

The *Scene 2* window is split into three sections: each section has a different way to manage the output. The user should select the relevant sections, then add an input signal with a double click on the *Signal* window and then select the input from the list of available signals.



10.3.6.3 Scene 3 (S3)

This scenario is managed in the same way as scenario 2.

10.3.6.4 Scene 4 (S4)

This scenario is managed in the same way as scenario 2.

10.3.6.5 Scene 5 (S5)

This scenario is managed in the same way as scenario 2.

10.3.6.6 Scene 0%

When scenario *Scene 0%* is selected, all signals added in the window Signals will switch the light off with a short press (input activated and deactivated within 1 s).

10.3.7 How to manage lights automatically

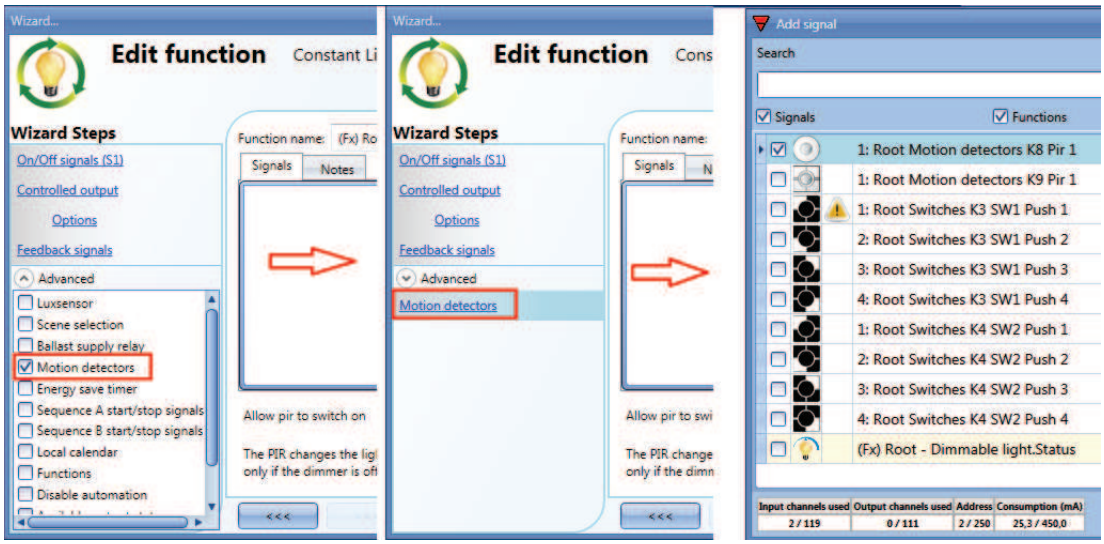
The automatic on/off switching of the light can be managed by PIR sensors (the light will be switched ON when the PIR sensor detects people movement/presence), by calendar functions (calendar to switch the light on/off at pre-defined time intervals) or by general functions.
All these automations can be enabled in the *Advanced* section.

10.3.8 How to select a PIR sensor to control scenario

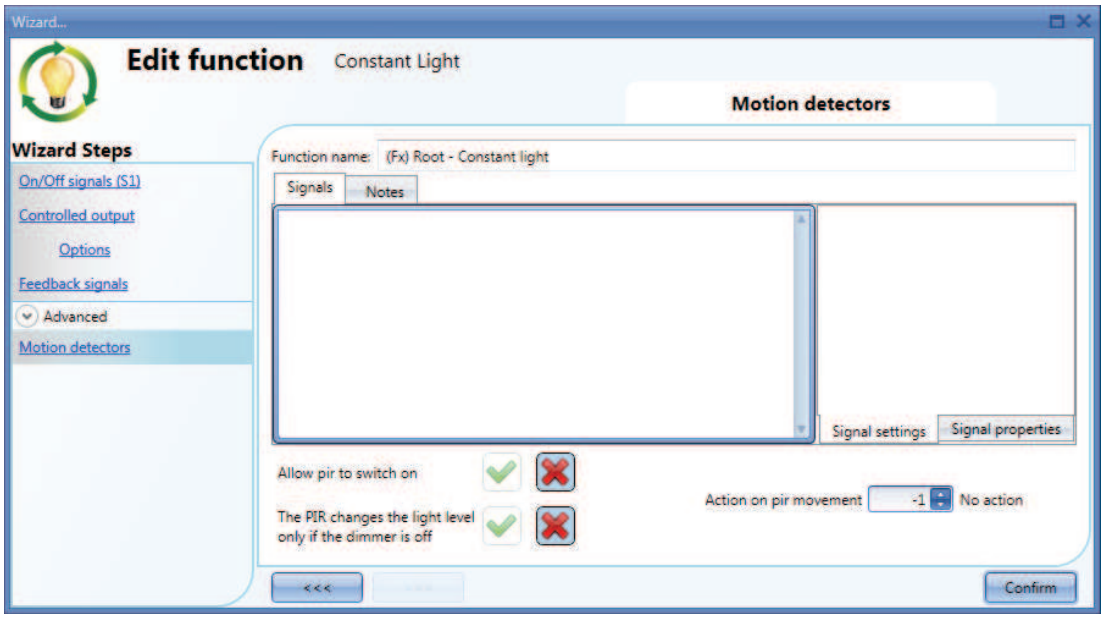
The motion detector sensor can be used to perform different functions:

- switching the light on, on movement detection.
- adjusting the light level to a predefined value.
- switching the light off if no presence is detected within a time interval.
- Starting a sequence that manages the activation of different scenarios

To set and mount a PIR sensor correctly, please read paragraph *How PIRs work and how to configure them* .
The first thing to do when a PIR sensor needs to be used in a dimmable function is to enable it in the *Advanced* section. The *Motion detector* menu will appear. After selecting it, with a double click on the Signal window, the list of available signals will appear.
Select the required signal/signals and click on *Confirm*. Up to 50 signals can be selected and the system will perform a logical OR of all of them.



Once the PIR sensor is added, the user can also choose to invert the signal by selecting the green *V* below *Inverted signal*, in the Signal Setting tab window.



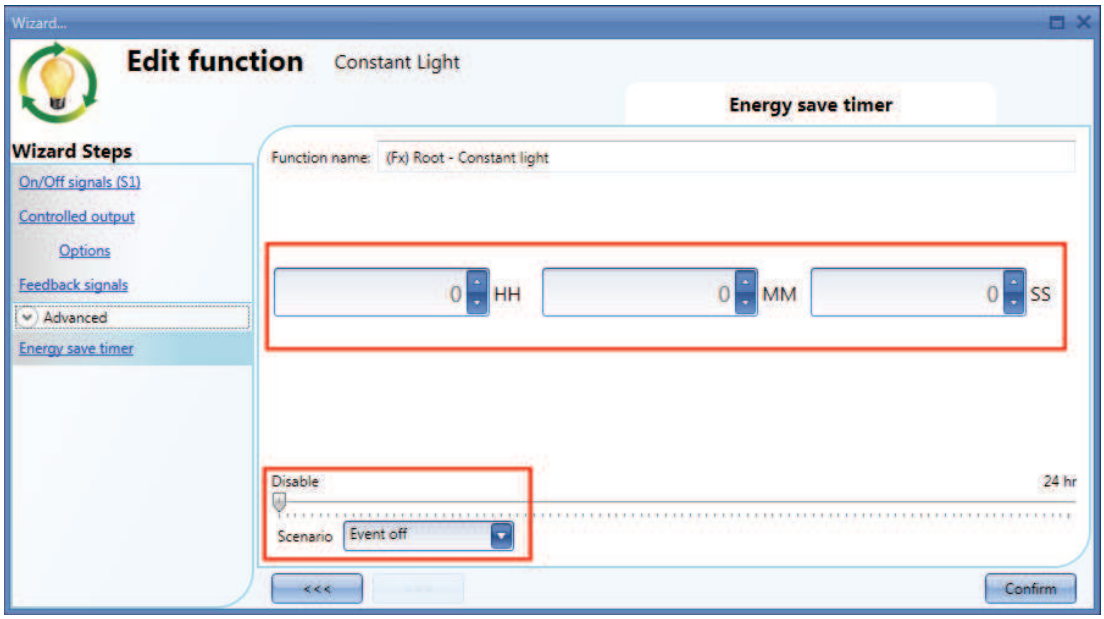
10.3.9 How to turn a light ON with PIR sensors, and turn it OFF manually

In order to create this easy automation, the user must select at least one input signal for the manual command, one output signal to control the load and then a PIR sensor in the Advanced section.
In this case the light will not be switched OFF automatically if no presence is detected, so the energy-save timer must not be used in the Advanced section.

Once the PIR signal is entered, the user should select the green “V” in the option “Allow the PIR to switch on”. In this way, each time the PIR detects movement, the light will automatically be switched ON.
The user can also select the light percentage value of the output when the PIR detects movement and switches the light on. The event command can be selected from: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 10 lux to the full scale value.
In the example above, the PIR is set to switch the light on at 1000 lux.

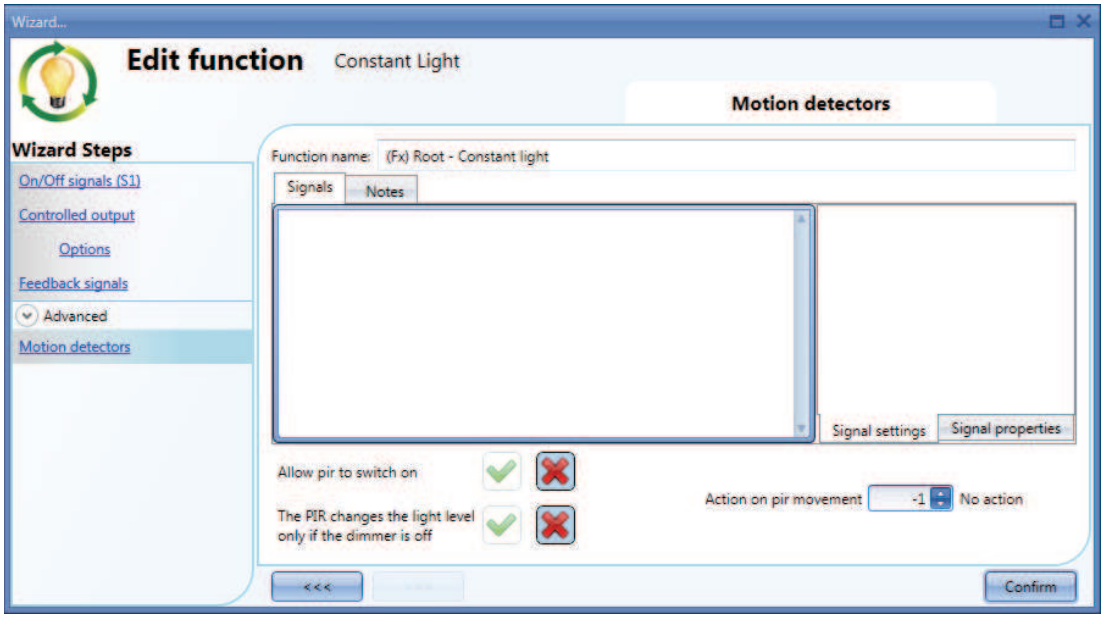
10.3.10 How to turn a light on and off with PIR sensors

The first step is to add the output signal, then to add a PIR sensor with the option “Allow to switch on” enabled, and then to set an energy-save timer to switch the light off automatically when no presence is detected.
To set an energy-save timer, select *Energy save timer* from the Advanced section, change the timing by moving the slider or typing hours, minutes and seconds, select the action to be performed at the end of the timer (event off), then press confirm.
The energy-save timer starts counting when no presence is detected. Each time presence is detected the timer is reloaded. When the timer expires the light is switched off.



10.3.11 How to change scenario with a PIR

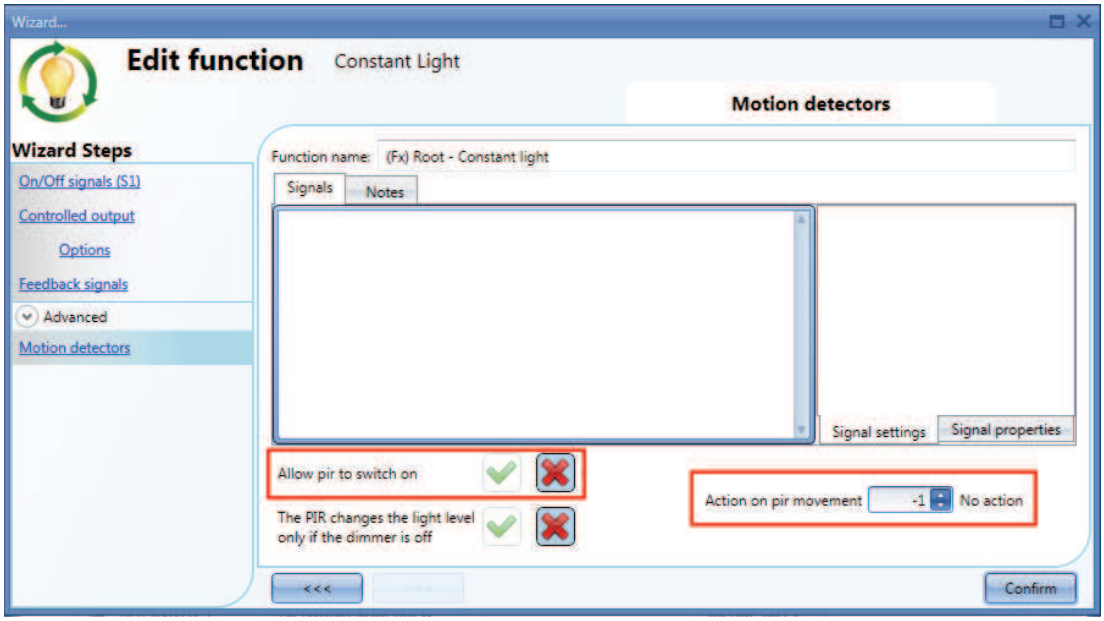
The PIR sensor can change the current scenario when movement is detected. The user can also select the light percentage value of the output when the PIR detects movement and switches the light on. The event command can be selected from: no action (-1), switch the light Off (0), set scenario S1 (1), set scenario S2 (2), set scenario S3 (3), set scenario S4 (4), set scenario S5 (5), set a specific level from 6 lux to the full scale value.



10.3.12 How to switch the light on manually and off with the PIR sensor

An example of this automation is an office where the employees sometimes forget to switch the light off when they leave the office. When the PIR stops detecting presence in the office, the energy-save timer starts counting and when it expires, the light is turned off.

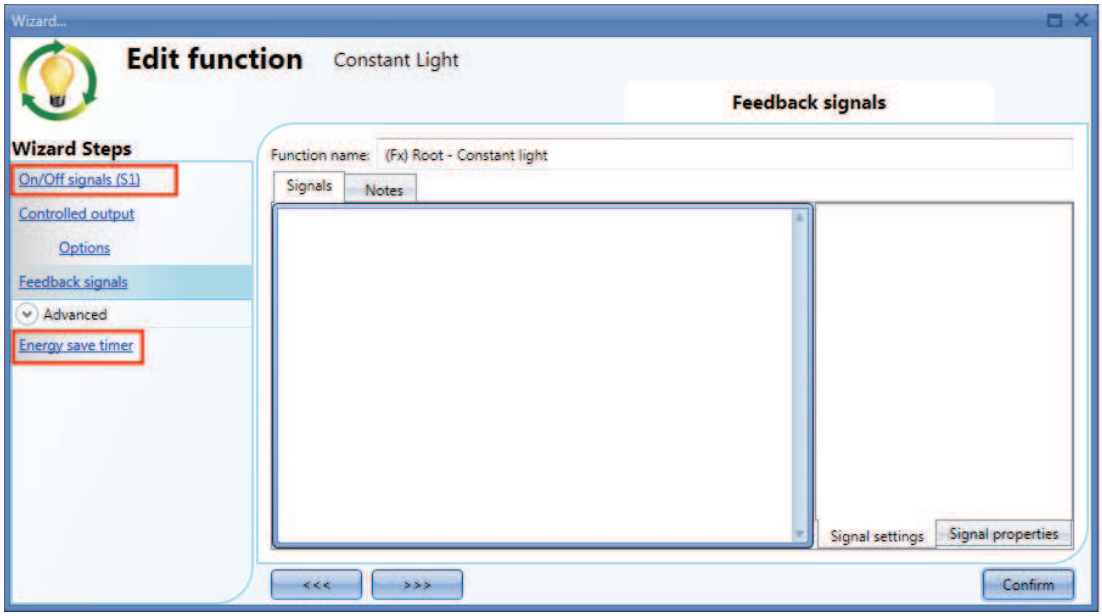
If the user wants to use the PIR sensor to switch the light off automatically, the following settings should be used.
Add a PIR sensor and an energy-save timer from the Advanced section.
In the PIR settings, the red cross in the *Allow to switch on* field must be selected because the light has to be switched on manually. In the *Scenario %* field, the value -1 must be selected (-1 means no action when movement is detected); with these two settings the PIR cannot switch the light on and cannot set a different light percentage when it detects movement.
The energy-save timer must be set differently from zero, and will be triggered when the light is switched on. While the PIR detects presence, the timer is reloaded. When the PIR stops detecting presence, the timer starts counting down and when it expires the light is switched off accordingly.

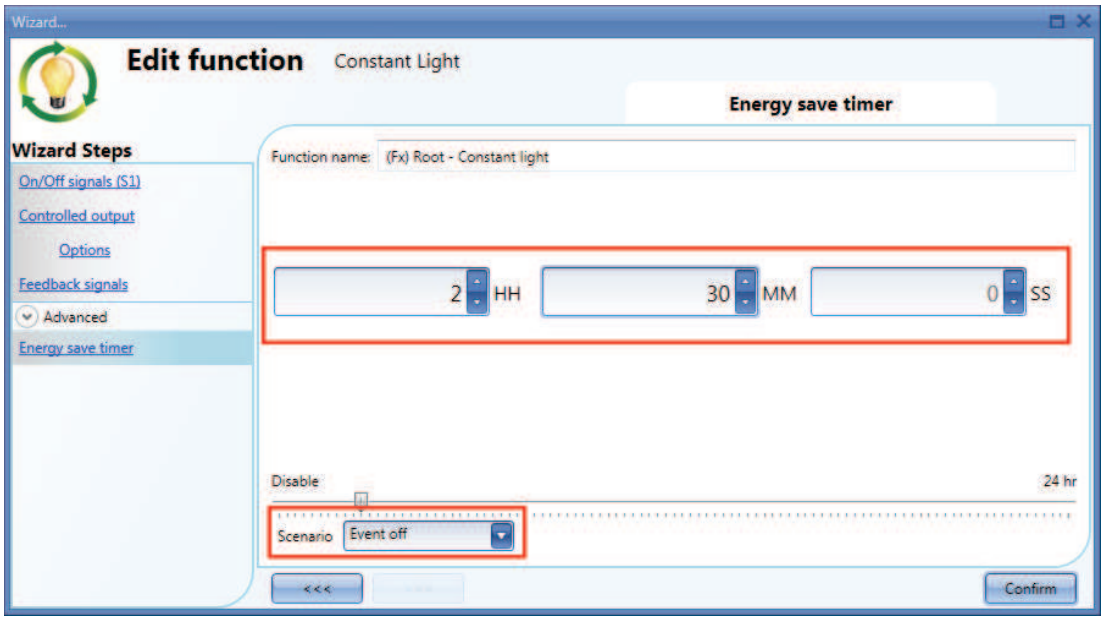


10.3.13 How to switch the light off after a predefined period

If the user needs to be sure that the light is switched off to save energy, the energy-save timer should be selected in the advanced functionalities (the energy-save timer is selected by default when the user creates a new Dimmer function).
The energy-save timer starts counting each time the light is switched On manually or by using the PIR sensor, causing the light to go off automatically when it expires.
The energy-save timer can be set up to a maximum value of 24 hours, whilst when it is set to 0 it is disabled. For this reason, the shortest time that can be set is 1 second.
The energy-save timer value can be changed by means of the webserver.

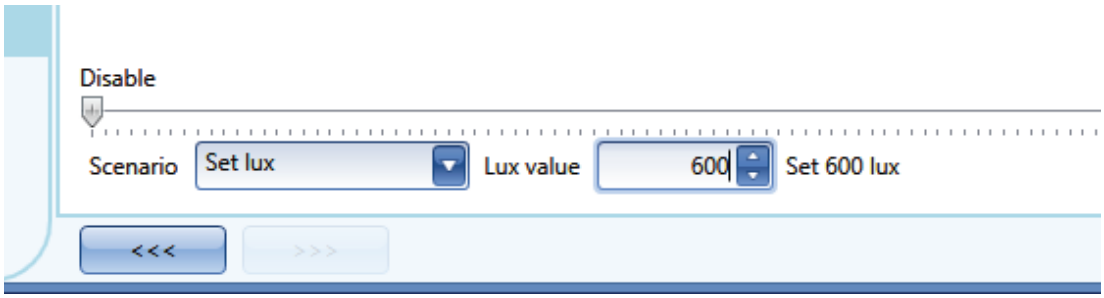
In the example below, the user has set a function with a pushbutton to switch the light on and an energy-save timer of 2 hours 30 minutes to switch the light off automatically (*Event off* is selected as the action to be performed).





10.3.14 How to set a predefined scenario when the energy save timer expires

To select a different scenario when the timer expires, the user has to set the wanted light level in the *Energy save timer* field as shown below.



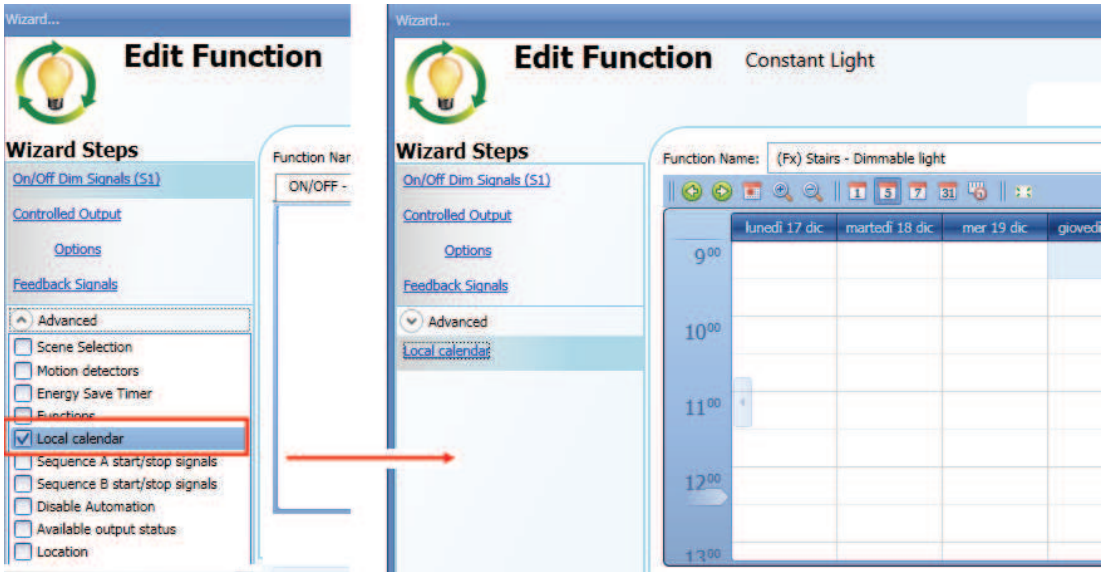
10.3.15 How to switch the light on/off using the calendar

An example of this automation could be a calendar that switches all lights off at a pre-set time in the night.

There are two ways of managing dimmable lights with the calendar: by setting the “local” calendar inside the function or using a “global” calendar function.
If the function uses an energy-save timer, the calendar does not affect it in anyway.

10.3.15.1 The local calendar.

To enable it, the relevant menu has to be enabled in the Advanced section.



The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* shown below:

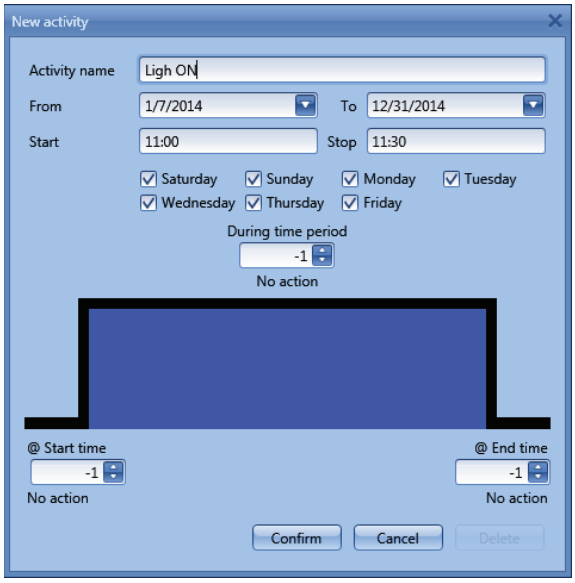
Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week
	One step forward in the calendar. E.g: if a week is visualized, this button allows the user to go to the next week
	Go to the current day
	Magnifying lens to see more/fewer time bands
	The calendar visualizes one day horizontally
	The calendar visualizes 5 days horizontally
	The calendar visualizes 7 days horizontally
	The calendar visualizes 31 days horizontally
	The calendar visualizes 7 days vertically
	Full screen view

Calendar activities:

Event activity

Once the user has selected his preferred type of visualization, to enter a time band he should double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that is to appear on the calendar. This is a mandatory field.

From*:* This is the starting date for the activity.

To*:* This is the end date of the activity.

Start*:* This is the start time of the activity.

Stop: This is the end time of the activity.

@ start time: in this field the user can select the action to be performed at the start time.
The selectable actions are:

- No action (-1)
- Switch the light off (0)
- Set the light to Scenario 1 (1)
- Set the light to Scenario 2 (2)
- Set the light to Scenario 3 (3)
- Set the light to Scenario 4 (4)
- Set the light to Scenario 5 (5)
- Set the light level to a fixed value between 6 lux and full scale value.

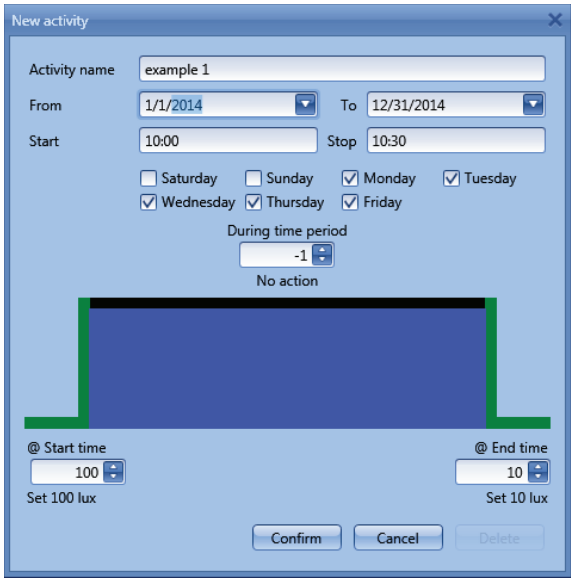
@ end time: in this field the user can select the action to do at the end time.
The selectable actions are:

- No action (-1)
- Switch the light off (0)
- Set the light to Scenario 1 (1)
- Set the light to Scenario 2 (2)
- Set the light to Scenario 3 (3)
- Set the light to Scenario 4 (4)
- Set the light to Scenario 5 (5)
- Set the light level to a fixed value between 6 lux and full scale value.

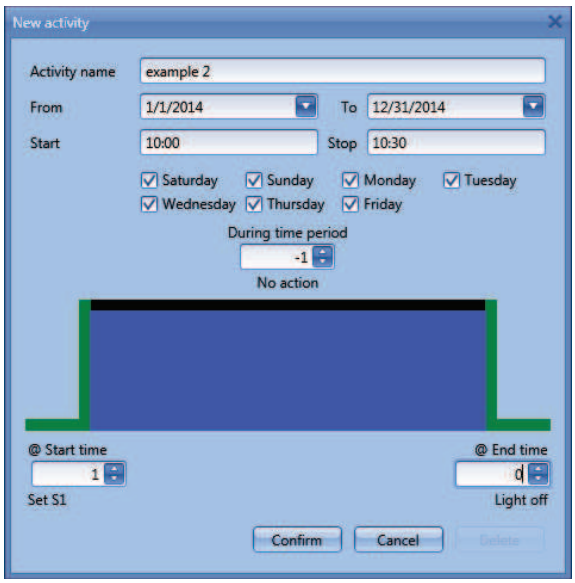
Days: The user should select the week days when the actions are to be performed.

If ***Level activity*** is selected, the user can disable all the automations of the function (PIR sensors, lux meters, calendars).

- No action (-1)
- Disable automations (1)



In the first example, the calendar is set to work all the year round (from 1st January to 31st December) . The working days are: Monday, Tuesday, Wednesday, Thursday and Friday (the calendar does not work on Saturday and Sunday)
At the start time (10:00) the light is switched on at 100 lux: at the stop time the light level goes down to 10 lux.
All the activities are repeated automatically each year, so looking at the example below, once 2013 is finished, the activity will go on in the same way into 2014 and so on.

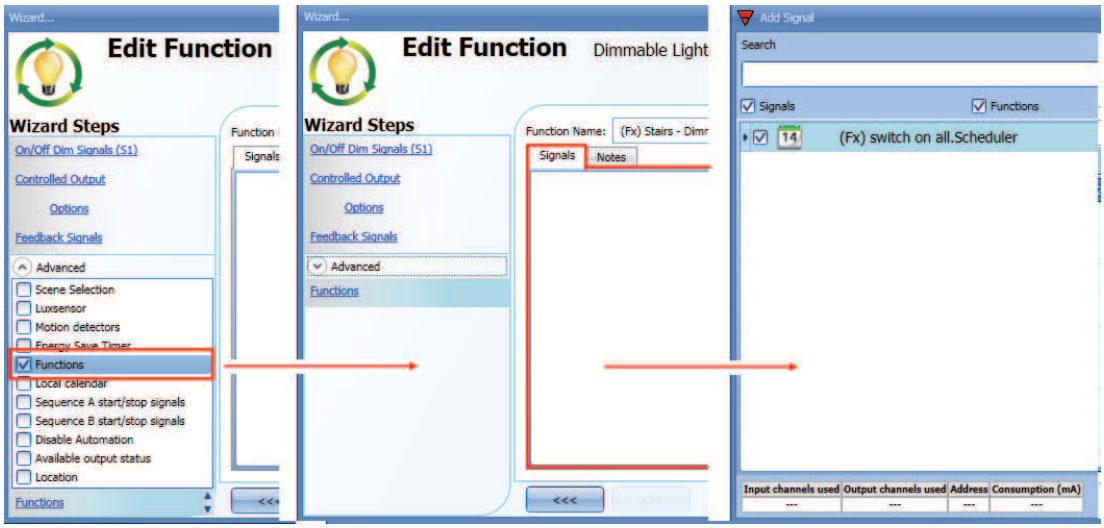


In the second example, the calendar is set to work all the year round (from 1st January to 31st December), every day.
At the start time (10:00) the light is switched on at scenario 1: at the stop time of 10:30 the light is switched off.

10.3.15.2 The global calendar function

Before using a global calendar, the user should define it as a function (See How to set a global calendar).
The field function then has to be selected in the *Advanced* menu.
By clicking on Functions and then double clicking in the *Signal* window, the *Add signal* window will appear. Select the required calendar function.

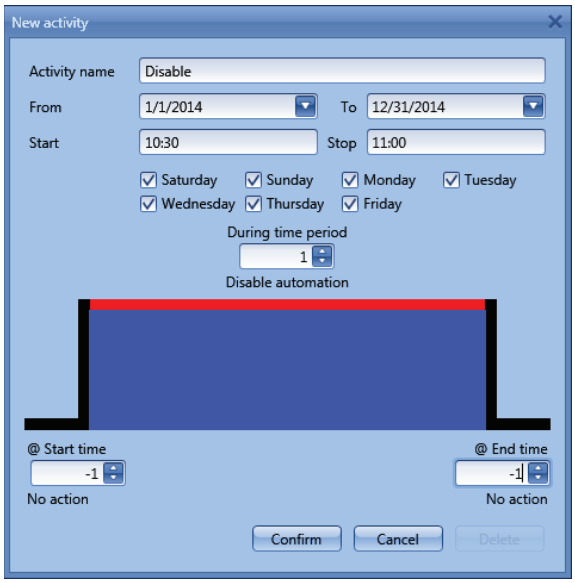
In the example below, the global calendar added is a calendar created for switching on all the lights.
Its behaviour is the same as that described for the local calendar.



10.3.16 How to stop an automation

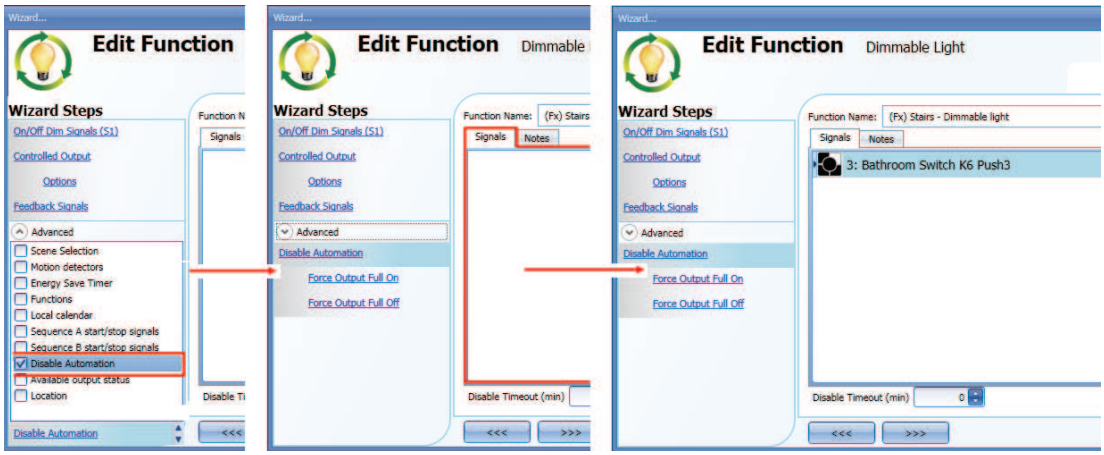
There are two ways of disabling the automation performed by PIR sensors, lux meter, calendar and energy-save timer: the first is with the calendar, the second with signals.

Disabling automation using the calendar
To disable the automation, the user can select the local or the global calendar.
The local calendar should be enabled, using the advanced functionality *Local calendar*, while the global calendar should be added as a signal in the *Functions* menu of the *Advanced* functionalities.
Regardless of the type of calendar added, the settings to disable all the automations are shown below.

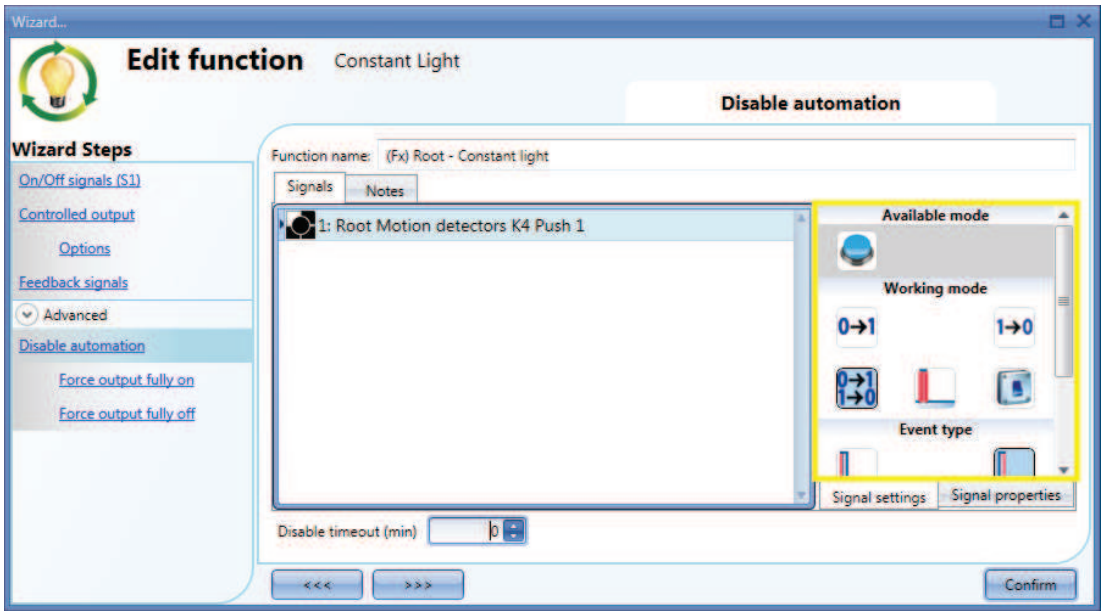


In the level activity the disabling of the automation is selected by entering the value 1. In this way, during the entire period when the calendar is active, all automations are disabled.

Disabling automation using signals
The second way of disabling an automation is by using signals: to enable it, select *Disable automation* in the *Advanced* section, double click on the signal window and select the right signal to use.



When the signal is added, the user should select the working mode and the type of the event for the signal:



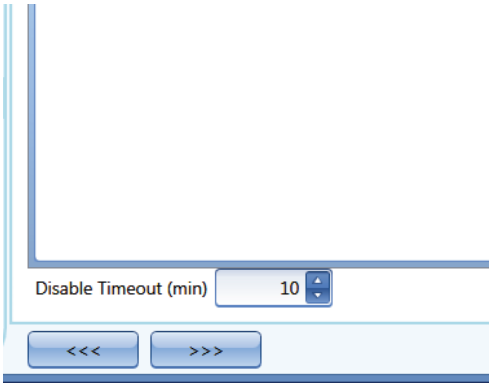
If a push button type is used, the way of working marked by the yellow rectangle should be selected following the table below.

	Event type			
Working mode				
	As soon as the push button is pressed, the automation is disabled.	After a short press (less than 1 second), the automation is disabled at the release of the push button.	After a long press, the automation is disabled at the release of the push button.	After a very long press, the automation is disabled at the release of the push button.
	As soon as the push button is pressed, the automation is enabled again.	After a short press (less than 1 second), the function automation is enabled again at the release of the push button.	After a long press, the automation is enabled again at the release of the push button.	After a very long press, the automation is enabled again at the release of the push button.
	As soon as the push button is pressed, the automation will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the automation will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the automation will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the automation will be enabled/disabled in toggle mode at the release of the push button.
	The automation will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode has to be carried out following the table below:

	Event type	
Working mode	Signal activated	Signal deactivated
1→0	The automation is enabled again	No action
0→1	The automation is disabled	No action
0→1 1→0	The automation is disabled/enabled in toggle mode	No action
	The automation is disabled/enabled in toggle mode	The automation is disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

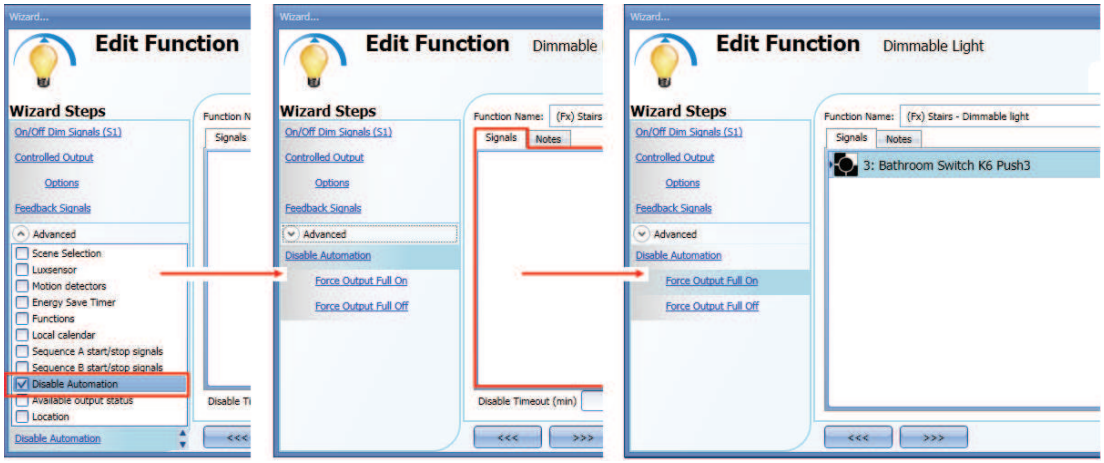
The user might need to set a time after which the automation is to be enabled again, even if the selected signal is still active. To do this the *Disable timeout* field has to be set.



In figure above, a disable timeout of 10 minutes is set. The maximum delay is 59 minutes.

10.3.17 How to force the output fully ON

If the user wants to force the output On regardless of all other signals used in the function, the force Output field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output fully on*, then double click on the signal window and select the right signal to use.



Each signal used in the “Force output fully on” window works in level mode. Until the signal is active, the light is forced to the fully on status. When the signal is non-active, the light returns to the previous status.
When the *force to fully on* signal is activated and at the same time the *force fully off* signal is activated, the *force to on* status has priority.

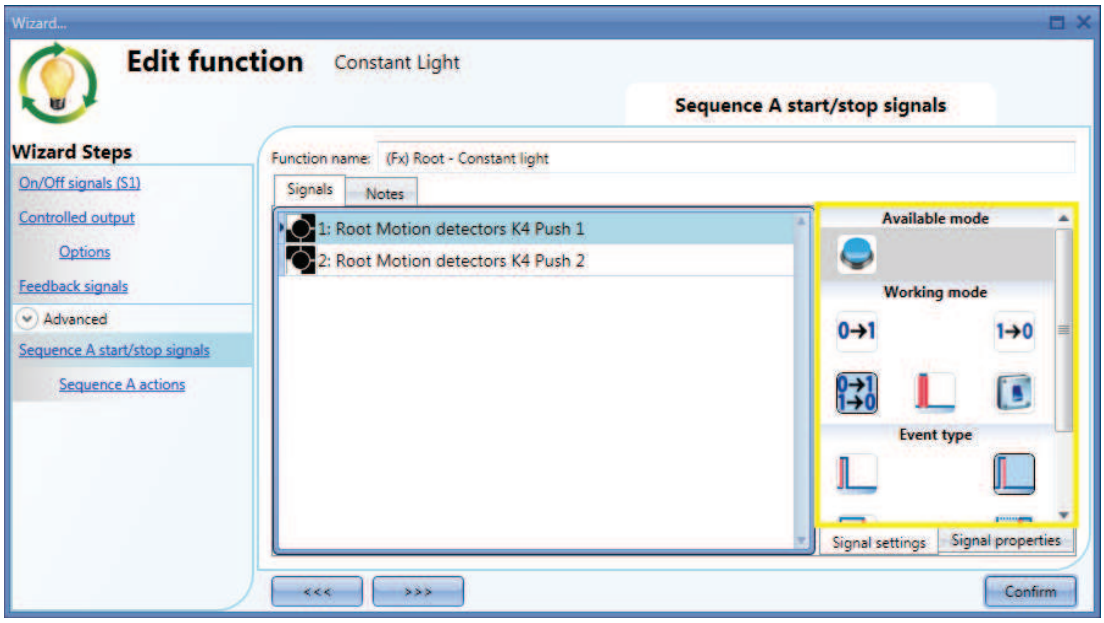
10.3.18 How to force the output OFF

If the user wants to force the output Off regardless of all other signals used in the function, the *Force output fully off* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force the output fully off*, then double click on the signal window and select the right signal to use.

Each signal used in the *Force output fully* off window works in level mode.
Until the signal is active, the light is forced to the off status; when the signal is non-active, the light returns to the previous status.
When the force to fully on signal is activated and at the same time the force to fully off signal is activated, the *force to on status* has priority.

10.3.19 How to configure Sequence A

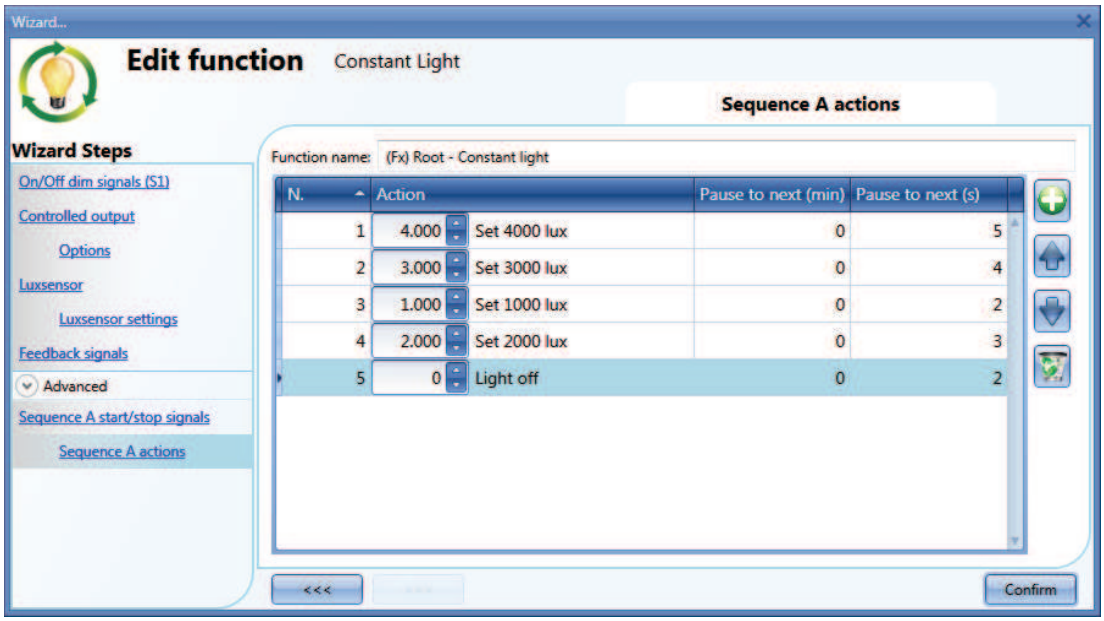
Sequence A automation is a list of commands for changing the light level and it can be used to create dynamic scenarios.
First it has to be enabled in the *Advanced* section.
The sequence is started when an On event occurs: the start/stop signal can be a pushbutton, a function or a remote command.
The user can select from short, long and very long activation to start the sequence.
The sequence is stopped when any dimmer command is generated.
For each signal the inverted logic can be enabled.



10.3.19.1 Sequence A options

In the sequence options window the user can manage each step of the sequence list.
In the window the user can set:

- The order of the scenario in the list.
- The level of the light of each single scenario in the list.
- The pause time of each scenario in the list.



Sequence options icons :

	Add a new Scenario step to the sequence list
	Move the selected Scenario step UP one position in the list
	Move the selected Scenario step DOWN one position in the list
	Delete the selected Scenario step from the sequence list

Pause to next (s): in this field the user can set the delay between one scenario and the following one.

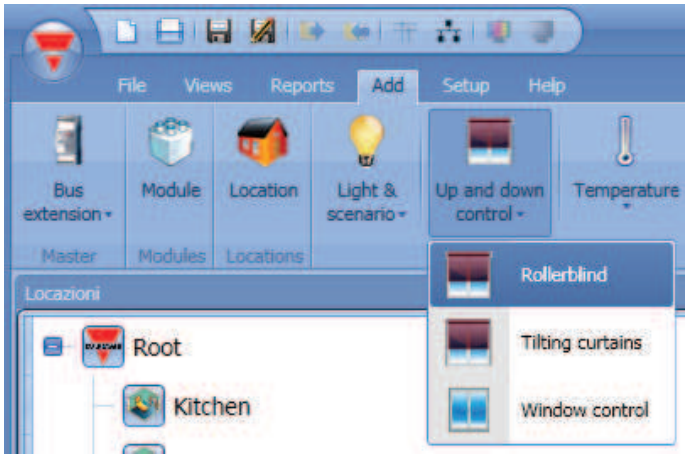
Scenario (Set lux): in this field the user can select the percentage of dimming of each command.
N.B: If S1, S2, S3, S4, S5 are selected, the light is set to 10%. So it is suggested to set a a light level as shown in the picture above.

10.3.20 How to configure Sequence B

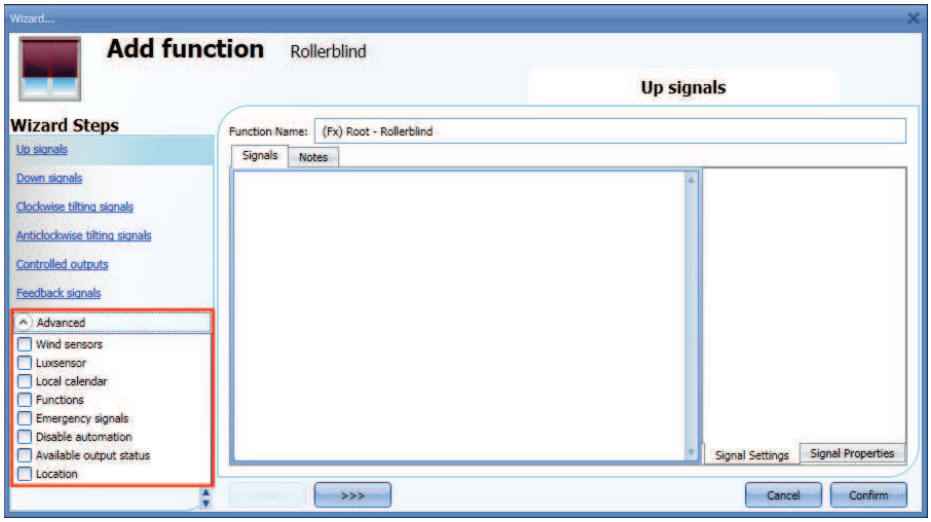
Sequence B can be configured in the same way of Sequence A.

10.4 How to set a Rollerblind function

This function allows the operator to manage the motor to control roller blinds.
The user can either configure a basic function to move blinds up and down, or implement an automated system by programming the relevant objects of the function.
To set up this kind of function, the user should select *Up and down control* from the Add menu, then select *Rollerblind* (see picture below). The new function will be added into the selected location.



This function manages one or more motor outputs controlled by one or more input commands. The command might be a physical signal like a pushbutton, a switch, a function or a remote command (Webserver, sms, Modbus TCP/IP)
The automation of the tilting slats can be managed by accessing the *Advanced* section, where the user can select different kinds of automation: wind sensors, rain sensors, lux sensors, calendar.

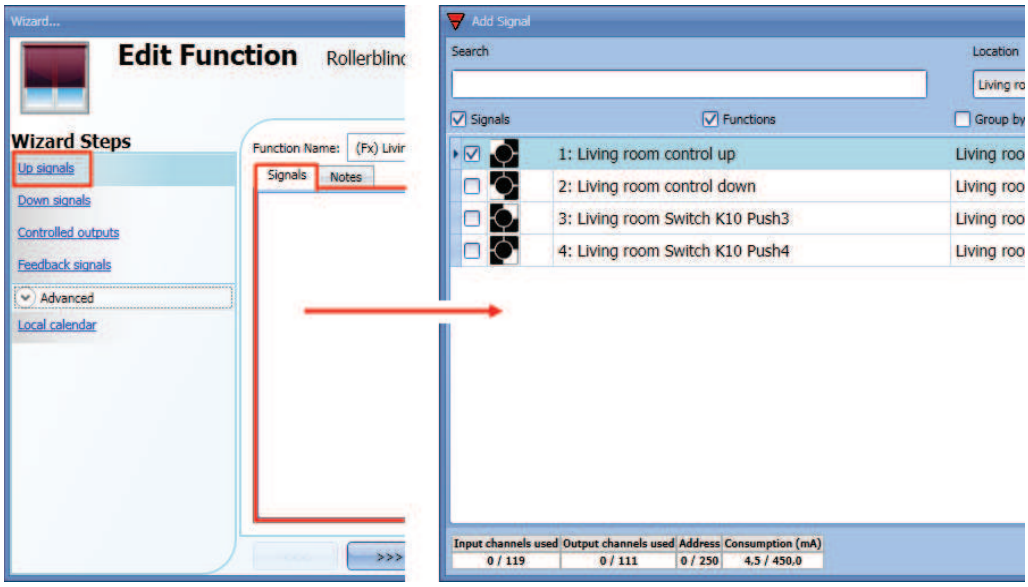


N.B. For the function to behave correctly, we suggest giving an up/down reset command every time the system is started.
The reset command can be given by a pushbutton, via the webserver with administrator access or via the Sx Tool using the live signals mode.
When the reset command is sent and the motor is running, the user should wait for the running time to be completed (the running time is that set in the rollerblind module wizard).
For safety reasons, the reset command can be stopped anytime by another command; should

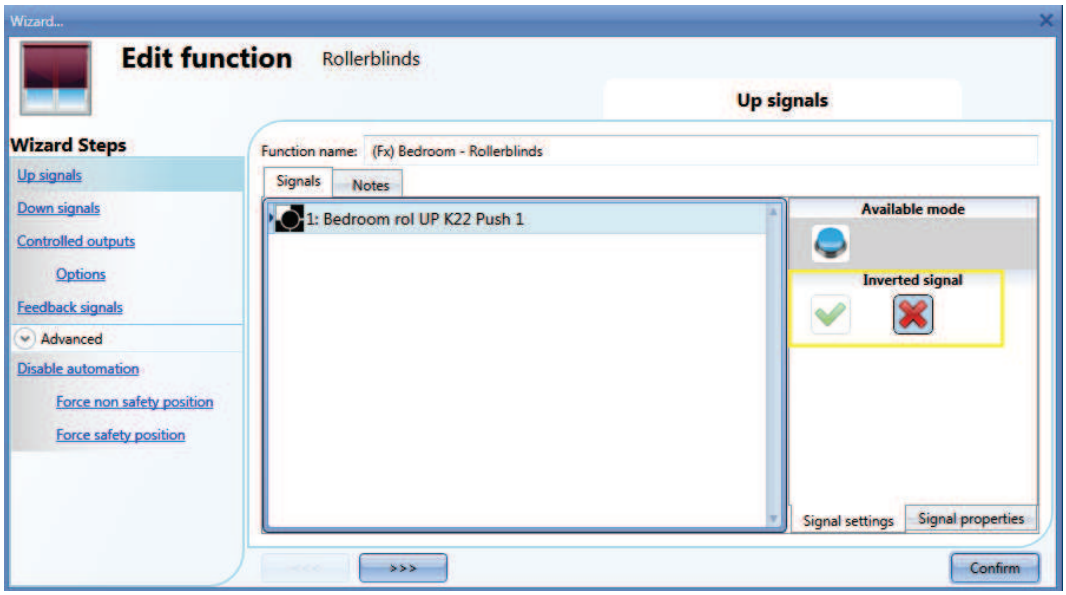
this happen, another reset command should be sent to ensure the correct behaviour of the automation starting from a known position.

10.4.1 How to move Up/Down blinds using a manual input

The user should add the input signals to control the Up/Down movement of the blinds.
To add the Up/down signal, the user should click on the relevant section, then double click on the *Signal* window and select the input signal from the list (see picture below).
The input signal may be a pushbutton or a switch.

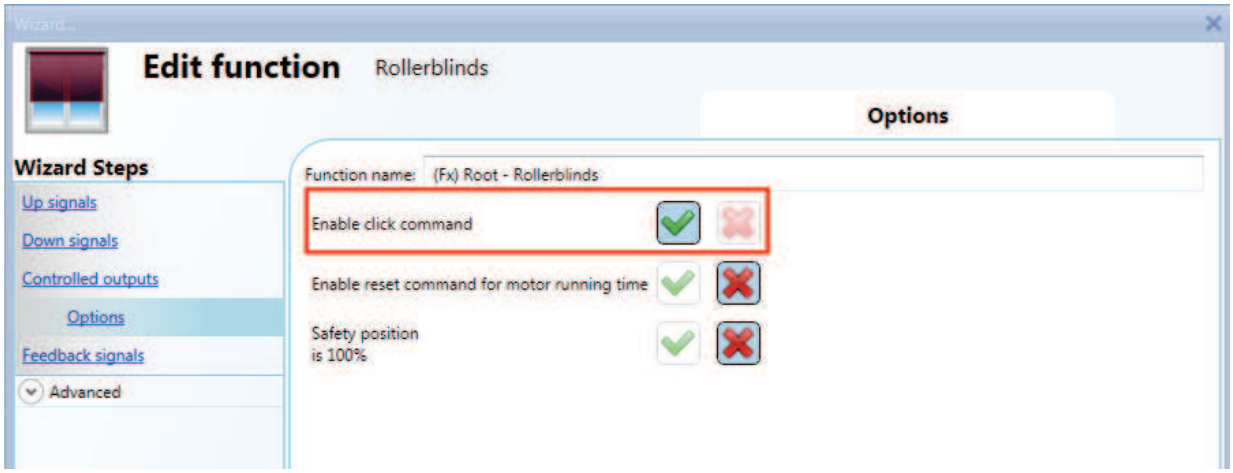


Once the Up/Down signal is entered, the user can also select to use the inverted logic of the signal (see yellow rectangle in the picture below).



All signals selected in the Up/Down window work in parallel (OR level). According to the release time of the signal, the output can behave in two ways:

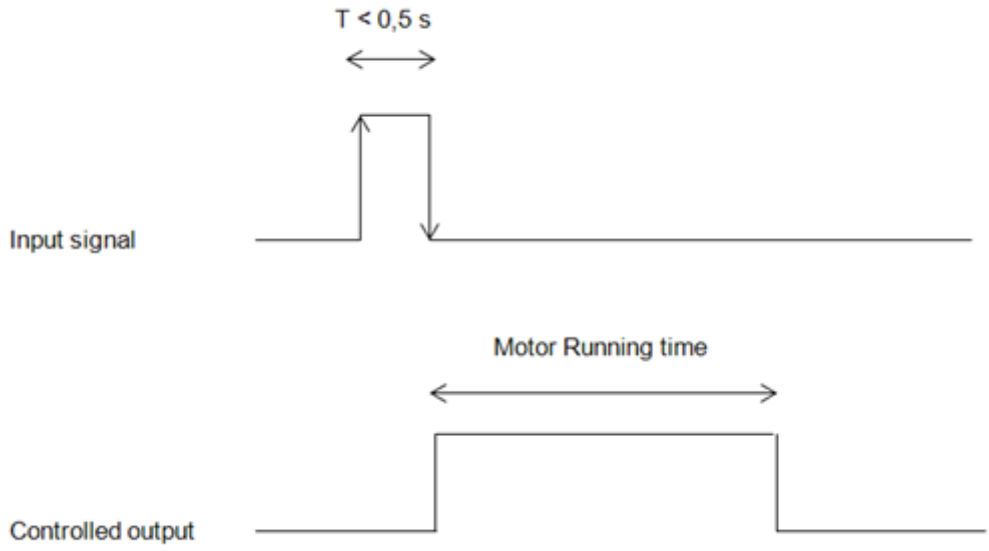
1) A short click action (<0,5sec) on the pushbutton, if enabled, generates a “fully Up/Down” command. The click action is enabled in the *Controlled output options* (see picture below).



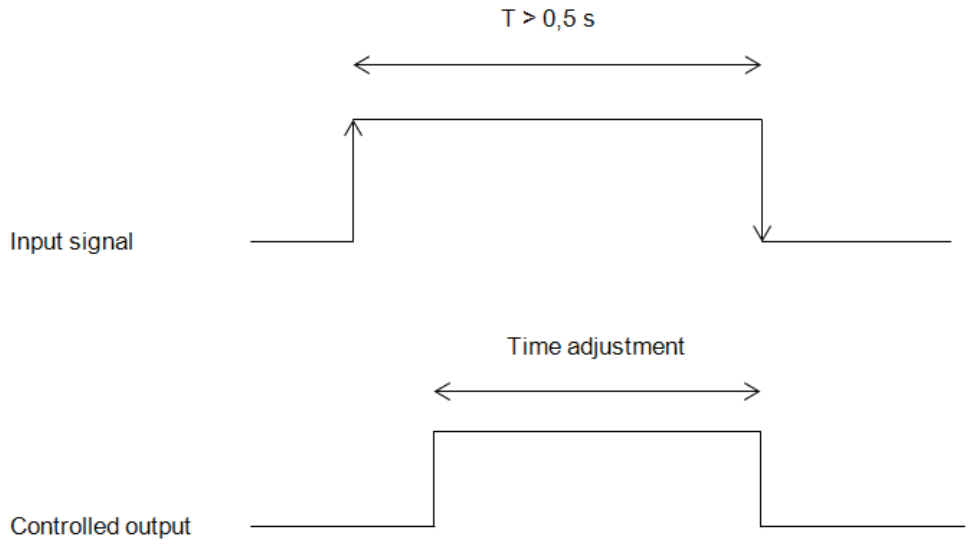
2) A long press (> 0,5 sec) activates the motor output until the input signal is ON (the blind goes up/down until the user keeps the pushbutton pressed or the selected signal is active). This functionality doesn’t need to be enabled.

In the figure below, two examples of activation of the input signal are shown.

Example 1: short press with the “click command” option enabled

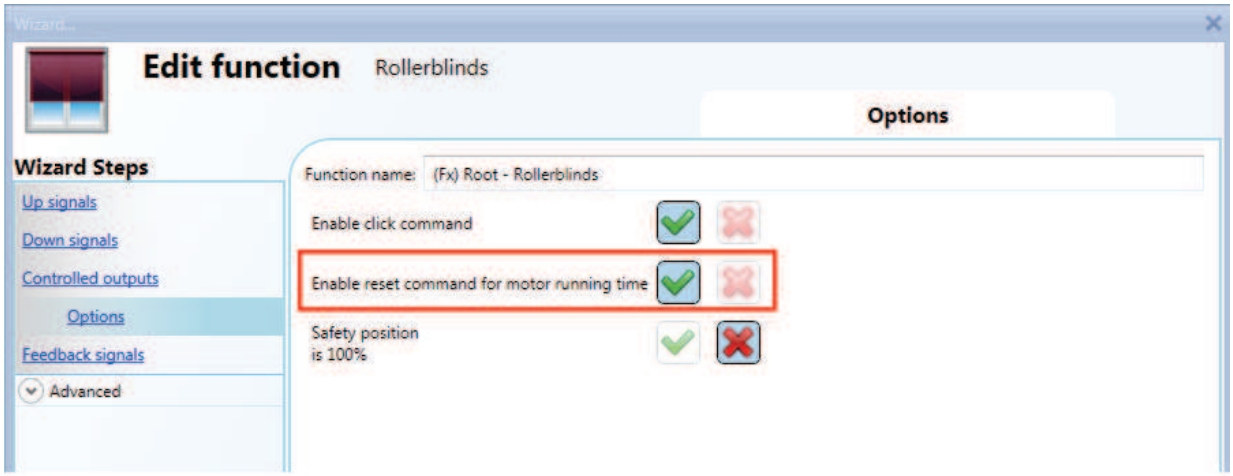


Example 2: long press for the “Up/Down” adjustment



10.4.2 How to set the reset command

The reset command is used to reset the position of the roller blinds after a system start-up or after the downloading of a new project on the Sx2WEB24.
This command is activated by a short click that makes the rollerblind go fully up/down (according to the selected direction) and resets the position to 0/100%.

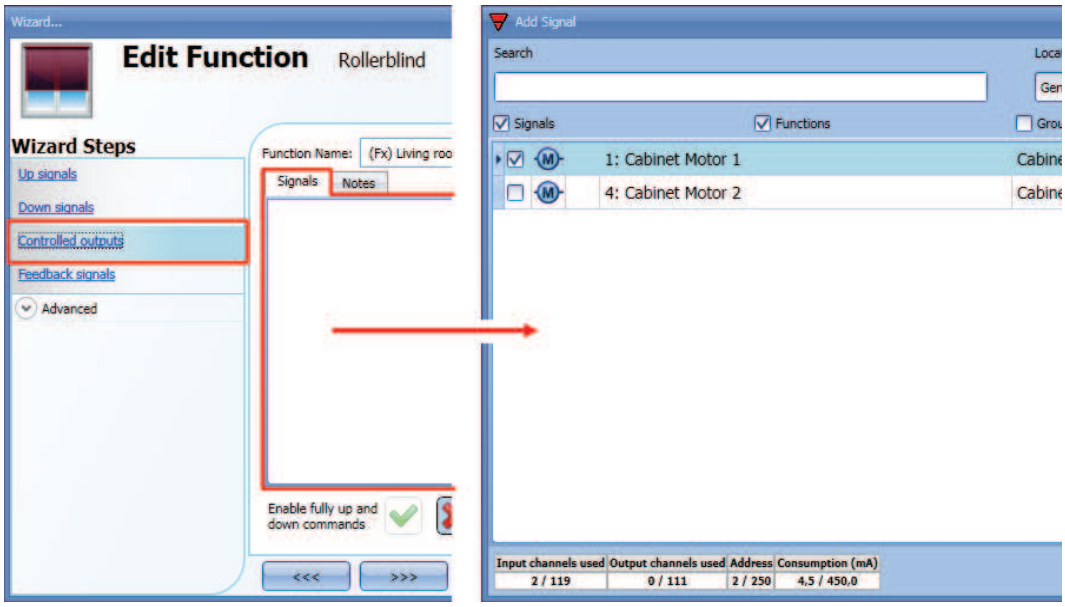


The reset command is also available via the webserver (when accessed as administrator) and via the Sx Tool in the live signals mode. When the command is sent by using the webserver or the Tool, a window with a warning message is shown to advise the user not to stop it.

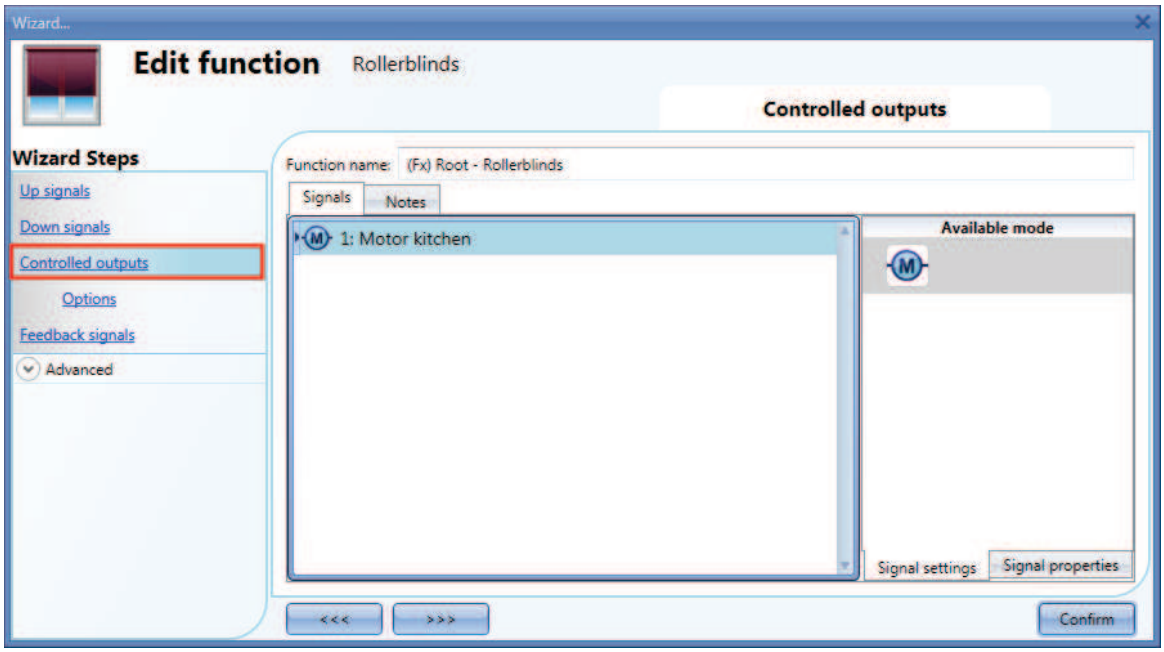
10.4.3 How to select and configure the output

To select the output signal that is controlled by the *Rollerblinds* function, the user has to click on *Controlled output* and then double click on the Signal window. Once the output window is opened, select the relevant motor output from the list.

.

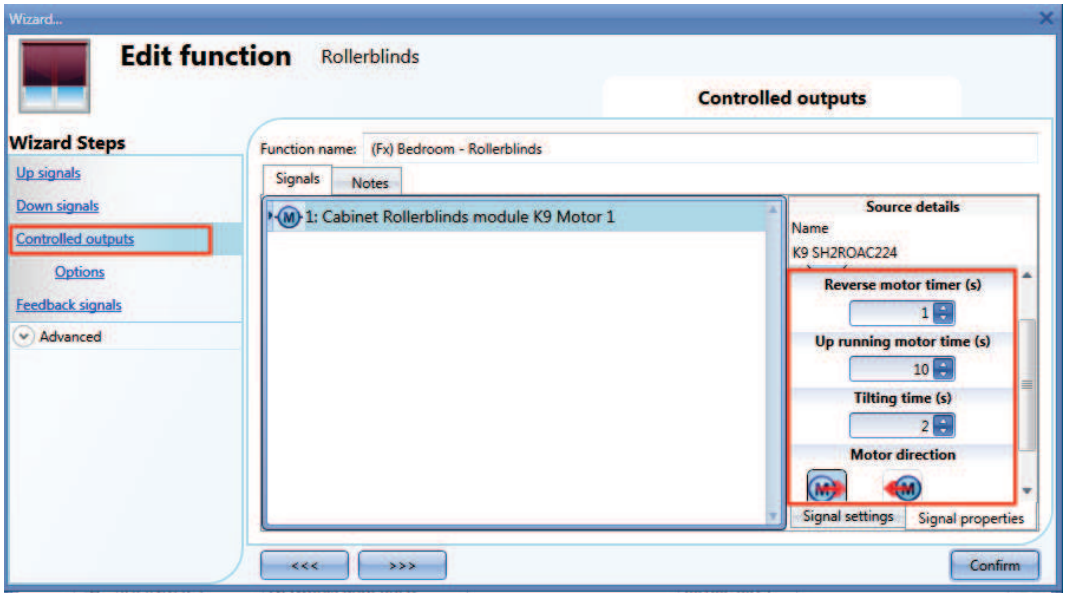


The signals available in this window are only the motor output type.
Up to 10 motor outputs can be chosen and they will be managed in parallel but they must be in the same Dupline network.



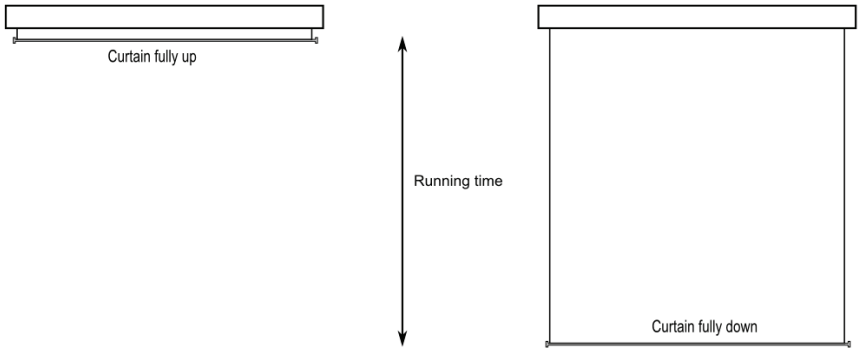
10.4.4 How to set the running time for Motor output

The running and tilting time of the motor have to be set when the rollerblind module is added.
These settings are needed for the correct operation of the function and they should be defined in the wizard relevant to the rollerblind module.
To access this, the user should open the Rollerblind module wizard by clicking on the relevant icons, and then select *Controlled outputs* (see picture below).

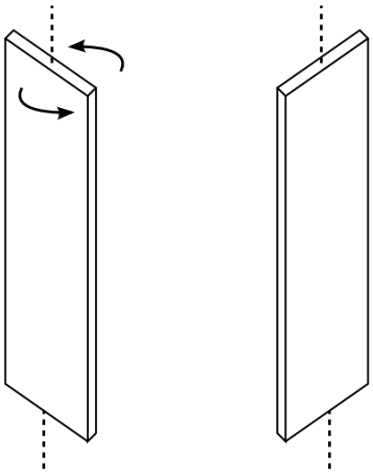


Reverse motor time (seconds):
This is the time in seconds to change the motor direction (this time should be set to 0.5 seconds at least, to avoid damaging the motor).

Running motor time (seconds):
This is the time for the blinds to go from a fully up position to a fully down position.
Starting from a fully wrapped position, the user must use the manual command to completely open the blind. The entire running time must be measured: the accuracy of the time is 0,1 second.



The motor tilt time (seconds):
This is the time for a complete tilting movement (a slats rotation of 180°). Starting from a fully tilted position, the user must use the manual command to tilt the blind into the opposite position.
The whole tilting time must be measured: the accuracy of the time is 0,1 second.



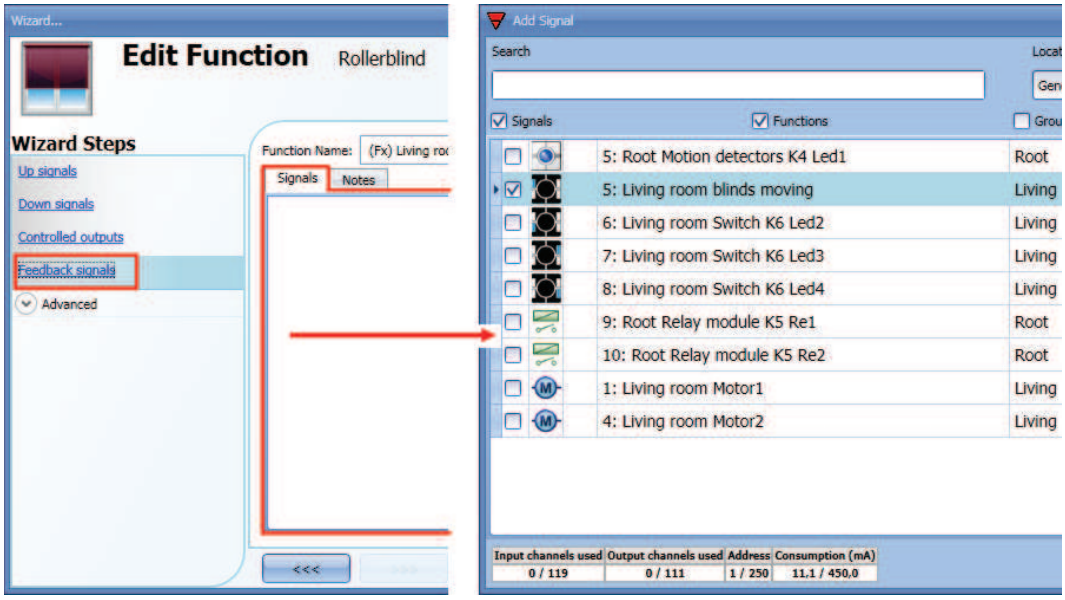
The motor direction:
The user can change the direction of the motor by clicking on the relevant icons.

	Clockwise movement
	Anti clockwise movement

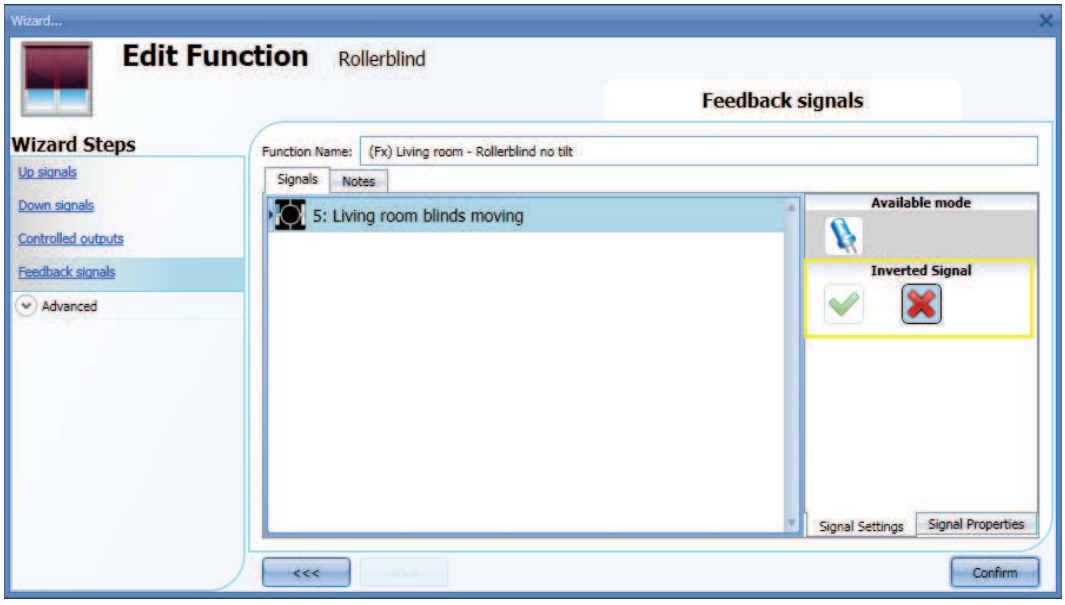
NB. For all those modules with serial numbers higher than MN46 (rev4), the tool manages two different running times: one time for motor up and another one for motor down. Please note that all the modules produced with a lower serial number (that means an earlier firmware revision) do not manage this new feature and an error will be shown by the tool.

10.4.5 How to set a signal to be a feedback of the status of the function

To select the feedback signal that indicates the status of the function, click on *Feedback signals* and then double click on the *Signal window*.
When the motor is moving, the feedback signal will be activated.



The signals available in this window are LEDs and relays.
Up to 50 signals can be added and they will be managed in parallel.
The logic of each feedback signal can be set as standard or inverted (see the yellow rectangle).



10.4.6 How to manage rollerblinds with automations

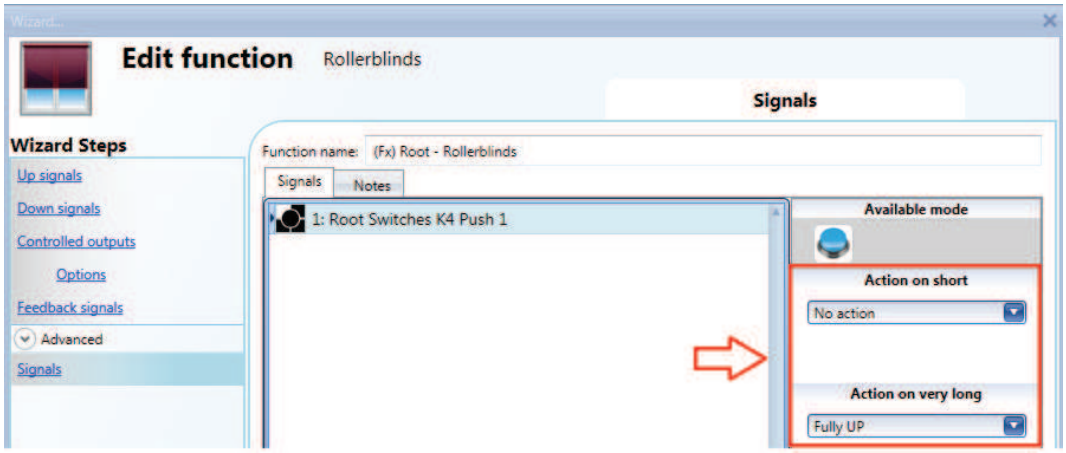
The automatic adjustment up/down of the curtains can be managed by wind sensors (the speed value measured by the sensor can be used to adjust up/down the blinds), by calendar functions (calendar to adjust up/down at pre-defined time intervals), by rain sensors (the curtains can be adjusted according to the weather) or by luxmeters moving blinds up/down according to the levels of ambient light.
All those automation have to be enabled in the Advanced section.

10.4.7 How to customize the push button behaviour

In the *Advanced* settings, the user can customize the behaviour of each push button used to control the blinds.

To add the signal to control the Up/Down movement, the user should click on the relevant section, then double click on the *Signals* window and select the input signal from the list.

By clicking on each added signal, it is possible to select the action to be carried out for the “short press” and “very long press” on the pushbutton.



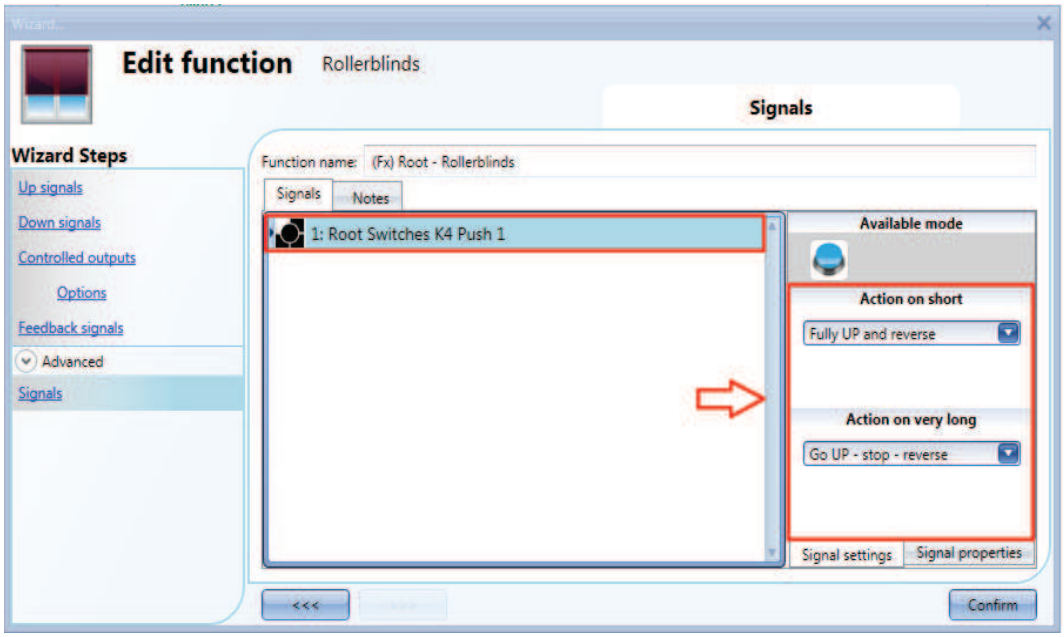
The available actions are listed in the tables below.

Short pressure of the push button	
No action	No action will be carried out if the push button is pressed briefly
Stop	The motor is stopped
Reset UP position	The motor is activated for the whole up running time
Reset DOWN position	The motor is activated for the whole down running time
Fully UP	The motor is activated for the time it needs to go fully up from the current position. E.g.: if the current position is 40%, the motor will be activated for 60% of the up running time.
Fully DOWN	The motor is activated for the time it needs to go fully down from the current position. E.g.: if the current position is 20%, the motor will be activated for 80% of the up running time.
Fully UP and reverse	The motor is activated for the time it needs to go fully up from the current position. When the button is pressed again, the motor direction is inverted and it will go down for the whole down running time. Every time the push button is pressed, the motor direction is reversed.
Move UP step by step	The motor is activated to go up for the selected running percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the up running time.
Move DOWN step by step	The motor is activated to go down for the selected running percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the down running time.
Move to xx%	Each time the push button is pressed, the roller blind will be brought to the set (xx%) position.

Long pressure of the push button	
No action	No action will be carried out if the push button is pressed continuously
Go UP - stop	The rollerblind is moved up while the pushbutton is kept pressed. When it is released, the motor is stopped.
Go DOWN - stop	The rollerblind is moved down while the pushbutton is kept pressed. When it is released, the motor is stopped.
Go UP – stop - reverse	The rollerblind is moved up while the pushbutton is kept pressed. When it is released, the motor is stopped. The next time the push button is pressed, the motor reverses its direction.
Fully UP	The motor is activated for the time it needs to go fully up from the current position. E.g.: if the current position is 40%, the motor will be activated for 60% of the up running time.
Fully DOWN	The motor is activated for the time it needs to go fully down from the current position. E.g.: if the current position is 20%, the motor will be activated for 80% of the up running time.
Move to xx%	Each time the push button is kept pressed, the roller blind will be brought to the set (xx%) position.

When the motor is running, any action on the pushbuttons will stop it.

In the picture below, an example is shown where a push button is used to send a fully up/down command with a short click and to adjust the position up/down using the long activation. When the motor is running, a long pressure will stop the motor.

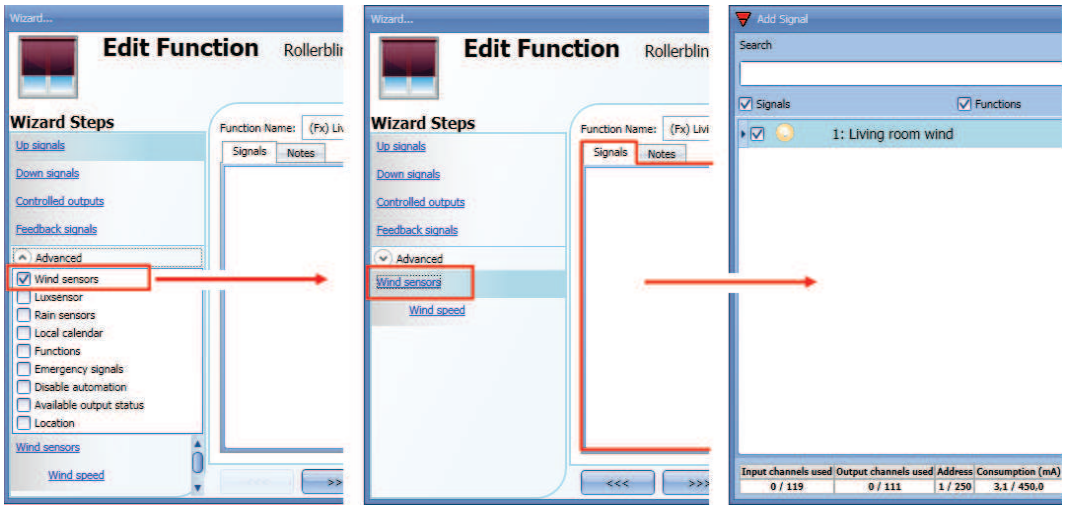


10.4.8 How to use the wind sensor to control blinds

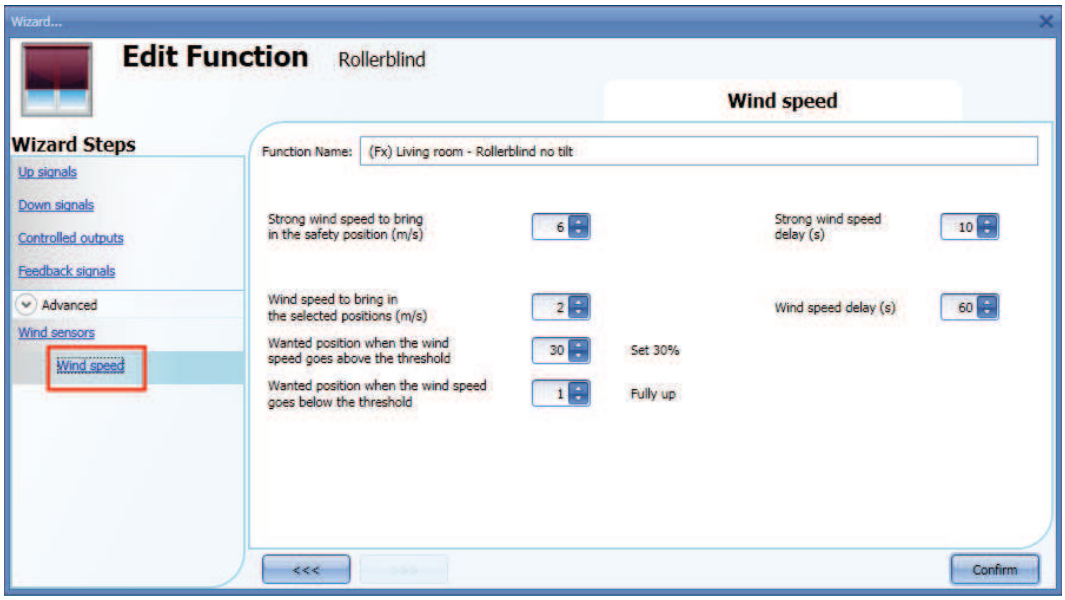
The wind sensor can be used to perform different actions:

1. Adjust the position of the blinds according to the measured wind speed
2. Bring blinds into a safety position if the measured wind speed is very high

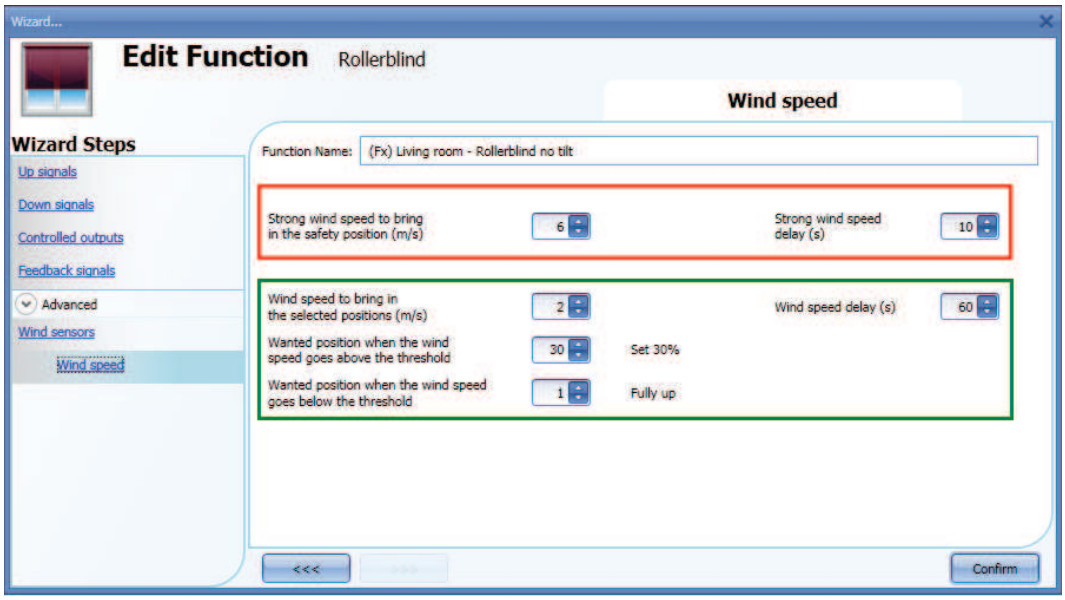
When a wind sensor needs to be used, it must first be enabled in the *Advanced* section.
The *Wind sensors* menu will appear. After selecting it, with a double click on the Signal window, the list of available signals will appear.
Select the required signal/signals and click on *Confirm*. Only one signal can be selected.



Once the wind sensor is added, the user has to set the wind speed limits in the *Wind speed* menu:



The *Wind speed* menu is split into two main fields:



Highlighted in red: the user can select a strong wind threshold value - when the wind speed goes over this threshold, the blinds are automatically brought into the safety position (the safety position is fully up/down according to the settings in the output of the function).
While the strong wind condition is active, the blind stays in the safety position and all other automations are not accepted. The only way to control the blind is to use manual commands.
The user can select a delay time to move the blind to the safety position: the blind will be moved only when the strong wind condition is active for a time longer than the set value. If the delay time is set to 0 seconds, the delay time is disabled.
.

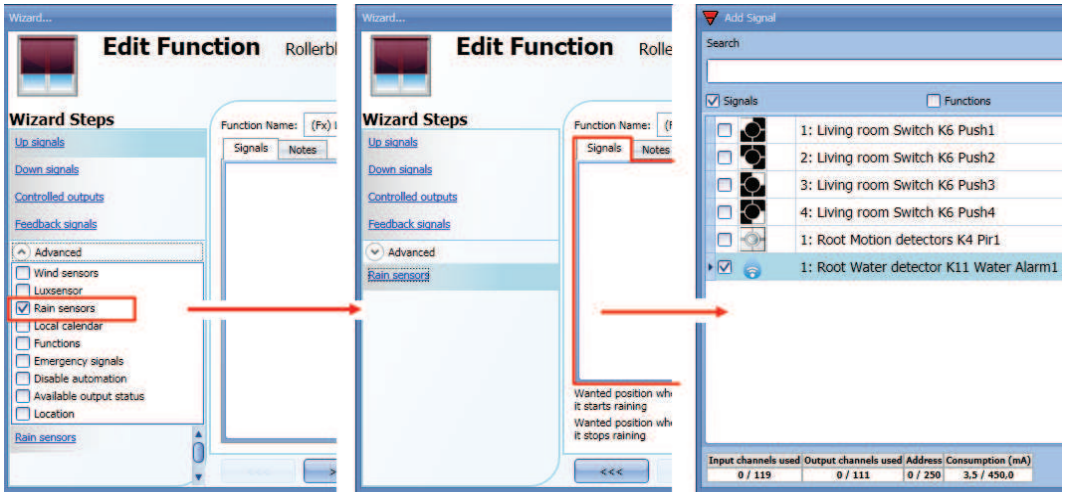
Example 1
In the picture above, when the wind speed goes over 6 m/s for more than 10 seconds, the blind is moved to the safety position. In order to avoid damage to the blinds, we suggest setting a small delay value (max 30 seconds).

Highlighted in green: the user can set another wind threshold. When the wind speed goes over/under this value, it is possible to select different actions for the blind. The user can also select a delay time for each action

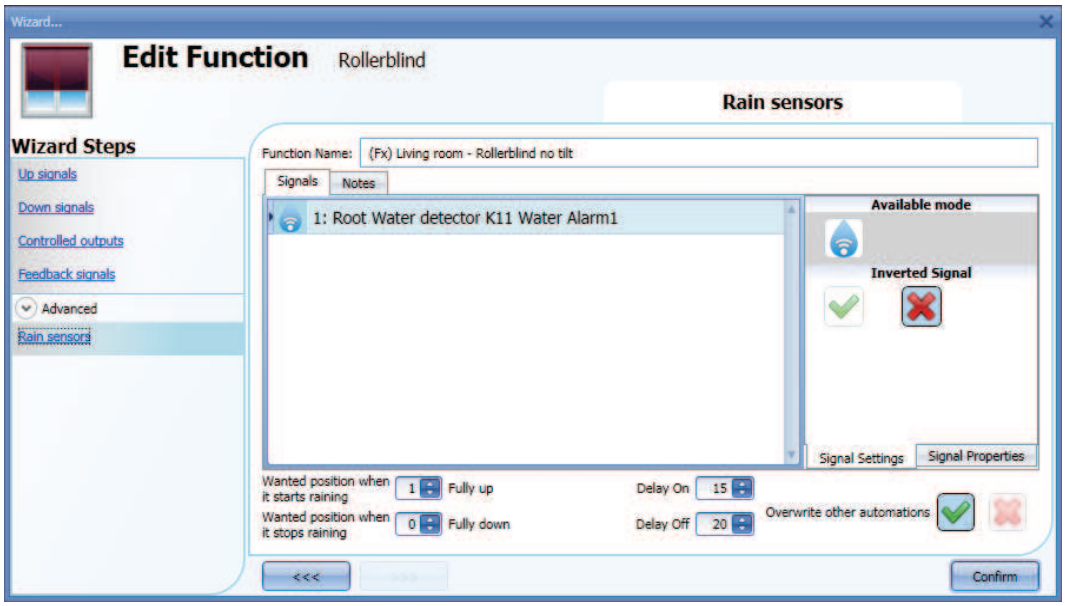
Example 2
In the picture above, when the wind speed goes over 2 m/s for more than 60 seconds, the blind is moved to 30% of the running time. When the wind speed goes below 1 m/s for more than 60 seconds, the blind is moved to the fully UP position
In order to avoid continuous movement of the blind, we suggest setting a minimum delay value of 60 seconds.

10.4.9 How to use the rain sensor to control blinds

If the user needs to control the curtains when it is raining, the rain sensor has to be selected in the *Advanced* section. To add the rain sensor signal, the user has to select the relevant field, then double click on the *Signal* window and select the input signal from the list (see picture below).



The input signal can be a rain sensor or a generic pushbutton/switch. Up to 50 signals can be added. Once the rain sensor is added, the user has to select the action to be carried out when one of the sensors added detects water:



Wanted position when it starts raining:
The user can select a value for the position of the blind when the sensor detects water.

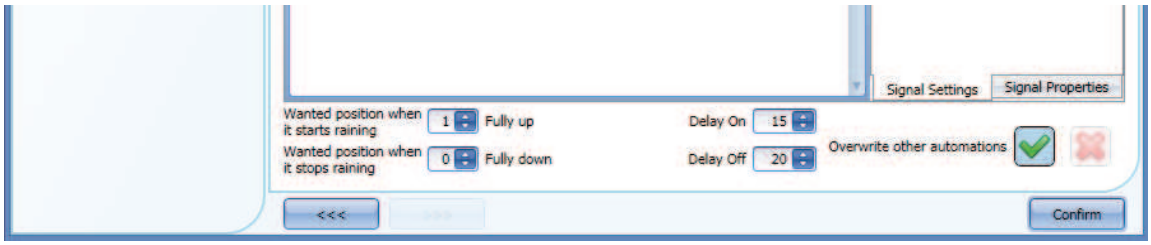
Delay On:
A delay time for the activation of the rain condition can be set (if the value is set to 0 the delay timer is not enabled).

Wanted position when it stops raining:
The user can select a value for the position of the blind when the sensor stops detecting water.

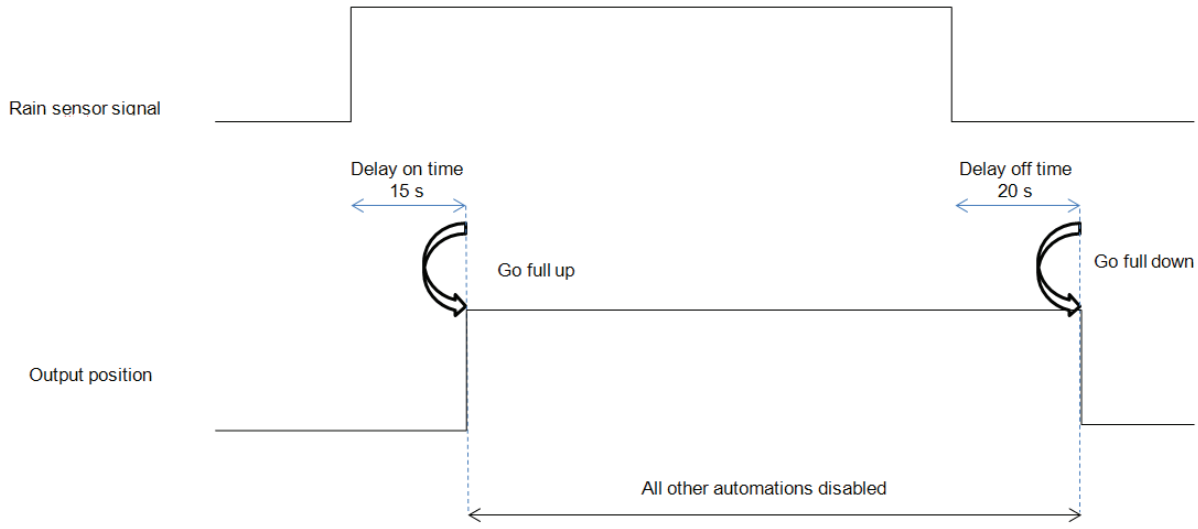
Delay off:
A delay time for the deactivation of the rain condition can be set (if the value is set to 0, the delay timer is not enabled).

Overwrite other automations:
When the green V is checked, until the rain sensor detects water, all the other events coming from other automations, are not considered by the function (the rain condition overwrite other automations). If the red cross is checked, the rain condition doesn't overwrite other automations.

In the next pictures a simple example of how to configure a rain sensor is shown:
If the rain sensor has been detecting water for 15 seconds, the blind is moved to a fully up position. When the rain signal disappears and the delay off timer expires, the blind is moved to a fully down position.

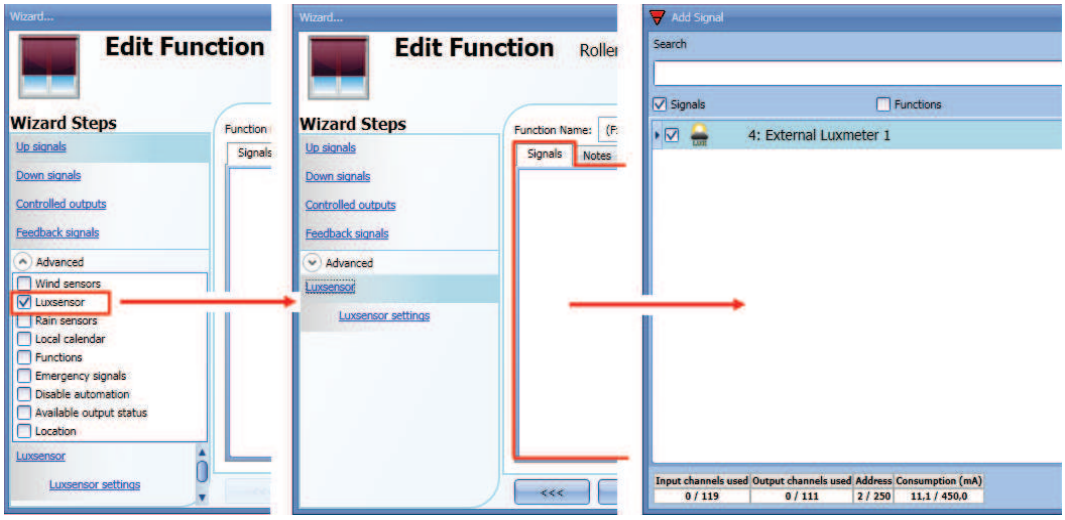


If the option *Overwrite other automations* is selected, until the rain signal is high, the other automations are disabled.

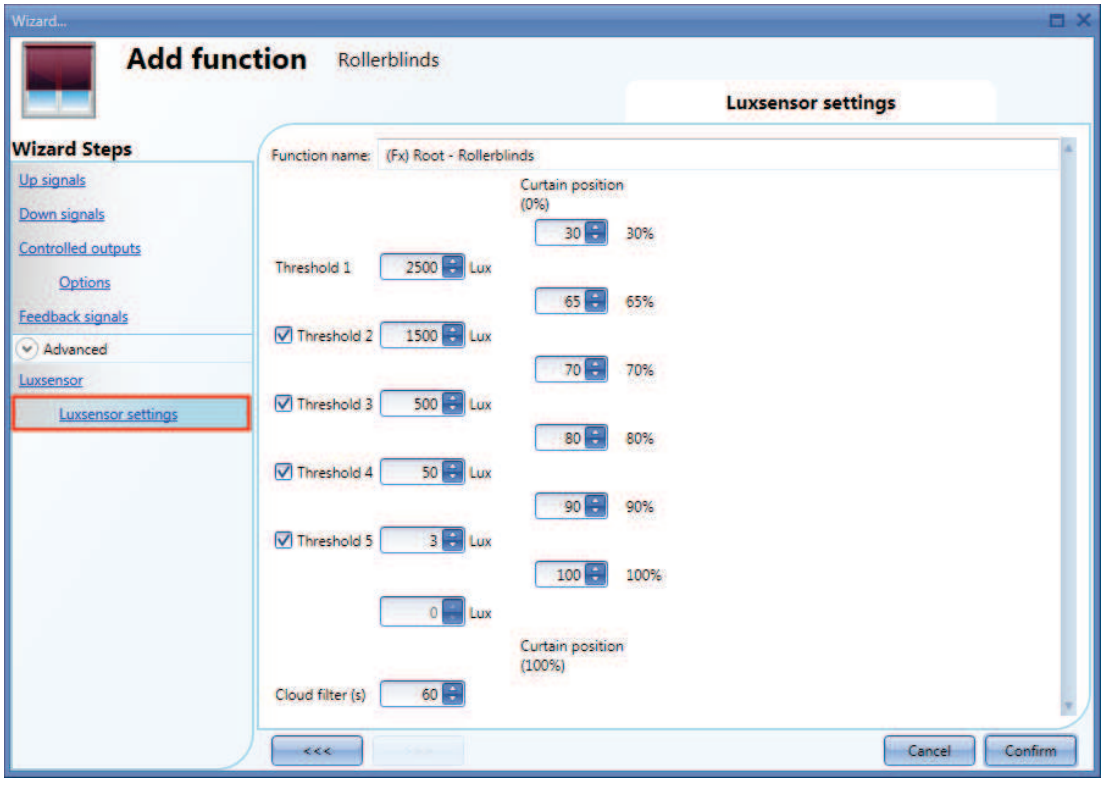


10.4.10 How to control the blind according to the daylight

The blind position can be managed in an automatic way by using lux meters: the user can define up to 5 different light levels to make the smart-house system move the blinds up/down.
To select the lux sensor, the user should click on *Luxsensor* and then double click on the *Signal window*. Once the output window is opened, select the relevant signal from the list.



The user can add up to 10 lux sensors: if more lux signals are linked to the function, the average value is calculated and used.
Once the lux sensor is added, the user can change the threshold values and the action that the blind has to perform when these values are reached.

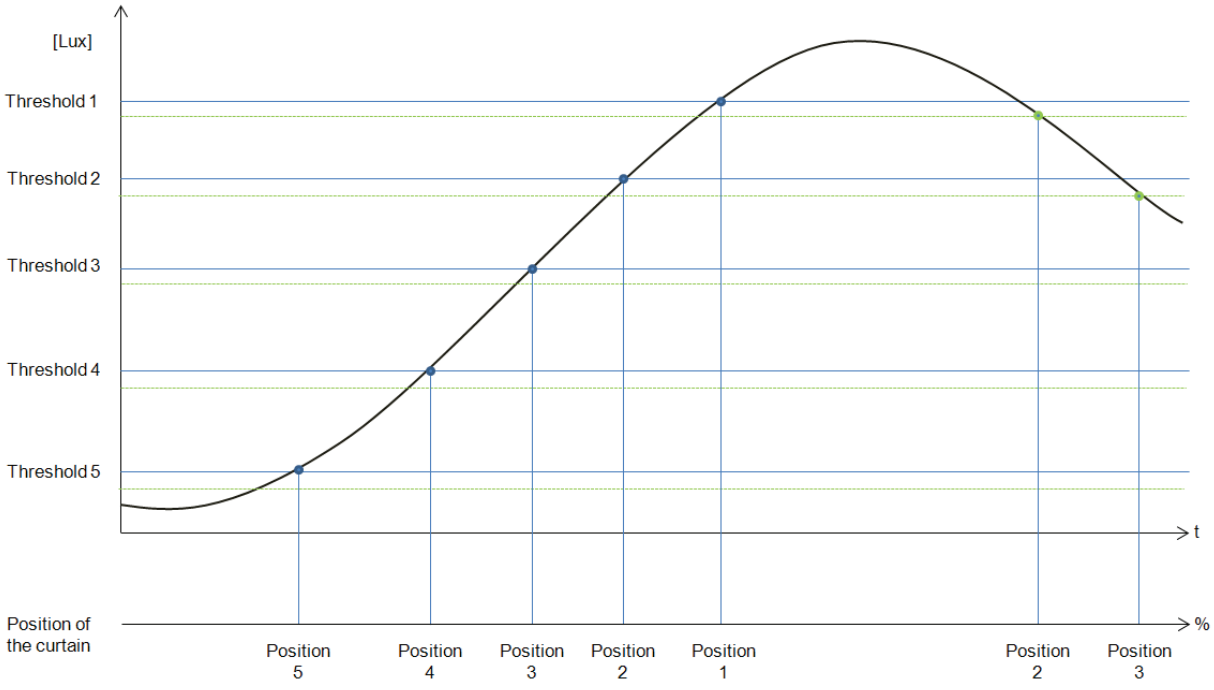


The up/down movements and the tilting start when the thresholds are surpassed, so if the blind position is changed manually by means of a light switch or automatically e.g. by the scheduler, the automation

of the lux sensor will not change it unless the thresholds are surpassed.
The hysteresis value is fixed at 10% and it is used for all the thresholds.
When the light level is increasing, the threshold values are used: when the light level is decreasing the following value is used:

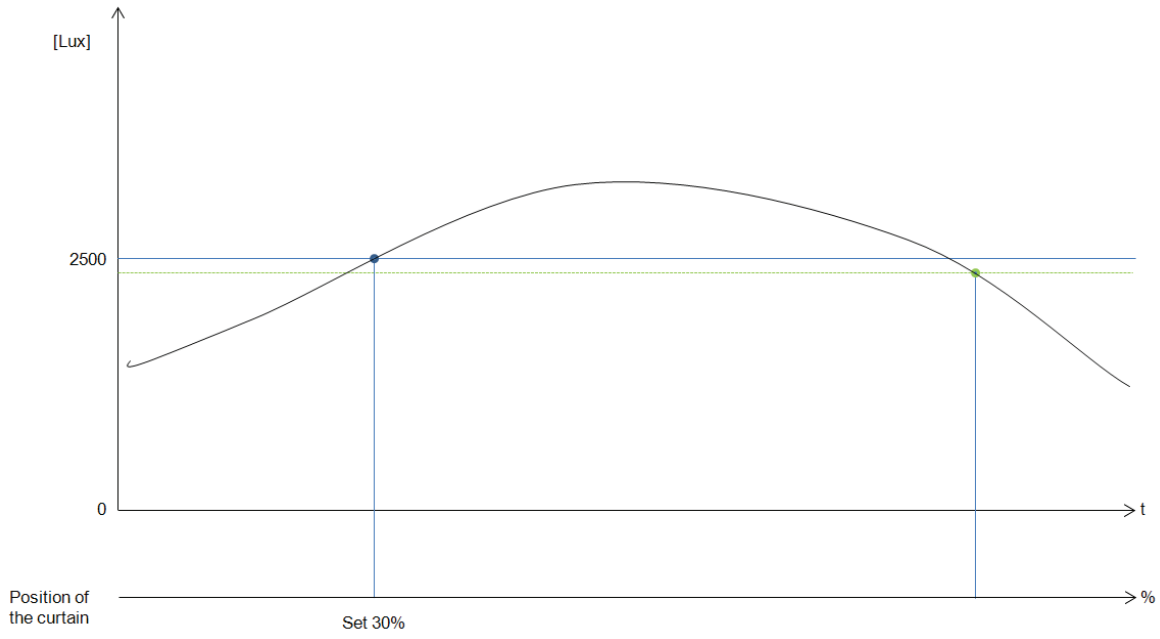
value= threshold value – hysteresis.

The user can also set a cloud filter to avoid the up/down movements if a cloud shields the sun for a short time. We suggest setting the time for at least 60 seconds; if the time is set to 0 the filter is disabled.
The picture below shows how the blind position is changed according to the light level. At least one threshold must be used with the lux sensor.

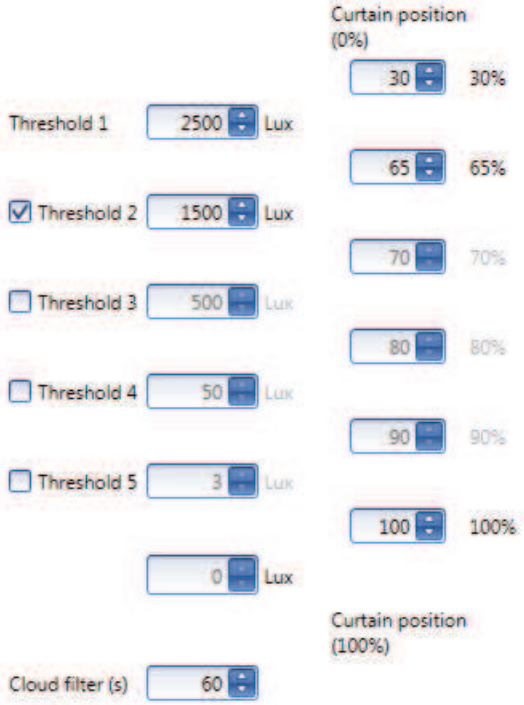


Example 1:
In the first example only one threshold is used, the cloud filter set is 60 seconds. When the light reaches threshold, the blind is moved to 30% of the running.

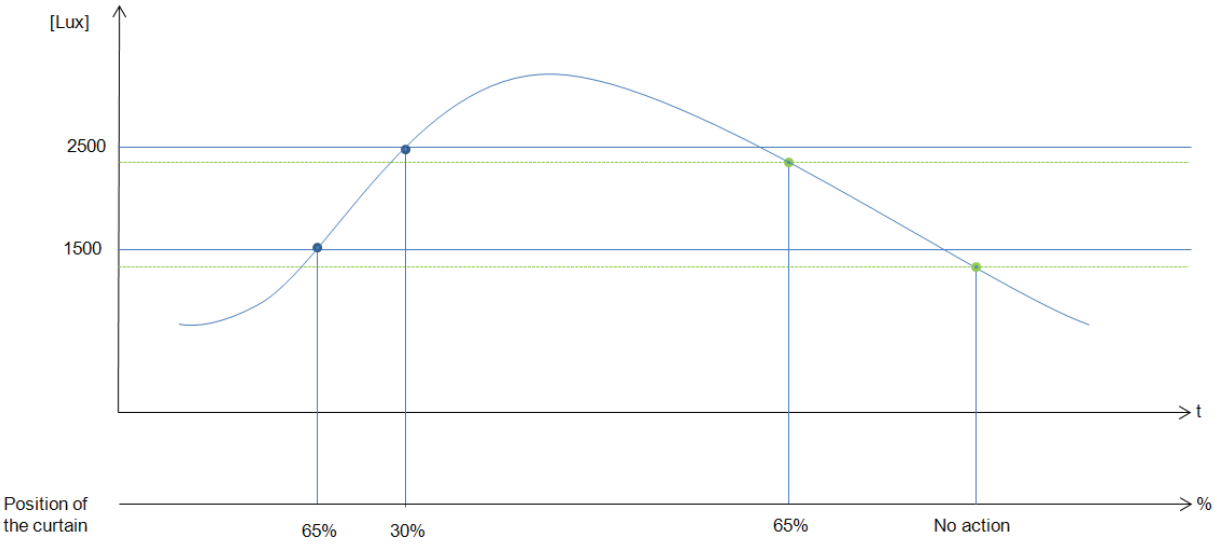
In the picture below, the behaviour of the output is shown according to the light level.



Example 2:
In the second example, threshold 1 is set to 2500 Lux and threshold 2 is set to 1500 Lux: the cloud filter is 60 seconds. When the light goes over 1500 Lux, the blind moves for the 65% of the running time, when the light goes over 2500 Lux, it moves for the 30% of the running time.



In the picture below, the behaviour of the output is shown according to the light level.

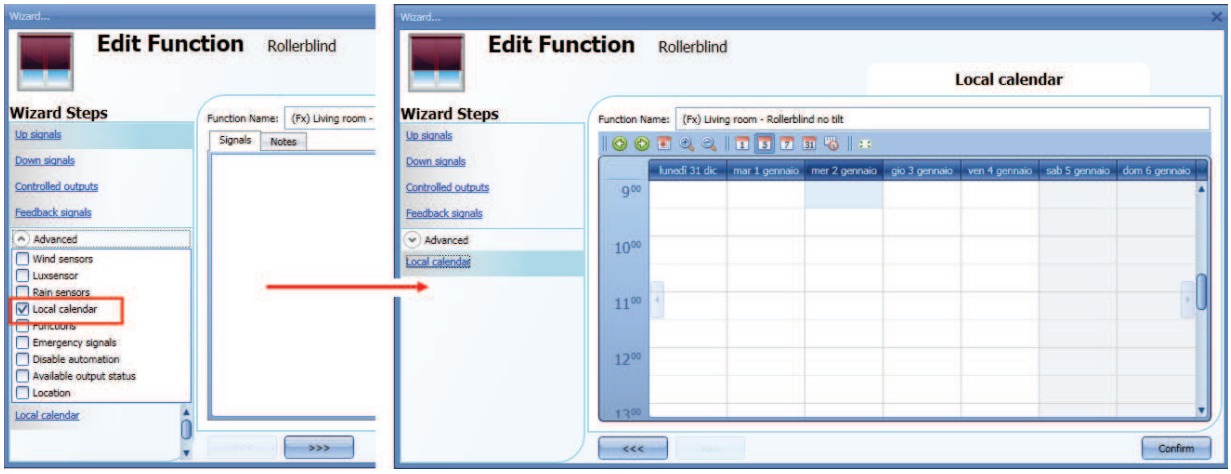


10.4.11 How to move the blinds up/down and tilt them with the calendar

There are two ways of managing the *Rollerblinds* function with the calendar: by setting the "local" calendar inside the function or using a "global" calendar function.

10.4.11.1 The local calendar function

To enable this, the relevant menu has to be enabled in the Advanced section..



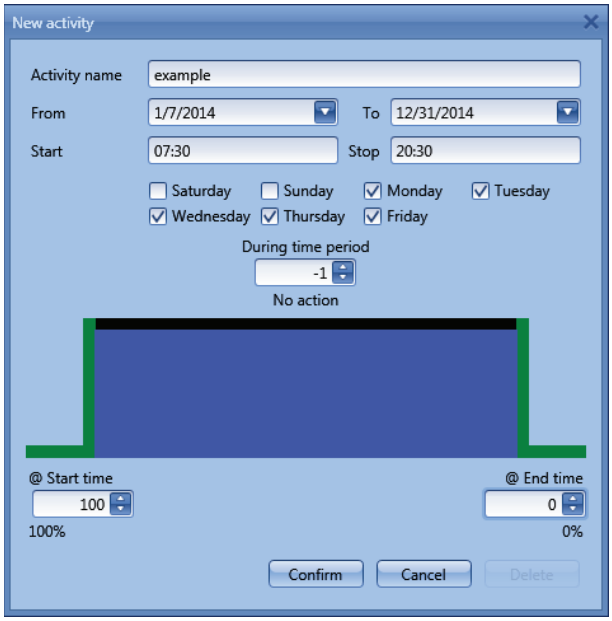
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activities

Once the user has selected his preferred visualization, to enter a time band he has to double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

@ start time up/down movement: in this field the user can select the action of the function at the start time.
The user can select the following actions:

- No action (-1)
- Set the position of the blind at a fixed value between 1% and 100% (1-100)

@ end time: in this field the user can select the action of the function at the stop time.
The user can select the following actions:

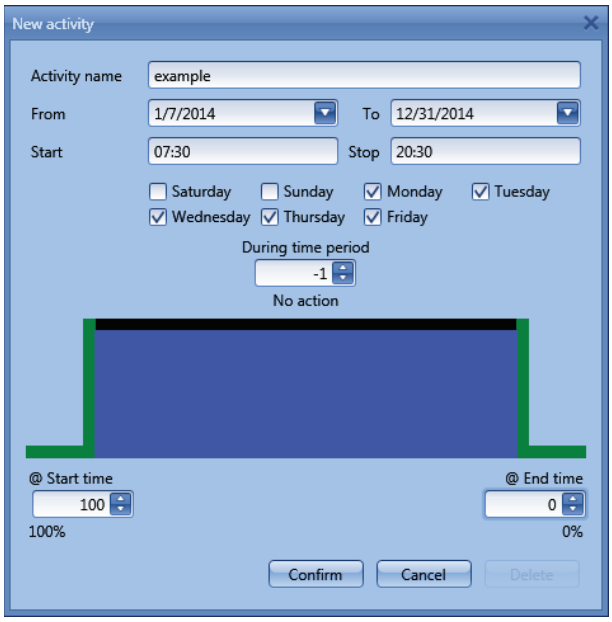
- No action (-1)
- Set the position of the blind at a fixed value between 1% and 100% (1-100)

Days: The user has to select the days of the week for the activity.

If ***Level activity*** is selected, the user can disable all the automations of the function (rain sensors, wind sensors, luxmeters and schedulers).

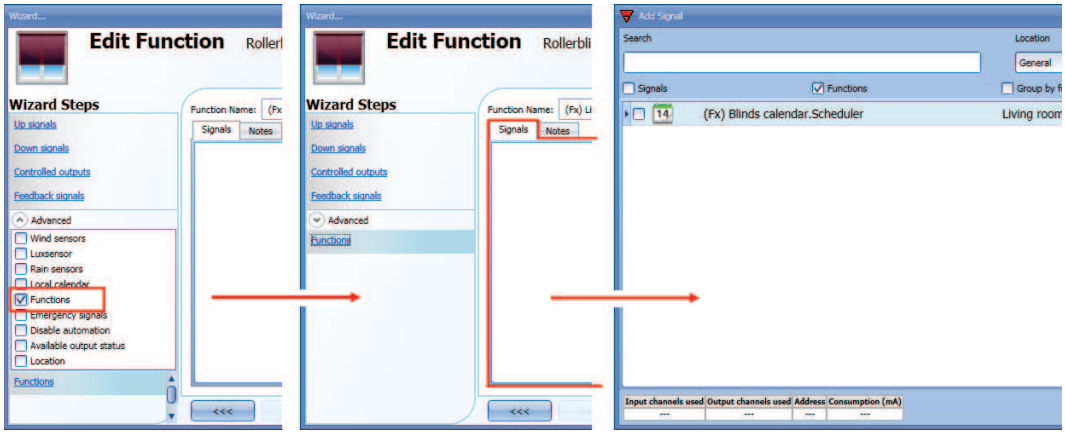
- No action (-1)
- Disable automations (1)

In the example below, the calendar is set to work all the year (from 1st January to 31st December) . The working days are: Monday, Tuesday, Wednesday, Thursday and Friday (the calendar does not work on Saturday and Sunday).
The start time is 7:30 and the stop time is 20:30.
At 7:30 the blind starts moving up. At 20:30 the blind starts moving down.



10.4.11.2 The global calendar function

Before using a global calendar it has to be defined as a function (See how to set a global calendar). The field function has to be selected in the *Advanced* menu.
By clicking on *Functions* and then double clicking in the *Signal* window, the *Add signal* window will appear. Select the required calendar function.

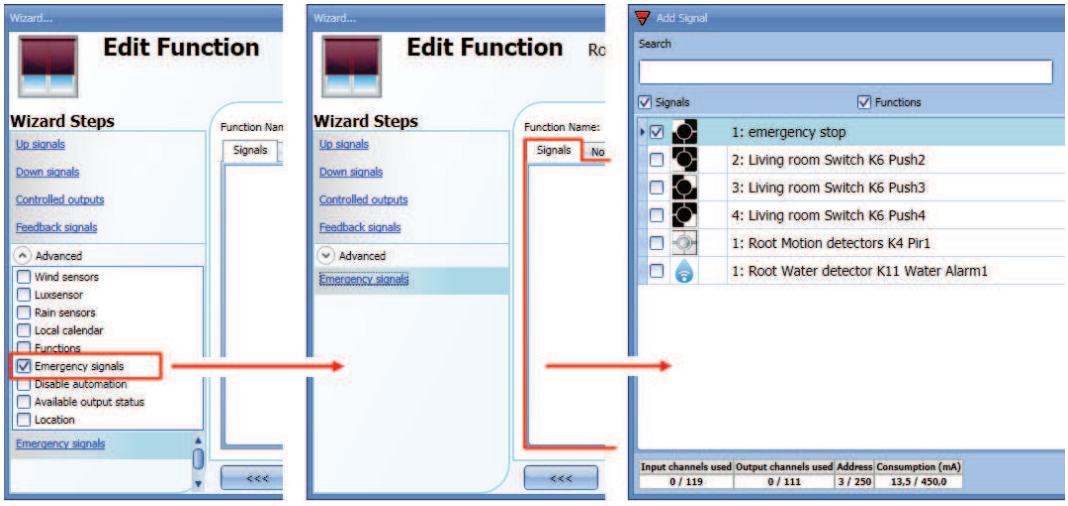


The behaviour of the calendar will be the same as that of the local calendar.

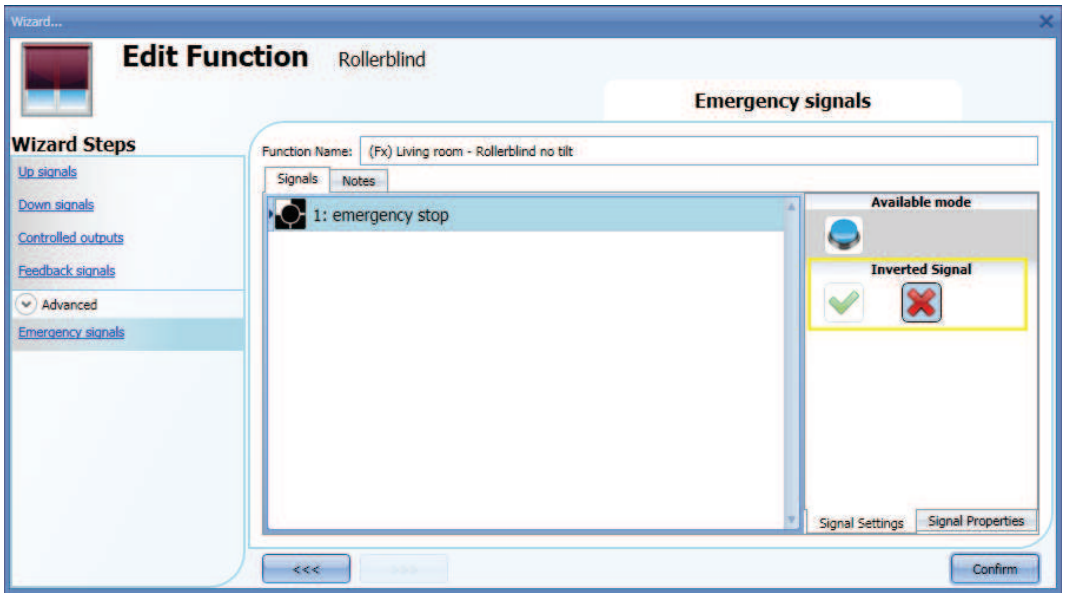
An example of this automation is a global calendar to move all the blinds down at ten o'clock in the evening.

10.4.12 How to use the emergency signals

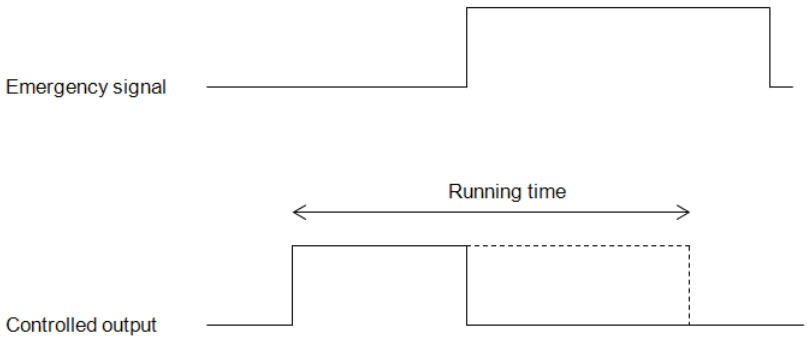
In some applications, for the safety of the user, a pushbutton is required to stop the motor at any time. The *Emergency signal* field allows the user to stop the motor when the signal is active. The roller blind module does not accept any manual or automatic command until the emergency signal is active.
To add an emergency signal, the user should select the relevant section in the advanced menu, then double click on the *Signal* window and select the input signal from the list (see picture below).



When the signal is added, the inverted logic can be used (see the yellow rectangle in the picture below).



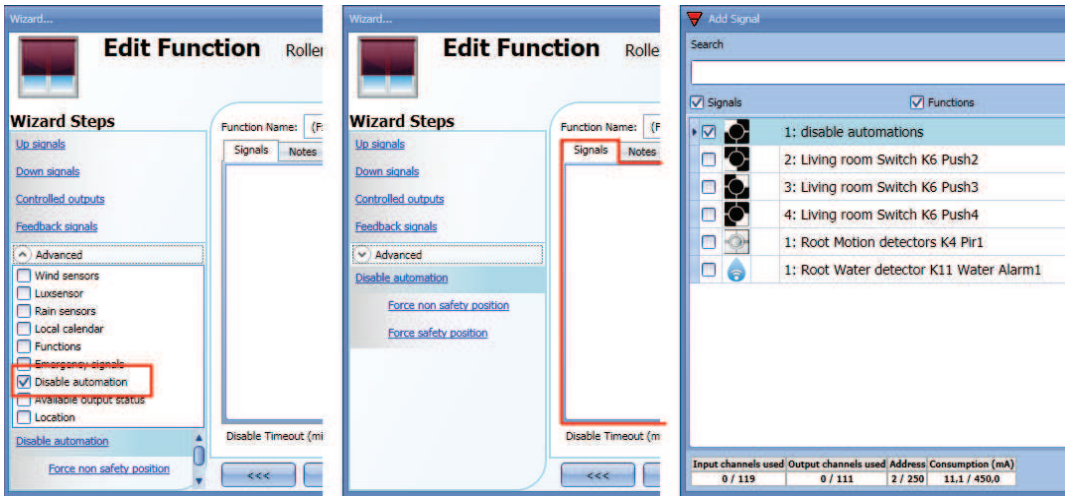
In the example below the motor is stopped immediately when the emergency signal is activated.



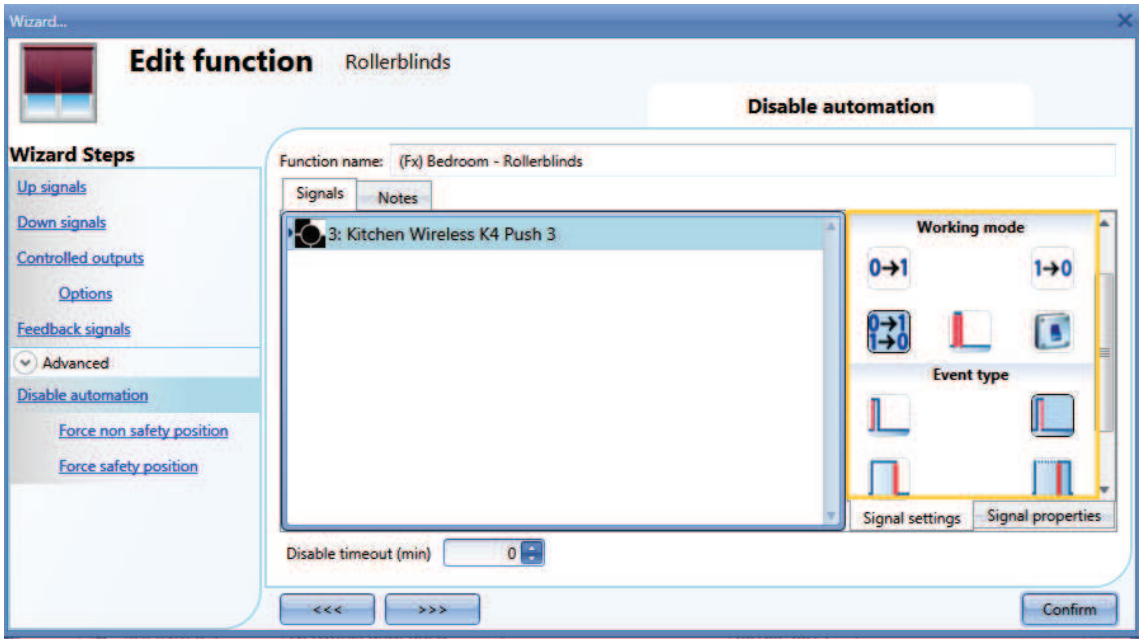
10.4.13 How to stop the automation

Sometimes it is necessary to stop all the automations to service the blinds or simply to clean the windows.

To add a disable automation signal, the user has to select the relevant section in the advanced menu, then double click on the *Signals* window and select the input signal from the list (see picture below).



When the signal is added, the user should select the working mode and the type of the event:



If a push button type is selected, the way of working marked with the red rectangle, has to be done following the table below.

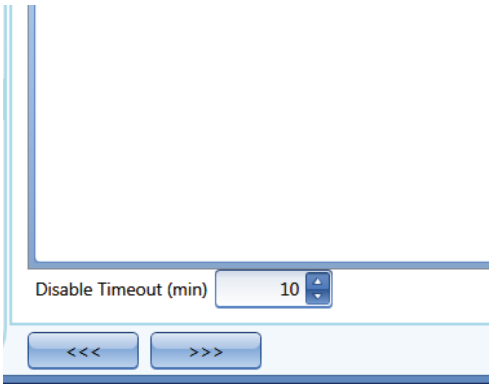
	Event type			
Working mode				
	As soon as the push button is pressed, the automation is disabled.	After a short press (less than 1 second), the automation is disabled at the release of the push button.	After a long press, the automation is disabled at the release of the push button.	After a very long press, the automation is disabled at the release of the push button.
	As soon as the push button is pressed, the automation is enabled again.	After a short press (less than 1 second), the automation is enabled again at the release of the push button.	After a long press, the automation is enabled again at the release of the push button.	After a very long press, the automation is enabled again at the release of the push button.
	As soon as the push button is pressed, the automation will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the automation will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the automation will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the automation will be enabled/disabled in toggle mode at the release of the push button.
	The automation will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

	Event type	
Working mode	**Signal activated** 	**Signal deactivated** 
	The automation is enabled again	No action
	The automation is disabled	No action
	The automation is disabled/enabled in toggle mode	No action
	The automation is disabled/enabled in toggle mode	The automation is disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

The user might need to set a time after which the automation is enabled again even if the selected signal is still active: to achieve this, the Disable timeout field has to be set.

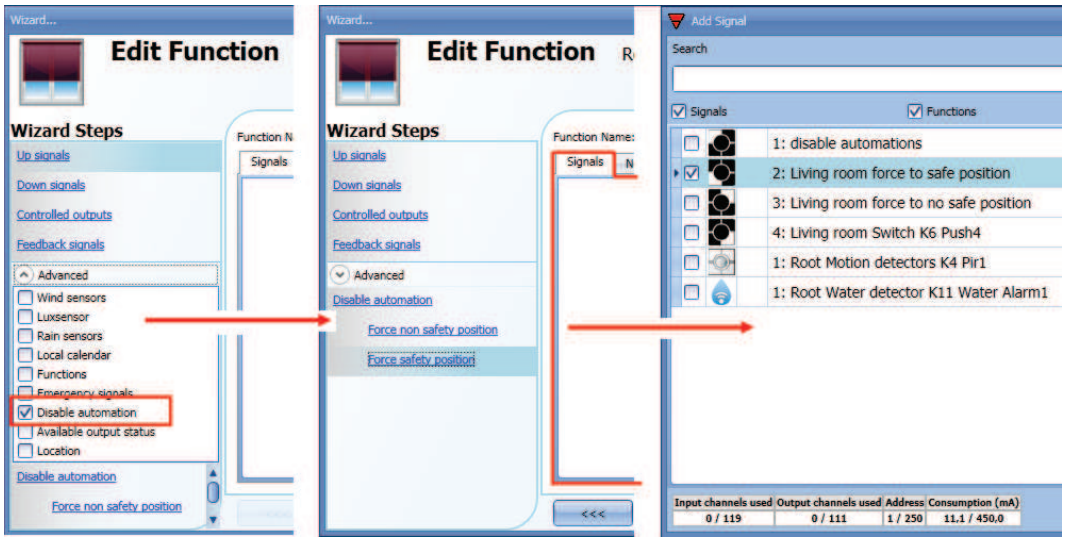
To access the stop automation functionalities, they must be enabled in the Advanced section field.
If the user needs to be sure that the disabling of the automation is automatically removed, the *disable automatism timer* has to be set.



The timer starts each time the disable status becomes activated: the disable status is automatically deactivated as soon as it has elapsed.
In the figure above a disable timeout of 10 minutes is set. The maximum delay is 59minutes.

10.4.14 How to force the safety condition

If the user wants to force the safety position regardless of all other signals used in the function, the *Force safety position* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force safety position*, then double click on the signal window and select the right signal to use.

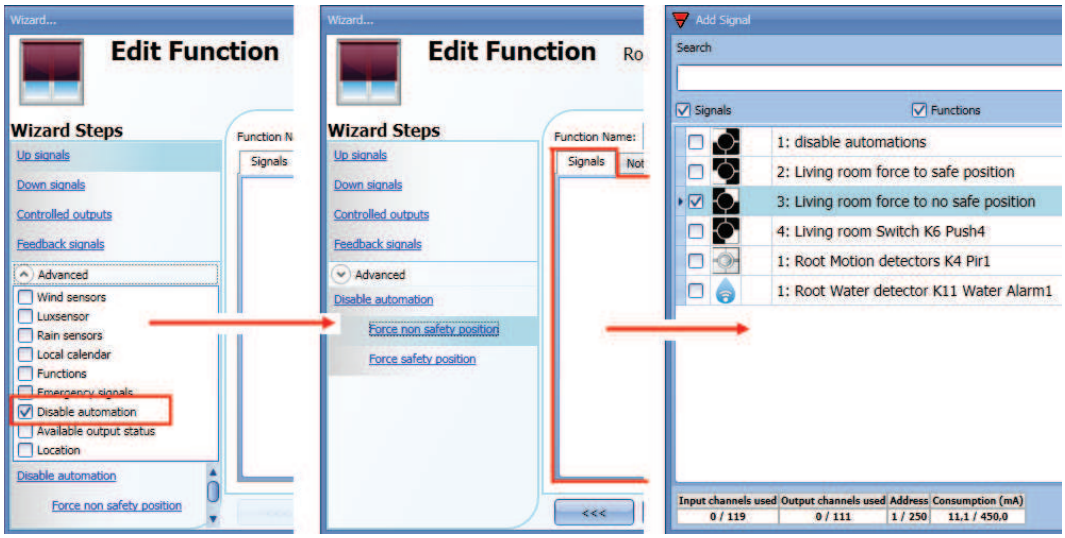


Each signal used in the *Force safety position* window works as a level signal: until the signal is active, the blind is forced into the safety position.
When the *force to safety position* signal is activated and the *force to no safety position* signal is activated, the force to safety position signal has the priority.

10.4.15 How to force the non-safety condition

If the user wants to force the non-safety position regardless of all other signals used in the function, the *Force non safety position* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force non safety position*, then double click on the signal window and select the right signal to use.

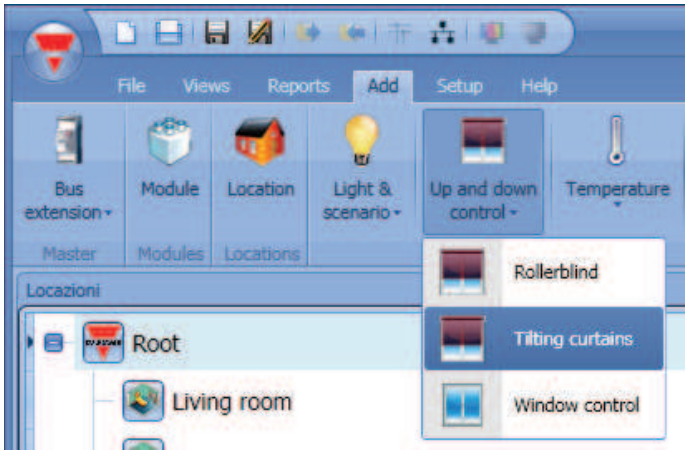
.



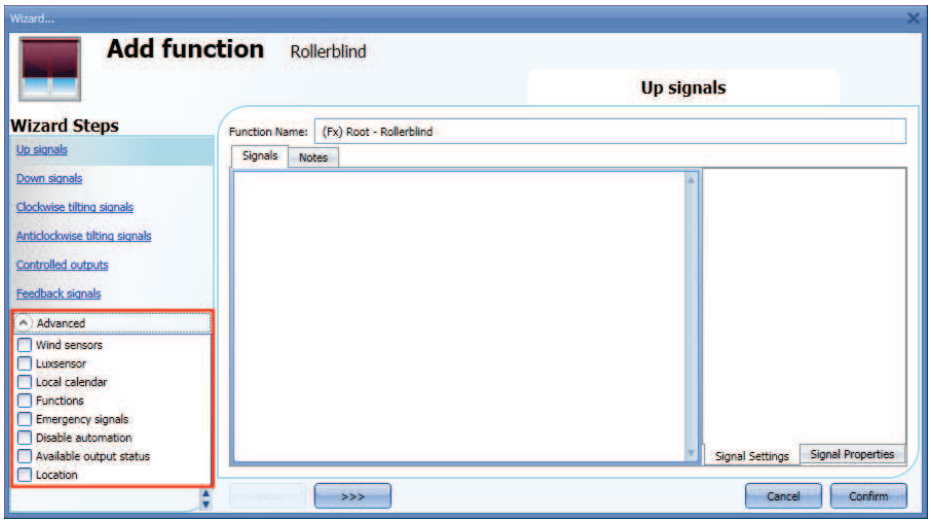
Each signal used in the *Force non safety position* window works as a level signal. Until the signal is active, the blind is forced to the non-safety position.
When the *Force to safety position* signal is activated and the force to no safety position signal is activated, the *force to safety position* signal has the priority.

10.5 How to set a Rollerblind function with tilting slats

This function allows the operator to manage the motor to control tilting slats.
The user can either configure a basic function to move blinds up and down and tilt the slats clockwise/anticlockwise , or implement an automated system by programming the relevant objects of the function.
To set up this kind of function, the user should select *Up and down control* from the Add menu, then select *Tilting slats* (see picture below). The new function will be added into the selected location.



This function manages one or more motor outputs controlled by one or more input commands. The command might be a physical signal like a pushbutton, a switch, a function or a remote command (Webserver, sms, Modbus TCP/IP)
The automation of the tilting slats can be managed by accessing the *Advanced* section, where the user can select different kinds of automation: wind sensors, rain sensors, lux sensors, calendar.



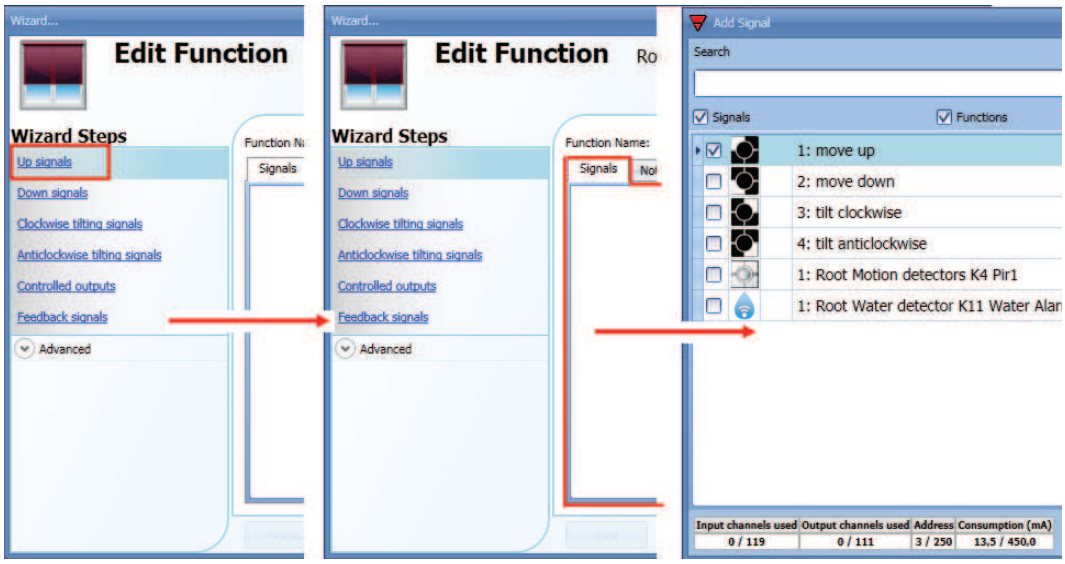
N.B. For the function to operate correctly, we suggest giving an up/down reset command every time the system is started.
The reset command can be given by a pushbutton, via the webserver with administrator access or via the Sx Tool by using the live signals mode.
When the reset command is sent and the motor is running, the user should wait for the running time to be completed (the running time is that set in the rollerblind module wizard).
For safety reasons, the reset command can be stopped anytime by another command; should

this happen, another reset command should be sent to ensure the correct behaviour of the automation starting from a known position.

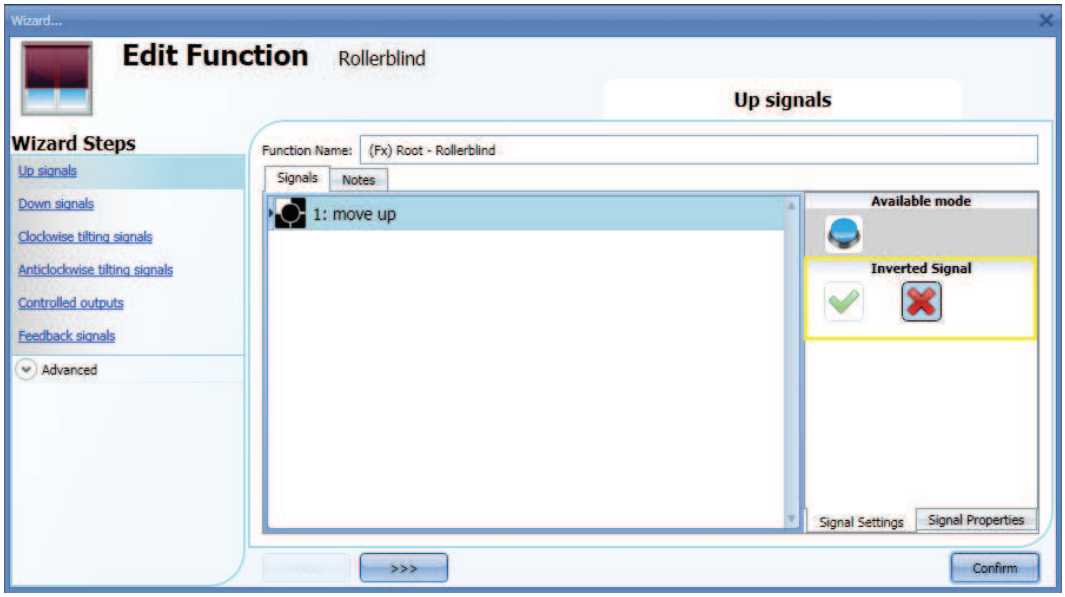
10.5.1 How to move blinds UP/DOWN using a manual input

The user should add the input signals to control the Up/Down movement of the blinds.
To add the Up/down signal, the user should click on the relevant section, then double click on the *Signal* window and select the input signal from the list (see picture below).
The input signal may be a pushbutton or a switch.

.

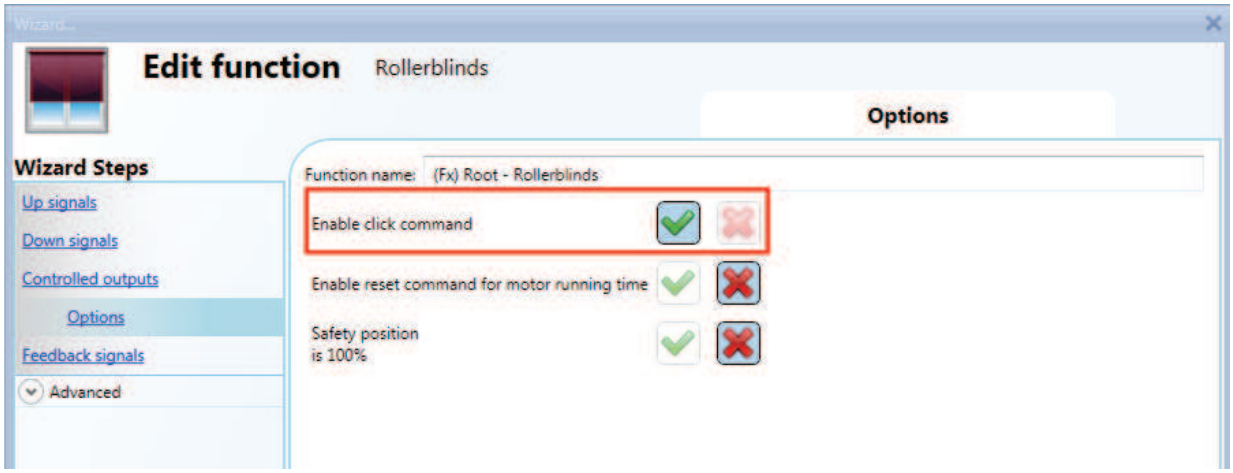


Once the UP/DOWN signal is entered, the user can also decide to use the inverted logic of the signal (see yellow rectangle in the picture below).



All the selected signals in the Up window work in parallel (they are managed in an OR logic). According to how long the pushbutton is pressed, the system will do different things:

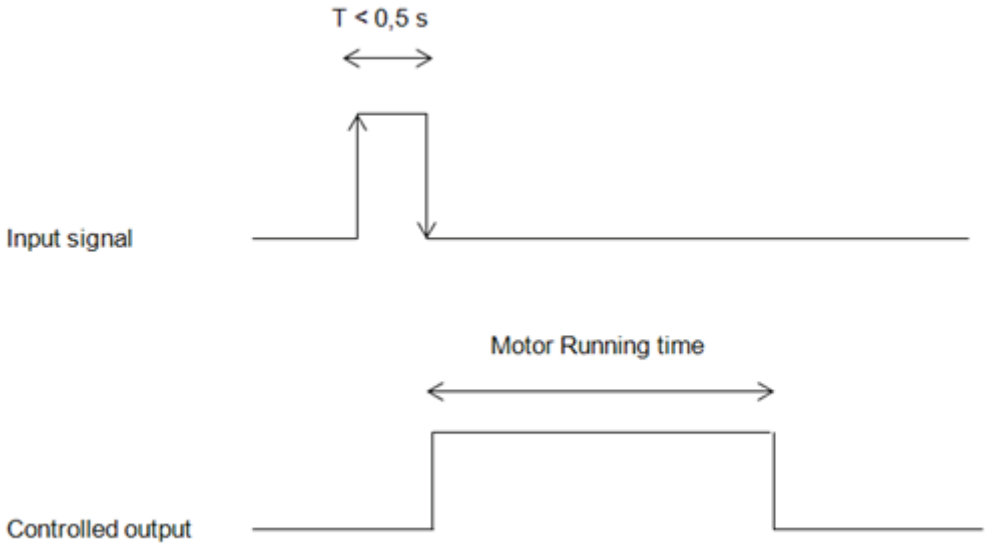
1) A short click action (<0,5sec) on the pushbutton, if enabled, generates a “fully Up/Down” command. The click action is enabled in the *Controlled output options* (see picture below).



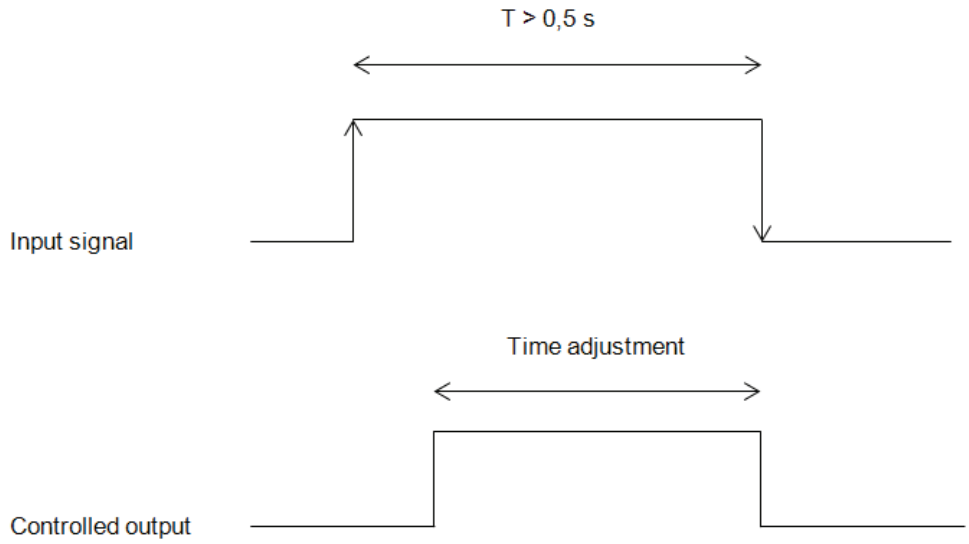
2) A long press (> 0,5 sec) activates the motor output until the input signal is ON (the blind goes up/down until the user keeps the pushbutton pressed or the selected signal is active).
This functionality doesn’t need to be enabled.

In the figure below, two examples of activation of the input signal are shown.

Example 1: short press with the “click command” option enabled

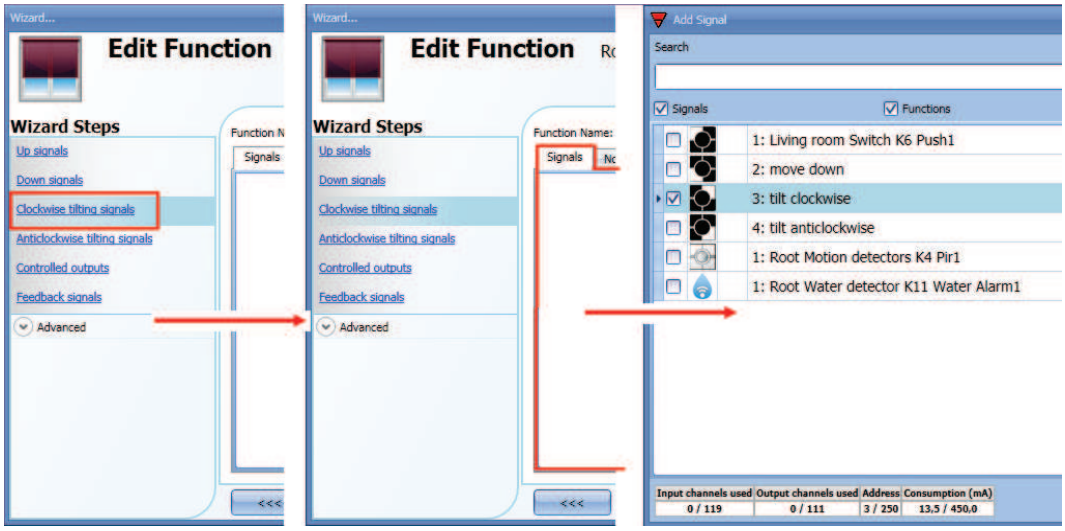


Example 2: very long press for the “Up/Down” adjustment

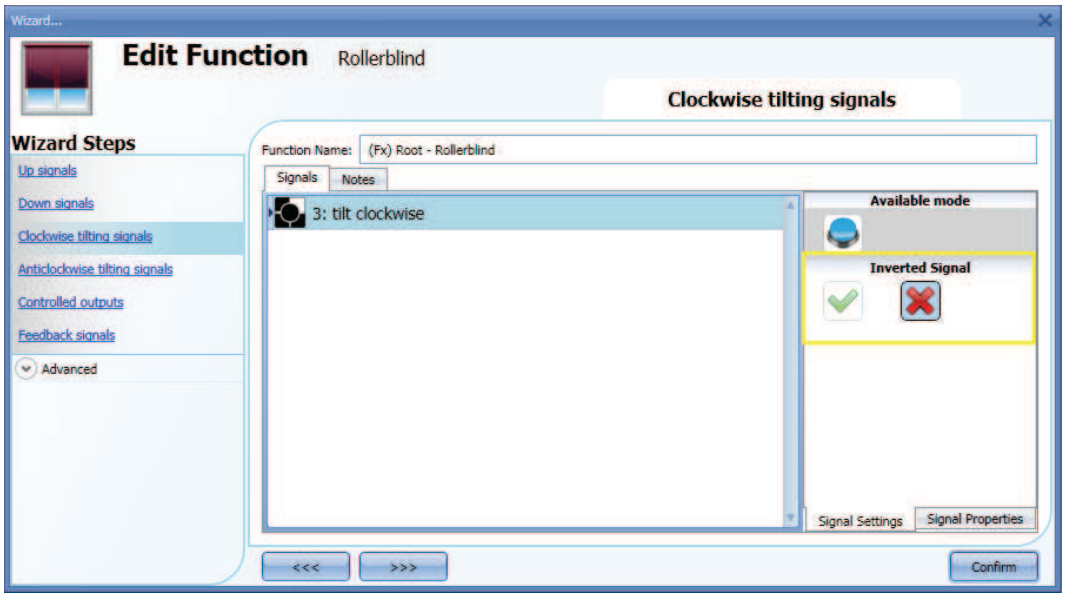


10.5.2 How to tilt blinds clockwise/anticlockwise using a manual input

First the user has to add the input signals to tilt the blinds clockwise/anticlockwise.
To do this, the user has to select the relevant section, then double click on the *Signal* window and select the input signal from the list (see picture below).
The input signal can be a pushbutton or a switch.

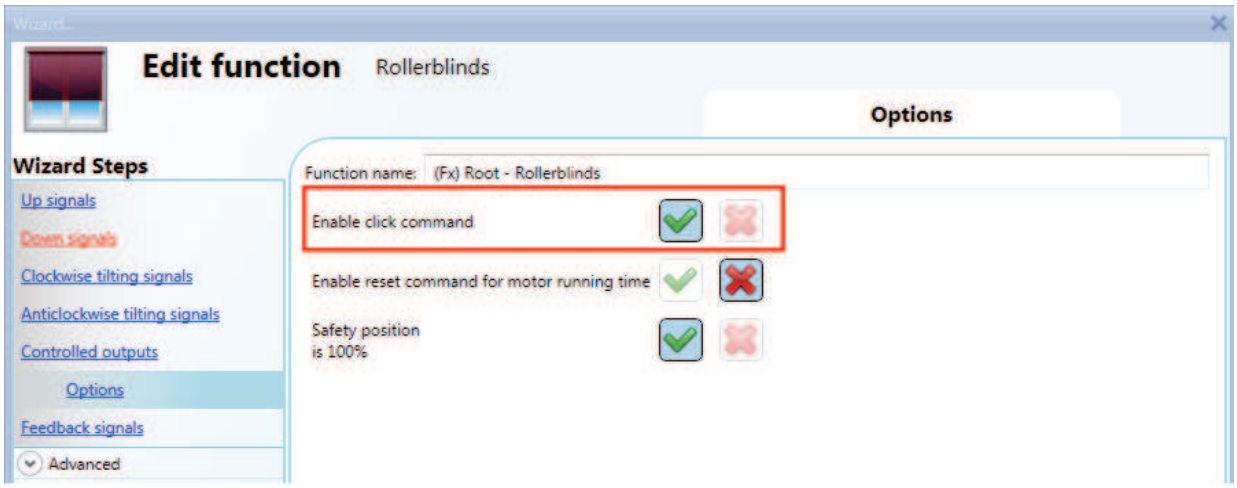


Once the signal is entered, the user can also choose to use the inverted logic of the signal (see yellow rectangle in the picture below).



All the selected signals in the *Clockwise/Anticlockwise tilting signals* window work in parallel (they are managed in an OR logic).
According to how long the pushbutton is pressed, the system will do different things:

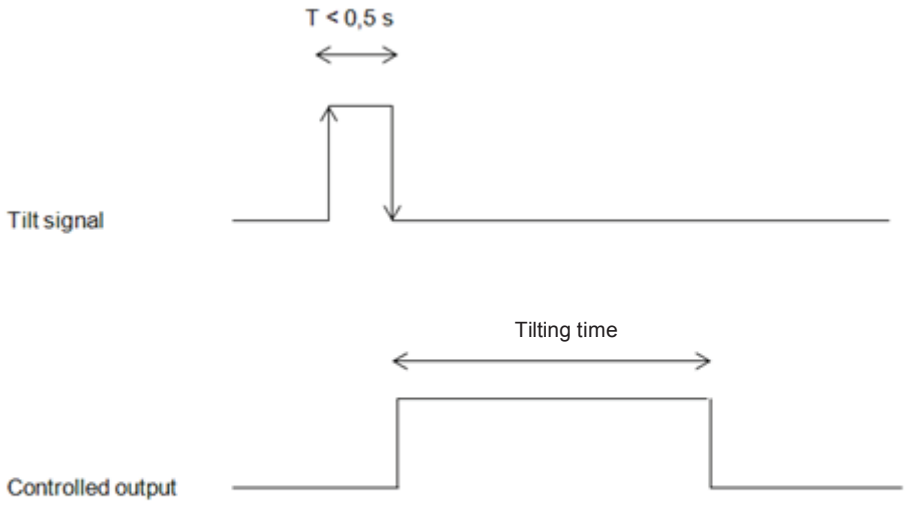
1) A short click action (<0,5sec) on the pushbutton, if enabled, generates a “Fully tilted” command.
The click action is enabled in the *Controlled output options* (the reset command options must be disabled, otherwise the click action will reset the blind up/down…see picture below).



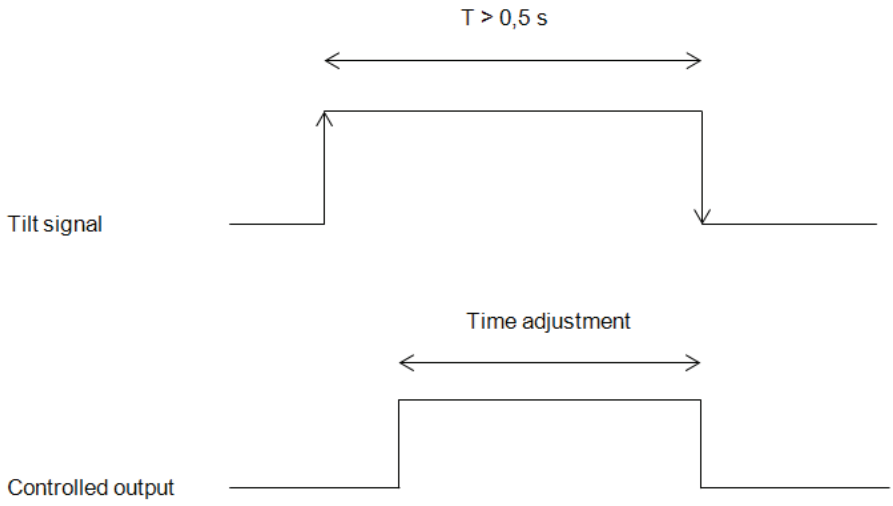
2) A **very** long press (> 0,5 sec) activates the motor output until the input signal is ON (the blind is tilted clockwise/anticlockwise until the user keeps the pushbutton pressed or the selected signal is active). This functionality doesn't need to be enabled.

In the figure below, two examples of activation of the input signal are shown.

Example 1: click action for the full tilting

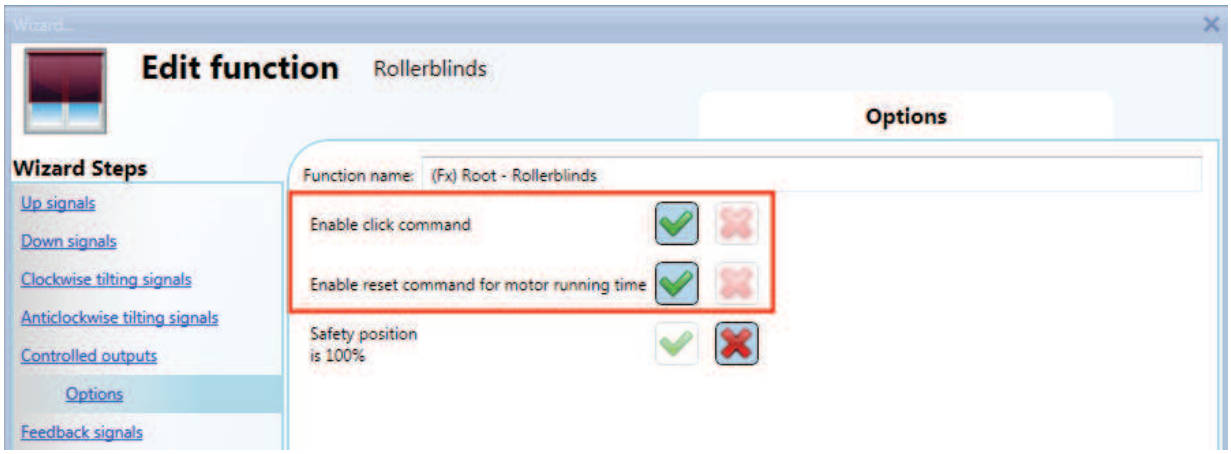


Example 2: very long action for the tilting adjustment



10.5.3 How to set the reset command

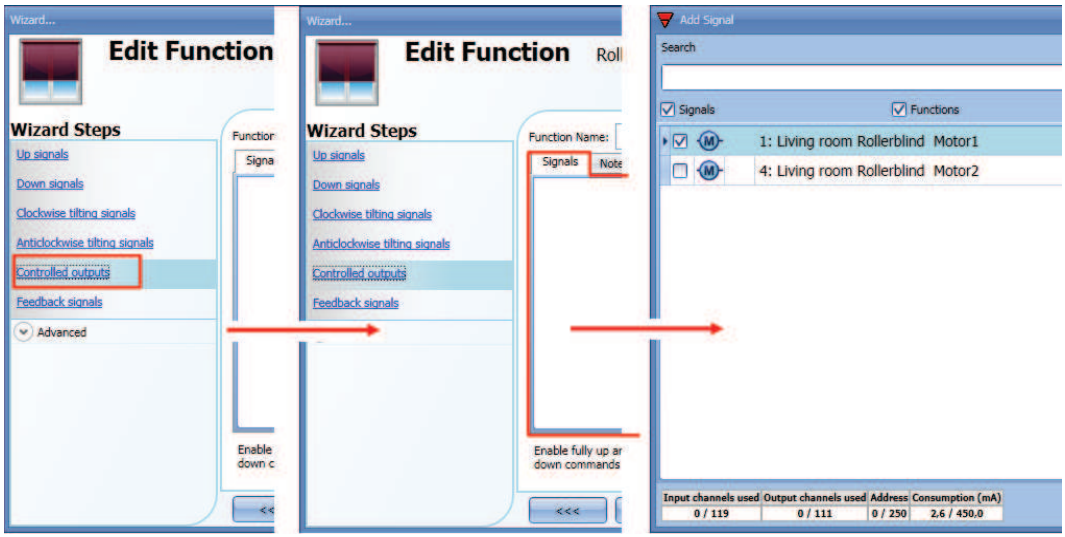
The reset command is used to reset the position of the roller blinds after a system start-up or after the downloading of a new project on the SxWEB24.
This command is activated by a short click that makes the rollerblind go fully up/down (according to the selected direction) and resets the position to 0/100%.



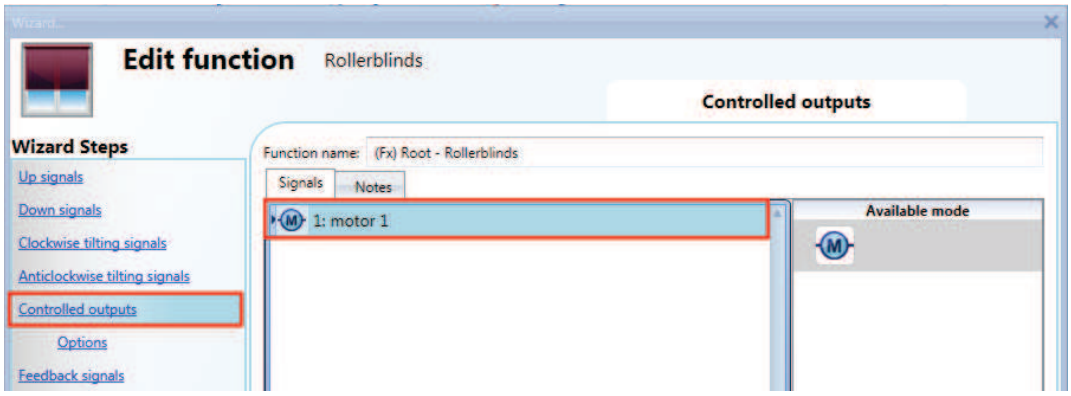
The reset command is also available via the webserver (when accessed as administrator) and via the Sx Tool in the live signals mode. When the command is sent by using the webserver or the Tool, a window with a warning message is shown to advise the user not to stop it.

10.5.4 How to select and configure the output

To select the output signal that is controlled by the *Tilting blinds* function, the user has to click on *Controlled output* and then double click on the Signal window. Once the output window is opened, select the relevant motor output from the list.

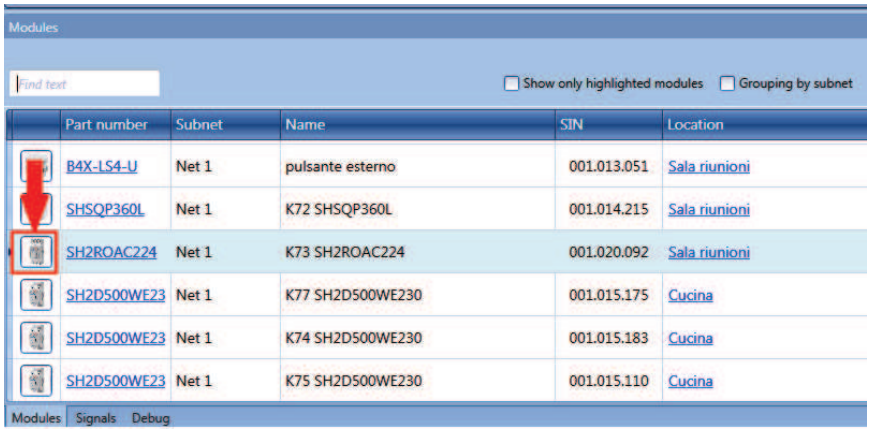


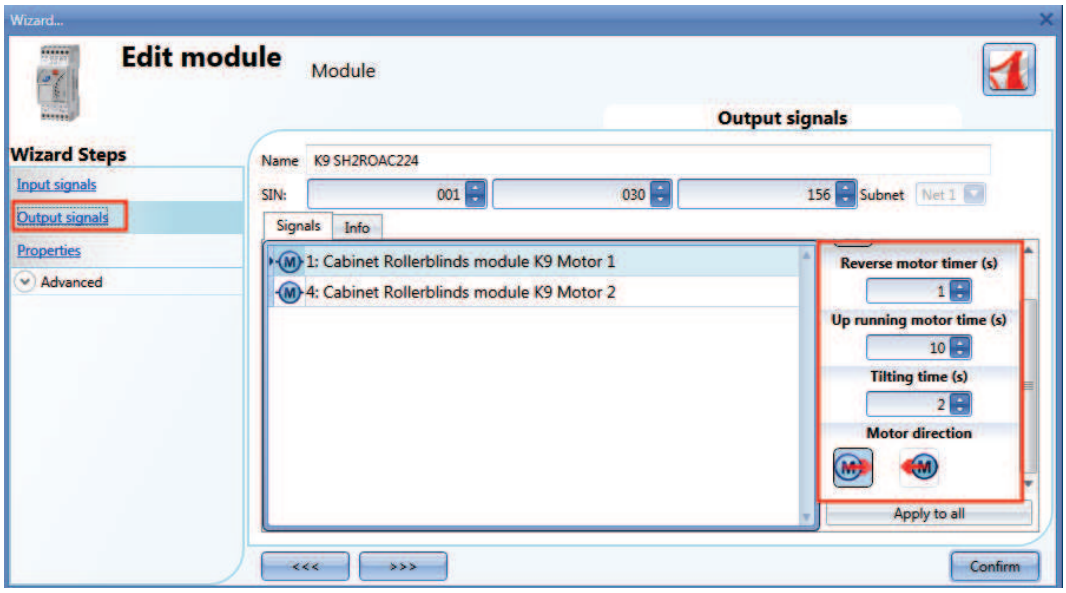
The signals available in this window are only the motor output type.
Up to 10 motor outputs can be chosen and they will be managed in parallel.



10.5.5 How to set the running and tilting time

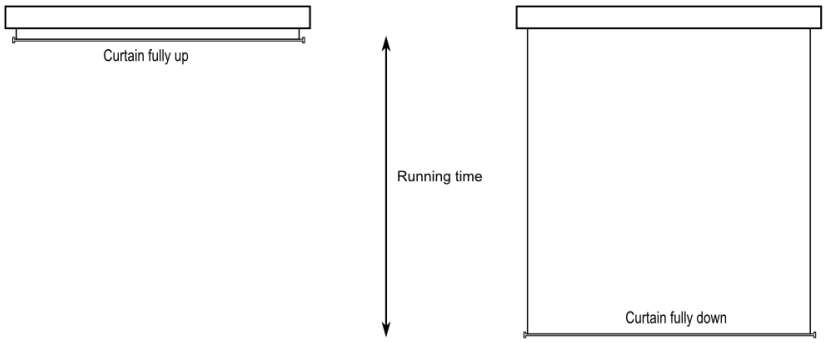
The running and tilting time of the motor have to be set when the rollerblind module is added.
These settings are needed for the correct operation of the function and they should be defined in the wizard relevant to the rollerblind module.
To access this, the user should open the Rollerblind module wizard by clicking on the relevant icons, and then select *Output signal* (see picture below).



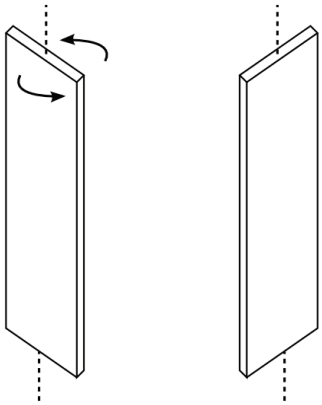


Reverse motor time (seconds):
This is the time in seconds to change the motor direction (this time should be set to 1 second at least, to avoid damaging the motor).

Running motor time (seconds):
This is the time for the blinds to go from a fully up position to a fully down position.
Starting from a fully wrapped position, the user must use the manual command to completely open the blind. The entire running time must be measured: the accuracy of the time is 0,1 second.



The motor tilting time (seconds):
This is the time for a complete tilting movement (a slats rotation of 180°). Starting from a fully tilted position, the user must use the manual command to tilt the blind into the opposite position.
The whole tilting time must be measured: the accuracy of the time is 0,1 second.



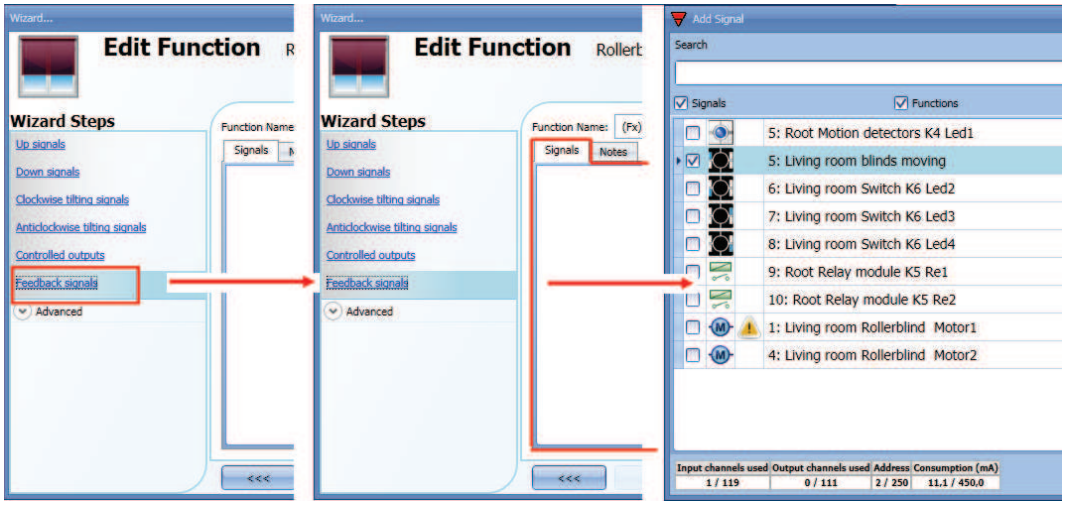
The motor direction:
The user can change the direction of the motor by clicking on the relevant icons.

	Clockwise movement
	Anti clockwise movement

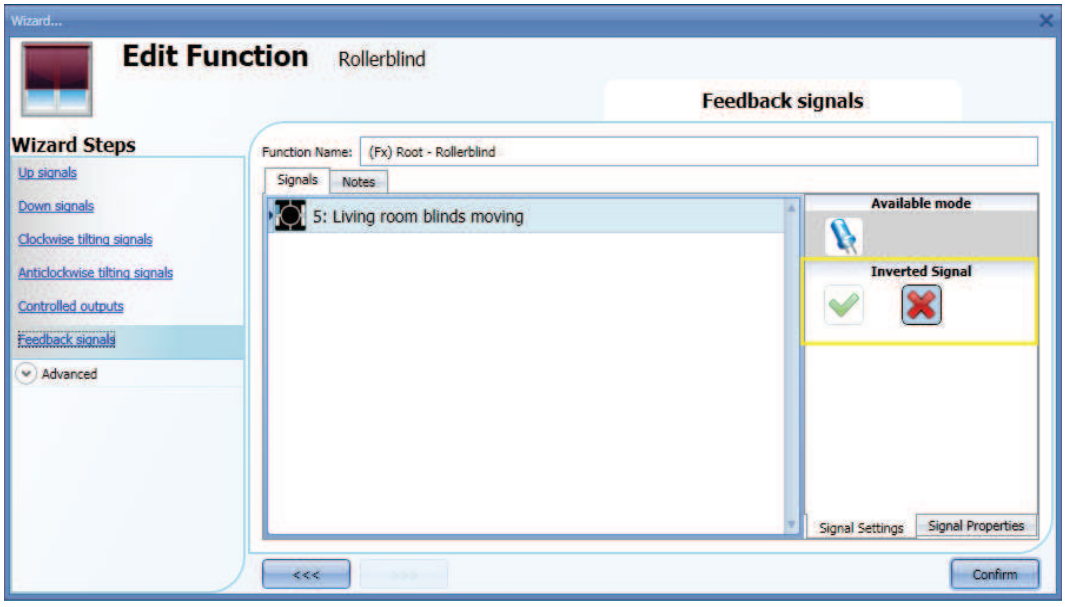
NB. For all those modules with serial numbers higher than MN46 (rev4), the tool manages two different running times: one time for motor up and another one for motor down. Please note that all the modules produced with a lower serial number (that means an earlier firmware revision) do not manage this new feature and an error will be shown by the tool.

10.5.6 How to set a feedback signal

To select the feedback signal that indicates the status of the function, click on *Feedback signals* and then double click on the *Signal window*.
When the motor is moving, the feedback signal will be activated.



The signals available in this window are LEDs and relays.
Up to 50 signals can be added and they will be managed in parallel.
The logic of each feedback signal can be set as standard or inverted (see the yellow rectangle).

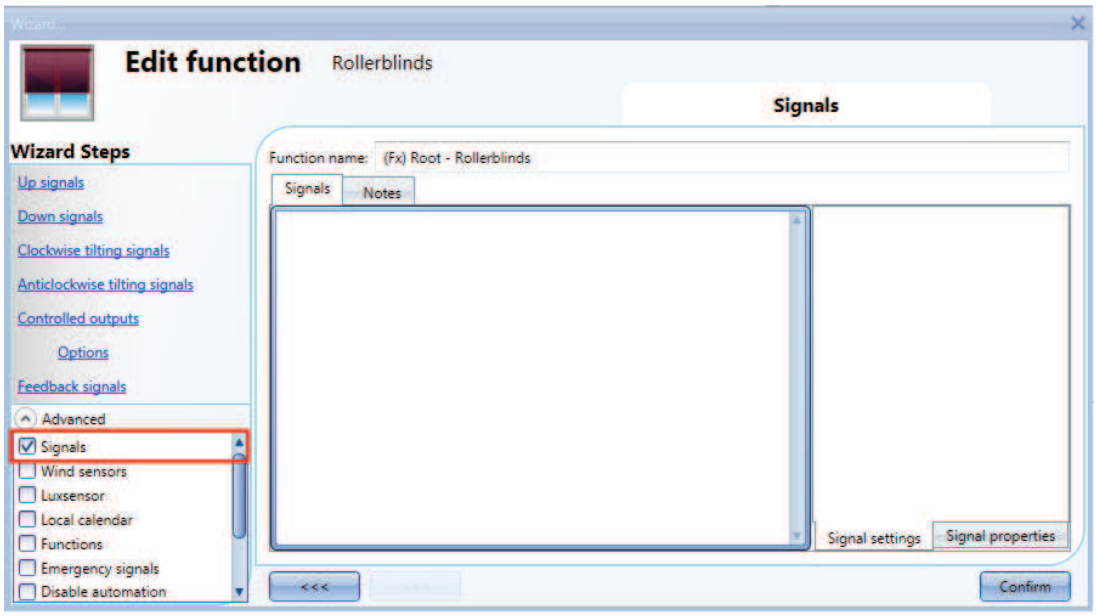


10.5.7 How to manage blinds with automations

The automatic up/down positioning and the tilting of the blinds can be managed by wind sensors (the speed value measured by the sensor can be used to move blinds up/down), by calendar functions (calendar to move up/down at pre-defined time intervals), by rain sensors (the blinds can be moved according to the weather condition) and by lux meters moving blinds up/down according to the levels of ambient light.
All these automations have to be enabled in the Advanced section.

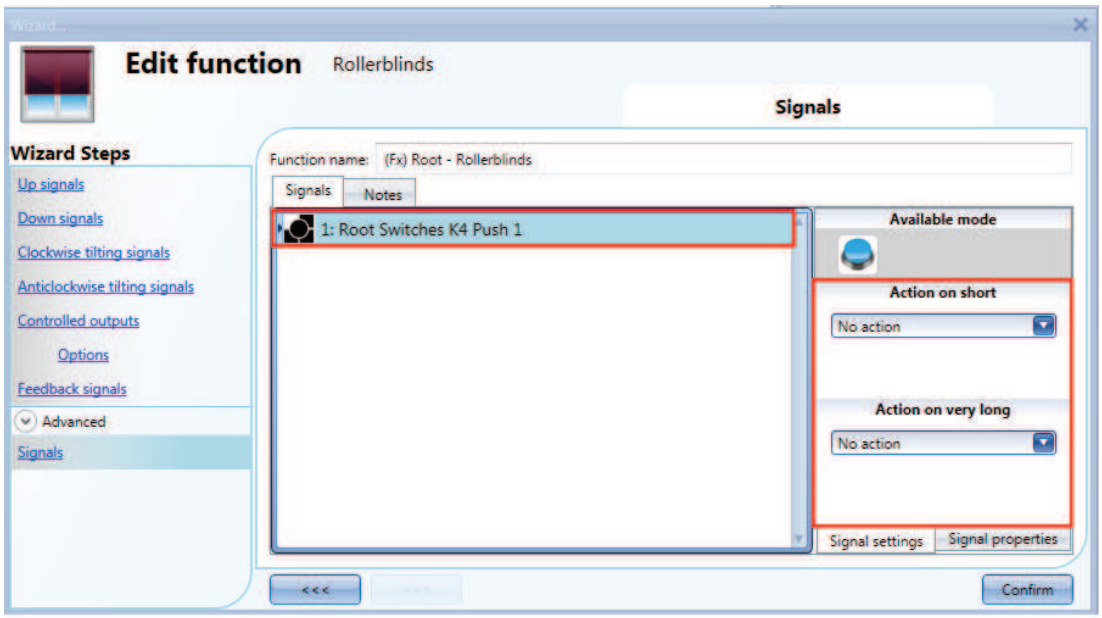
10.5.8 How to customize the push button behaviour

In the *Advanced* settings, the user can customize the behaviour of each push button used to control the blinds.



To add the signal to control the Up/Down movement and the tilting, the user should click on the relevant section, then double click on the *Signal* window and select the input signal from the list.

By clicking on each added signal, it is possible to select the action to be carried out for the “short press” and “very long press” on the pushbutton.



In the picture below, an example is shown where two push buttons are used to send a fully up/down command with a short click and to tilt the slats clockwise/anticlockwise by using the very long activation.

The available actions are listed in the tables below.

Short pressure of the push button	
No action	No action will be carried out if the push button is pressed briefly
Stop	The motor is stopped
Reset UP position	The motor is activated for the whole up running time
Reset DOWN position	The motor is activated for the whole down running time
Fully UP	The motor is activated for the time it needs to go fully up from the current position. E.g.: if the current position is 40%, the motor will be activated for 60% of the up running time.
Fully DOWN	The motor is activated for the time it needs to go fully down from the current position. E.g.: if the current position is 20%, the motor will be activated for 80% of the up running time.
Fully UP and reverse	The motor is activated for the time it needs to go fully up from the current position. When the button is pressed again, the motor direction is inverted and it will go down for the whole down running time. Every time the push button is pressed, the motor reverses the direction.
Move UP step by step	The motor is activated to go up for the selected running percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the up running time.
Move DOWN step by step	The motor is activated to go down for the selected running percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the down running time.
Fully clockwise tilting	The slats are fully tilted clockwise
Fully anticlockwise tilting	The slats are fully tilted anticlockwise
Fully anticlockwise tilting and reverse	The slats are fully tilted anticlockwise and at the next press of the button they are fully tilted clockwise.
Tilt clockwise step by step	The slats are tilted clockwise for the selected tilting percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the tilting time.
Tilt anticlockwise step by step	The slats are tilted anticlockwise for the selected tilting percentage each time the pushbutton is pressed. E.g.: if 20% is selected, each time the push button is pressed, the motor will be activated for 20% of the tilting time.
Move to xx% and tilt to yy%	Each time the push button is pressed, the roller blind will be brought to the set (xx%) position.

Very long pressure of the push button	
No action	No action will be carried out if the push button is pressed continuously
Go UP - stop	The blind is moved up while the pushbutton is kept pressed. When it is released, the motor is stopped.
Go DOWN - stop	The blind is moved down while the pushbutton is kept pressed. When it is released, the motor is stopped.
Go UP – stop - reverse	The blind is moved up while the pushbutton is kept pressed. When it is released, the motor is stopped. The next time the push button is pressed, the motor reverses the direction.
Fully UP	The motor is activated for the time it needs to go fully up from the current position. E.g.: if the current position is 40%, the motor will be activated for 60% of the up running time.
Fully DOWN	The motor is activated for the time it needs to go fully down from the current position. E.g.: if the current position is 20%, the motor will be activated for 80% of the up running time.
Clockwise tilting - stop	The slats are tilted clockwise while the push button is kept pressed. When it is released, the motor is stopped.
Anticlockwise tilting -.stop	The slats are tilted anticlockwise while the push button is kept pressed. When it is released, the motor is stopped.
Fully clockwise tilting	The slats are fully tilted clockwise
Fully anticlockwise tilting	The slats are fully tilted anticlockwise
Tilt anticlockwise - stop-reverse	The slats are tilted anticlockwise while the push button is kept pressed. When it is released, the motor is stopped. The next time the button is pressed, the tilting direction is changed.
Move to xx% and tilt to yy%	Each time the push button is kept pressed, the roller blind will be brought to the set (xx%) position.

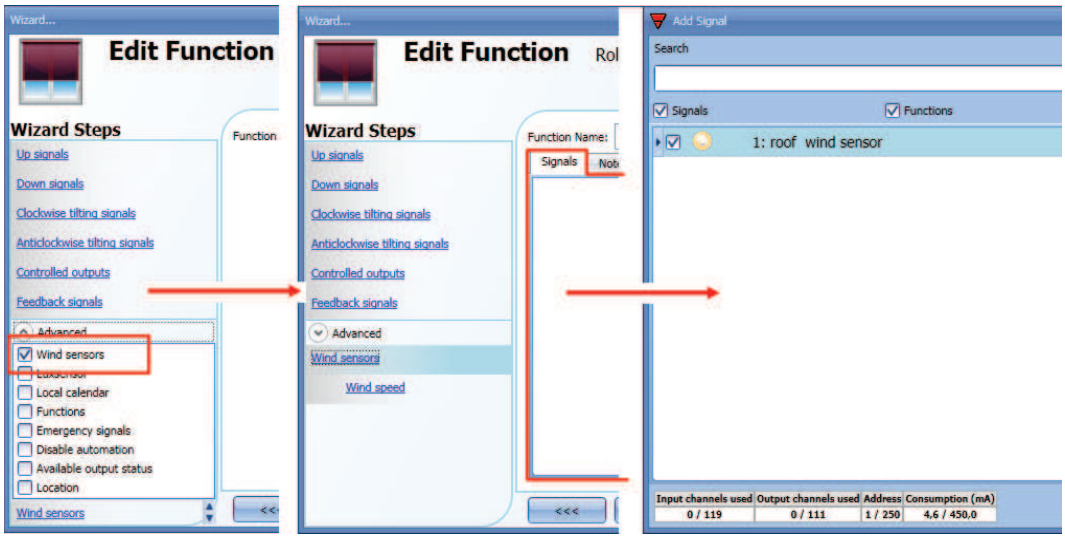
When the motor is running up or down, any action on the push button will stop it.

10.5.9 How to use the wind sensor to control blinds

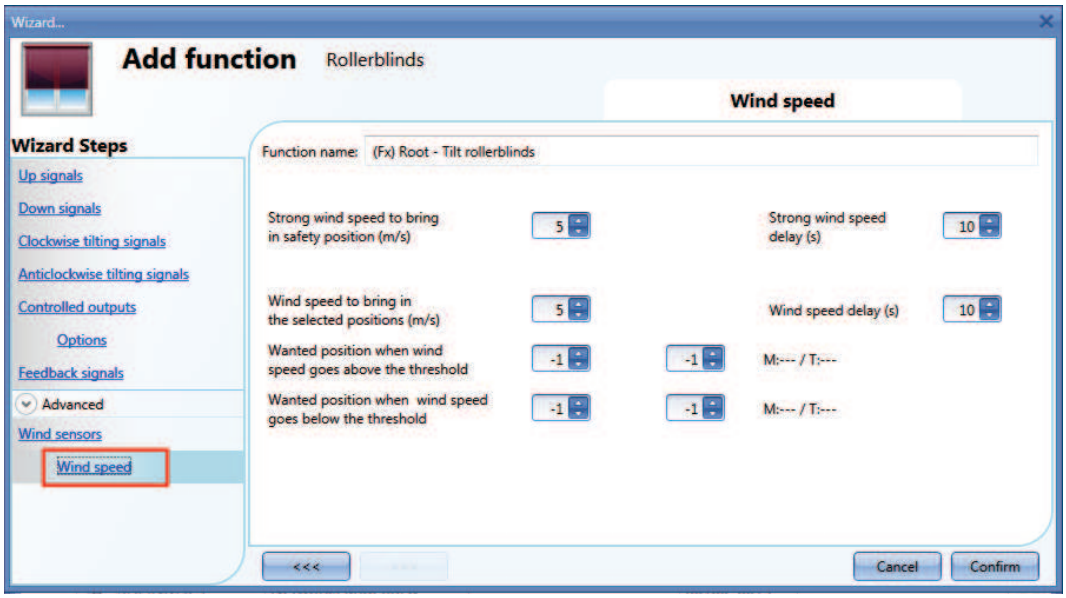
The wind sensor can be used to perform different actions:

3. Adjust the position of the blinds according to the measured wind speed
4. Adjust the tilting position of the slats
5. Bring blinds into a safety position if the measured wind speed is very high

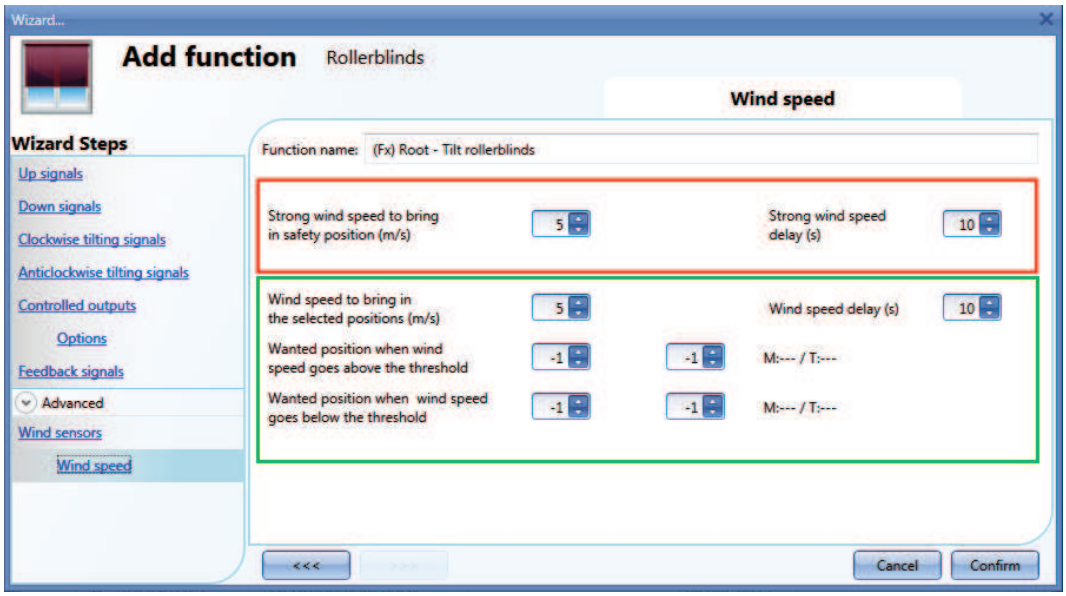
When a wind sensor needs to be used, it must first be enabled in the *Advanced* section.
The *Wind sensors* menu will appear. After selecting it, with a double click on the Signal window, the list of available signals will appear.
Select the required signal/signals and click on *Confirm*. Only one signal can be selected.



Once the wind sensor is added, the user has to set the wind speed limits in the *Wind speed* menu:



The *Wind speed* menu is split into two main fields:



Highlighted in red: the user can select a strong wind threshold value - when the wind speed goes over this threshold, the blinds are automatically brought into the safety position (the safety position is fully up/down according to the settings in the output of the function).
While the strong wind condition is active, the blind stays in the safety position and all other automations are not accepted. The only way to control the curtain is to use manual commands.
The user can select a delay time to move the blind to the safety position: the blind will be moved only when the strong wind condition is active for a time longer than the set value. If the delay time is set to 0 seconds, the delay time is disabled.

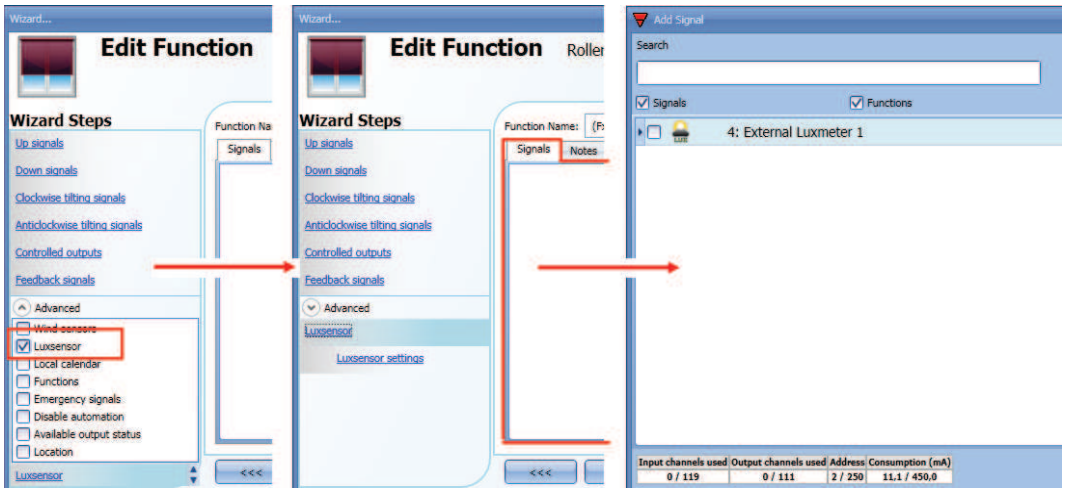
Example 1
In the picture above, when the wind speed goes over 6 m/s for more than 10 seconds, the blind is moved to the safety position. In order to avoid damage to the blinds, we suggest setting a small delay value (max 30 seconds).

Highlighted in green: the user can set another wind threshold. When the wind speed goes over/under this value, it is possible to select different actions for the blind. The user can also select a delay time for each action

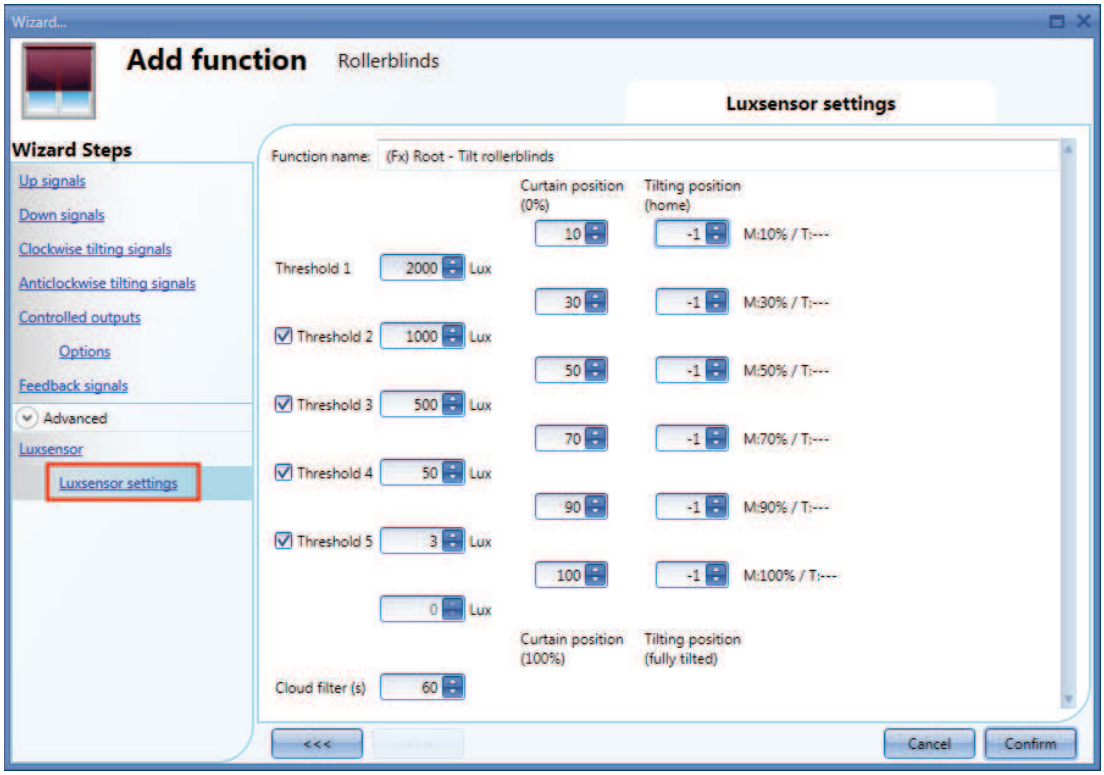
Example 2
In the picture above, when the wind speed goes over 3 m/s for more than 60 seconds, the blind is moved to 50% of the running time; when the blind reaches 50% the motor stops for a few seconds and then it is fully tilted.
When the wind speed goes below 3 m/s for more than 60 seconds, the blind is moved to 15% of the running time; when the blind reaches 15% the motor stops for a few seconds and then it is tilted for 50% of the tilting time.
In order to avoid continuous movement of the blind, we suggest setting a minimum delay value of 60 seconds.

10.5.10 How to control the blind according to the daylight

The blind position can be managed in an automatic way by using lux meters: the user can define up to 5 different light levels to make the smart-house system move the blinds up/down and tilt them.
To select the lux sensor, the user should click on *Luxsensors* and then double click on the *Signal window*. Once the output window is opened, select the relevant signal from the list.



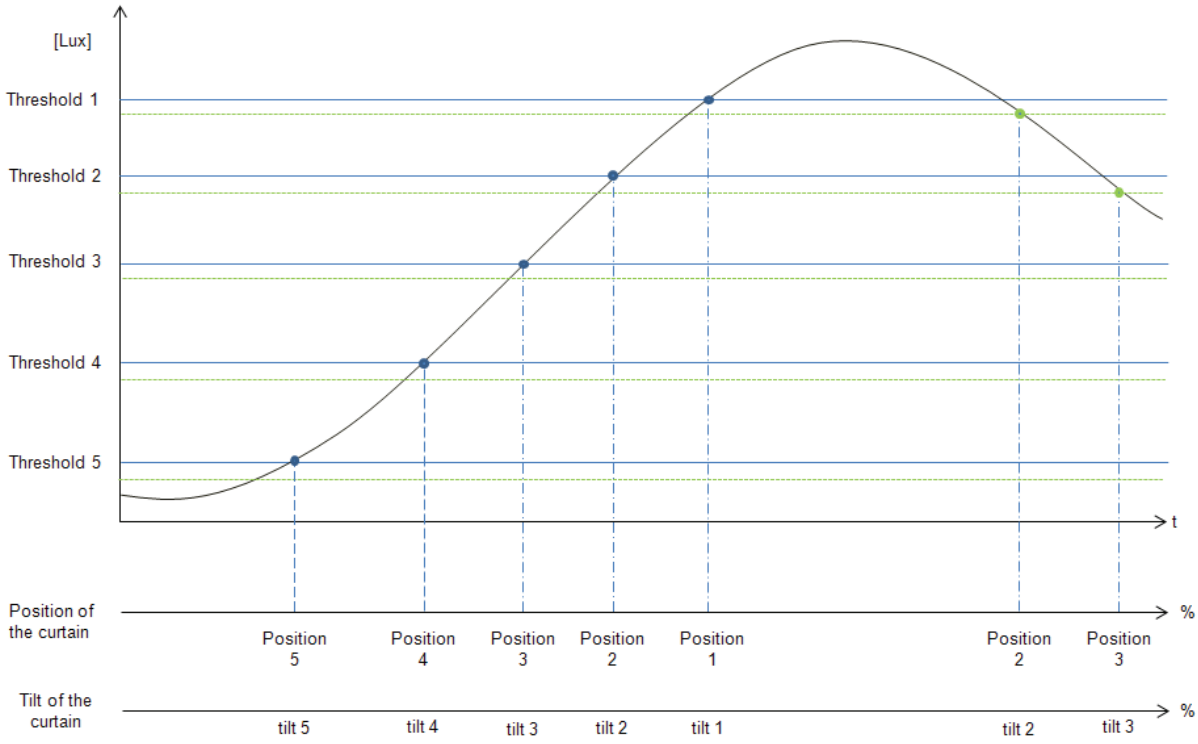
The user can add up to 10 lux sensors: if more lux signals are linked to the function, the average value is calculated and used.
Once the lux sensor is added, the user can change the threshold values and the action that the blind has to perform when these values are reached.



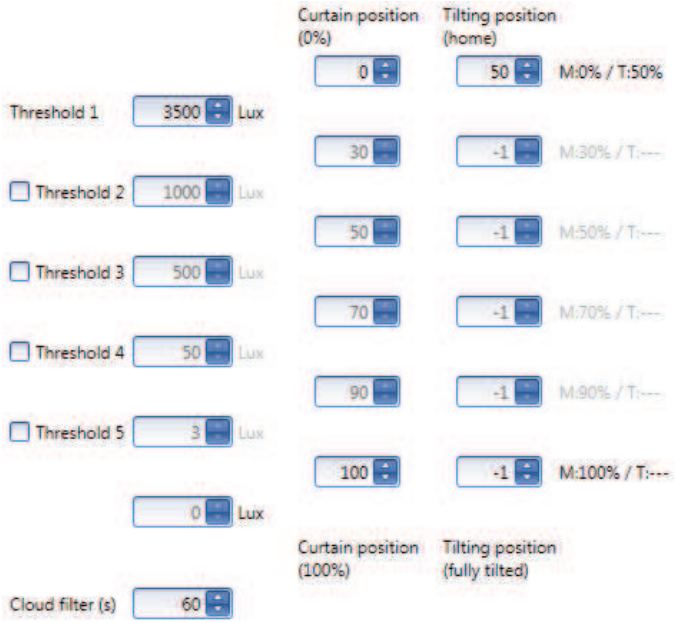
The up/down movements and the tilting start when the thresholds are surpassed, so if the blind position is changed manually by means of a light switch or automatically e.g. by the scheduler, the automation of the lux sensor will not change it unless the thresholds are surpassed.
The hysteresis value is fixed at 10% and it is used for all the thresholds.
When the light level is increasing, the threshold values are used: when the light level is decreasing the following value is used:

value= threshold value – hysteresis.

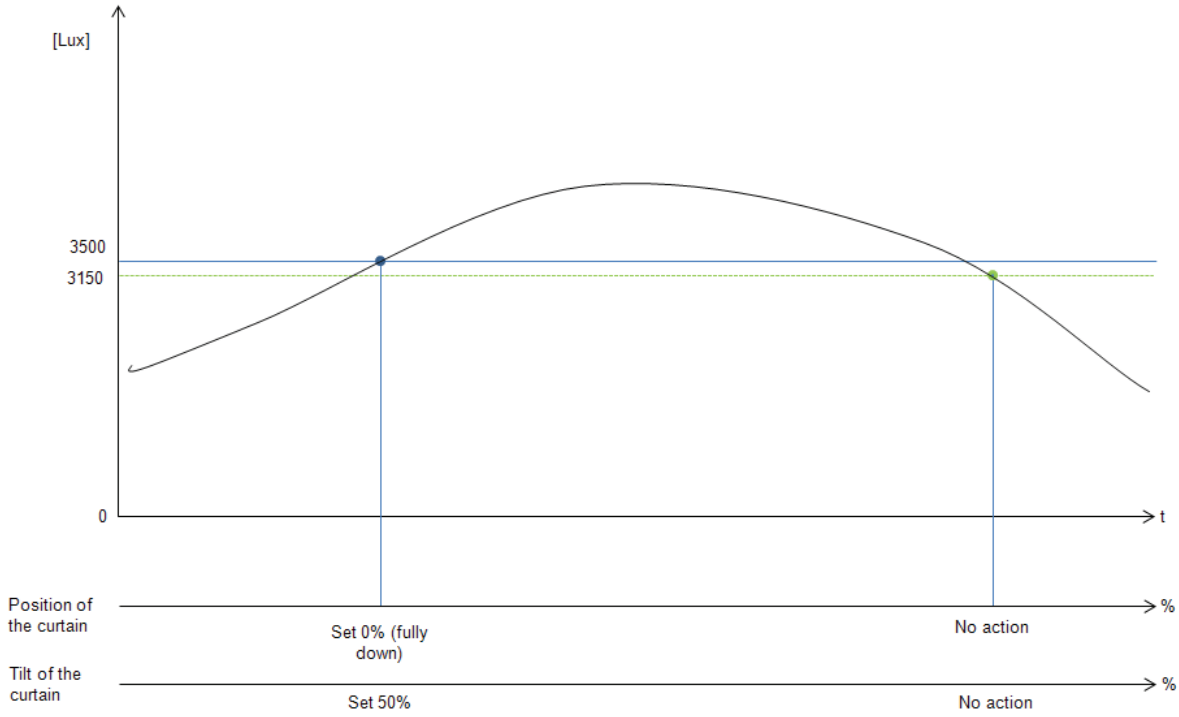
The user can also set a cloud filter to avoid the up/down movements if a cloud shields the sun for a short time. We suggest setting the time for at least 60 seconds; if the time is set to 0 the filter is disabled.
The picture below shows how the blind position is changed according to the light level. At least one threshold must be used with the lux sensor.



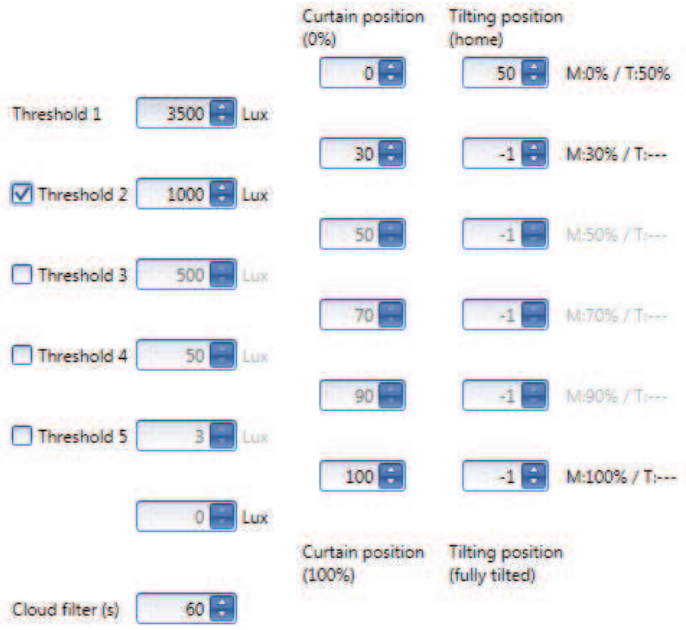
Example 1:
In the first example only one threshold is used and it is set at 3500 Lux: the cloud filter is 60 seconds. When the light goes over 3500 Lux, the blind starts moving until it reaches the fully down position. When the blind is down it is tilted 50% (90°).



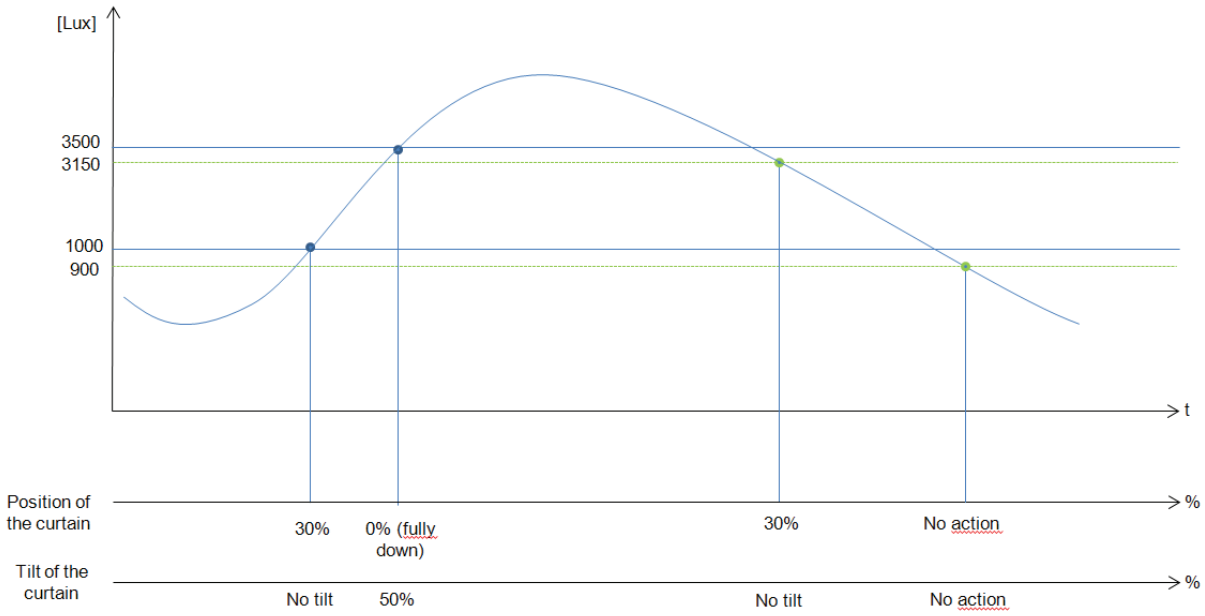
In the picture below, the behaviour of the output is shown according to the light level.



Example 2:
In the second example, threshold 1 is set to 3500 Lux and threshold 2 is set to 1000 Lux: the cloud filter is 60 seconds. When the light goes over 3500 Lux, the blind starts moving until it reaches the fully down position. When the blind is fully down, it is tilted 50% (90°).



In the picture below, the behaviour of the output is shown according to the light level.

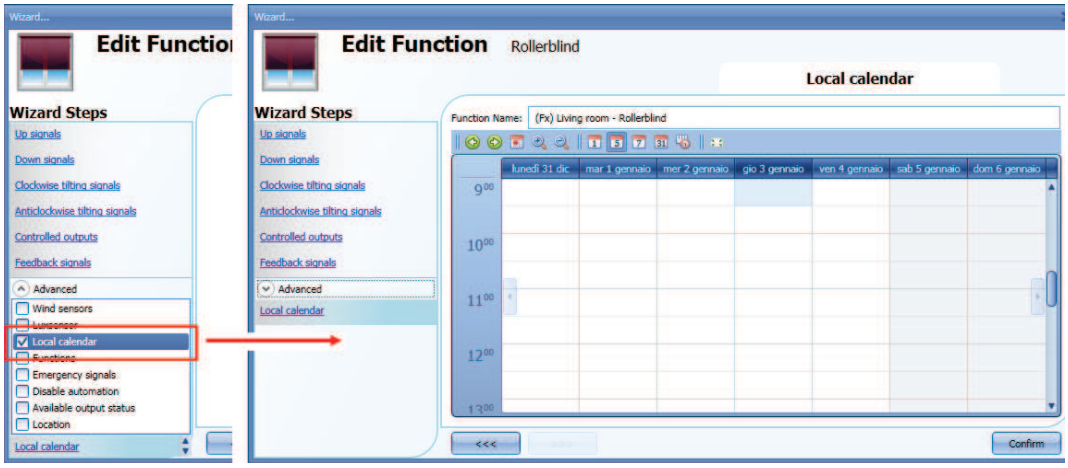


10.5.11 How to move the blinds up/down and tilt them with the calendar

There are two ways of managing the *Tilting blinds* function with the calendar: by setting the "local" calendar inside the function or using a "global" calendar function.

The local calendar function

To enable this, the relevant menu has to be enabled in the Advanced section.

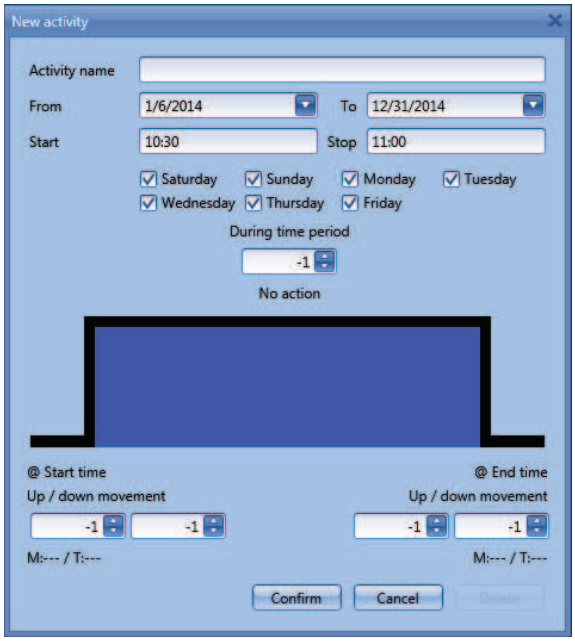


The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons :

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activities
Once the user has selected his preferred visualization, to enter a time band he has to double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

@ start time up/down movement: in this field the user can select the action of the function at the start time.
The user can select the following actions:

- No action (-1)
- Set the position of the blind at a fixed value between 0% and 100% (0-100)

@ start time tilting: in this field the user can select the action of the function at start time.
The user can select the following actions:

- No action (-1)
- Set the tilting position at a fixed value between 0% and 100% (0-100)

@ end time: in this field the user can select the action of the function at the stop time.
The user can select the following actions:

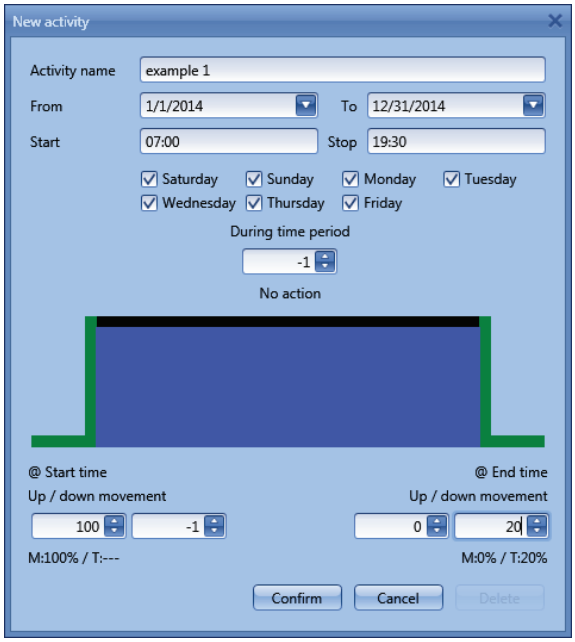
- No action (-1)
- Set the position of the blind at a fixed value between 0% and 100% (0-100)

@ end time tilting: in this field the user can select the action of the function at end time.
The user can select the following actions:

- No action (-1)
- Set the tilting position at a fixed value between 0% and 100% (0-100)

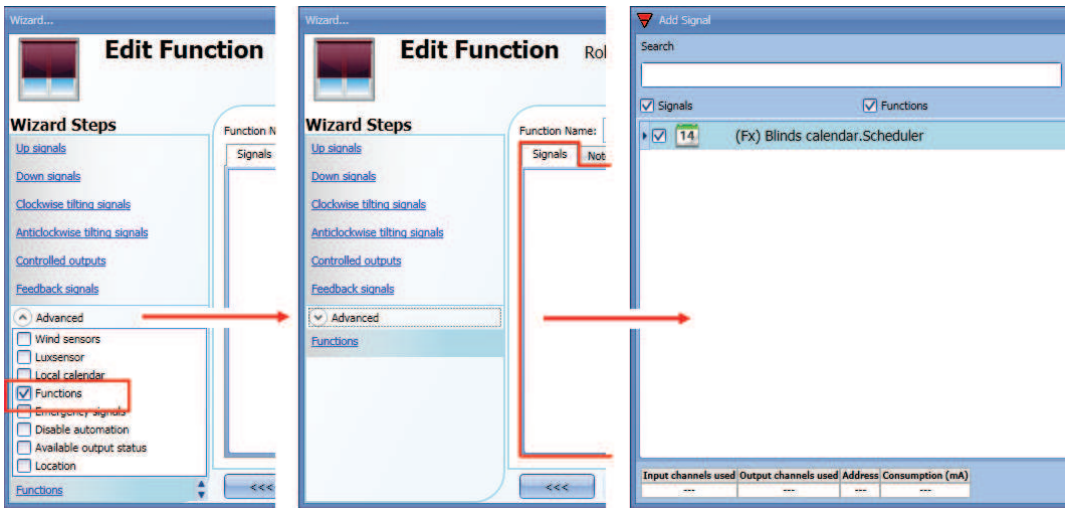
Days: The user has to select the days of the week for the activity.

In the example below, the calendar is set to work all the year (from 1st January to 31st December) . The working days are: Monday, Tuesday, Wednesday, Thursday and Friday (the calendar does not work on Saturday and Sunday).
The start time is 7:00 and the stop time is 19:30.
At 7:00 the blind starts moving up: when the curtain is fully up there is no tilt. At 19:30 the blind starts moving down: when the blind is fully down it is tilted at 20%.



The global calendar function

Before using a global calendar it has to be defined as a function (See how to set a global calendar). The field function has to be selected in the *Advanced* menu.
By clicking on *Functions* and then double clicking in the *Signal* window, the *Add signal* window will appear. Select the required calendar function.

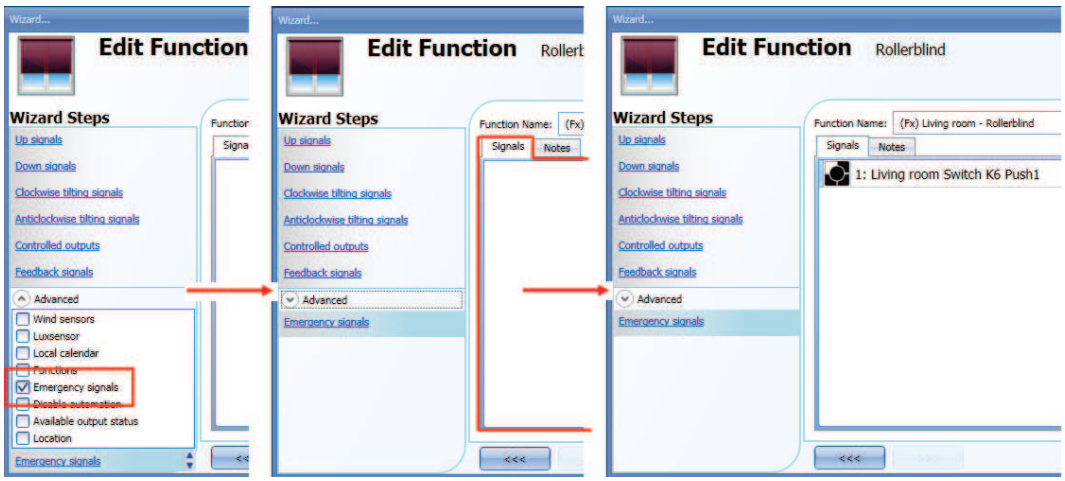


The behaviour of the calendar will be the same as that of the local calendar.

An example of this automation is a global calendar to move all the blinds down at ten o'clock in the evening.

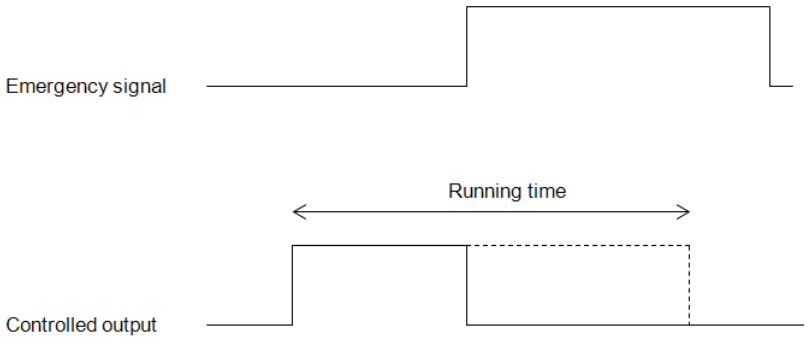
10.5.12 How to use the emergency signals

In some applications, for the safety of the user, a pushbutton is required to stop the motor at any time. The *Emergency signal* field allows the user to stop the motor when the signal is active. The roller blind module does not accept any manual or automatic command until the emergency signal is active.
To add an emergency signal, the user should select the relevant section in the advanced menu, then double click on the *Signal* window and select the input signal from the list (see picture below).



When the signal is added, the inverted logic can be used (see the yellow rectangle in the picture below).

In the example below, the motor is stopped immediately when the emergency signal is activated.



10.5.13 How to stop the automations

Sometimes it is necessary to stop all the automations to service the blinds or simply to clean the windows.

To add a disable automation signal, the user has to select the relevant section in the advanced menu, then double click on the *Signals* window and select the input signal from the list (see picture below).

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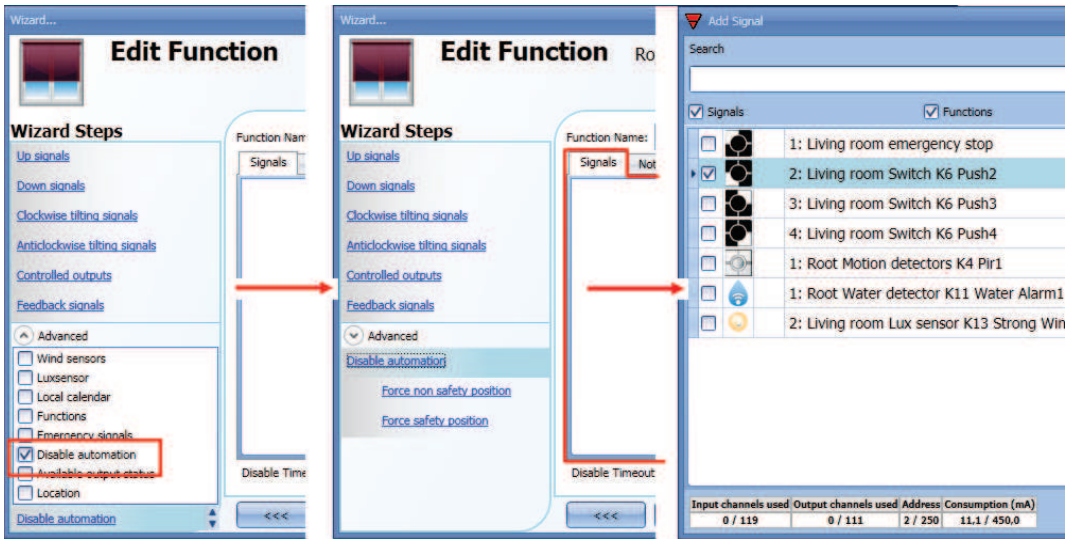
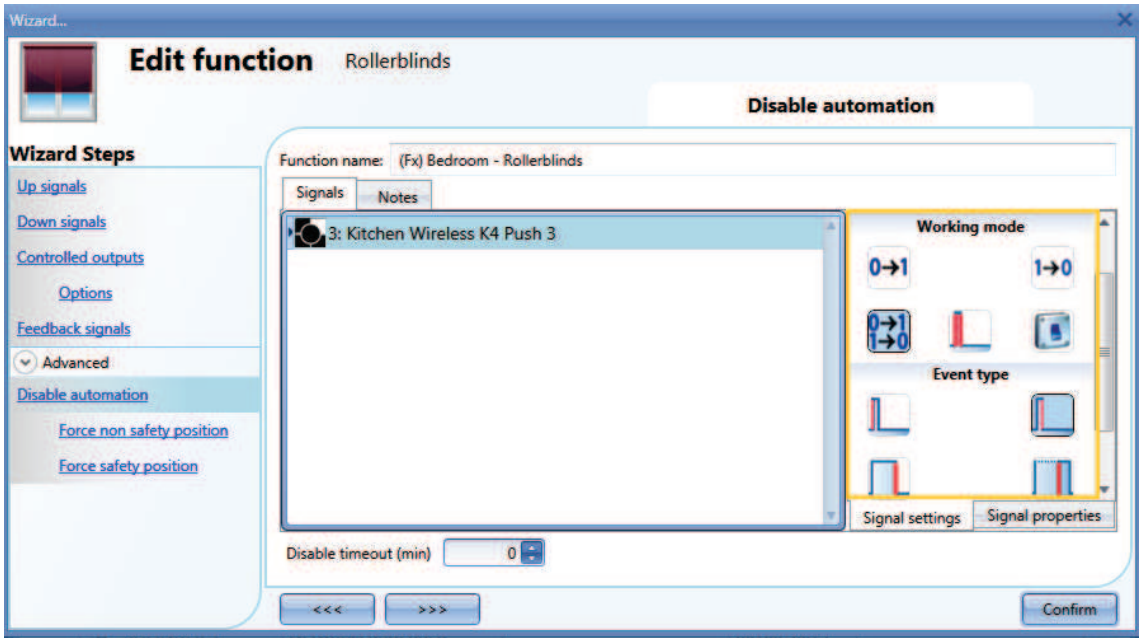


When the signal is added, the user should select the working mode and the type of the event:



If a push button type is added, the working mode, highlighted with the yellow rectangle, has to be selected according to the table below:

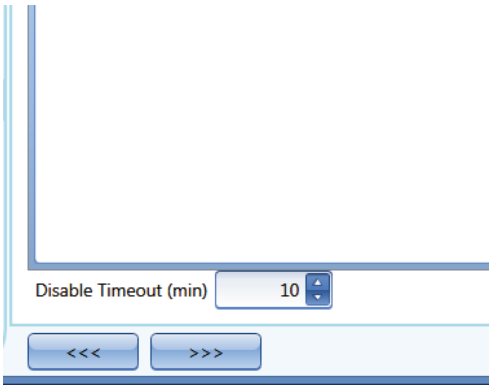
	Event type			
Working mode				
	As soon as the push button is pressed, the automation is disabled.	After a short press (less than 1 second), the automation is disabled at the release of the push button.	After a long press, the automation is disabled at the release of the push button.	After a very long press, the automation is disabled at the release of the push button.
	As soon as the push button is pressed, the automation is enabled again.	After a short press (less than 1 second), the automation is enabled again at the release of the push button.	After a long press, the automation is enabled again at the release of the push button.	After a very long press, the automation is enabled again at the release of the push button.
	As soon as the push button is pressed, the automation will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the automation will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the automation will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the automation will be enabled/disabled in toggle mode at the release of the push button.
	The automation will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type: Signal activated	Event type: Signal deactivated
1→0	The automation is enabled again	No action
0→1	The automation is disabled	No action
0→1 1→0	The automation is disabled/enabled in toggle mode	No action
	The automation is disabled/enabled in toggle mode	The automation is disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

The user might need to set a time after which the automation is enabled again even if the selected signal is still active: to achieve this, the Disable timeout field has to be set.

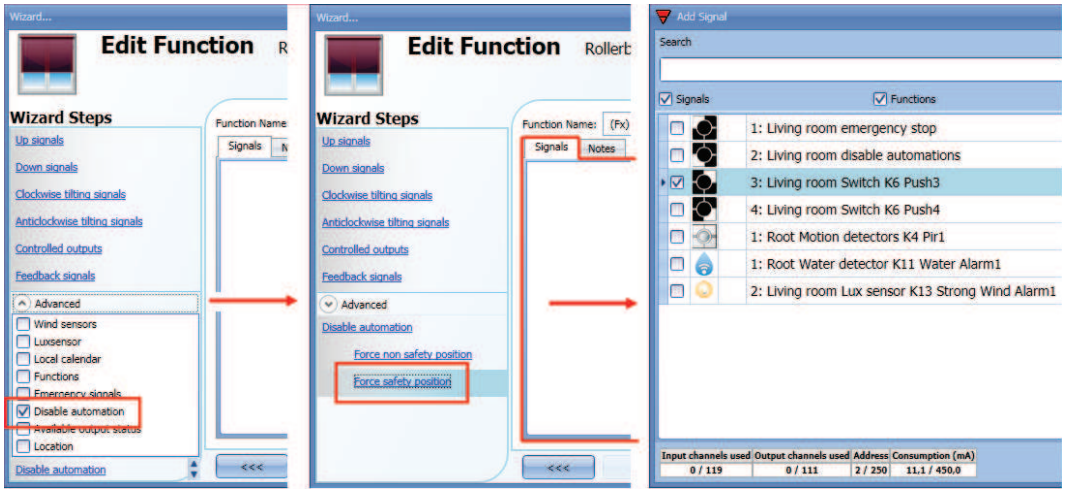
To access the stop automation functionalities, they must be enabled in the Advanced section field.
If the user needs to be sure that the disabling of the automation is automatically removed, the *disable automatism timer* has to be set.



The timer starts each time the disable status becomes activated: the disable status is automatically deactivated as soon as it has elapsed.
In the figure above a disable timeout of 10 minutes is set. The maximum delay is 59minutes.

10.5.14 How to force the safety condition

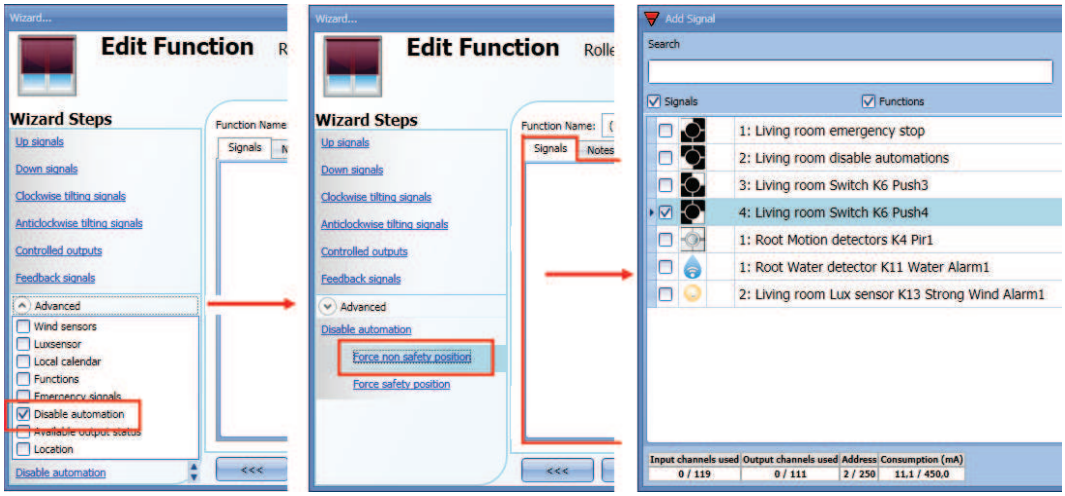
If the user wants to force the safety position regardless of all other signals used in the function, the *Force safety position* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force safety position*, then double click on the signal window and select the right signal to use.



Each signal used in the *Force safety position* window works as a level signal: until the signal is active, the blind is forced into the safety position.
When the *force to safety position* signal is activated and the *force to no safety position* signal is activated, the force to safety position signal has the priority.

10.5.15 How to force the non-safety condition

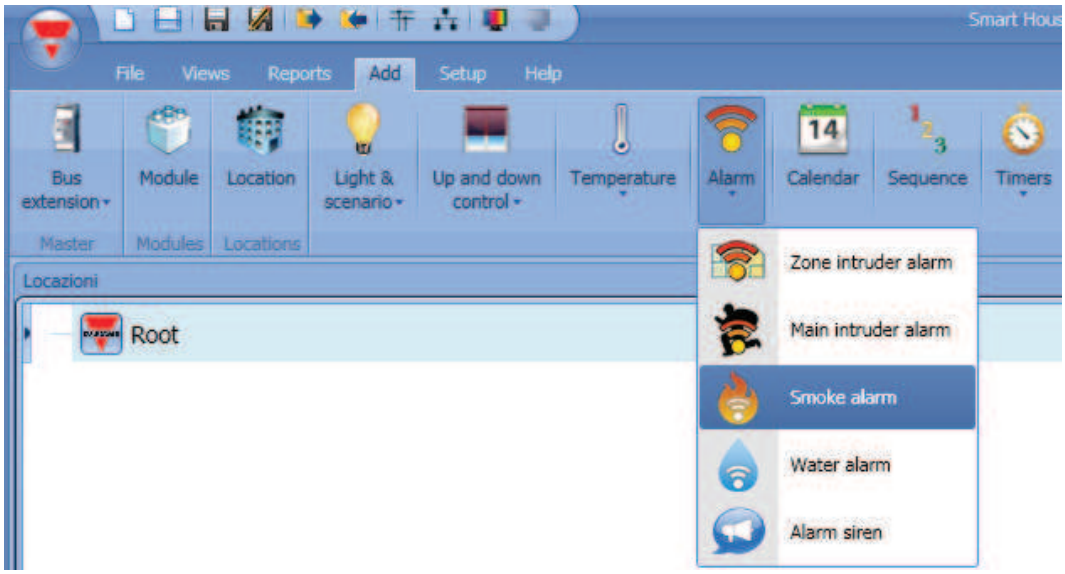
If the user wants to force the non-safety position regardless of all other signals used in the function, the *Force non safety position* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force non safety position*, then double click on the signal window and select the right signal to use.



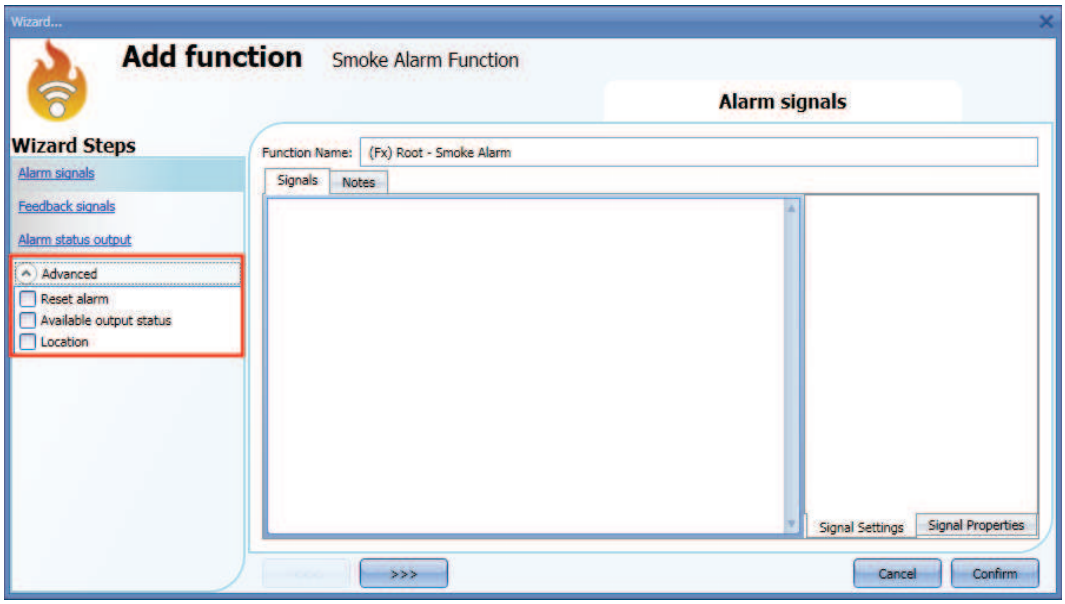
When the *Force output on* signal is activated and at the same time the *Force output off* signal is activated, the *Force output on* signal has priority.

10.6 How to add a smoke alarm function

The user can configure a basic smoke alarm function in order to be warned about smoke in the house.
To set up a smoke alarm function the user should select *Alarm* from the Add menu, then select *Smoke Alarm* (see picture below). The new function will be added into the selected location.
The wizard relevant to a Window control function can also be opened by typing Alt +A +A +S.



This function manages one or more outputs controlled by one or more input commands. The command might be a signal from a smoke detector, a pushbutton, a switch, a function or a remote command (Webserver, sms, Modbus TCP/IP)
The automation of the *Smoke alarm* function can be managed by accessing the *Advanced* section.
In the advanced section the user can select the reset signal: this is used to stop the alarm signal in order to silence the system when the alarm has been acknowledged, and also to reset the alarm output. The alarm will be inhibited for a time period, allowing the user to remove the smoke from around the sensor in case of a non-fire situation.
In the *Advanced* section the user can also configure two signals in order to force the status of the function on or off.

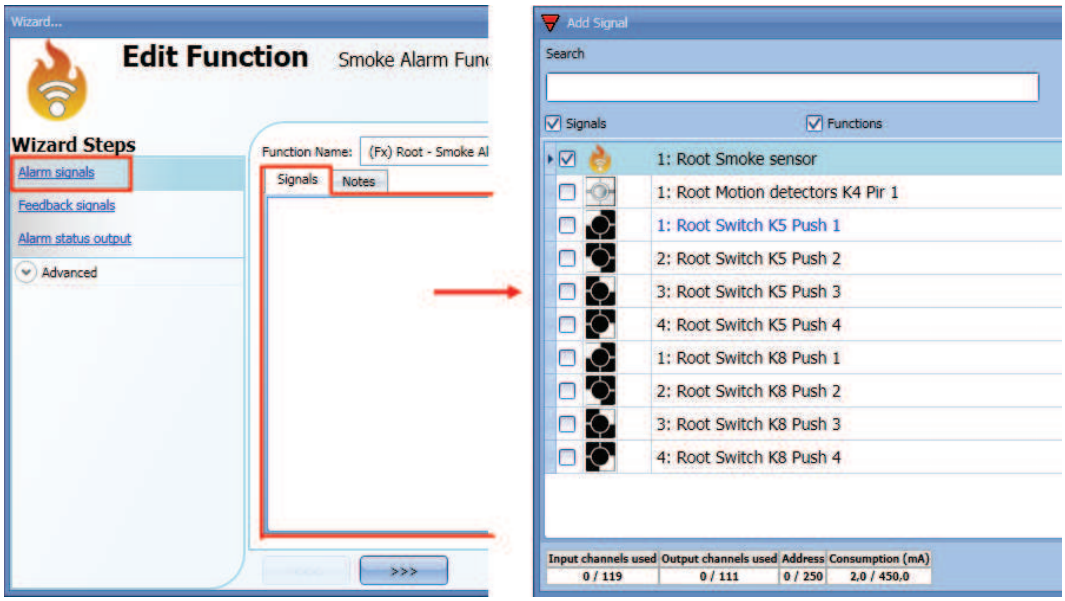


10.6.1 How to set a simple smoke alarm system

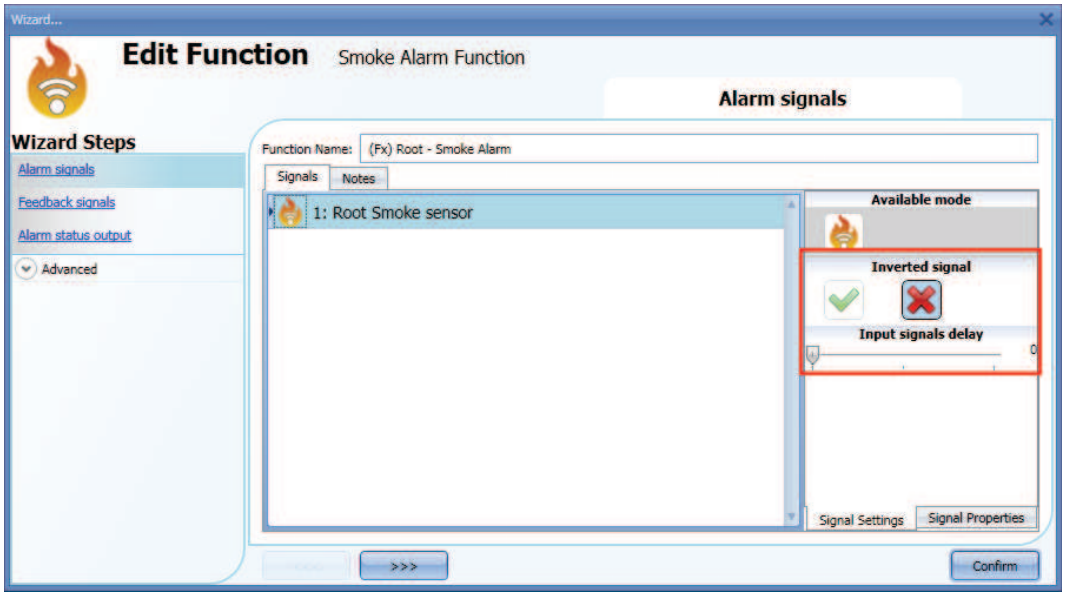
If the user wants to create a simple smoke alarm system, he needs at least two signals to have a fully functional smoke alarm system:

- A smoke sensor as input signal
- A general output that is activated when the alarm is on

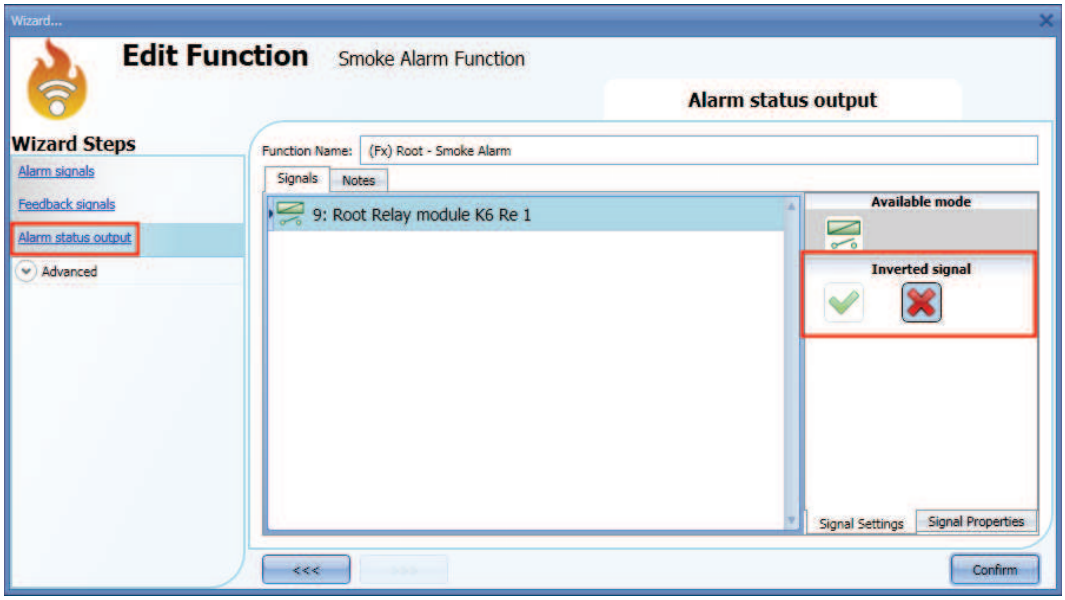
Once the modules are added to the configuration (smoke sensor and output module), the user should select the alarm input signal in the relevant section of the *Smoke alarm* wizard, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



Once the alarm signal is entered, the user can also decide to use the inverted logic of the signal (see the red rectangle in the picture below). The inverted logic is enabled by selecting the green V.
Each alarm signal added to the function has a delay time that can be set in order to filter the activation of the alarm when the smoke is detected. This might be used to avoid false alarm triggering.



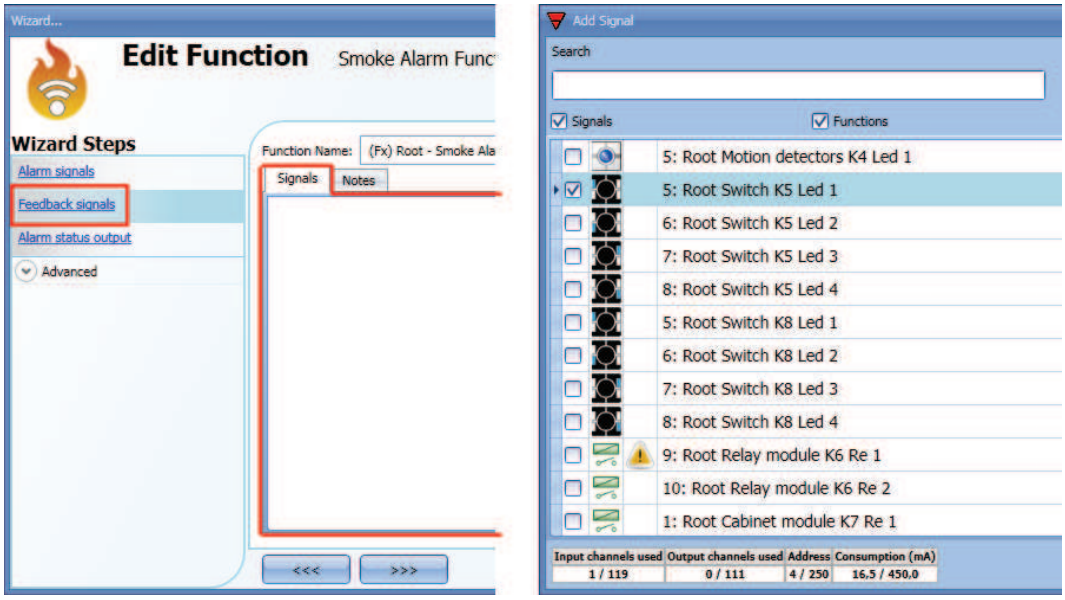
To add the alarm output, the user should select the relevant section in the wizard of the function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).
The output signal can be a relay, a LED or a buzzer. The output signal will stay on until smoke is detected by the sensor.



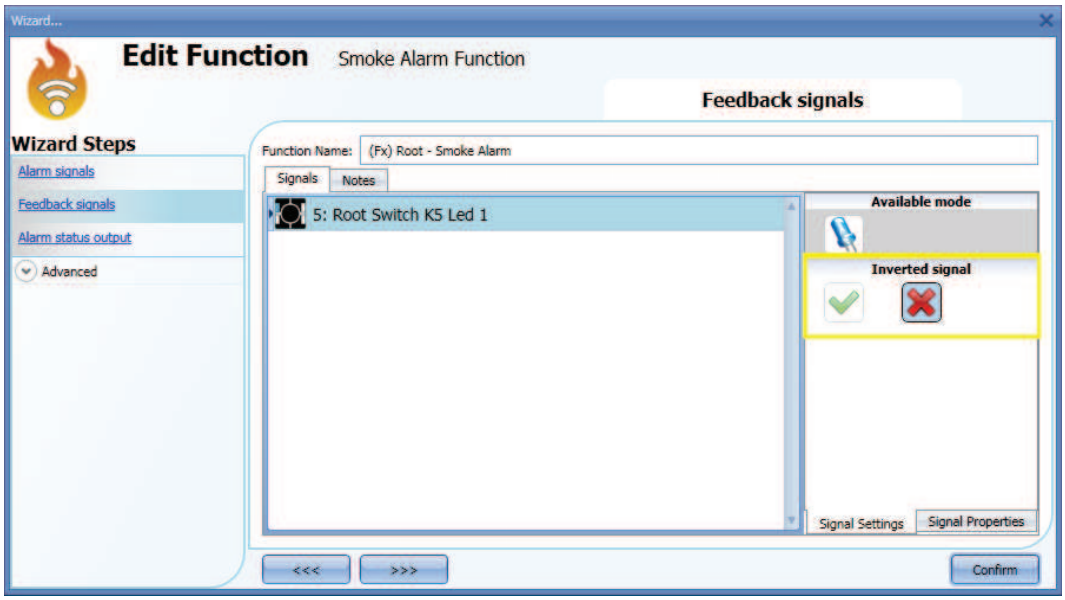
Example 1:
Using this easy setting, the function works in this way: the smoke function is ready to react as soon as the smart-house system is started. While the sensor doesn't detect smoke, the output is off. When the sensor detects smoke, the function is activated and the output goes on and stays on until the smoke signal disappears.

10.6.2 How to add a feedback signal

If the user wants to use a feedback signal to check the status of the function, he should select the relevant section, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).
The feedback signal can be a relay, a LED or a buzzer, and it behaves according to the status of the function: when smoke is detected, the feedback signal starts blinking 1 second ON 1 second OFF. When no smoke is detected the feedback is off. When the reset signal is active the feedback is on.



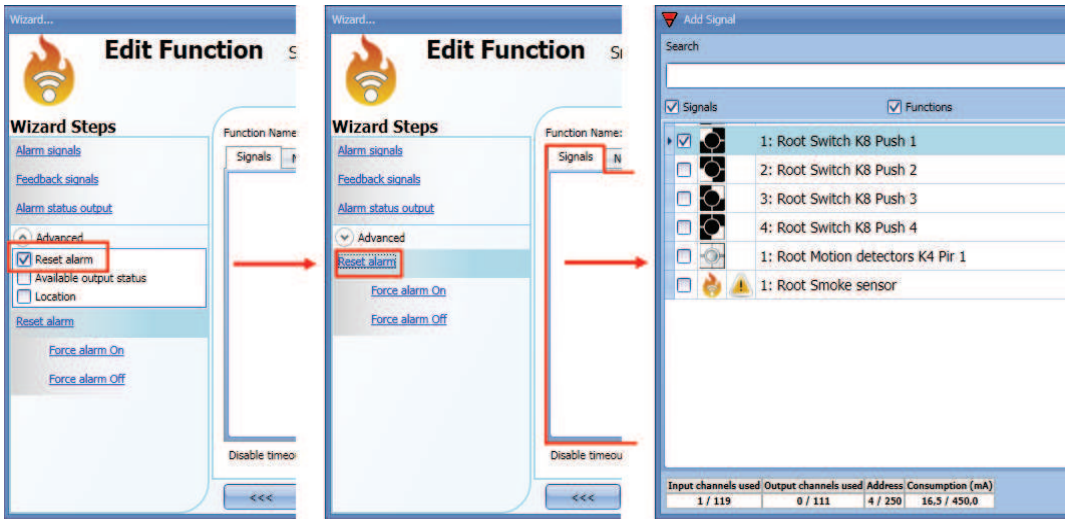
Once the alarm signal is entered, the user can also decide to use the inverted logic of the signal (see the red rectangle in the picture below). The inverted logic is enabled by selecting the green V.



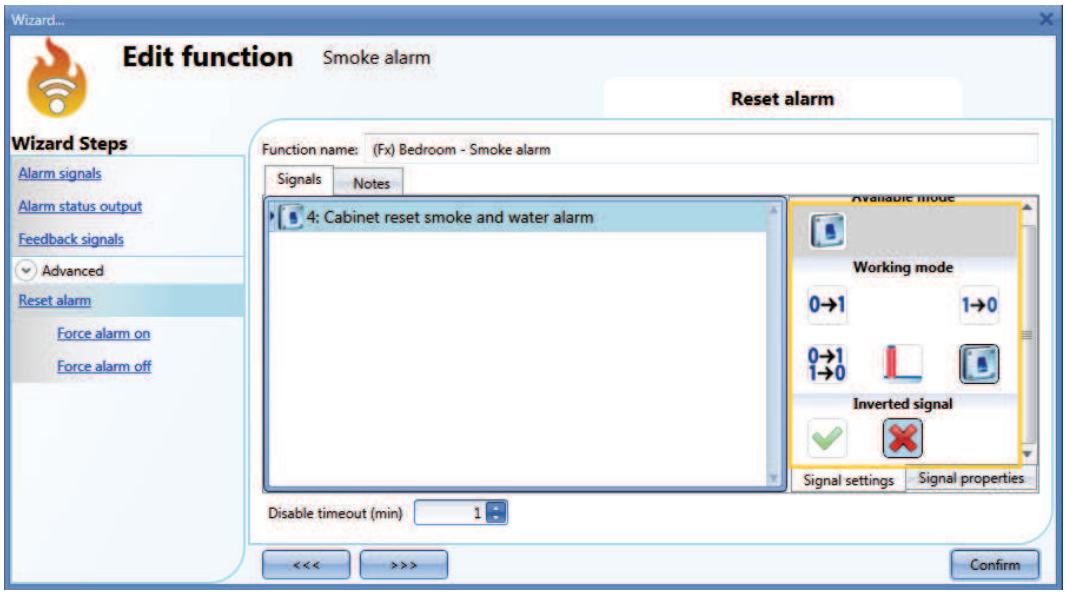
10.6.3 How to add the reset signal to inhibit the output status

When the reset signal is activated, the smoke alarm is inhibited.
If a smoke condition is detected by a sensor during the time period that the reset is active, the sensor will react locally, but the alarm will not be activated.
If the signal is still present when the reset signal timeout has expired, the alarm will be activated.

To select the reset signal, the user should enable it in the *Advanced* section, then click on *Reset alarm* and then double click on the Signals window: once the window is open, select the relevant reset signal from the list (see picture below).



When the reset signal is added, the user should select the working mode and the type of the event:



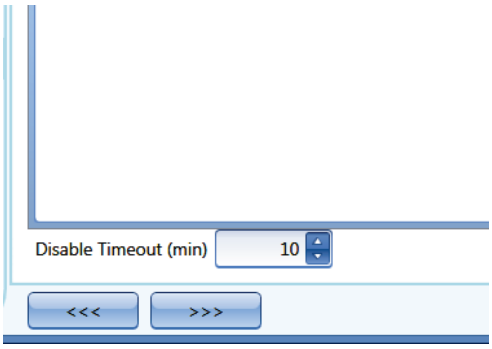
If a push button type is selected, the working mode can be defined following the table below:

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
1→0	As soon as the push button is pressed, the function is disabled.	After a short press (less than 1 second), at the release of the push button the function is disabled.	After a long press, the function is disabled at the release of the push button.	After a very long press, the function is disabled at the release of the push button.
0→1	As soon as the push button is pressed, the function is enabled again.	After a short press (less than 1 second), the function is enabled again at the release of the push button.	After a long press, the function is enabled again at the release of the push button.	After a very long press, the function is enabled again at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the function will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the function will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the function will be enabled/disabled in toggle mode at the release of the push button.
	The function will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should be done following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The function is disabled	No action
1→0	The function is enabled again	No action
0→1 1→0	The function is disabled/enabled in toggle mode	No action
	The function is disabled/enabled in toggle mode	The function is disabled/enabled in toggle mode
	The function is disabled	The function is enabled

The user might need to set a time after which the smoke function is enabled again even if the selected signal is still active. To achieve this the *Disable timeout* field has to be set.



The timer starts every time the reset status is activated. The disable status is automatically deactivated as soon as it has expired.
In the figure below a disable timeout of 10 minutes is set. The maximum delay is 59 minutes.
If the timer is set to 0 minutes, the timer is not enabled.

10.6.4 How to use a siren function for the alarm output

The output of the smoke alarm function follows the status of the function: if the alarm is active, the output is on, if the alarm is not active, the output is off.
If a pulsating output is needed, such as a siren, the *Siren alarm* must be used.

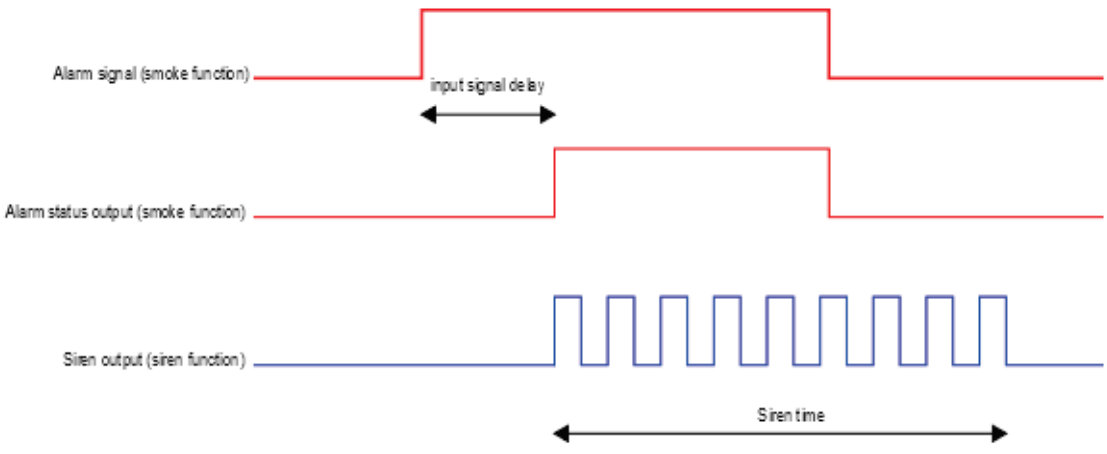
The *Siren alarm* function allows the user to change the activation time of the output, set a pulsating output and use only one output signal shared between more than one alarm functions.

The steps to add an *Alarm siren* function are as follows:

- Create and configure the *smoke alarm* with its alarm signals
- From the *Add* menu, select Alarm and click on *Siren alarm*
- Configure the *Siren alarm* function (see also paragraph *How to set a Siren alarm function* for more details)

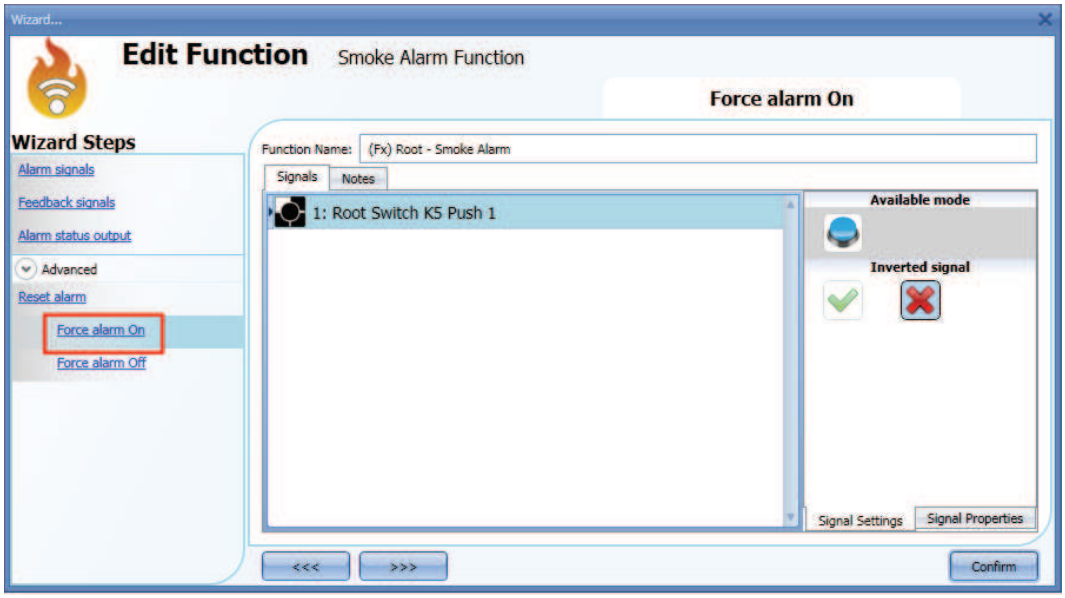
Once the siren alarm is configured, the output of the siren will be triggered when the alarm condition is activated. Activation of the reset signal in the smoke alarm function will reset the timer and the siren output.

Example1:
In the first example, the alarm siren function is triggered by the alarm signal. The siren output is not deactivated when the alarm signal goes OFF and it stays on until its timer has expired.



10.6.5 How to force the alarm status ON

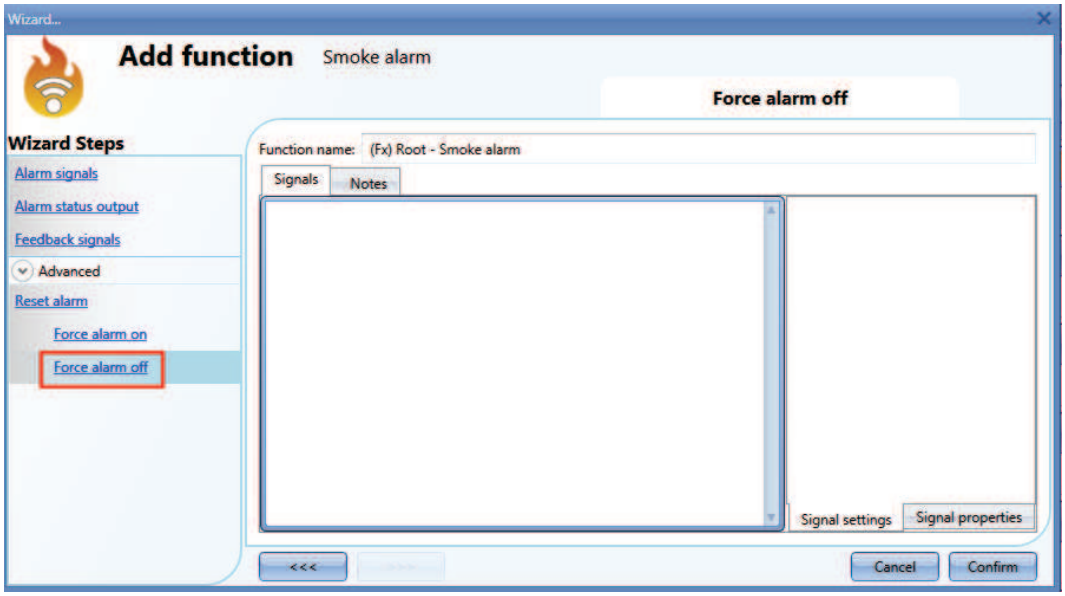
If the user wants to force the alarm status ON regardless of all the other signals used in the function, the Force alarm On field has to be used: to enable it, select Reset in the Advanced section, select *Force alarm On*, then double click on the signal window and select the appropriate signal to use (see picture below).



The signal used in the *Force alarm On* window works as a level signal: while the signal is active, the function is forced to the ON condition (the output stays active).
When the *Force alarm On* signal is activated and at the same time the *Force alarm Off* signal is activated, the *Force alarm On* signal has priority.

10.6.6 How to force the alarm status OFF

If the user wants to force the alarm status OFF regardless of all the other signals used in the function, the *Force alarm Off* field has to be used: to enable it, select *Reset* in the *Advanced* section, select *Force alarm Off*, then double click on the signal window and select the appropriate signal to use (see picture below).



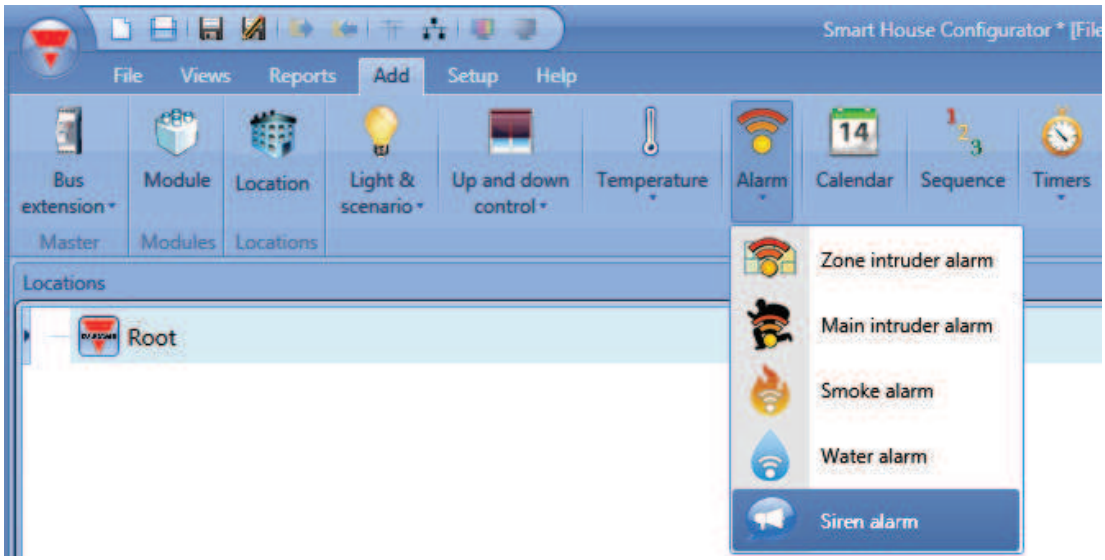
The signal used in the *Force alarm Off* window works as a level signal: while the signal is active, the function is forced to the Off condition (the output stays off).
When the *Force alarm On* signal is activated and at the same time the *Force alarm Off* signal is activated, the *Force alarm On* signal has priority.

10.7 How to set a Siren alarm function

The *Siren alarm* function allows the user to manage an output when an alarm is detected. It has two purposes:

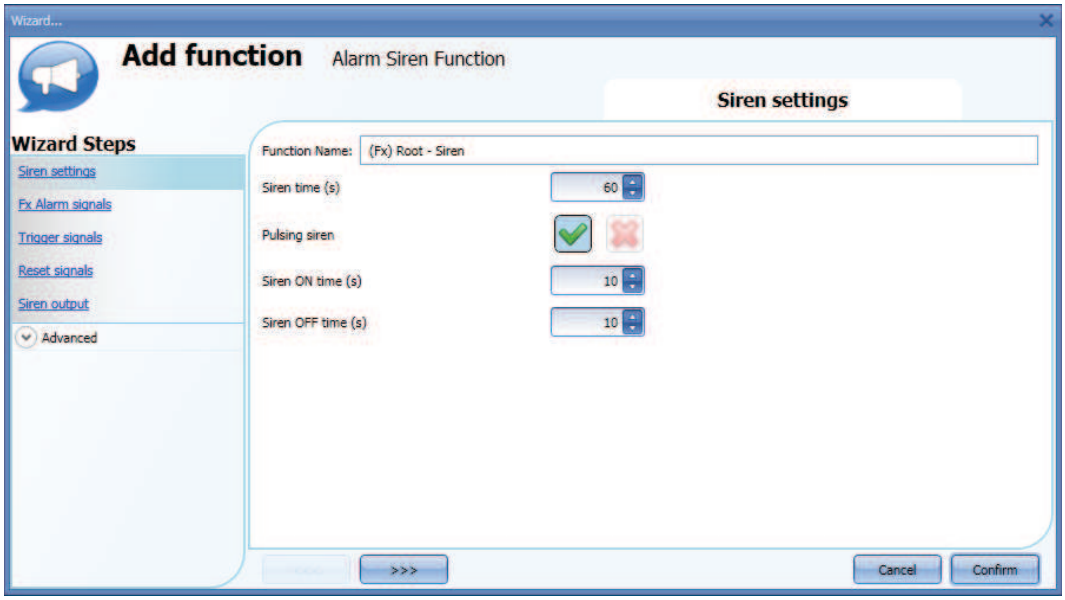
- To allow the user to have the maximum flexibility for the activation of the output.
- To allow the user to use a single output signal as a common output for more alarms.

To set up an Alarm siren function the user should select *Alarm* from the Add menu, then select *Siren alarm* (see picture below). The new function will be added into the selected location.



10.7.1 How to change settings for the siren output

The siren settings can be changed in the first step of the wizard (see picture below)

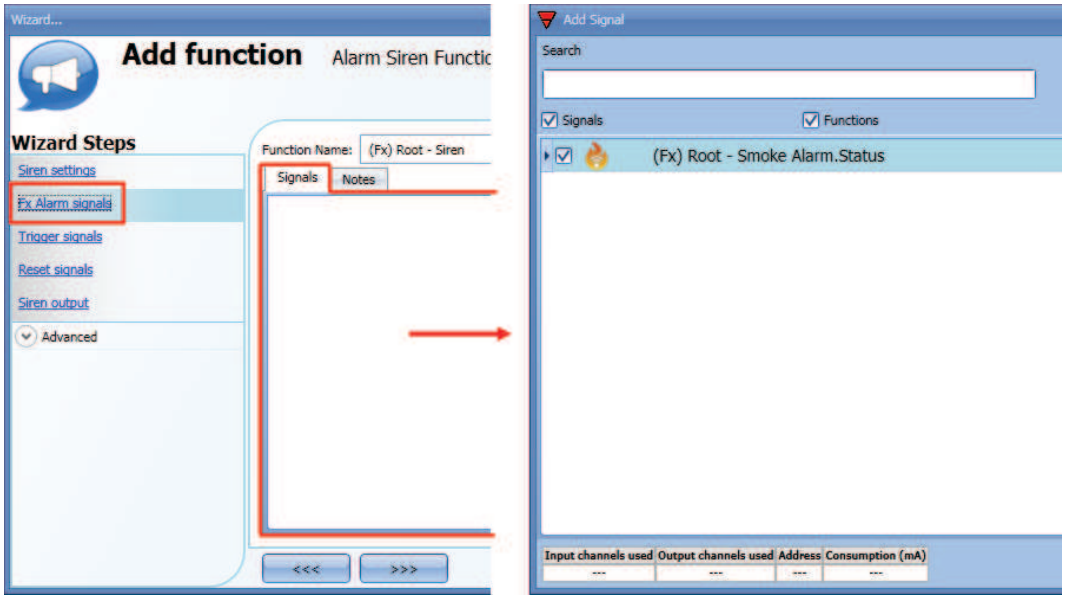


With the *Siren time* the user can define the activation time of the siren output when it is triggered by an alarm function.

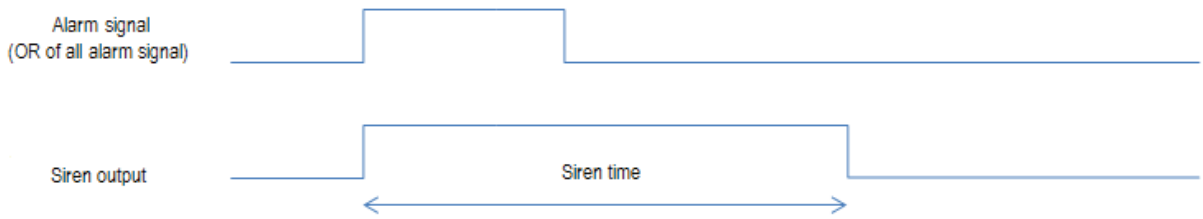
The user can also use a pulsing siren: if the green V is selected, the siren output will pulsate with the intervals selected in the *Siren ON time* and *Siren OFF time* fields.
If the red cross is selected, the output of the siren will stay ON until the siren time runs out.

10.7.2 How to link an alarm function to the siren

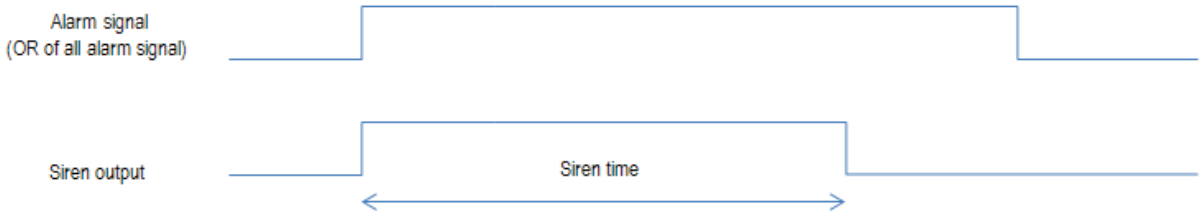
In the *Fx Alarm signals* field, the user can select the Alarm function that will trigger the Siren.
The functions used as the trigger work as event signals: as soon as they are ON, the siren also goes ON and stays On regardless of the status of the alarm functions.
The picture below shows how to add a function that triggers the siren function.



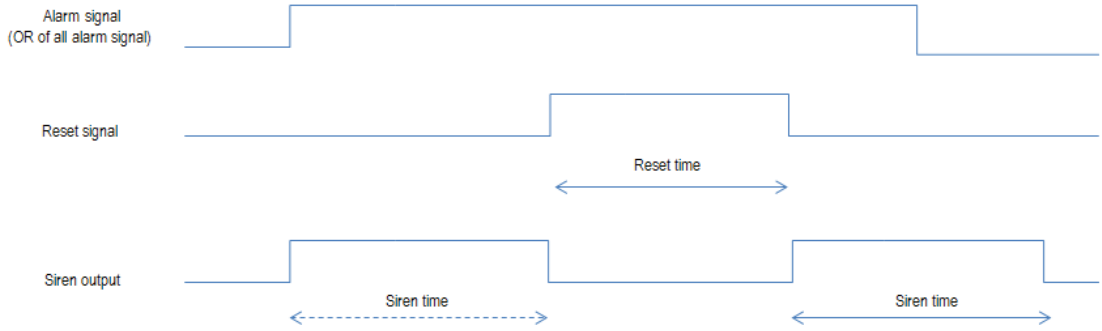
Example 1:
The siren is triggered when the alarm is activated, and stays active even if the alarm goes off.



Example2:
If the alarm signal is still active when the siren time runs out, the siren goes off.

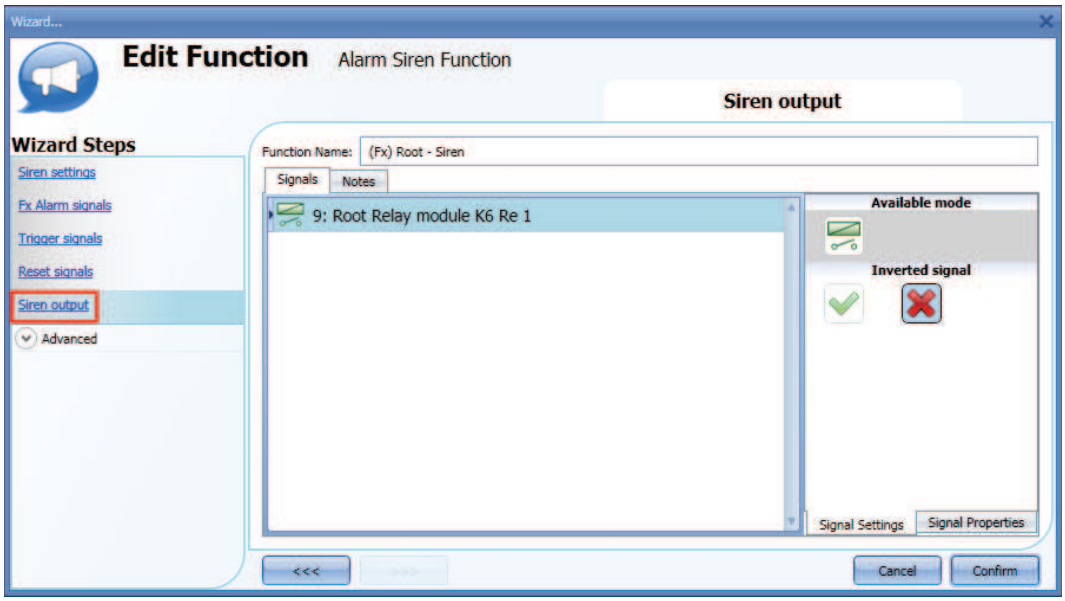


Example3:
If a reset signal is activated, the siren is inhibited during the reset time. Once it has expired, if the alarm signal is active, the siren is triggered again.



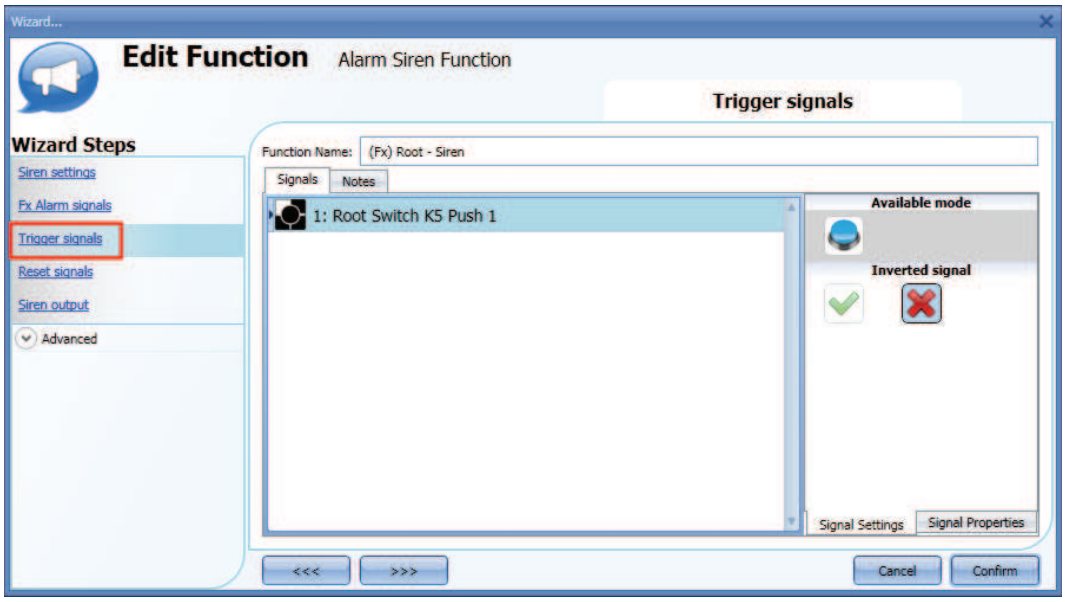
10.7.3 How to add the siren output

To add the output signal, the user has to select the relevant section in the wizard of the function, then double click on the *Signals* window and select the signal from the list of those available.
The output will follow the status of the function: when the siren is on, the output is activated according to the output settings; when the reset signal occurs or the siren function goes off, the output is deactivated.



10.7.4 How to use a manual signal to activate the siren

The siren function can also be activated with a manual signal instead of using alarm functions.
To add the triggering signal, the user should select the relevant section in the wizard of the function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



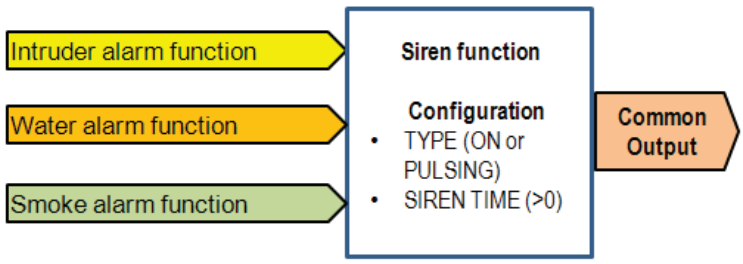
The behaviour of the signal used as the trigger works in the same way as described for the alarm functions: as soon as the trigger signal goes on, the siren is activated and stays on until the siren time has expired.

10.7.5 How to use more than one alarm with a common siren

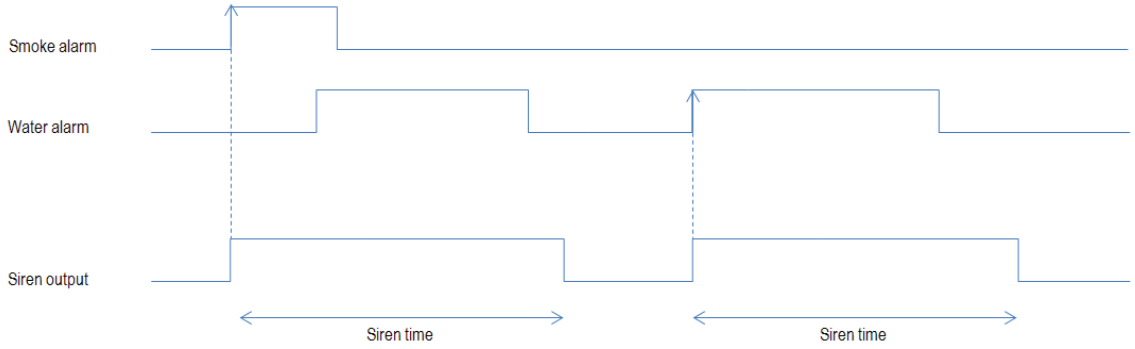
The siren alarm output can be used by different alarm functions.
The steps to create a common siren are the following:

1. Configure the alarm functions (intruder alarm, smoke alarm and water alarm)
2. When the alarm functions are configured, add the *Siren alarm* function
3. Configure the *Siren alarm* function
4. In the *Fx alarm signals* field enter all the created alarm functions
5. Add the common output in the siren function

The siren function is triggered when one of the configured alarm functions detects an alarm.
When an alarm is detected, the siren goes on and the output is turned on according to the configured parameters, regardless of the status of the alarm signal that triggered the siren (see picture below).

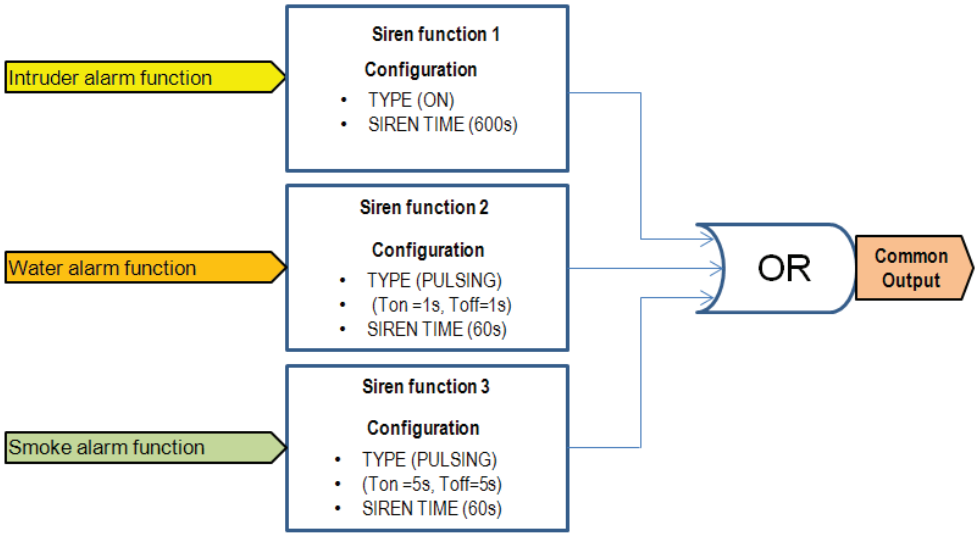


Example 4:
The first alarm event triggers the siren: all the other alarm events do not affect it if it is already on.



If the user needs to use different activations of the siren, in order to recognize the kind of the alarm triggering it, he must use different siren functions linked together with a multigate function.

Example 5:
In the picture below, three siren functions are created and linked together with a multigate function.
Using these settings, the output will be activated in three different ways according to the detected alarm.

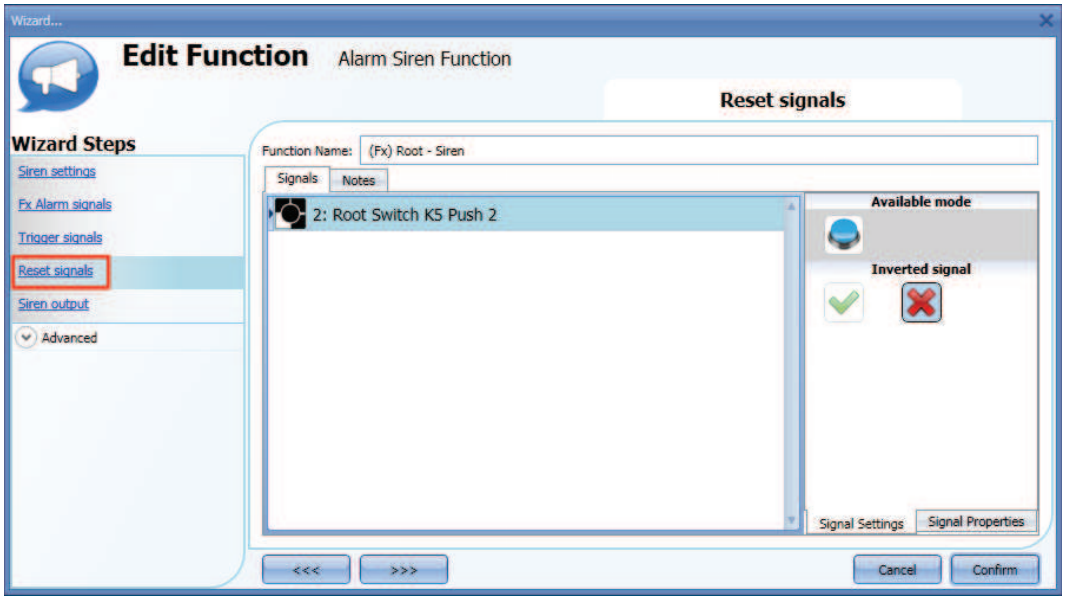


10.7.6 How to reset the siren

There are two possible ways to reset the siren function:

- The reset is done automatically when the user activates the reset signal of the alarm function linked to the siren: the reset signal is automatically transmitted to the siren function. The siren stays off while the reset signal is active. When the reset time expires, the siren goes on as soon as a new alarm event is detected.

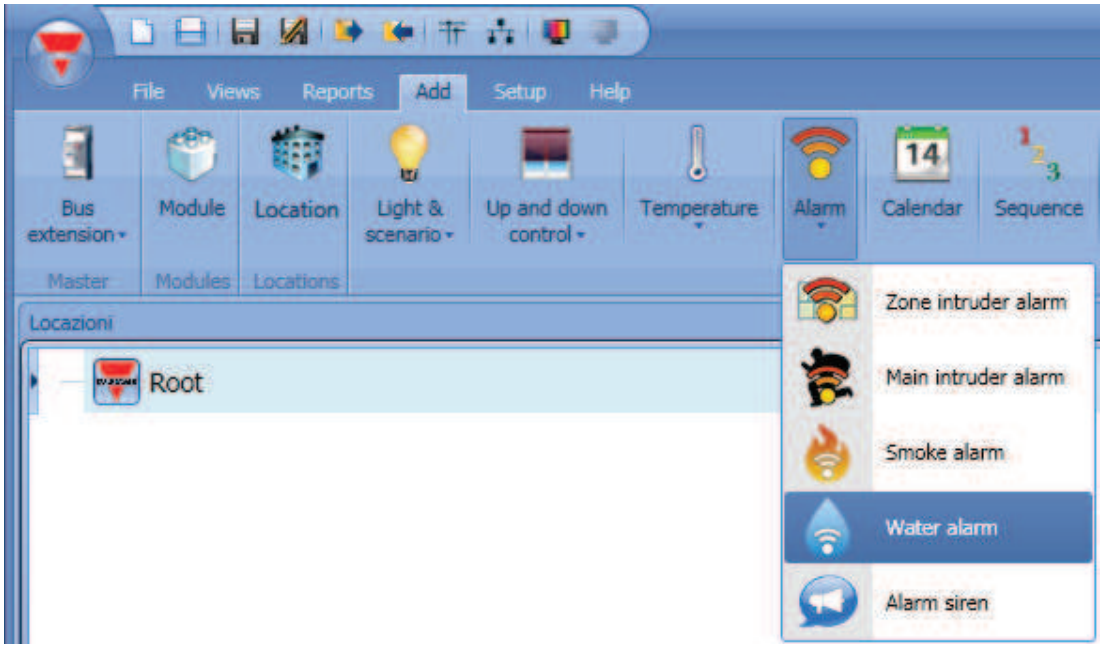
- The reset is done manually. To add a manual reset the user has to select the relevant section in the wizard of the function, then double click on the *Signals* window and select the reset signal from the list of those available (see picture below).



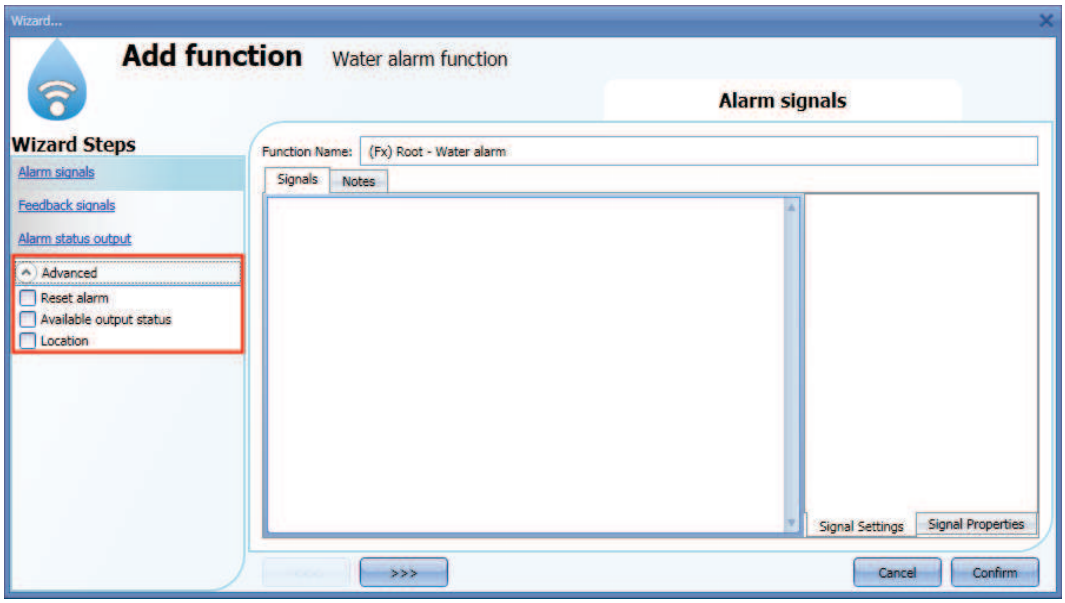
When the reset is activated, the siren is inhibited and stays in this condition until another alarm signal triggers the siren.

10.8 How to add a water alarm function

The user can configure a basic water alarm function in order to monitor water flood on the floor.
To set up a water alarm function the user should select *Alarm* from the Add menu, then select *Water Alarm* (see picture below). The new function will be added into the selected location.
The wizard relevant to a *Water alarm* function can also be opened by typing Alt +A +A +W.



This function manages one or more outputs controlled by one or more input commands. The command might be a signal from a water detector, a pushbutton, a switch, a function or a remote command (Webserver, sms, Modbus TCP/IP)
In the *Advanced* section, the user can select the reset signal: this is used to turn the output signal off to silence the alarm when it has been acknowledged. The alarm will be inhibited for a time period, allowing the user to remove the water from around the sensor in case of a false triggering.
In the *Advanced* section the user can also configure two signals in order to force the status of the function on or off.

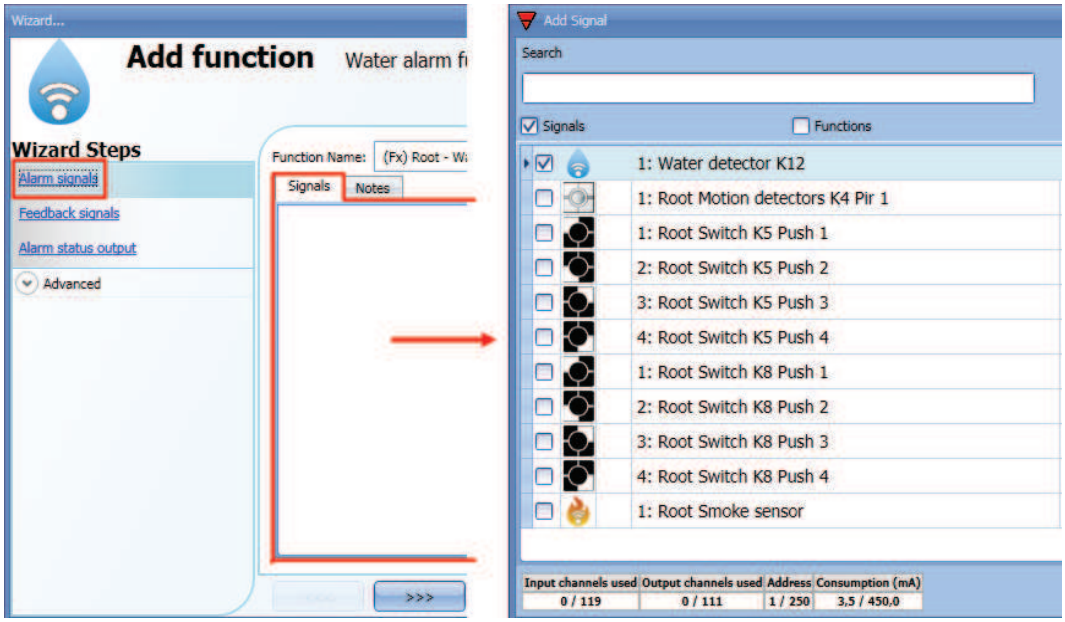


10.8.1 How to set a simple water alarm system

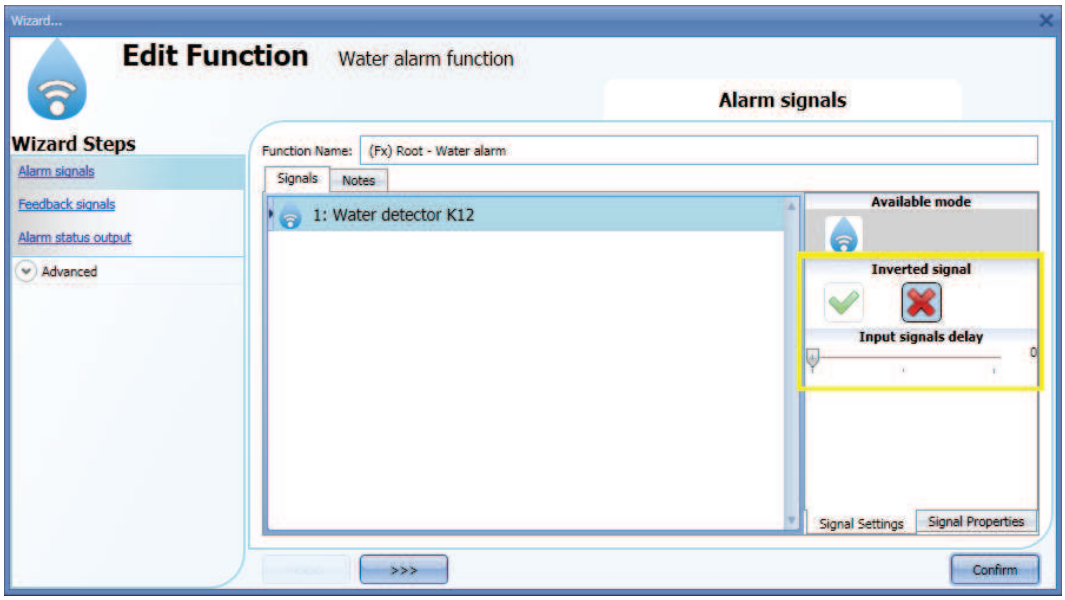
If the user wants to create a simple water alarm system, he needs at least two signals to have a fully functional water alarm system:

- A water sensor as input signal
- A general output that is activated when the alarm is on

Once the modules are added to the configuration (water sensor and output module), the user has to select the alarm input signal in the relevant section of the *Water alarm* wizard, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



Once the alarm signal is entered, the user can also decide to use the inverted logic of the signal (see the red rectangle in the picture below). The inverted logic is enabled by selecting the green V.
Each alarm signal added to the function has a delay time that can be set in order to filter the activation of the alarm when the water is detected. This may be used to avoid false alarm triggering.

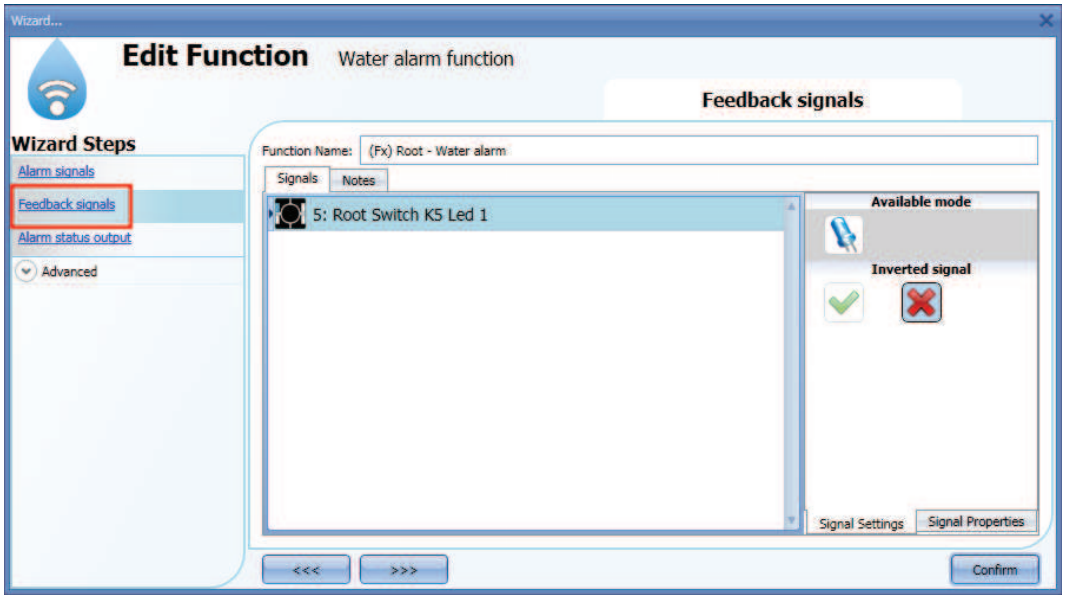


To add the alarm output, the user has to select the relevant section in the wizard of the function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).
The output signal can be a relay, a LED or a buzzer. The output signal will stay on until water is detected by the sensor.

Example 1:
Using these easy settings, the function works in this way: the water function is ready to react as soon as the smart-house system is started. Until the sensor does not detect water, the output is off. When the sensor detects water, the function is activated and the output goes on and stays on until the water signal disappears.

10.8.2 How to add a feedback signal

If the user wants to use a feedback signal to check the status of the function, he has to select the relevant section, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).
The feedback signal can be a relay, a LED or a buzzer, and it behaves according to the status of the function: when the water is detected the feedback signal starts blinking 1 second ON 1 second OFF. When no water is detected the feedback is off: when the reset signal is active the feedback is on.

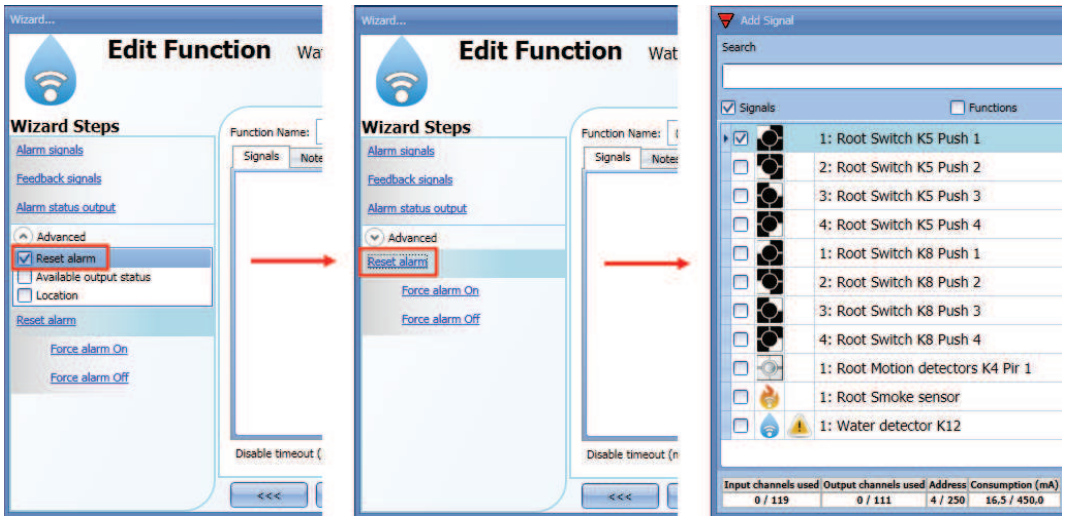


Once the alarm signal is entered, the user can also decide to use the inverted logic of the signal (see the red rectangle in the picture below). The inverted logic is enabled by selecting the green V.

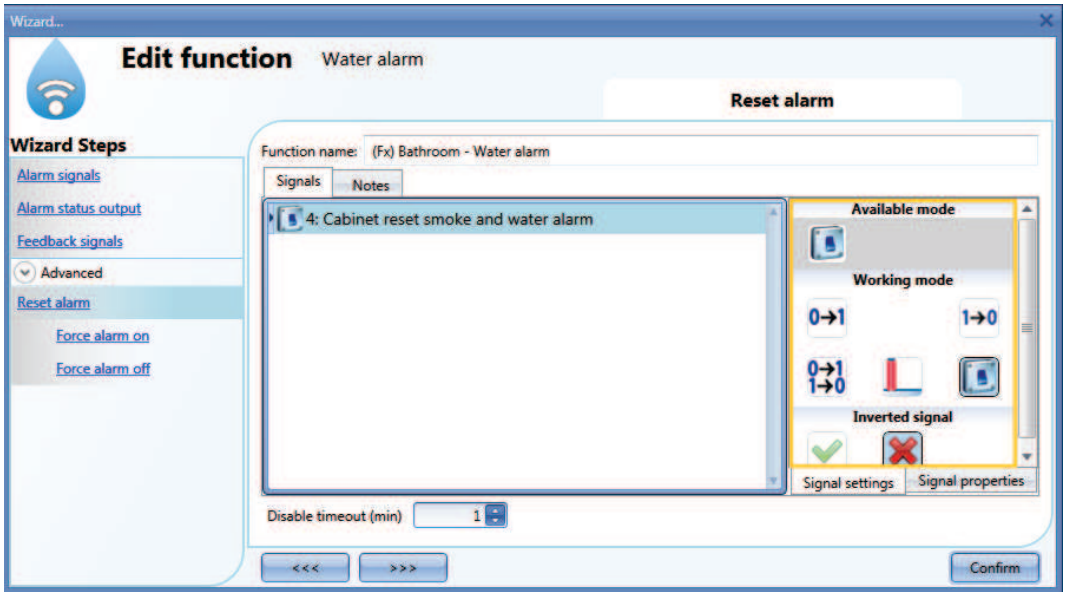
10.8.3 How to add the reset signal to inhibit the function status

When the reset signal is activated, the water alarm is inhibited.
If a water leakage event is detected by a sensor during the time period when the reset is active, the sensor will react locally, but the alarm will not be activated.
If the signal is still present when the reset signal timeout expires, the alarm will be activated.

To select the reset signal, the user has to enable it in the *Advanced* section, then click on *Reset alarm* and then double click on the Signals window: once the window is open, select the relevant reset signal from the list (see picture below).



When the reset signal is added, the user has to select the working mode and the type of the event:



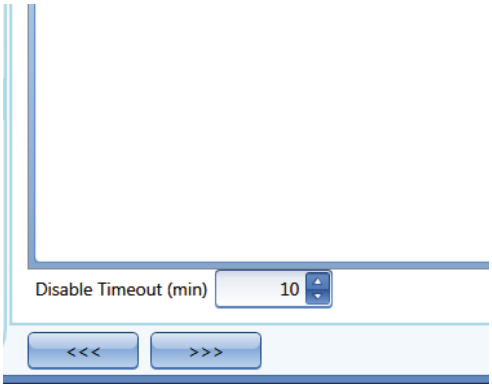
If a push button type is selected, the working mode can be defined following the table below:

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the function is disabled.	After a short press (less than 1 second), at the release of the push button. The function is disabled.	After a long press, the function is disabled at the release of the push button.	After a very long press, the function is disabled at the release of the push button.
1→0	As soon as the push button is pressed, the function is enabled again.	After a short press (less than 1 second), the function is enabled again at the release of the push button.	After a long press, the function is enabled again at the release of the push button.	After a very long press, the function is enabled again at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be enabled/disabled in toggle mode.	After a short press (less than 1 second), the function will be enabled/disabled in toggle mode at the release of the push button.	After a long press, the function will be enabled/disabled in toggle mode at the release of the push button.	After a very long press, the function will be enabled/disabled in toggle mode at the release of the push button.
	The function will be enabled/disabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the set of the working mode has to be carried out following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The function is disabled	No action
1→0	The function is enabled again	No action
0→1 1→0	The function is disabled/enabled in toggle mode	No action
	The function is disabled/enabled in toggle mode	The function is disabled/enabled in toggle mode
	The function is disabled	The function is enabled

The user might need to set a time after which the water alarm function is enabled again, even if the selected signal is still active. To do this, the *Disable timeout* field has to be set.



The timer starts each time the reset status is activated; the disable status is automatically deactivated as soon as it has expired.
In the figure below, a disable timeout of 10 minutes is set. The maxim delay is 59 minutes.
If the timer is set to 0 minutes, the timer is not enabled.

10.8.4 How to use a siren function for the alarm output

The output of the water alarm function follows the status of the function: if the alarm is active, the output is on; if the alarm isn't active, the output is off.
If a pulsating output is needed, such as a siren, the *Siren alarm* must be used.

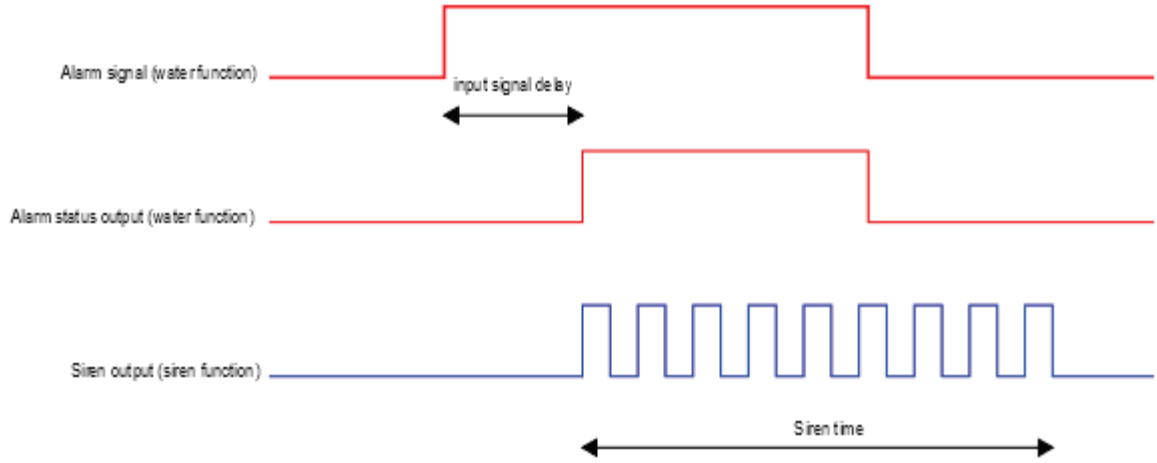
The *Siren alarm* function allows the user to change the activation time of the output, set a pulsating output and use only one output signal shared between more than one alarm functions.

The steps to add an *Alarm siren* function are as follows:

- Create and configure the *water alarm* with its alarm signals
- From the *Add* menu, select Alarm and click on *Siren alarm*
- Configure the *Siren alarm* function (see also paragraph *How to set a Siren alarm function* for more details)

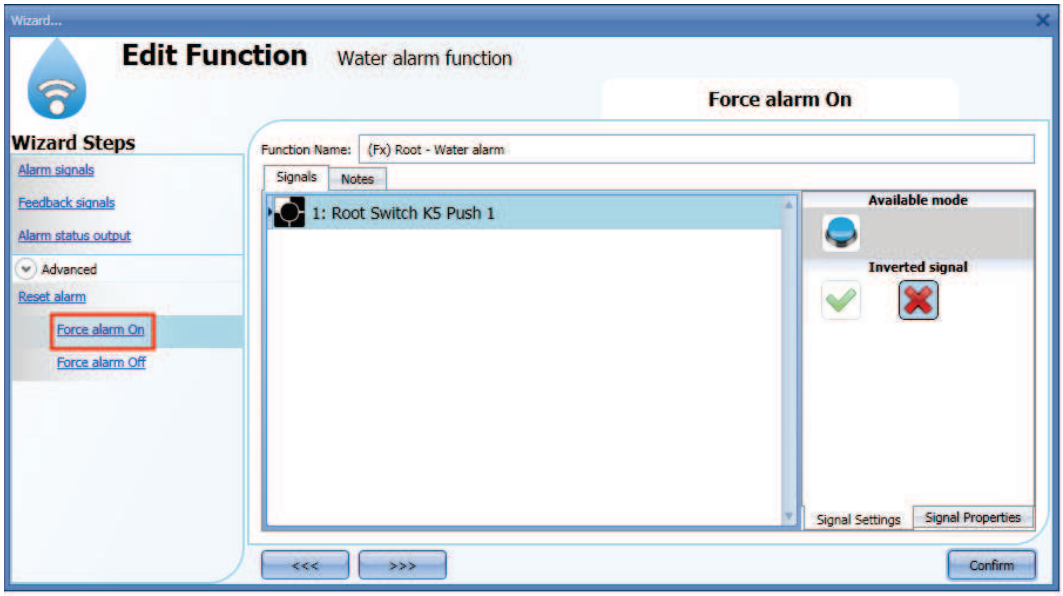
Once the siren alarm is configured, the output of the siren will be triggered when the alarm condition is activated. An activation of the reset signal in the water alarm function will reset the timer and the siren output.

Example1:
In the first example, the alarm siren function is triggered by the alarm signal. The siren output is not deactivated when the alarm signals goes OFF and it stays on until its timer has expired.



10.8.5 How to force the alarm status ON

If the user wants to force the alarm status ON regardless of all the other signals used in the function, the *Force alarm On* field has to be used: to enable it, select *Reset* in the *Advanced* section, select *Force alarm On*, then double click on the signal window and select the signal to use (see picture below).

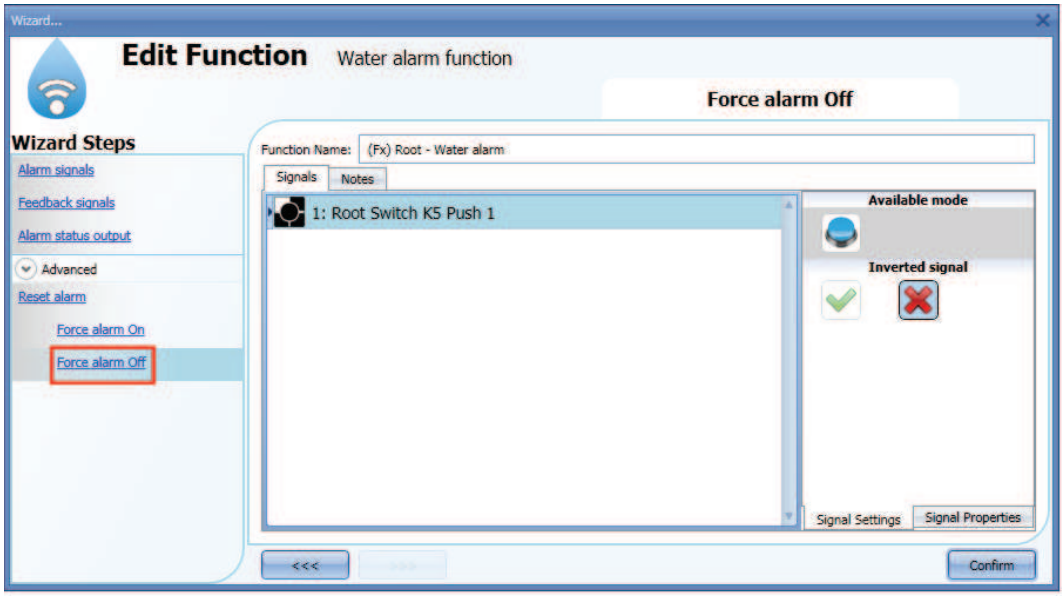


The signal used in the *Force alarm On* window works as a level signal: while the signal is active, the function is forced to the ON condition (the output stays active).
When the *Force alarm On* signal is activated and at the same time *Force alarm Off* signal is activated, the *Force alarm On* signal has priority.

10.8.6 How to force the alarm status OFF

If the user wants to force the alarm status OFF regardless of all the other signals used in the function, the *Force alarm Off* field has to be used: to enable it, select *Reset* in the *Advanced* section, select *Force alarm Off*, then double click on the signal window and then select the signal to use (see picture below).

The signal used in the *Force alarm Off* window works as a level signal: while the signal is active, the function is forced to the Off condition (the output stays off).
When the *Force alarm On* signal is activated and at the same time *Force alarm Off* signal is activated, the *Force alarm On* signal has priority.

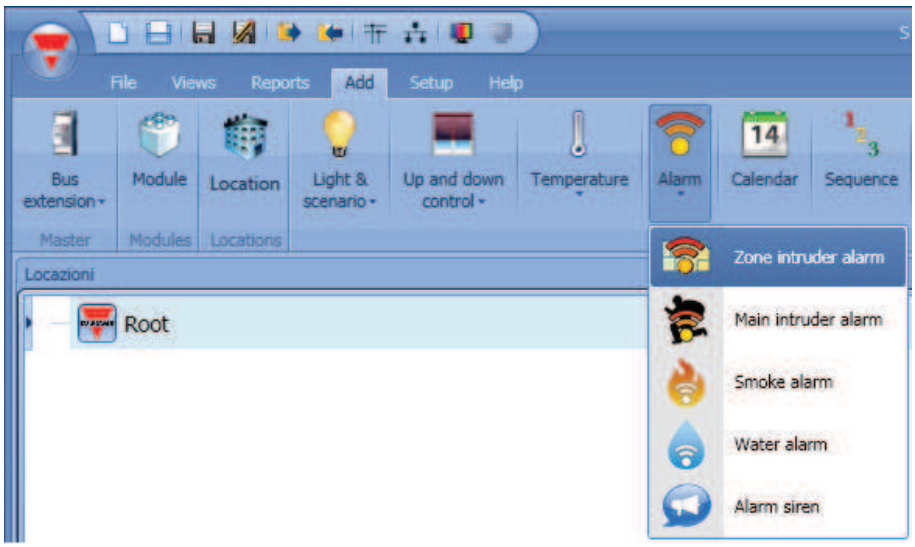


10.9 How to set an intruder alarm function

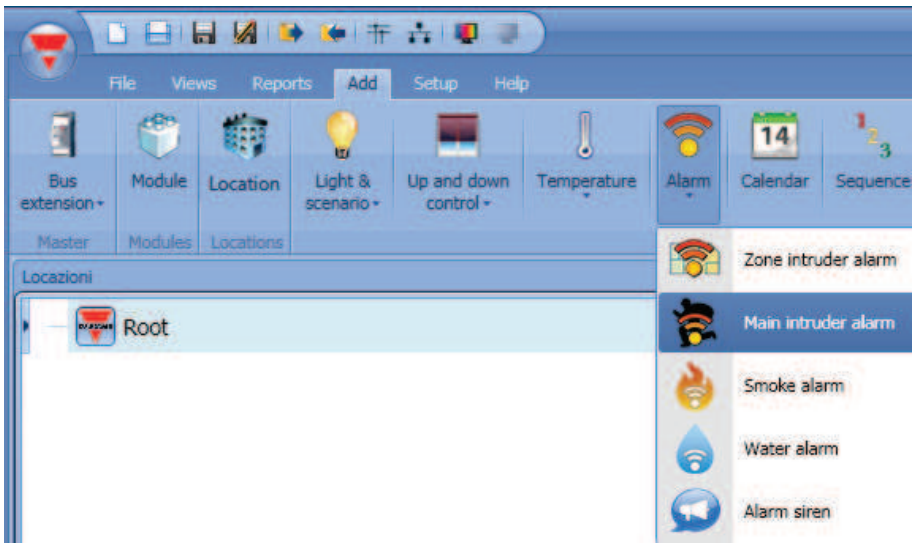
The intruder alarm function is used to protect the house against burglars and undesired intruders.
Two main steps have to be configured to create an intruder alarm function:

- In the first step the user has to create at least one zone alarm function; each zone function might correspond to a part of the house that has to be monitored or just a single sensor.
- In the second step the user has to create a main alarm function; the main alarm function is used to manage all the zone functions (it is used for arming/disarming and collecting all the zone statuses).

To set up an intruder alarm function, the user has to select *Alarm* from the Add menu, then select *Zone intruder alarm* (see picture below).
The wizard relevant to the zone alarm function can also be opened by typing Alt +A +A +Z (See table of short cuts).



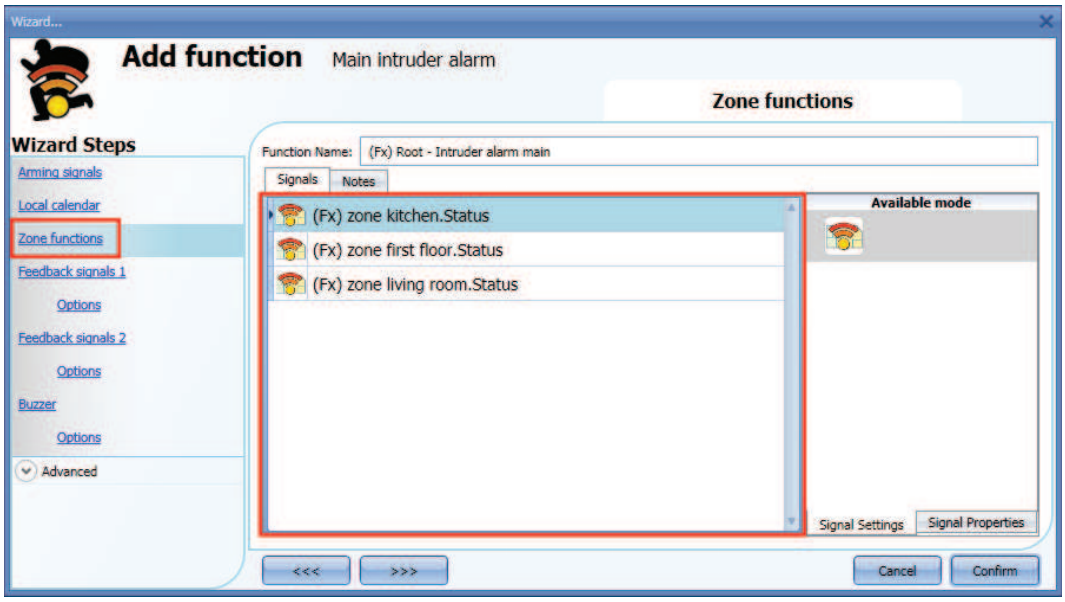
Once the zone alarm is added, the user has to select *Alarm* from the Add menu, then select *Main intruder alarm* (see picture below).
The wizard relevant to a main alarm function can also be opened by typing Alt +A +A +M .



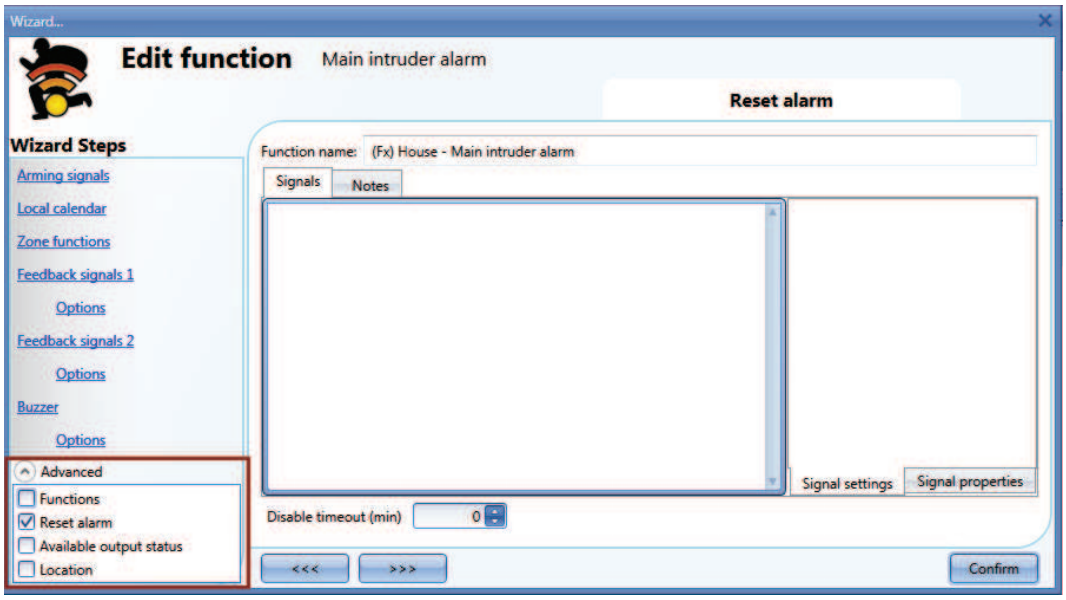
The first step to do is to add the arming signals to arm the alarm and this can be done in three different ways:

1) *Arming signals*: signals, functions and global calendar function programmed as level signals can be used.
2) *Local calendar*: a local calendar can be set
3) In the *Advanced area, Functions:* global calendars and function can be added

The last step is to link the zone alarm to the main alarm function. To do this the user has to open the Main alarm function, select the field "*Zone functions*", double click on the signals window, and select the required zone function from the list of the available zones (see picture below). More than one zone function can be linked to the same *main alarm* function.



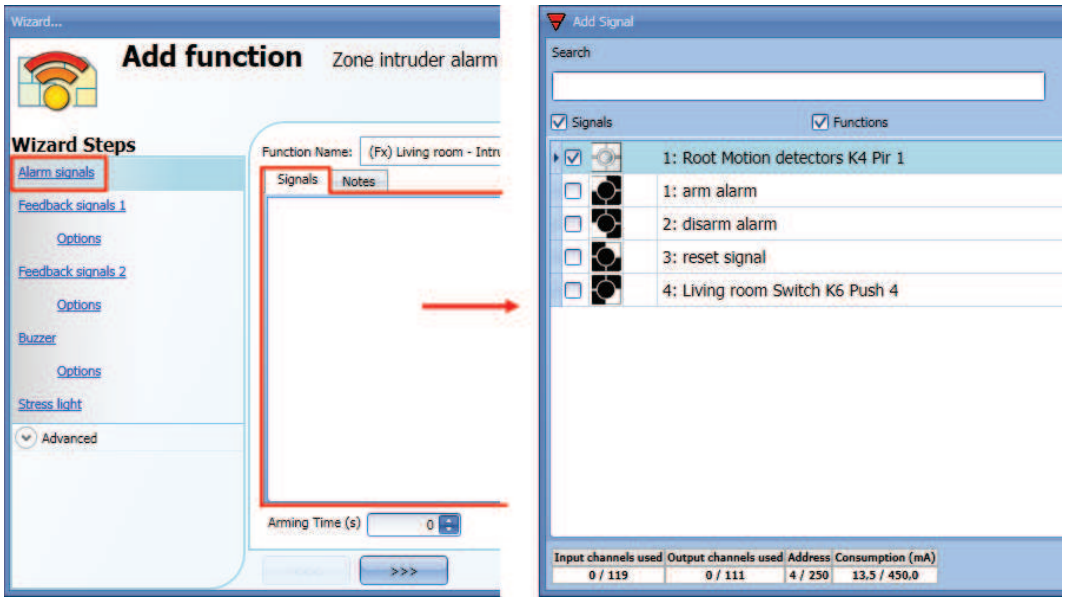
In the *Advanced* section, the user can select the reset signal: this is used to turn the output signal off to silence the alarm when it has been acknowledged. The alarm will be inhibited for a time period, allowing the user to verify the alarm situation.
In the *Advanced* section the user can also configure two signals in order to force the status of the function on or disarm it.


Wizard...
Edit function
Main intruder alarm
Reset alarm
Wizard Steps
Arming signals
Local calendar
Zone functions
Feedback signals 1
Options
Feedback signals 2
Options
Buzzer
Options
Advanced
Functions
Reset alarm
Available output status
Location
Function name:
(Fx) House - Main intruder alarm
Signals
Notes
Signal settings
Signal properties
Disable timeout (min)
0
<<<
>>>
Confirm

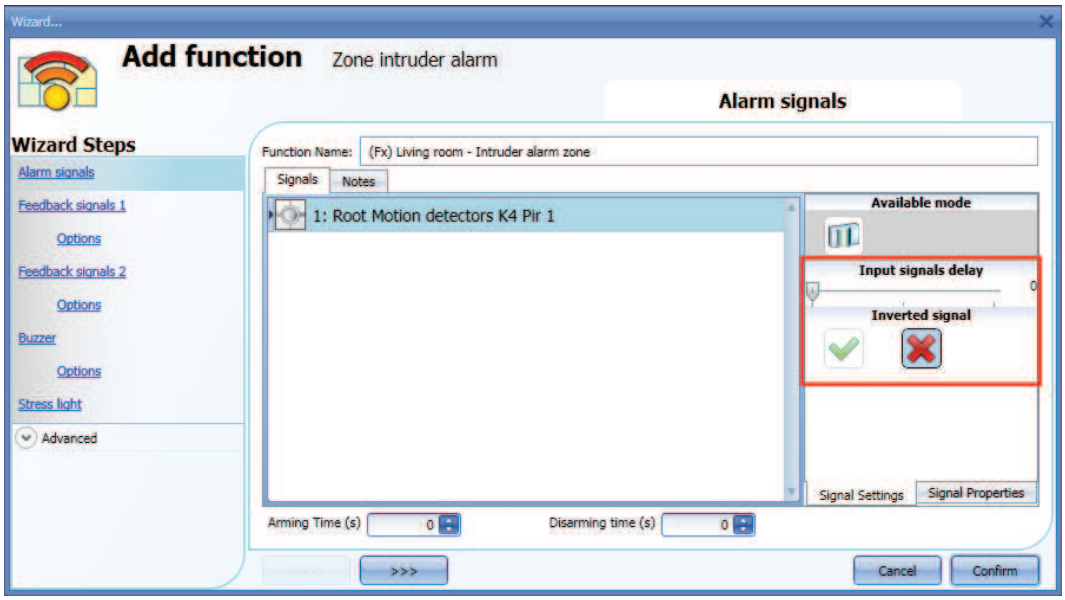
10.9.1 How to add the alarm signals

All the alarm signals have to be entered in the *zone intruder alarm* function.

In the *Alarm signals* field, the user can add all the signals that monitor that zone.
These signals may be window sensors, PIR sensors, push-buttons or other input devices.
To add a new alarm signal, the user has to select the relevant section in the wizard of the zone intruder alarm function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



Once the alarm signal is entered, the user can also decide to use the inverted logic of the signal (see the red rectangle in the picture below). By selecting the green V, the inverted logic is enabled.
Each alarm signal added to the function has a delay time that can be set in order to filter the activation of the alarm when a burglar is detected; this might be used to avoid false alarm triggering.



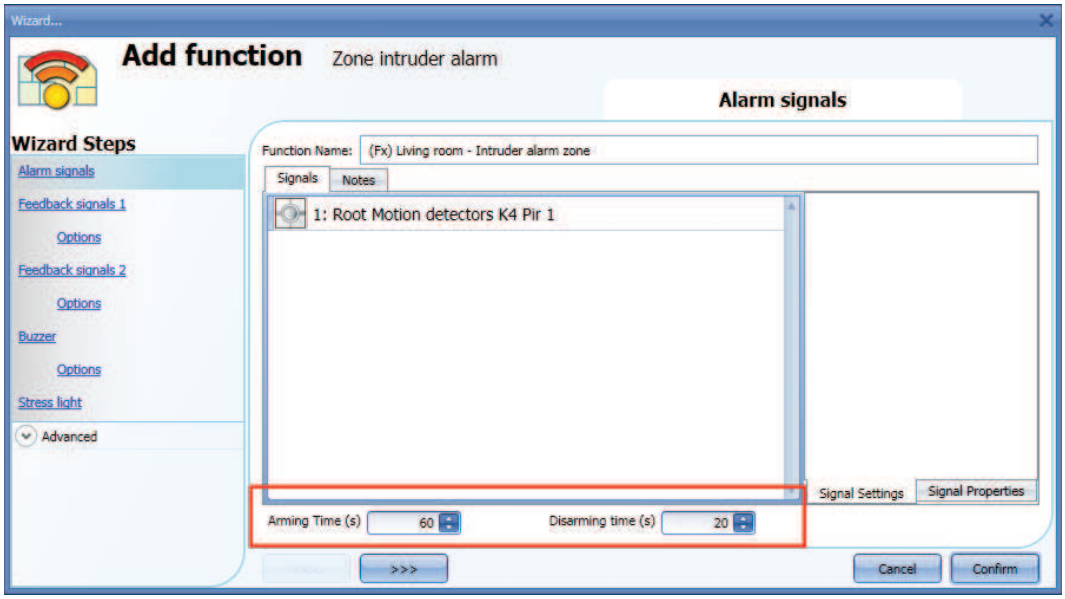
The number of detected pulses needed to give the alarm condition has to be set in the module properties wizard.
The delay set in the field *Input signal delay* is a further delay that can be added.

10.9.2 How to set the arming and disarming time

The arming time is the time needed for the home owner to leave the house: it is the time period from when the owner arms the alarm to when it reacts on an alarm signal.

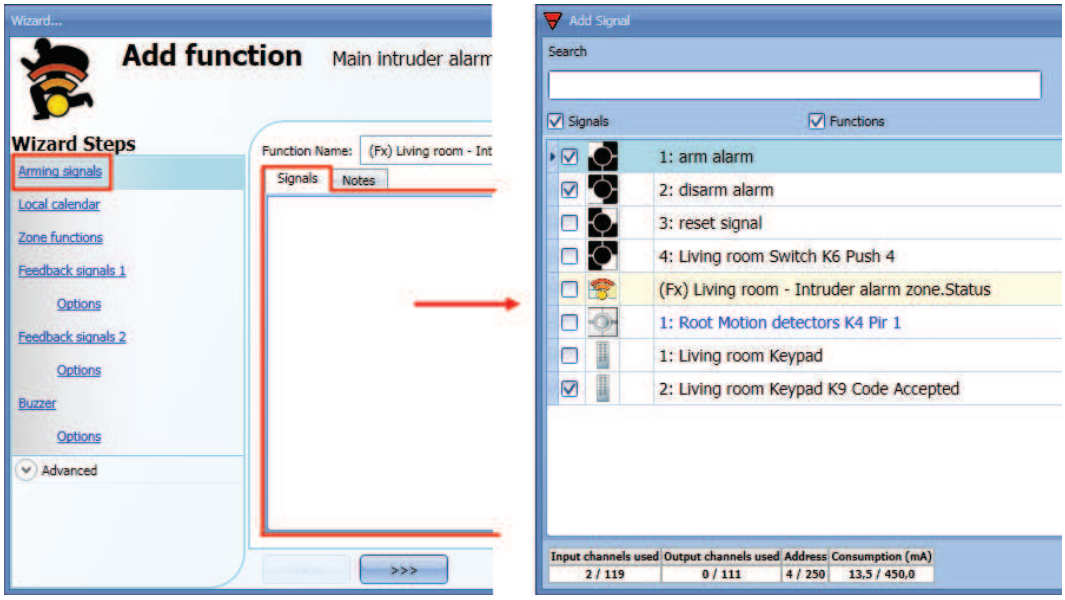
The disarming time is the time period that runs from when the alarm signal is activated to the alarm sounds. This can be used to delay the alarm when the user enters the room where he has the PIR and the alarm on/off switch, giving him time to deactivate the alarm when he comes home.

The arming and disarming time can be set in the alarm signals window in the *zone intruder alarm* function (in the picture below, the zone in the living room has an arming time of 60 seconds and the disarming time is set to 20 seconds).
These times are defined in each zone function. If they are set to 0 seconds, the reaction of all the alarm signals are immediate (all signals are armed immediately and the alarm sounds as soon as the alarm signal is activated).

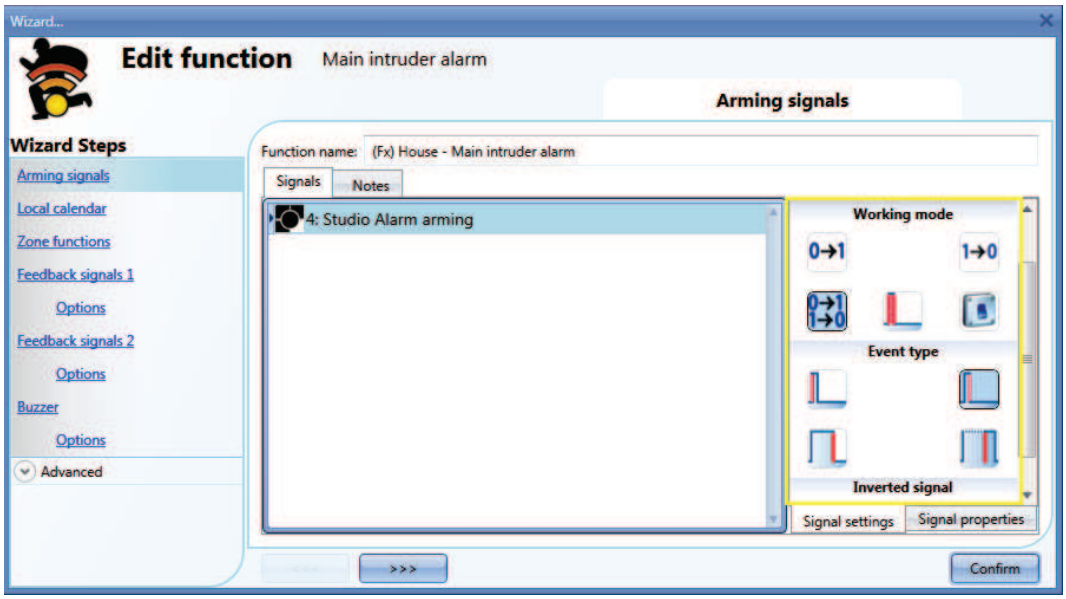


10.9.3 How to arm and disarm the intruder alarm

The arming/disarming signals should be entered in the *main intruder alarm* function and they are automatically used in each zone function linked to the main intruder alarm function. When the arming/disarming signal is activated, all the linked zones are automatically armed/disarmed.
To add the arming/disarming signal, the user should select the relevant section in the wizard of the *main intruder alarm* function, then double click on the *Signals* window and select the input signal from the list of available signals (see picture below).



When the arming signal is activated, all the linked zone functions are automatically armed; each zone is armed according to the arming time set by the user.



If a push button type is selected, the working mode can be defined following the table below:

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the function is armed.	After a short press (less than 1 second), at the release of the push button the function is armed.	After a long press, the function is armed at the release of the push button.	After a very long press, the function is armed at the release of the push button.
1→0	As soon as the push button is pressed, the function is disarmed.	After a short press (less than 1 second), the function is disarmed at the release of the push button.	After a long press, the function is disarmed at the release of the push button.	After a very long press, the function is disarmed at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be armed/disarmed in toggle mode.	After a short press (less than 1 second), the function will be armed/disarmed in toggle mode at the release of the push button.	After a long press, the function will be armed/disarmed in toggle mode at the release of the push button.	After a very long press, the function will be armed/disarmed in toggle mode at the release of the push button.
	The function will be armed/disarmed in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation will be armed when the signal goes ON, and it is disarmed again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should be carried out following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The function is armed	No action
1→0	The function is disarmed	No action
0→1 1→0	The function is Armed/disarmed in toggle mode	No action
	The function is armed/disarmed in toggle mode	The function is armed/disarmed in toggle mode
	The function is armed	The function is disarmed

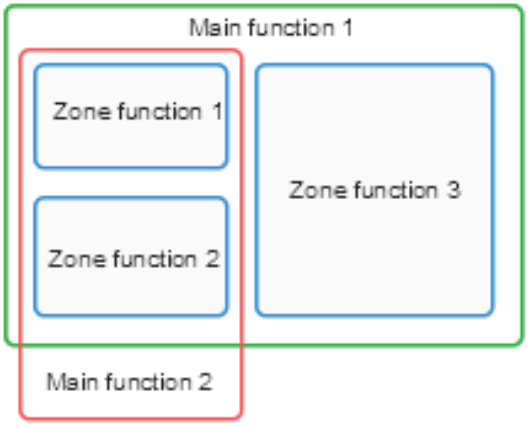
10.9.4 How to manage zones using different arming/disarming signals

The user can have a part of the house secured with the intruder alarm when he is at home.
An example could be a house with two floors, where the owner wants to have the alarm active on the ground floor during the night when he is sleeping. This means that the user can walk around on the 1st floor without triggering the alarm, while the ground floor is secured.

To create this, the user must enter two main alarm functions:

- One function is used to arm/disarm all zones
- The other function is used to arm/disarm the zones on the ground floor

In the picture below, the scheme of the example is shown.



The “main alarm function 1” is used to arm/disarm all the zones (all zones must be linked in the function). For example, the alarm signal could be the keypad at the entrance of the house, used for arming the entire system when the user leaves the house.
The “main function 2” is used to arm/disarm zone 1 and zone 2 (zone 3 is not linked to this function). For example, the alarm signal could be a pushbutton on the first floor used to arm the zones on the ground floor. This could also be done automatically by using a calendar.
The arming time of each zone is always the same, regardless of the signal that activates the arming condition.

10.9.5 Output status of the intruder alarm

The intruder alarm is designed to provide a complete overview of what is happening in the house, allowing the owner to monitor both main and zone functions.

The status of each zone function is the result of the logical *OR* of all its alarm signals.

Table of the zone intruder alarm function statuses:

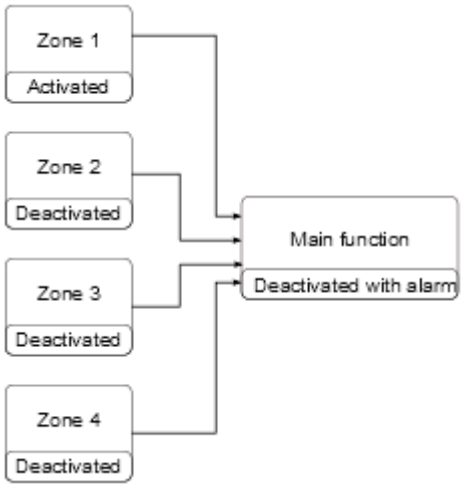
Status (This is the result of the logical OR of all the alarm signals in the zone function)	Description
Deactivated with no sensor active	All the alarm signals present in the zone function are not active
Deactivated with sensor active	At least one alarm signal in the zone is on, but the alarm is not armed
Arming	The zone is arming and all its alarm signals are off
Arming with one sensor active	The zone is arming and at least one alarm signal is on
Armed	The zone is armed and all its alarm signals are off
Disarming	The zone is disarming and at least one alarm signal is on
Alarm	The zone is armed and at least one alarm signal is on

The main intruder alarm function status is the result of the combination of the statuses of its linked zone functions.

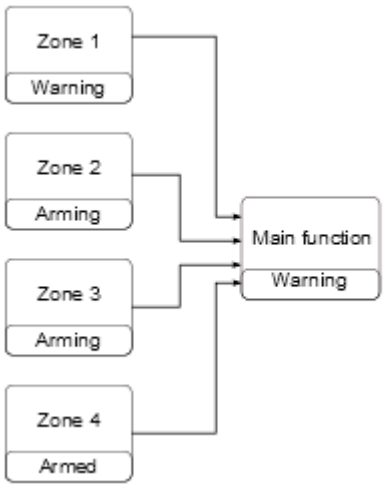
Table of the main intruder alarm function statuses:

Status (This is the result of the logical OR of all alarm signals in the zone function)	Description
Deactivated with no sensor active	All the alarm signals used in all the linked zone functions are off
Deactivated with sensor active	At least one alarm signal used in a linked zone is on
Arming in at least one zone	At least one linked zone is arming, no alarm signals are on
Armed in all zones	All the linked zones are armed with all alarm signals off
Armed in at least one zone	Not all the linked zones armed, no alarm signals are on
Arming with one sensor active (warning)	At least one linked zone is arming with at least one alarm signal on
Disarming	At least one linked zone is disarming with at least one alarm signal on
Alarm in at least one zone	At least one linked zone is armed with an activated alarm signal
Waiting for a reset and previously in alarm	When one of the linked zones changes its status from an alarm condition (alarm on) to a sensor no longer activated, the status is latched until the reset signal occurs.

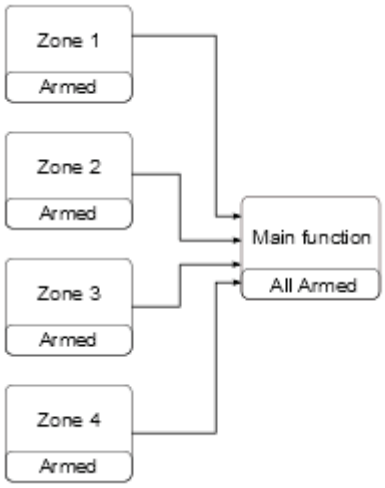
Example 1:
The alarm is off because the user is in the house.
In zone 1 one PIR sensor detects the presence of the owner, while all other zone statuses are deactivated because there are no people in the rooms.
The alarm status of the main function is deactivated because in zone 1 there is an alarm signal active.



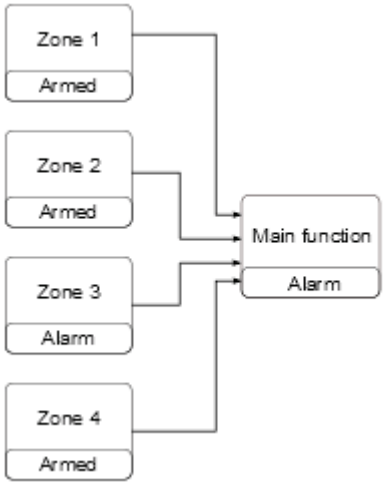
The home owner leaves the house and uses the keypad placed in zone 1 to arm the alarm.
All the zones are arming: zone 4 is immediately armed because the arming time is set to 0 s, zones 2-3 are arming with no alarm signals active, zone 1 status is warning because the owner is detected by the PIR sensor.
The status of the function is Warning. If the owner leaves zone 1 within the arming time, zone 1 status becomes “arming”.



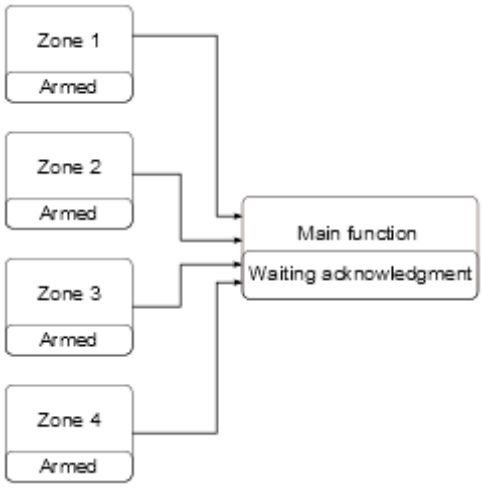
When all the zones enter the armed status, the status of the main intruder alarm function becomes “All armed”.



When all zones are armed, if an intrusion is detected in zone 3, the status changes to “pre-alarm” and then when the disarming time expires the zone goes into “alarm”. The alarm status is transmitted to the main function and the main status becomes “alarm”.



If the alarm input signal is no longer active, the previous alarm condition is still saved and the status of the main function is “Waiting for acknowledgment” to advise the home owner that an intrusion has been detected. This status is reset when the main alarm function is disarmed.

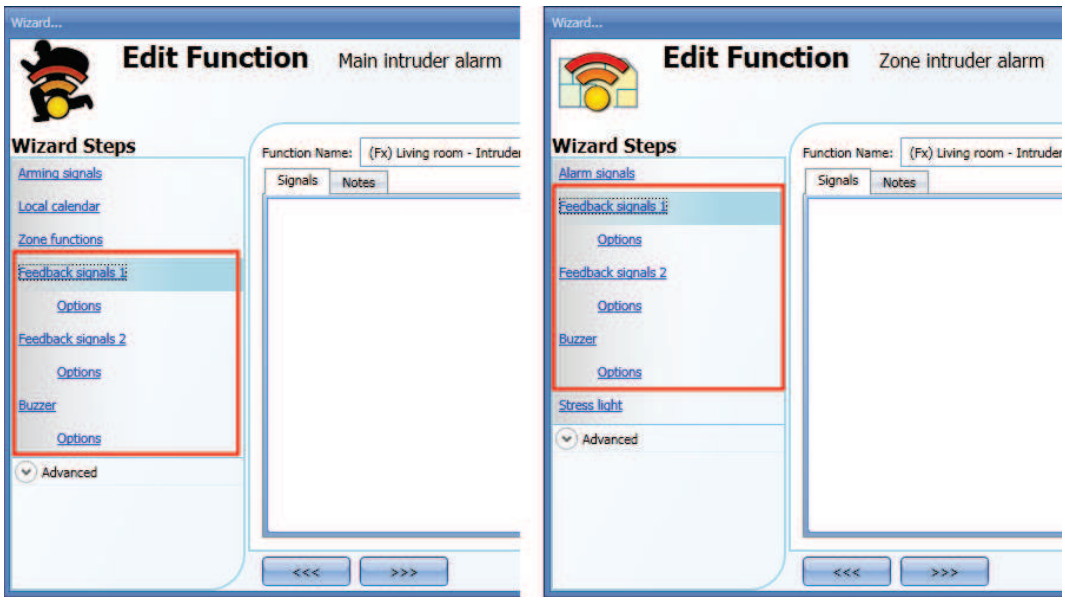


10.9.6 How to set a feedback signal

The feedback signal can be used to warn the user about the status of the intruder alarm.
The feedback signals are managed from both the zones and the main functions.

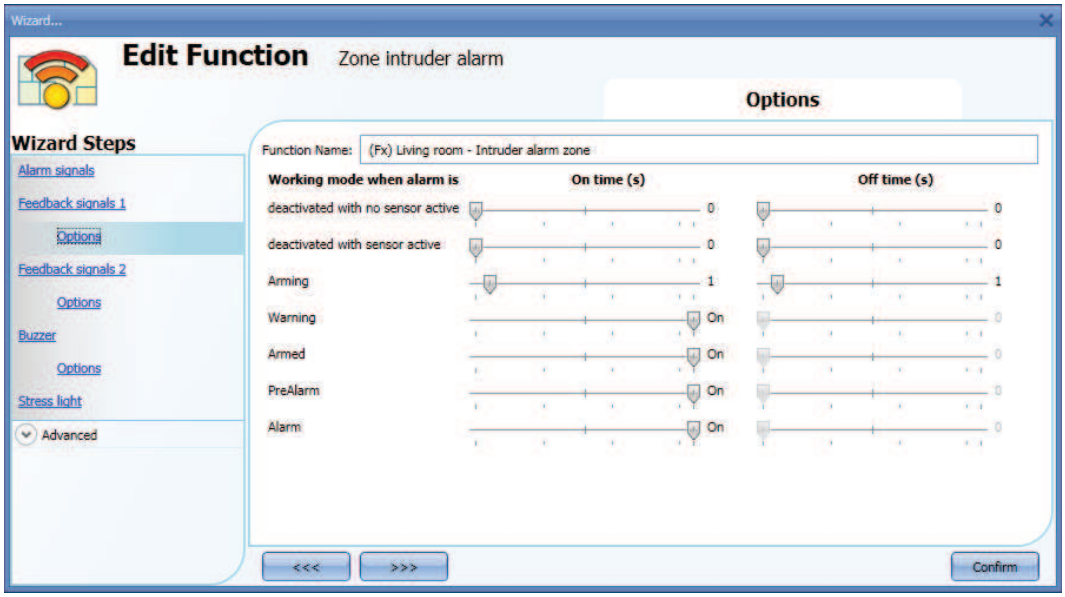
When the user wants to monitor the status of a specific zone, he should use the feedback signals in the zone function. If the user wants to monitor the status of the main intruder alarm, he should configure the feedback signals in the main alarm function.

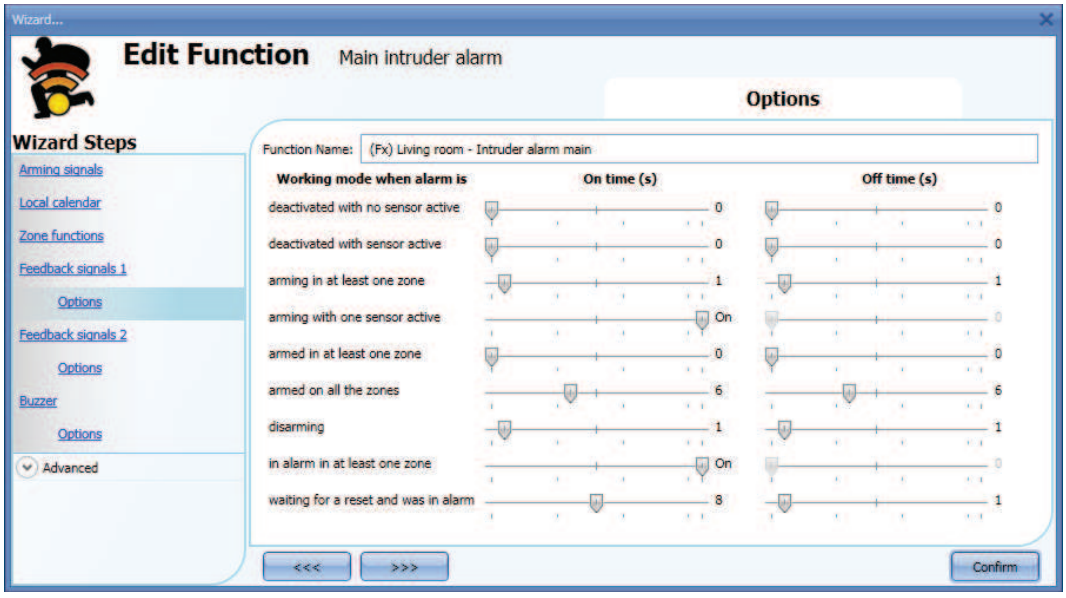
To add the feedback signals, the user has to select the relevant section in the wizard of the function, then double click on the *Signals* window and check the feedback signals from the list of those available. There are three different sections for the feedback signals, to allow the user to set up three different settings (in the picture below the feedback signals for the main function and the zone function are shown).



Regardless of the selected section (Feedback signal 1, Feedback signal 2 and Buzzer), the user can add LEDs, Relays and buzzers.
Once the signals are added, the user has to set up their behaviour.

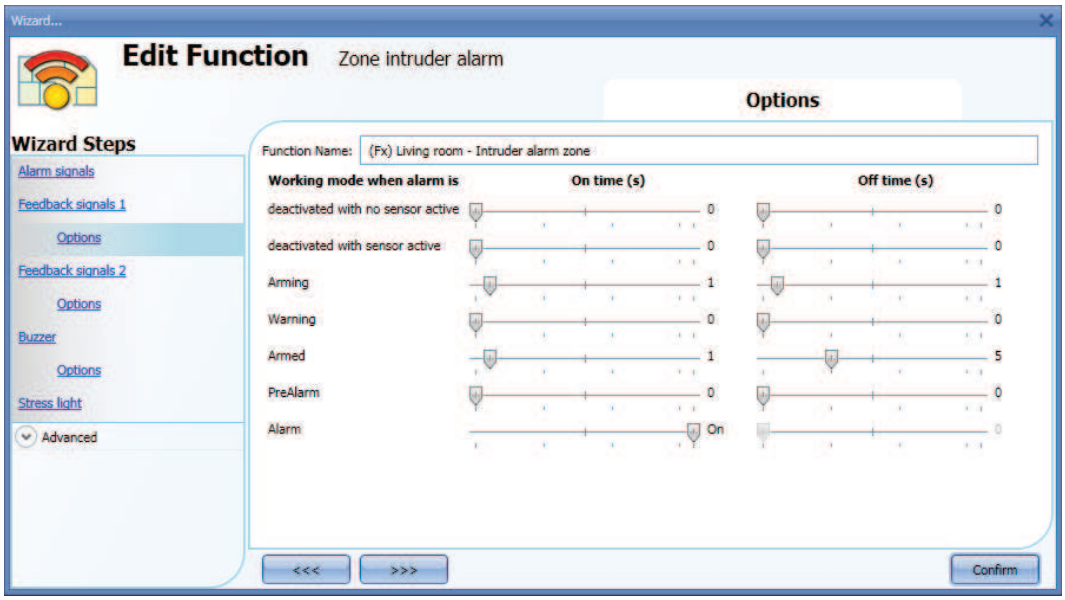
In the first picture the configuration window for the feedback signal in the zone function is shown, while in the second picture the window to configure the behaviour of the feedback signals in the main alarm function is shown.



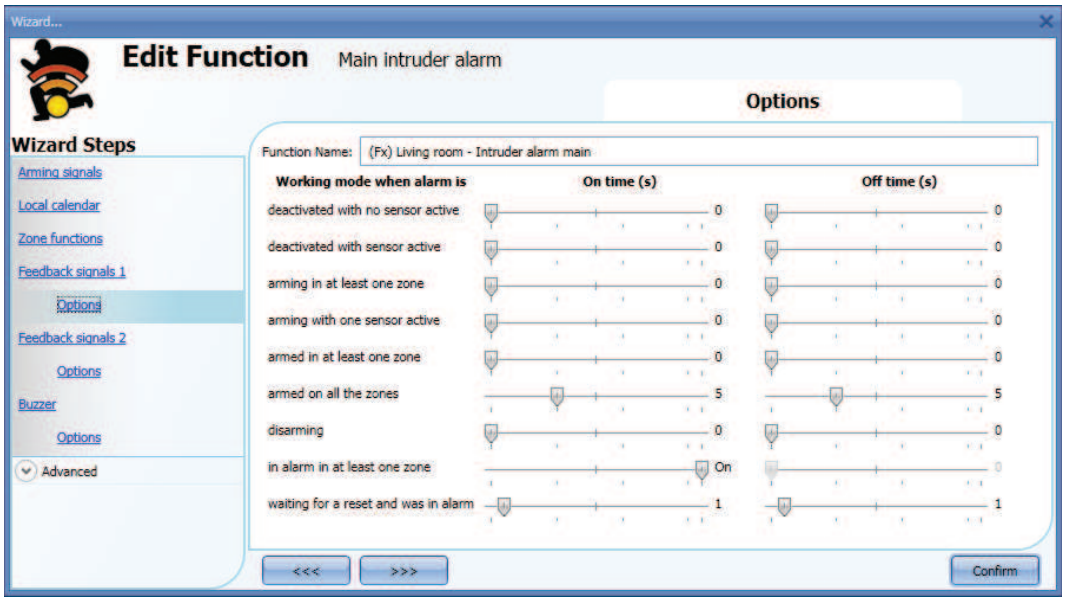


For all the statuses, the user can set the On/Off activation time. If both the on/off times are set to 0 seconds, the status will not be shown by the feedback signal.

Example 1:
The first example shows how to set a feedback signal to warn the user when the zone is arming, when the zone is armed and when the zone is in alarm.
When the function is arming, the feedback signal will blink 1 second on and 1 second off. When the function is armed, the feedback signal will blink 5 seconds off and 1 second on. When the function is in alarm, the feedback signal will stay steady on.



Example 2:
The second example shows how to customize the feedback activation for the main alarm. When all zones are armed the feedback signal will blink 5 seconds on and 5 seconds off. When the alarm is detected, the feedback will stay steady on. When the function is waiting for acknowledgment, the feedback signal will blink 1 second on and 1 second off.

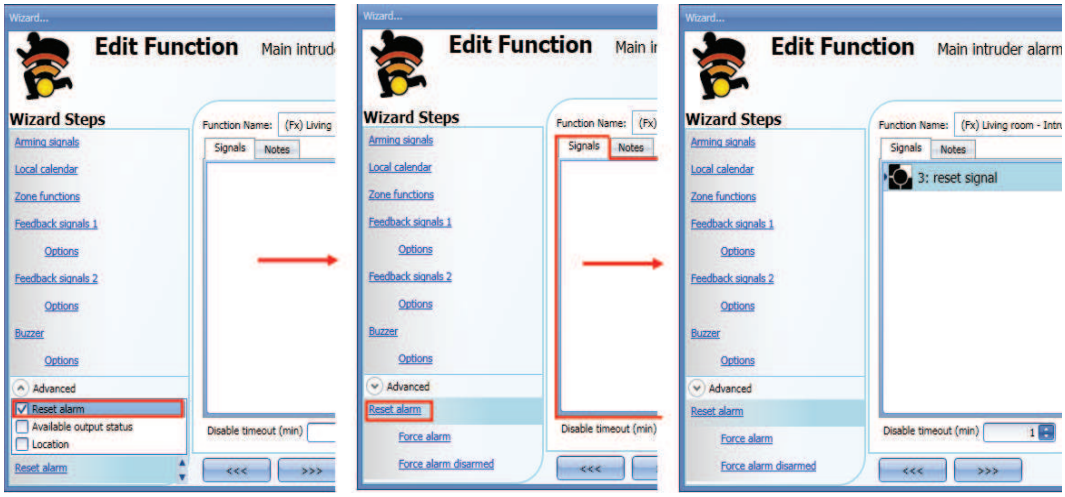


The user can customize up to three different types of feedback signals: feedback signal1, feedback signal 2, buzzer.

10.9.7 How to reset the alarm

The reset signal is used to inhibit the alarm status in the main function and in all the linked zone functions.
The reset signal must be entered in the main alarm function, but it is directly linked to its zone alarm function.
If a siren function is used in combination with the intruder alarm, the reset status is also automatically linked to the siren function.

To add the reset signal, the user has to select the relevant section in the wizard of the main intruder alarm function, then double click on the *Signals* window and select the feedback signal from the list of those available (see picture below).



The reset signal can be managed as an event signal or a level signal: the event signal triggers the *Disable timeout*. When the alarm is reset, at the end of the Disable timeout, all the zones will be armed again.

If an event type is selected, the working mode has to be carried out following the table below.

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the reset condition is activated.	After a short press (less than 1 second), at the release of the push button, the reset condition is activated.	After a long press, the reset condition is activated at the release of the push button.	After a very long press, the reset condition is activated at the release of the push button.
1→0	As soon as the push button is pressed, the reset condition is deactivated.	After a short press (less than 1 second), the reset condition is deactivated at the release of the push button.	After a long press, the reset condition is deactivated at the release of the push button.	After a very long press, the reset condition is deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the reset is activated/deactivated in toggle mode.	After a short press (less than 1 second), the reset is activated/deactivated in toggle mode at the release of the push button.	After a long press, the reset is activated/deactivated in toggle mode at the release of the push button.	After a very long press, the reset is activated/deactivated in toggle mode at the release of the push button.
	The reset is activated/deactivated in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The reset is activated when the signal goes ON, and it is deactivated again when the signal goes OFF.			

If a level signal is used, the setting of the working mode has to be carried out following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The reset is activated	No action
1→0	The reset is deactivated	No action
0→1 1→0	The reset is activated/deactivated in toggle mode	No action
	The reset is activated/deactivated in toggle mode	The reset is activated/deactivated in toggle mode
	The reset is activated	The reset is deactivated

10.9.8 How to use the alarm with a siren

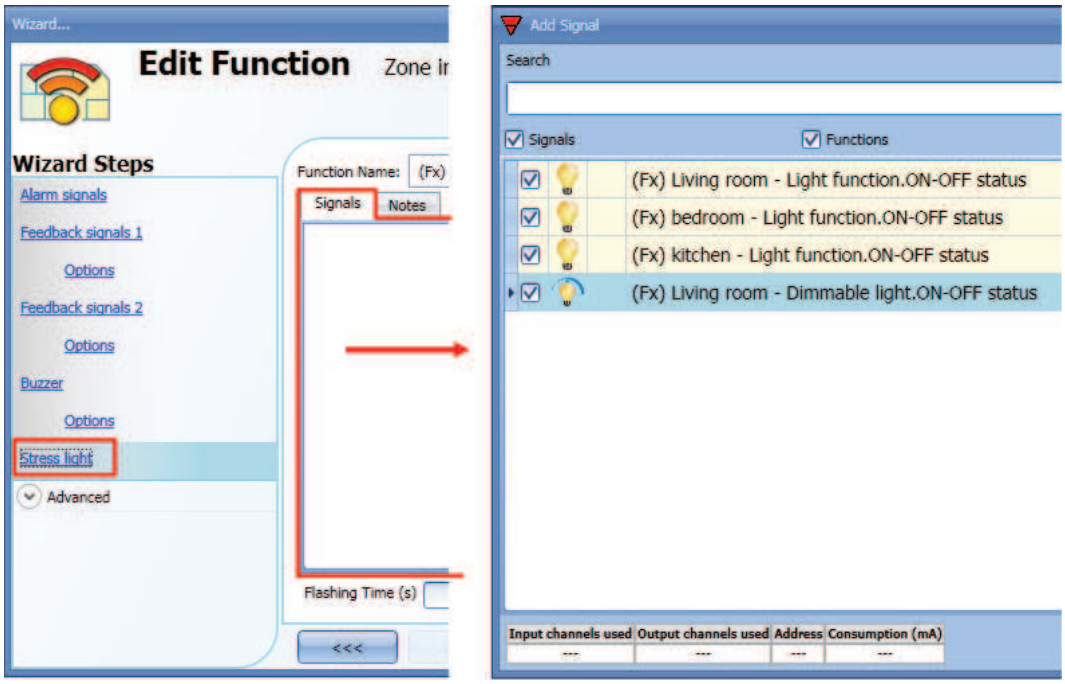
If the user wants to use a siren output when the alarm is on, a siren function has to be used. The siren function is not included in the intruder alarm function and must be created and linked to the main intruder alarm function.

The siren function will be triggered by the main alarm function as soon as an alarm condition occurs. The reset signal of the main alarm function is automatically connected to the siren: when the siren is on and the reset signal is activated, the siren goes off (see also the *How to set a Siren alarm function*).

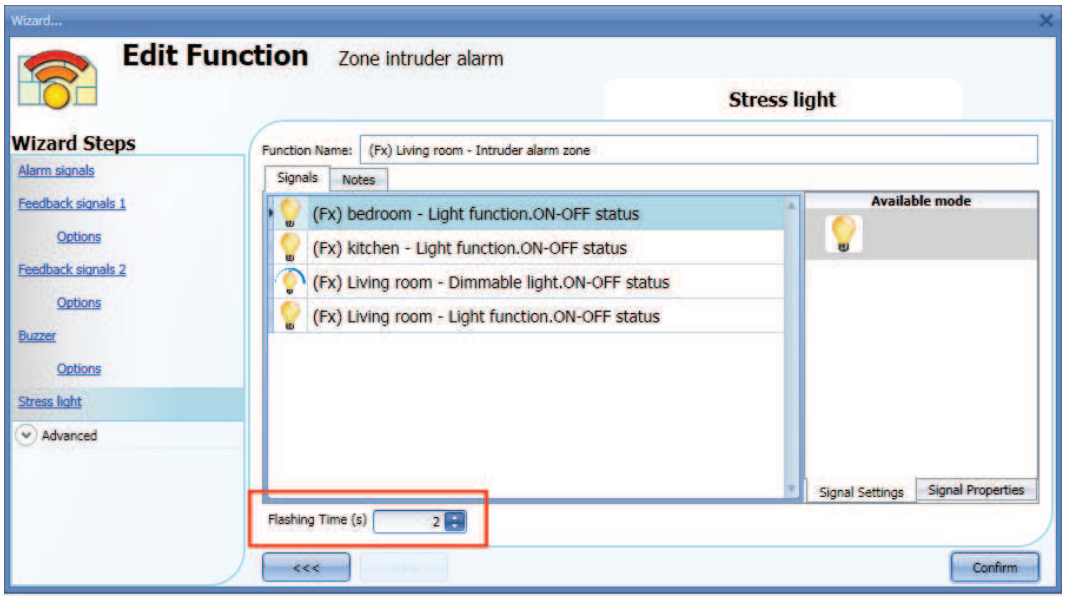
10.9.9 How to set the stress lights when the alarm is active

The stress light field allows the user to turn on/off one or more light functions when the zone is in alarm. When the zone function is in alarm, all the lights present in the list “Stress lights” are activated according to the flashing time settings. When the alarm condition in the zone ends, all the stress lights stop flashing, even if the siren and the main alarm function are still activated.
The user can add on/off lights or dimmable lights.
When a dimmable light is activated by the stress light, the output is managed from 10 to 100%: the output is never switched off because the complete switching off could damage ballast.

To add a function to the list of *Stress lights*, the user should select the relevant section in the wizard of the zone intruder alarm function, then double click on the *Signals* window and select the light function from the list of those available (see picture below).



The *Flashing time* of all the lights added to the list has to be set at the bottom of the stress lights window (see picture below).

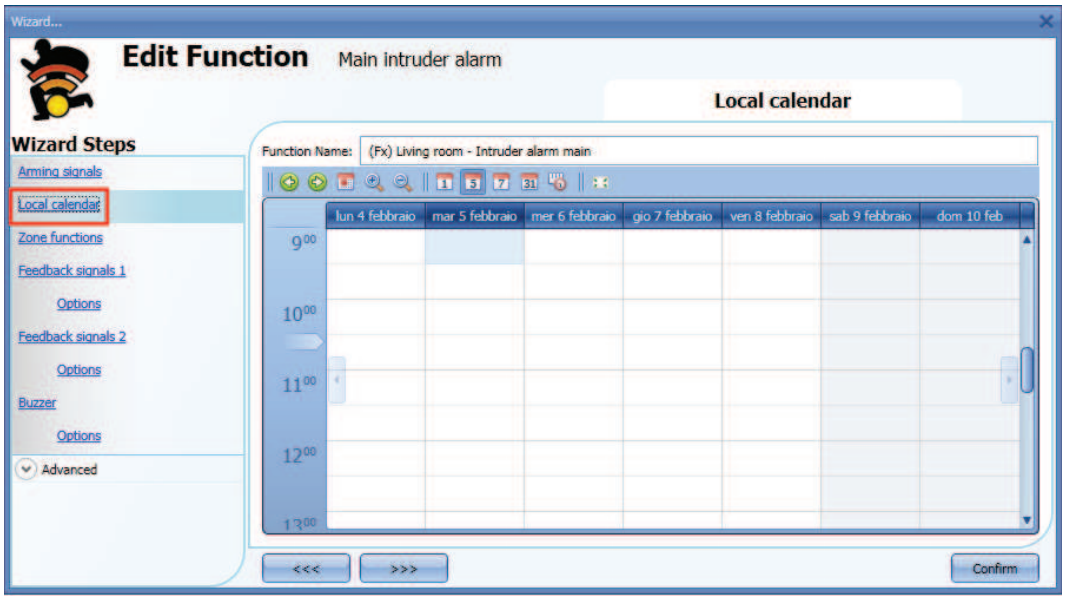


10.9.10 How to arm and disarm the alarm with the calendar

The user can program a calendar function in order to arm/disarm the intruder alarm.
There are two ways of managing the intruder alarm with calendars: by configuring the local calendar inside the main intruder alarm function or by using a global calendar function.

The local calendar function

To enable this, the relevant menu has to be enabled in the Advanced section (see picture below).



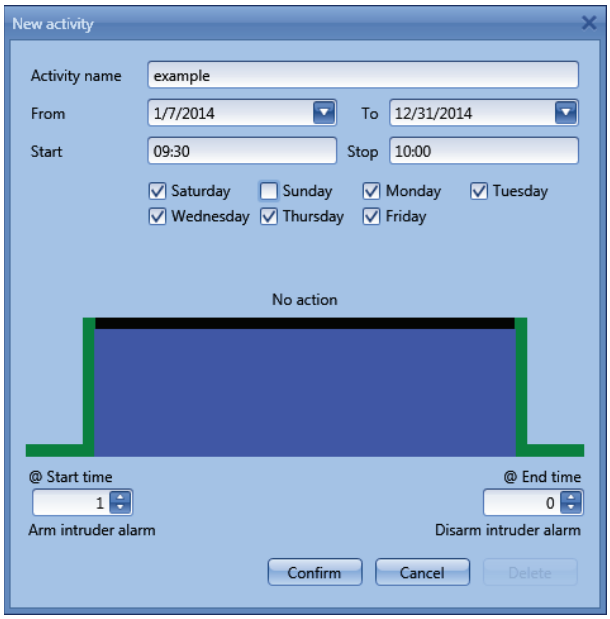
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week
	One step forward in the calendar. E.g: if a week is visualized, this button allows the user to go to the next week
	Go to the current day
	Magnifying lens to see more/fewer time bands
	The calendar visualizes one day horizontally
	The calendar visualizes 5 days horizontally
	The calendar visualizes 7 days horizontally
	The calendar visualizes 31 days horizontally
	The calendar visualizes 7 days vertically

Calendar activity

Once the user has selected his preferred type of visualization, to enter a new activity he has to double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that is to appear on the calendar. This is a mandatory field.

From: This is the starting date for the activity.

To: This is the end date of the activity.

Start: This is the start time of the activity.

Stop: This is the end time of the activity.

The activity will be repeated in the following years, using the same dates and times.

The action managed by the calendar can be of two types:

3) Event activity: the system will perform the selected actions only at the start time and at the end time and they are managed as events
4) Level activity: during the time band, all the automation can be disabled.

If ***Event activity*** is selected, the user can decide what action he wants to be performed when the time band starts and finishes.

@ start time: in this field the user can select the action to be performed at the start time.
The available actions are:

- (-1) No action: nothing will be done at the start time
- (0) Disarm the intruder alarm: the intruder alarm is disarmed at the start time
- (1) Arm the intruder alarm: the intruder alarm is armed at the start time

@ end time: in this field the user can select the action to be performed at the end time.
The available actions are:

- (-1) No action: nothing will be done at the end time
- (0) Disarm the intruder alarm: the intruder alarm is disarmed at the end time
- (1) Arm the intruder alarm: the intruder alarm is armed at the end time

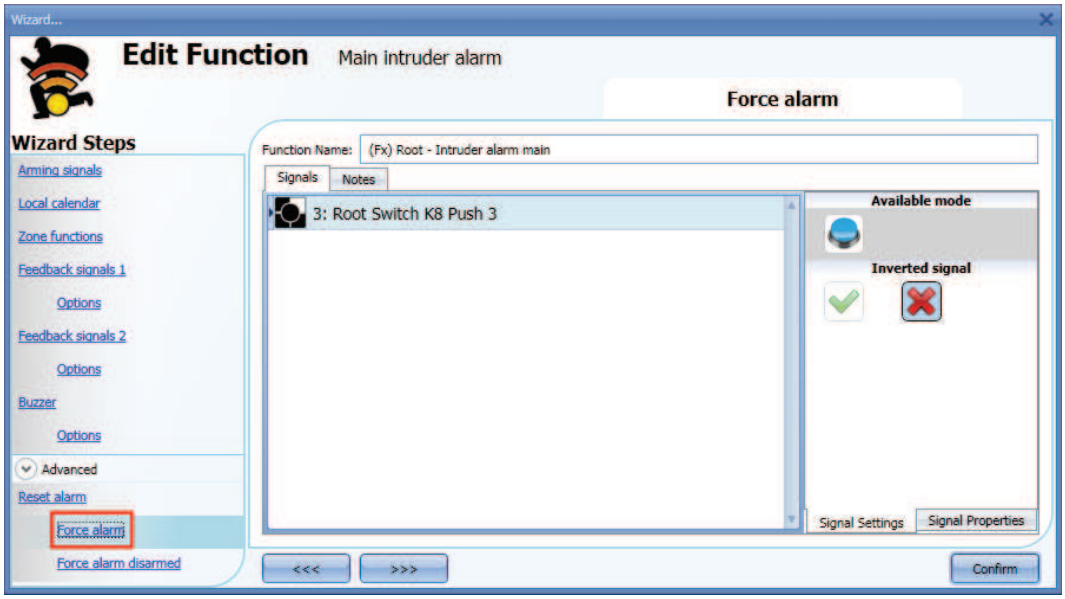
If ***Level activity*** is selected, the user can disable the automation of the calendar.

During time period: in this field the user selects the action he wants to perform during the time band.

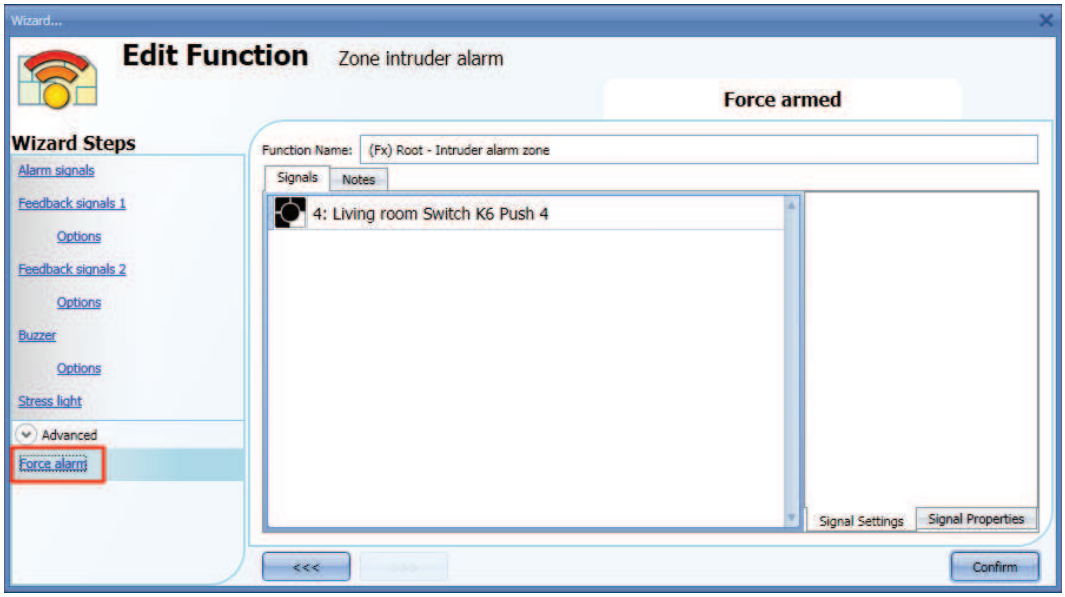
- No action
- Disable automations

10.9.11 How to force the alarm condition

If the user wants to force the alarm condition regardless of all the other signals used in the function, the *Force alarm* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force alarm*, then double click on the signals window and select the appropriate signal to use.
The alarm can be forced in all the zones by using the main intruder alarm (see picture below)



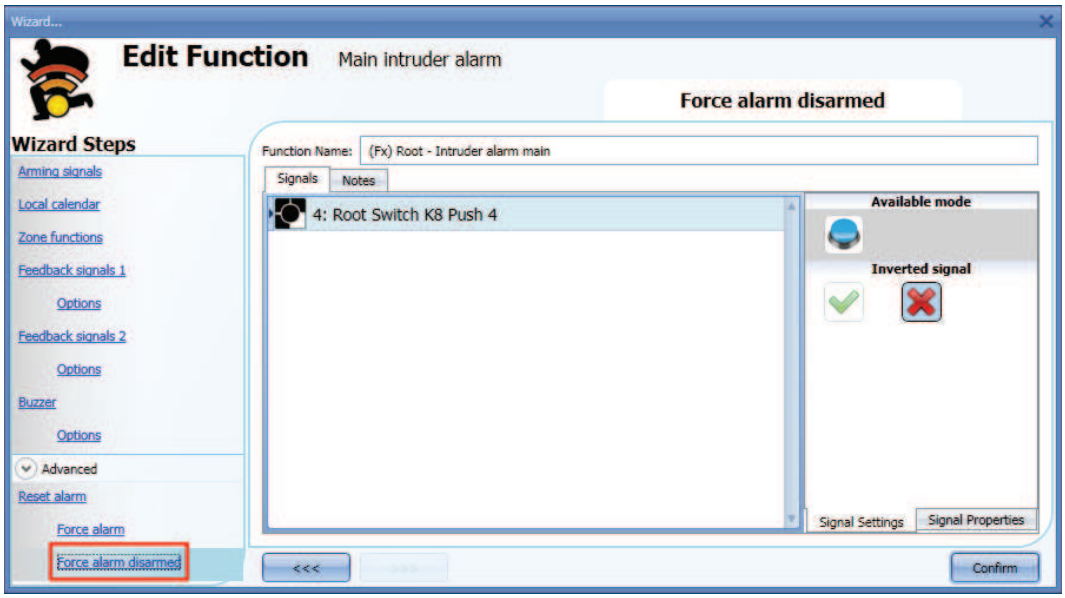
The alarm can be forced in only a single zone by adding the force alarm signal in that specific zone function (see below).



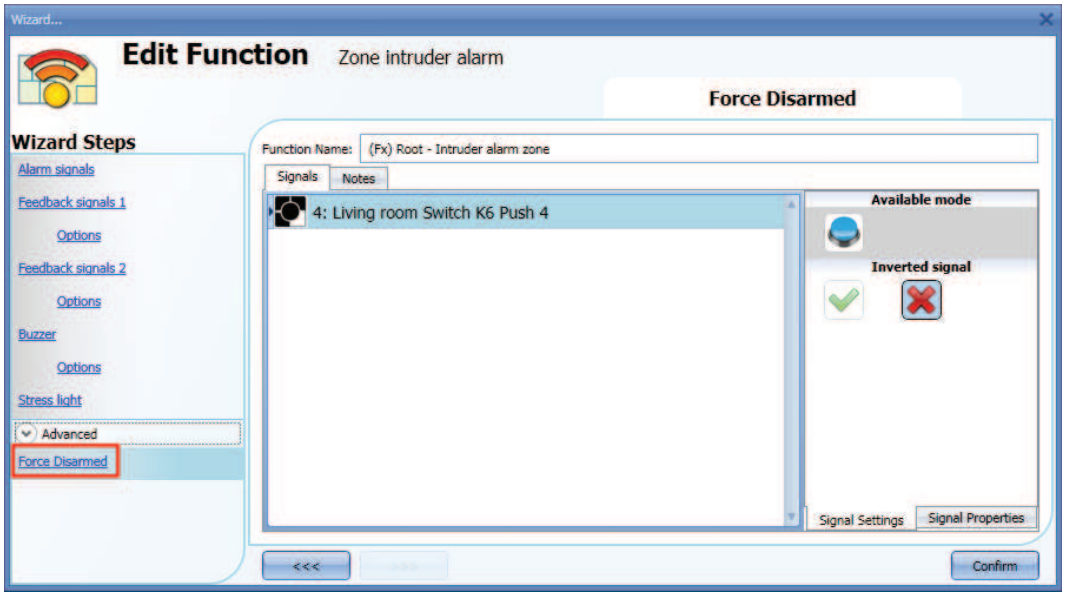
Each signal used in the *Force alarm* window works as a level signal. While the signal is active, the main alarm function, and all the linked zones, are forced into the alarm condition.
When the *Force alarm* signal is activated and at the same time the *Force alarm disarmed* signal is activated, the *Force alarm* signal has priority.

10.9.12 How to force the alarm into disarmed

If the user wants to force the alarm into disarmed regardless of all other signals used in the function, the *Force alarm disarmed* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force alarm disarmed*, then double click on the signals window and select the appropriate signal to use. The alarm can be forced into disarmed in all the zones by using the main intruder alarm (see picture below).



The alarm can be forced into disarmed in only a single zone by adding the *Force alarm disarmed* signal in the zone function (see picture below). An example could be a room of the house where the intruder alarm has to be disarmed even if all the other zones are armed (e.g. the room has some pets that could trigger the alarm).



Each signal used in the *Force alarm disarmed* window works as a level signal. Until the signal is active, the main alarm function, and all linked zones, are forced into disarmed.

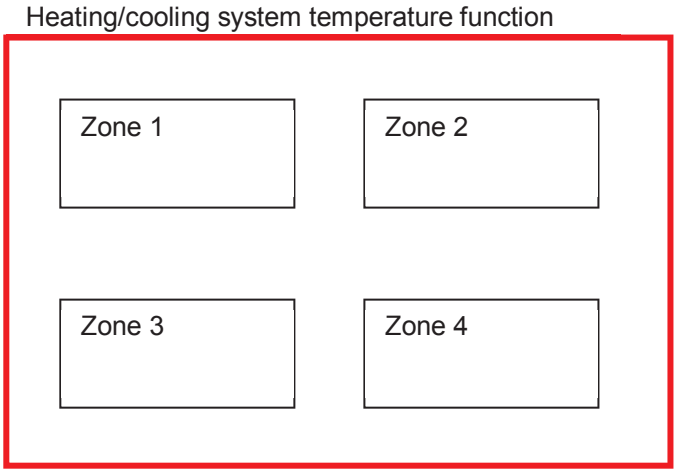
10.10 How to set a temperature function

The temperature function is used to manage the heating and ventilation of the house. The user can manage the climate inside the house, creating different zones depending on the family's requirements.

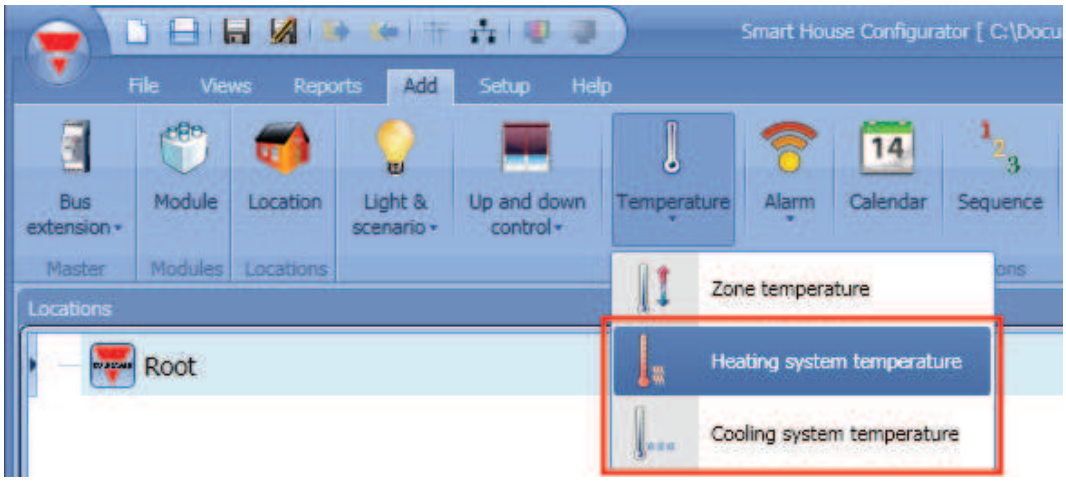
There are two main steps to configure the temperature control:

- In the first step the user has to add a heating/cooling temperature system: this is the main core of the temperature control and it is used to manage all the zone functions (it collects all the zone statuses when a request for heating/cooling is received from a zone and it activates the system, providing heating/cooling in the zone). It manages the pump output with the relevant delay via the valve activation and the on/off switching according to the outdoor temperature.

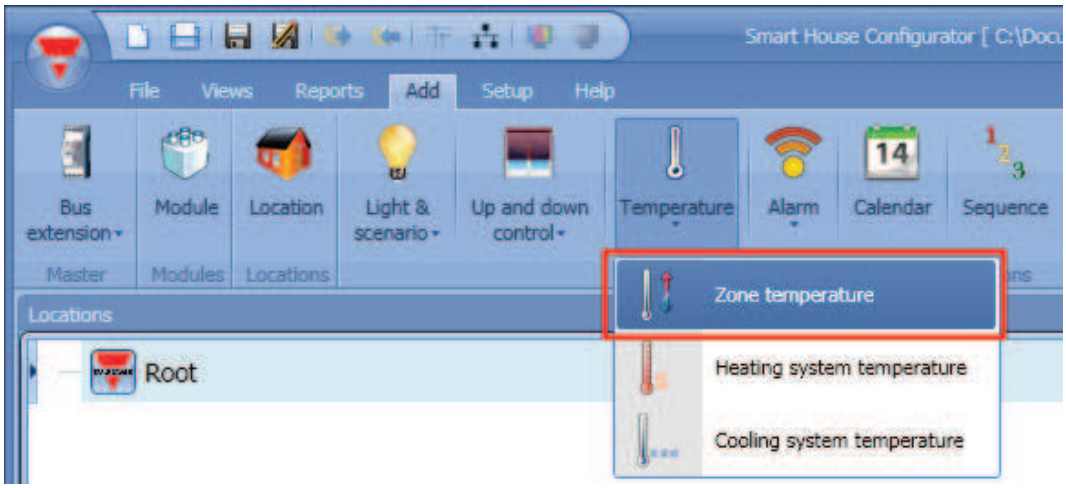
- In the second step the user must enter at least one zone temperature function; each zone function can correspond to a part of the house where the user wants to control the heating/cooling.



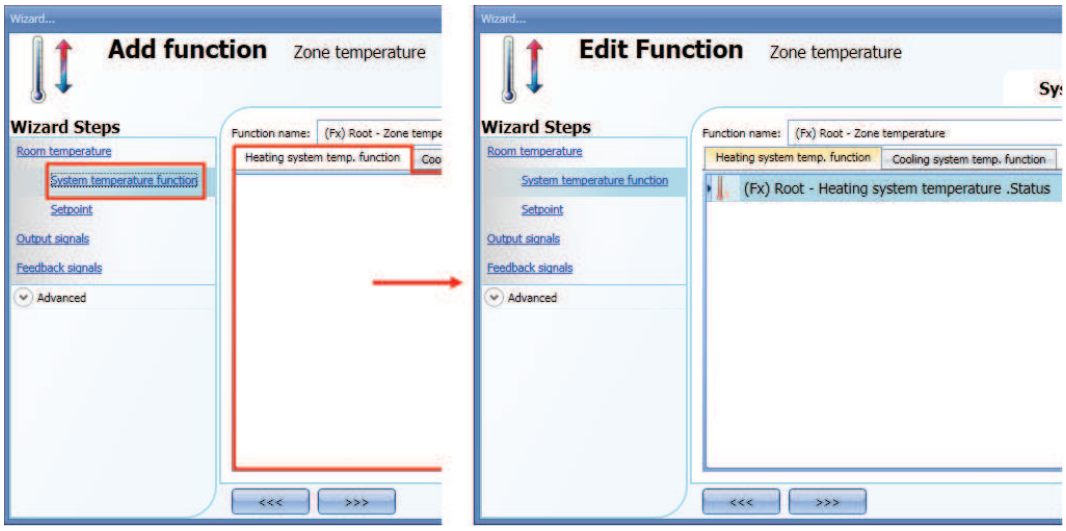
To set up a temperature function, the user has to select *Temperature* from the Add menu, then select at least one *System temperature* function (Heating or Cooling).
The wizard relevant to the System temperature function can also be opened by typing Alt +A +T +H/C.



Once the system temperature function is added, the user should click on *Temperature* from the Add menu and select *Zone temperature* (see picture below).
The wizard relevant to a Zone temperature function can also be opened by typing Alt +A +T +Z.



The last step is to link the temperature system function to the zone temperature functions: to do this the user has to open the zone function, click on *System temperature function*, double click on the correct window (according to the heating or cooling mode), and then select the required system function from the list of available functions (see picture below). More than one zone function can be controlled by the same system function.



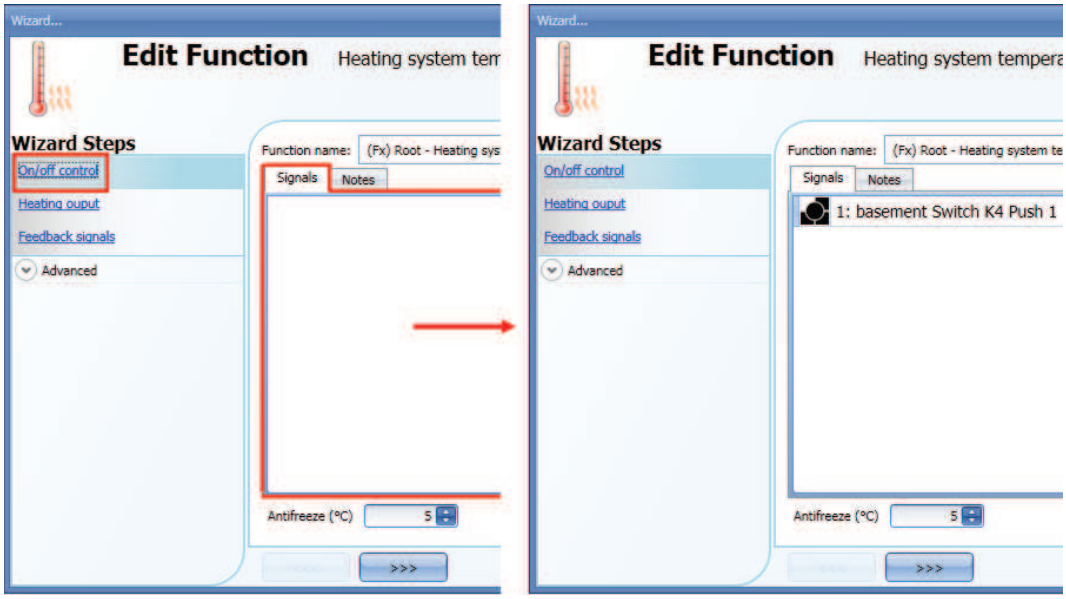
According to the added system temperature, the zone function can manage either only heating, only cooling, or both.

10.10.1 System temperature configuration

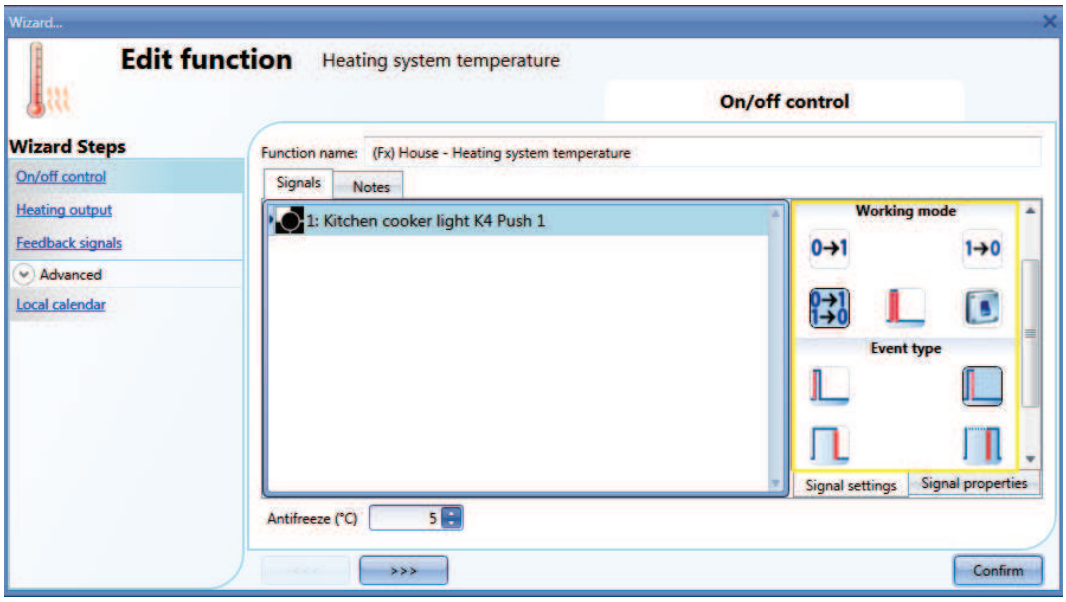
The system temperature function is the core function and it is used to control the activation/deactivation of the pump of the system. When it is on, the heating or cooling mode is on: when it is off, the temperature control is off even if there is a request from a zone function.

10.10.2 How to activate/deactivate the system temperature

To add the on/off signal, the user has to select the relevant section in the wizard of the heating/cooling system function, then double click on the *Signals* window and select the input signal from the list of available signals (see picture below).



Once the on/off signal is entered, the user can also decide to use the inverted logic of the signal (see yellow rectangle in the picture below).



If a push button type is added, the working mode, highlighted with the yellow rectangle, has to be selected according to the table below:

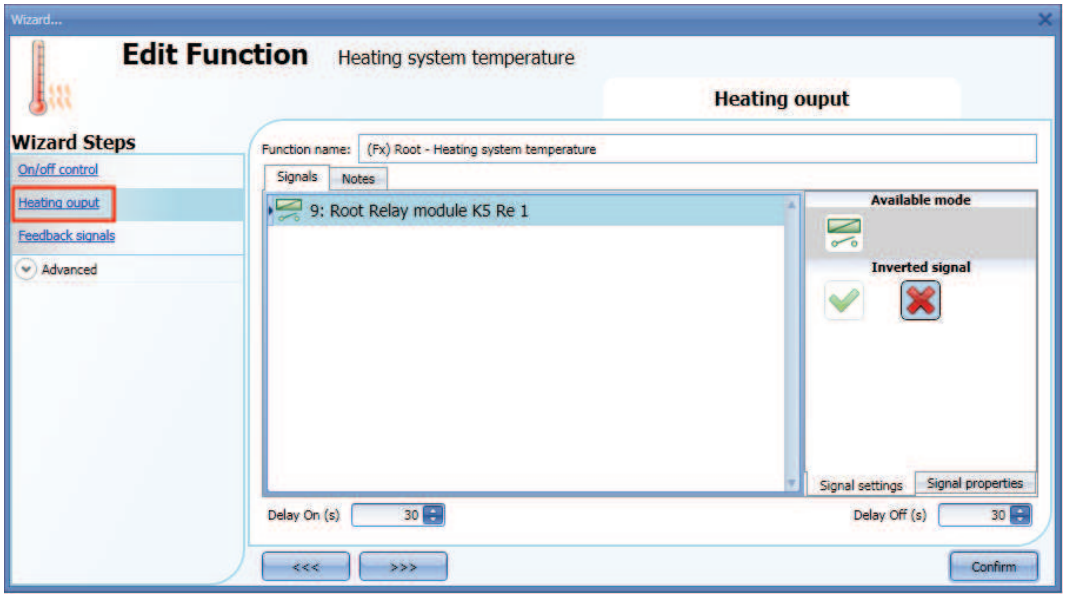
Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the function is activated.	After a short press (less than 1 second), at the release of the push button the function is activated.	After a long press, the function is activated at the release of the push button.	After a very long press, the function is activated at the release of the push button.
1→0	As soon as the push button is pressed, the function is deactivated.	After a short press (less than 1 second), the function is deactivated at the release of the push button.	After a long press, the function is deactivated at the release of the push button.	After a very long press, the function is deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be activated/deactivated in toggle mode.	After a short press (less than 1 second), the function will be activated/deactivated in toggle mode at the release of the push button.	After a long press, the function will be activated/deactivated in toggle mode at the release of the push button.	After a very long press, the function will be activated/deactivated in toggle mode at the release of the push button.
	The function will be activated/deactivated in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The function is switched on when the signal goes ON, and it is switched off when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

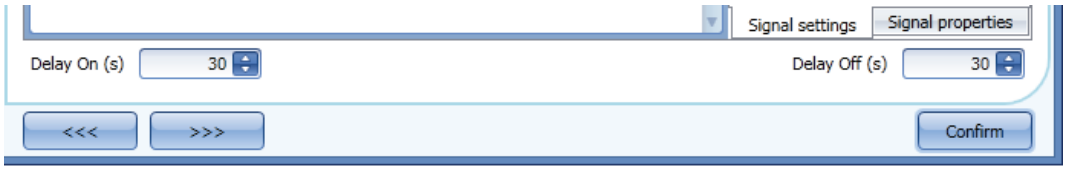
Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The function is activated	No action
1→0	The function is deactivated	No action
0→1 1→0	The function is activated/deactivated in toggle mode	No action
	The function is activated/deactivated in toggle mode	The function is activated/deactivated in toggle mode
	The function is activated	The function is deactivated

10.10.3 How to add the heating output

The heating output must be added in the relevant field of the wizard function (see picture below).



Once the output signal is added, the user can set two delays (delay on/off) to control the activation/deactivation of the system output (pump) and the zone output (valve) when a request for heating/cooling is received from a zone.



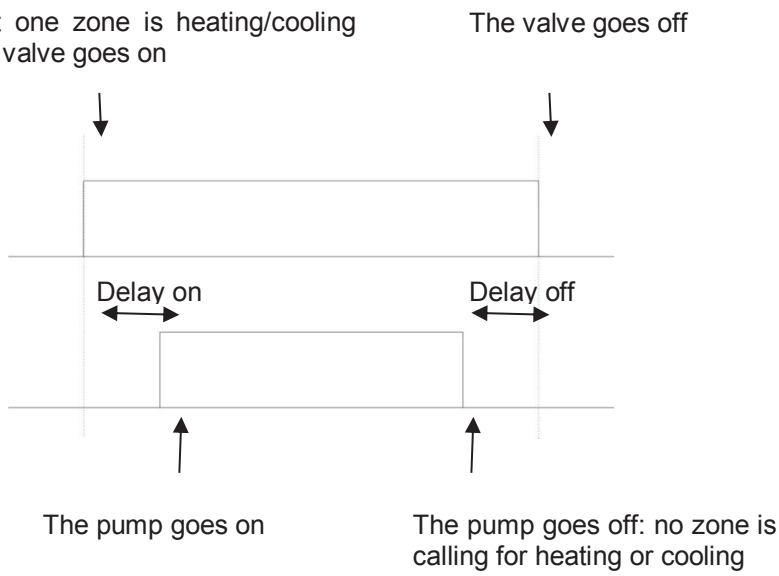
When the zone temperature status goes on:

- The valve output in the zone goes on immediately.
- The pump output in the temperature system starts when the *Delay on* time expires. This is to make sure that the pump is not activated before a valve in the zone is completely opened.

When the zone temperature status goes off:

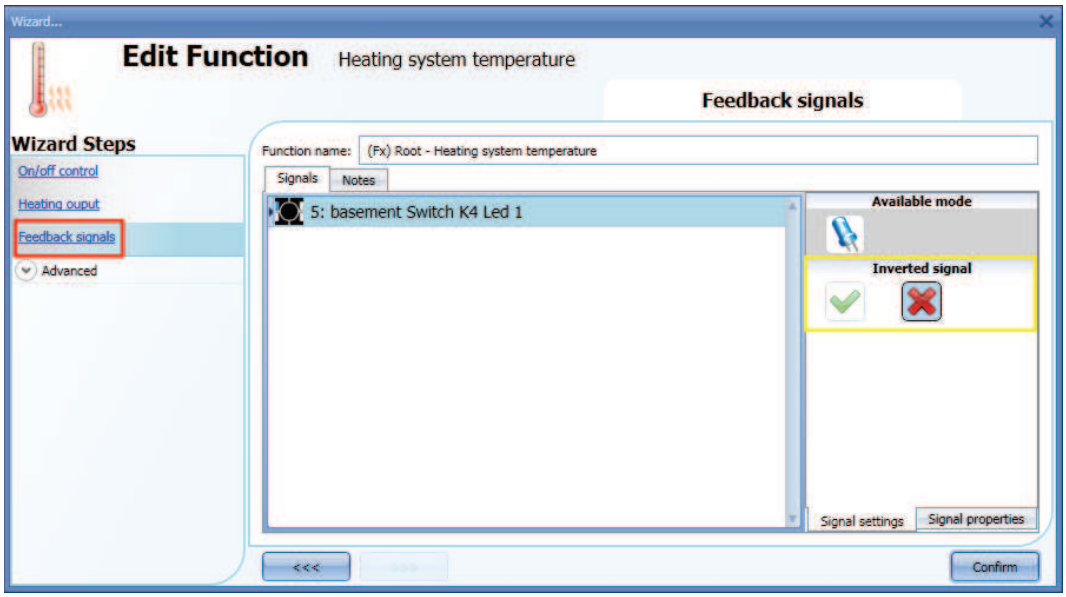
- The pump of the temperature system goes off immediately (only if there are no more requests for heating/cooling from other zones).
- If only one zone is used, the valve goes off immediately; otherwise, if more zones are used, the valve in the last activated zone is switched off when the Delay Off time has elapsed.

See picture below:



10.10.4 How to set a feedback signal

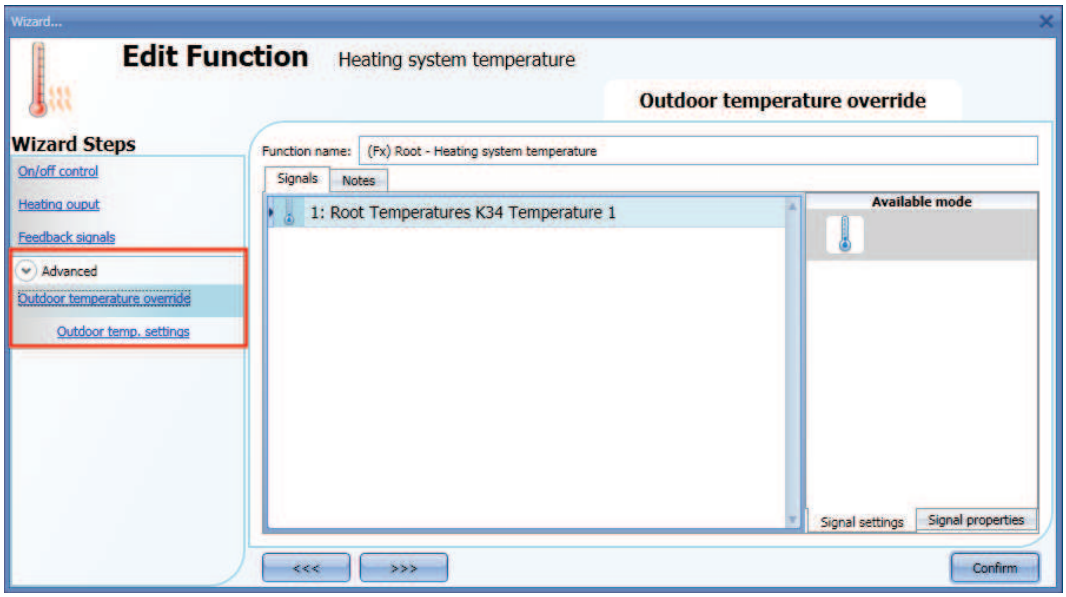
The feedback signal can be used to give information about the status of the temperature system function.
It follows the status of the function: it is on if the function is on, and off if the function is off.
To add the feedback signal, the user should click on the relevant field in the wizard of the function, then double click on the *Signals* window and select the feedback signal from the list of those available.



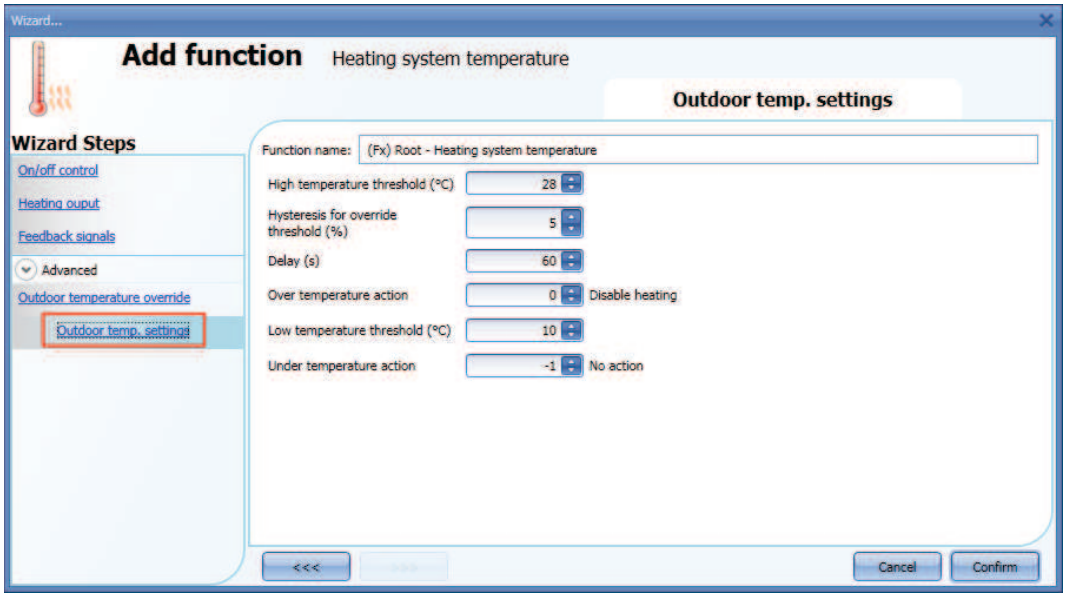
The inverted logic for the feedback can be selected as shown in the yellow rectangle in the picture above.

10.10.5 How to switch off heating/cooling according to the outdoor temperature

By accessing the *Advanced* section and enabling *Outdoor temperature override*, the user can configure the system temperature to switch on/off according to the outdoor temperature.



Firstly, the user should enter one or more temperature values coming from the temperature sensors.
The user can add up to ten different temperature signals; if more values are linked, the average value is used. If a temperature sensor is faulty, the average value is calculated by using the other signals.
In the field *Outdoor temperature settings,* the user can configure all the settings (see picture below).

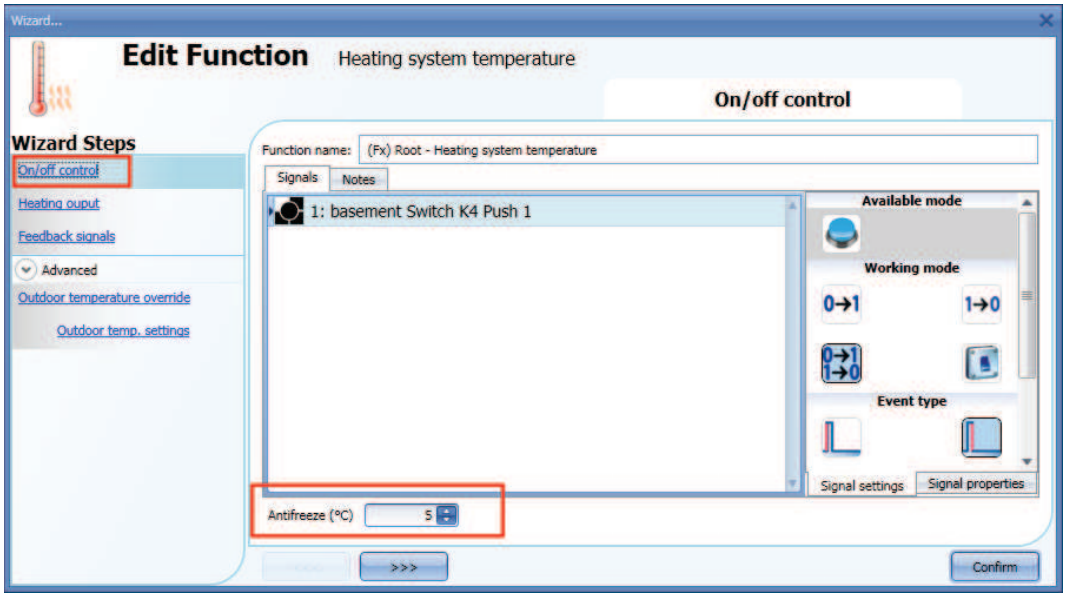


The user can set two different thresholds: the *High temperature threshold* and the *Low temperature threshold*.
Usually the *low temperature threshold* is used to disable cooling, while the *high threshold* is used to disable heating.
The Hysteresis and the delay on time are applied to both thresholds.

In the *Over temperature action* field, the user can set the action to be performed when the measured temperature goes over the *High temperature threshold*. In the same way, in the *Under temperature action* field, the user can set the action to be performed when the measured temperature goes below the *Low temperature threshold*.
It is possible to use both thresholds to manage the deactivation of the output.

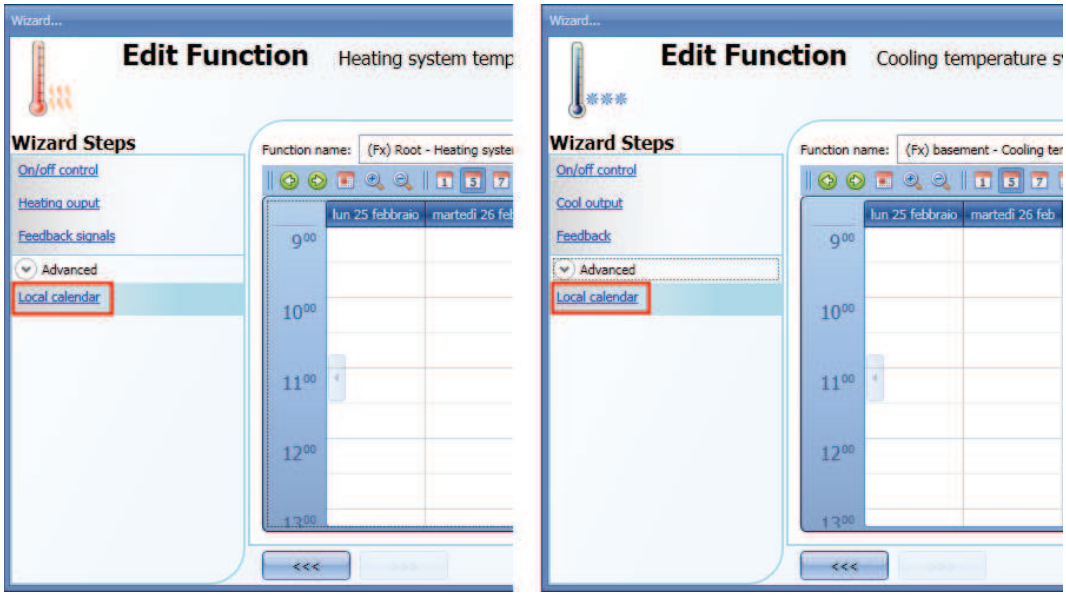
10.10.6 How to set the antifreeze temperature

In the heating system temperature, the user can set the antifreeze value. This is a common value that is automatically used in all the zone functions that are linked to the system function.
If the zone status is set to OFF (set point OFF selected), and the measured temperature in the zone falls below the antifreeze value, the output in the zone is activated until the temperature is once again above the antifreeze limit.
The antifreeze value can be selected in the ON/off control field of the heating temperature .



10.10.7 How to control heating/cooling with the calendar

The user can program a local calendar to activate/deactivate the heating/cooling system temperature function, using daily activities.
To enable this, the relevant menu has to be selected in the *Advanced* section (see picture below).



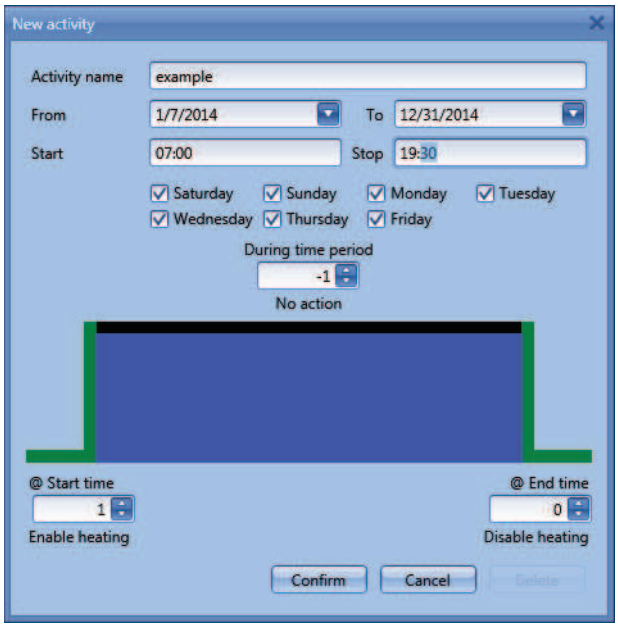
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activity

Once the user has selected his preferred visualization, to enter a time band he has to double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

The activity will be repeated in the following years, using the same dates and times.

The action managed by the calendar can be of two types:

5) Event activity: the system will perform the selected actions only at start time and end time and they are managed as events
6) Level activity: during the time band, all the automations are disabled.

If ***Event activity*** is selected, the user can decide what action he wants to do when the time band starts and finishes.

@ start time: in this field the user can select the action of the function at the start time.
The available actions are:

- (-1) No action: nothing will be done at start time
- (0) Disable heating/cooling: heating/cooling is disabled
- (1) Enable heating/cooling: heating/cooling is enabled

@ end time: in this field the user selects the action he wants to perform when the period starts.
The available actions are:

- (-1) No action: nothing will be done at start time
- (0) Disable heating/cooling: heating/cooling is disabled

- (1) Enable heating/cooling: heating/cooling is enabled

If ***Level activity*** is selected, the user can disable the automation of the calendar.

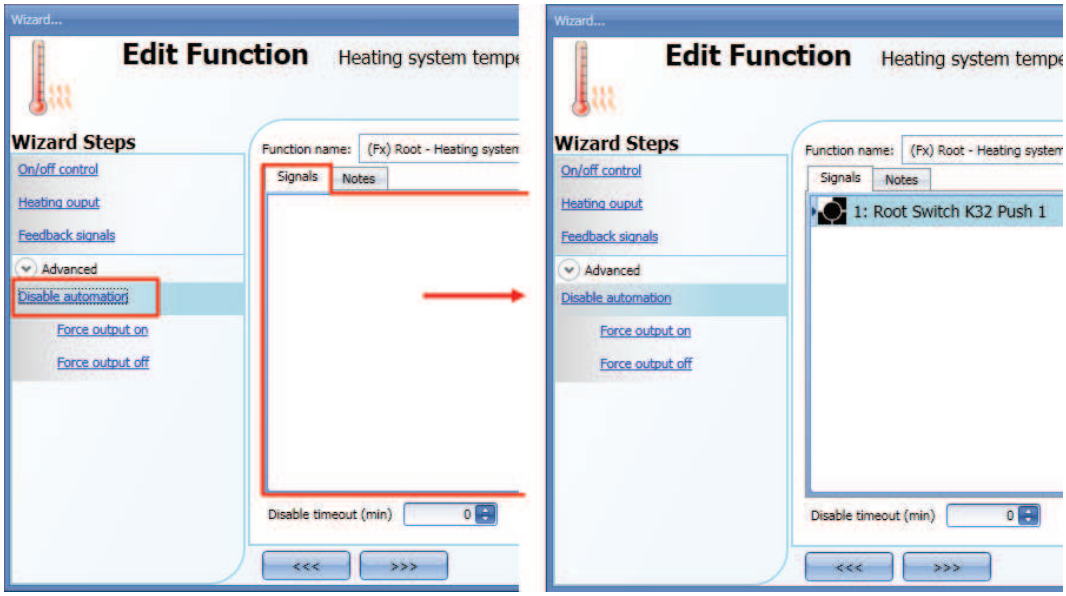
During time period: in this field the user selects the action he wants to perform during the time band.

- No action
- Disable automations

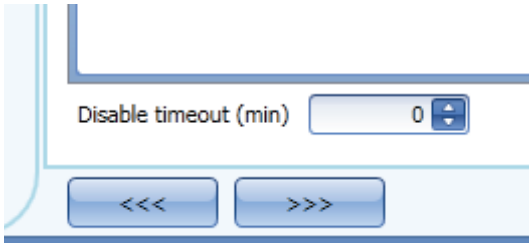
10.10.8 How to disable the automations

The user can disable the calendar automation by using a physical signal such as a pushbutton or by using the calendar level activity.

To add the disable signal, the user should enable the relevant field in the wizard of the system temperature function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



The timer *Disable timeout* starts every time the disable status is activated: the disable status is automatically deactivated as soon as the time expires.



If the disable timeout is set to 0, the timer is disabled and the disable condition stays active.

If a push button is selected as the disable automation signal, the way of working has to be carried out following the table below.

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the disable condition is activated.	After a short press (less than 1 second), at the release of the push button, the disable condition is activated.	After a long press, the disable condition is activated at the release of the push button.	After a very long press, the disable condition is activated at the release of the push button.
1→0	As soon as the push button is pressed, the disable condition is deactivated.	After a short press (less than 1 second), the disable condition is deactivated at the release of the push button.	After a long press, the disable condition is deactivated at the release of the push button.	After a very long press, the disable condition is deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the disable condition is activated/deactivated in toggle mode.	After a short press (less than 1 second), the disable condition is activated/deactivated in toggle mode at the release of the push button.	After a long press, the disable condition is activated/deactivated in toggle mode at the release of the push button.	After a very long press, the disable condition is activated/deactivated in toggle mode at the release of the push button.
	The disable condition is activated/deactivated in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

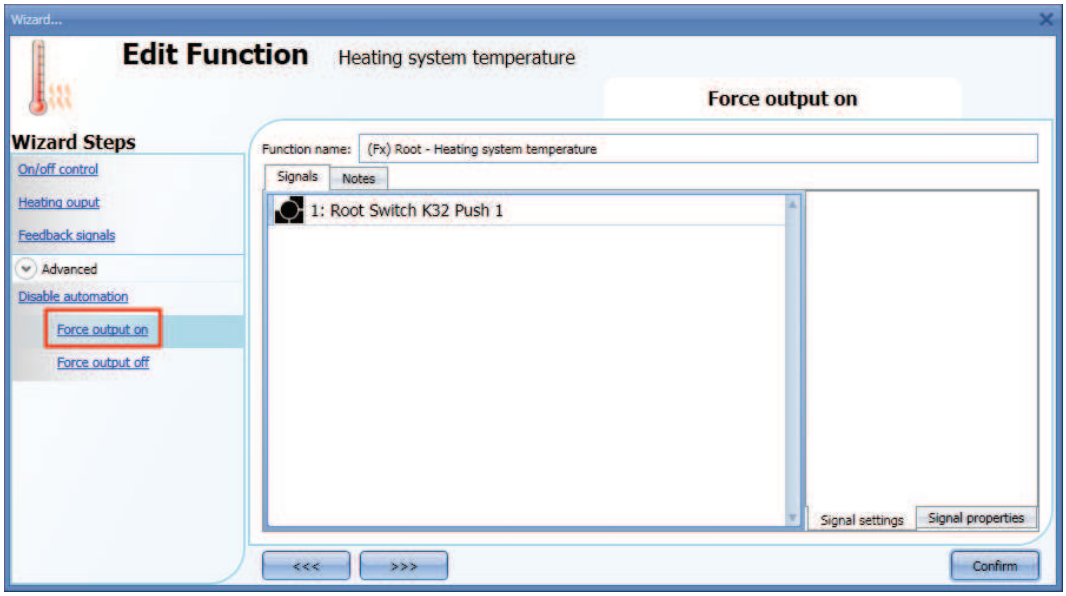
If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The disable condition is activated	No action
1→0	The disable condition is deactivated	No action
0→1 1→0	The disable condition is activated/deactivated in toggle mode	No action
	The disable condition is activated/deactivated in toggle mode	The disable condition is activated/deactivated in toggle mode
	The automation is disabled	The automation is enabled

If the user wants to disable the automations using the calendar, see also the previous paragraph *Level activity.*

10.10.9 How to force the system temperature to the on status

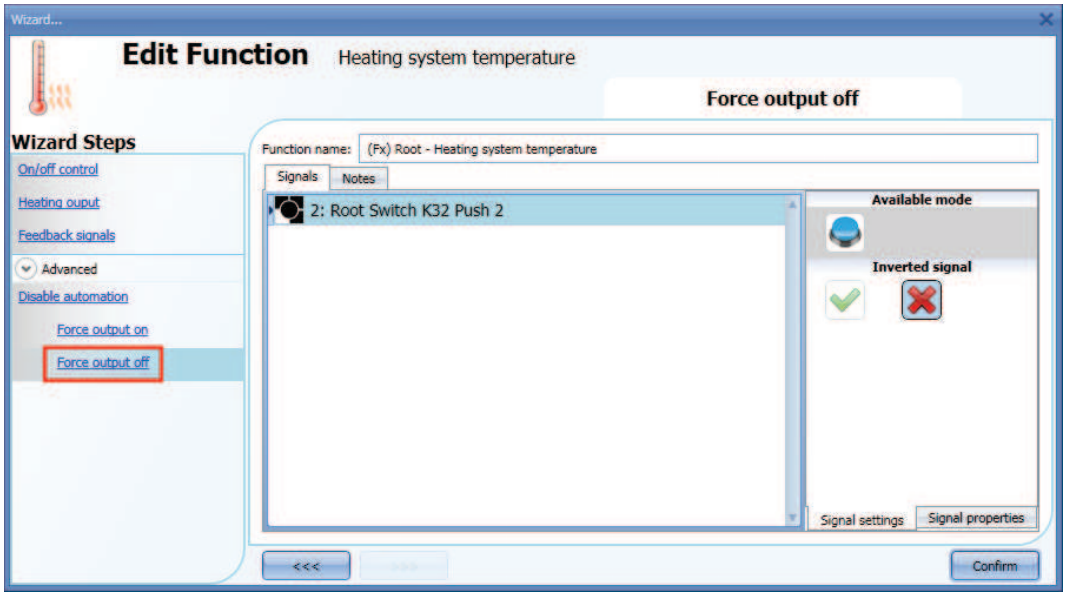
If the user wants to force the activation of the output regardless of all the other signals used in the function, the *Force output on* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output on*, then double click on the signals window and select the appropriate signal to use (see picture below).



Each signal used in the *Force output on* window works in level mode: until the signal is active, the output stays on.
When the *Force output on* signal is activated and at the same time the *Force output off* signal is activated, the *Force output on* signal has priority.

10.10.10 How to force the system temperature to the off status

If the user wants to force the deactivation of the output regardless of all the other signals used in the function, the *Force output off* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output off*, then double click on the signals window and select the appropriate signal to use (see picture below).

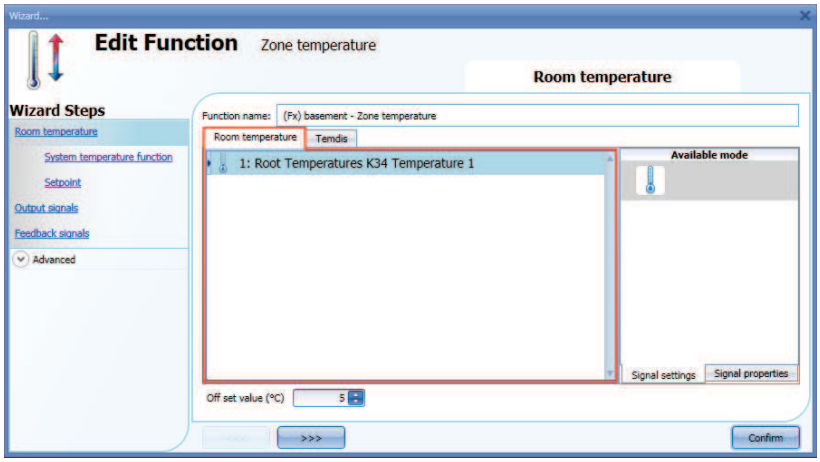


Each signal used in the *Force output off* window works in level mode: until the signal is active, the output stays off.
When the *Force output on* signal is activated and at the same time the *Force output off* signal is activated, the Force output on signal has priority.

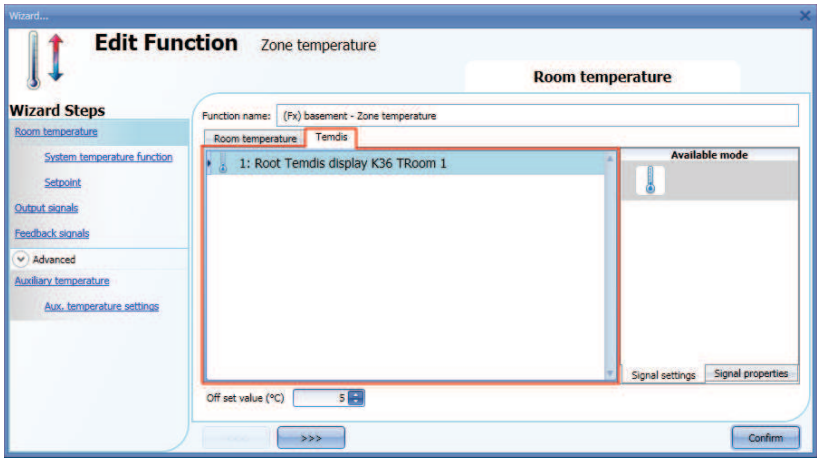
10.11 Zone temperature configuration

10.11.1 How to add the temperature signal

In the first step of the function, the user must enter the temperature signal that has to be used for the control of heating/cooling.
In the *Room temperature signals* window, the user should add one or more temperature signals that come from all the temperature sensors apart from the TEMDIS display, which has a dedicated tab window.

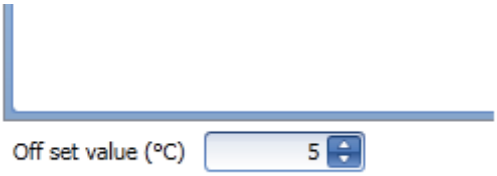


In the *Temdis signals* window, the user can add the two temperature signals of the Temdis module (T Room and T Auxiliary).



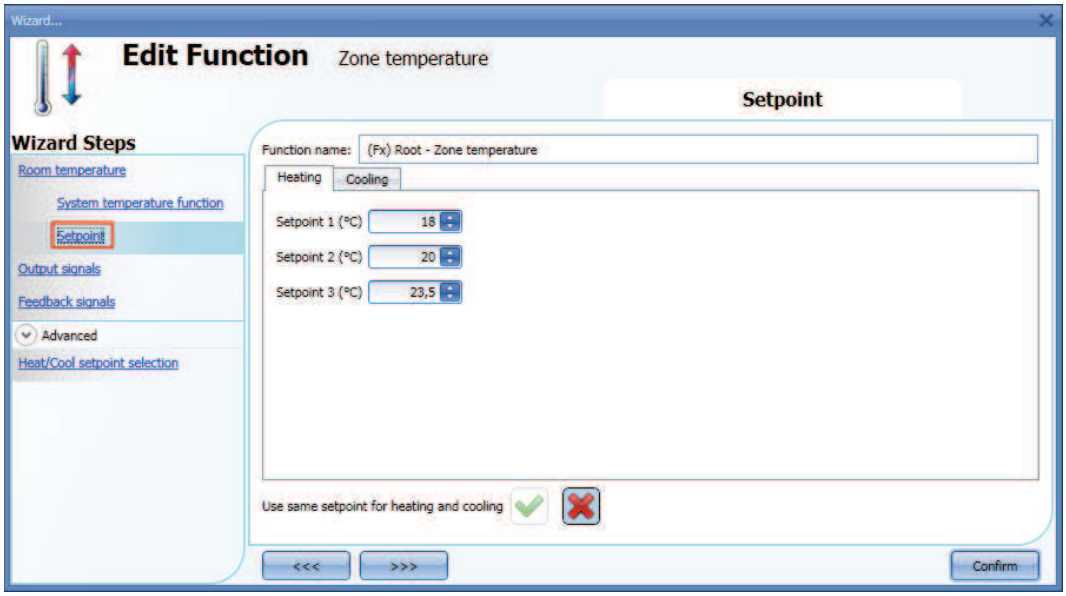
When more temperature values are used, the temperature used for the control is calculated as the average value of all the added signals (room temperature signals + Temdis temperature signals).
This average value is also the one displayed by the TEMDIS module plus the configured offset value.

This offset value is used in the calculation of the regulating temperature for heating/cooling. It can be set in the range [-5, +5] and it is added to the average temperature value measured.

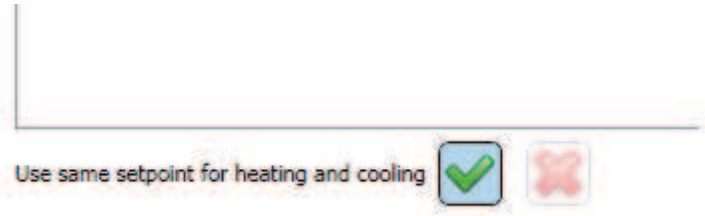


10.11.2 How to configure the set points

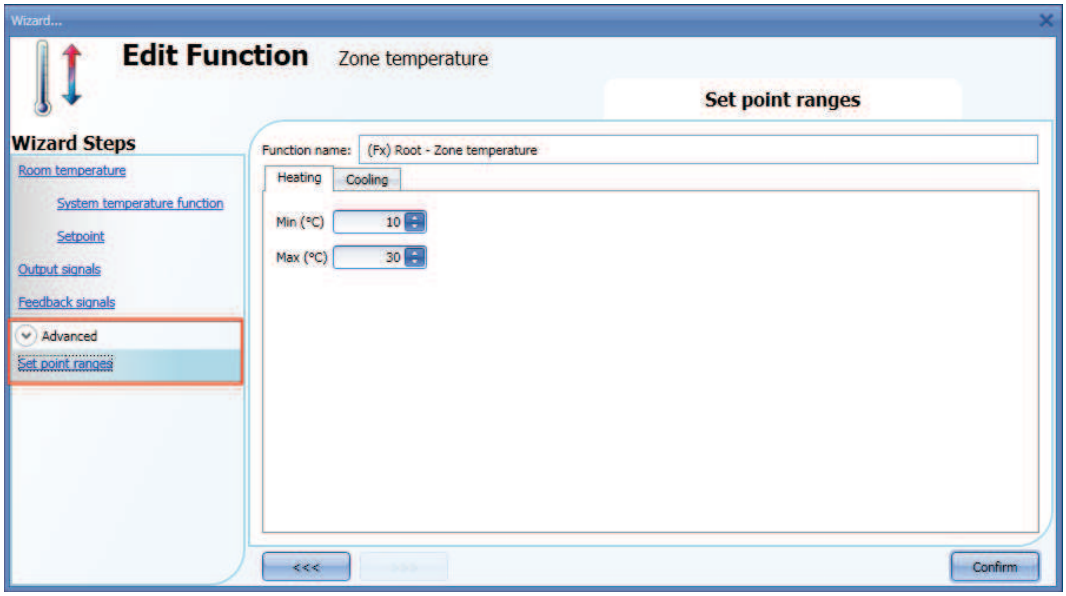
The user can use three different set points for the control of the zone temperature: T1 (comfort), T2 (activity) and T3 (economy).
To change the predefined set point values, the user should click on the relevant field in the wizard of the zone temperature function. There are two steps to configure the set point values used for heating and cooling.



It is possible to select the green “V” icon in the option *Use same setpoint for heating and cooling*: the same set points used for heating are also used for cooling. With this option enabled, in the Temdis display, even if cooling is active, the home owner will have to manage only the heating set points.

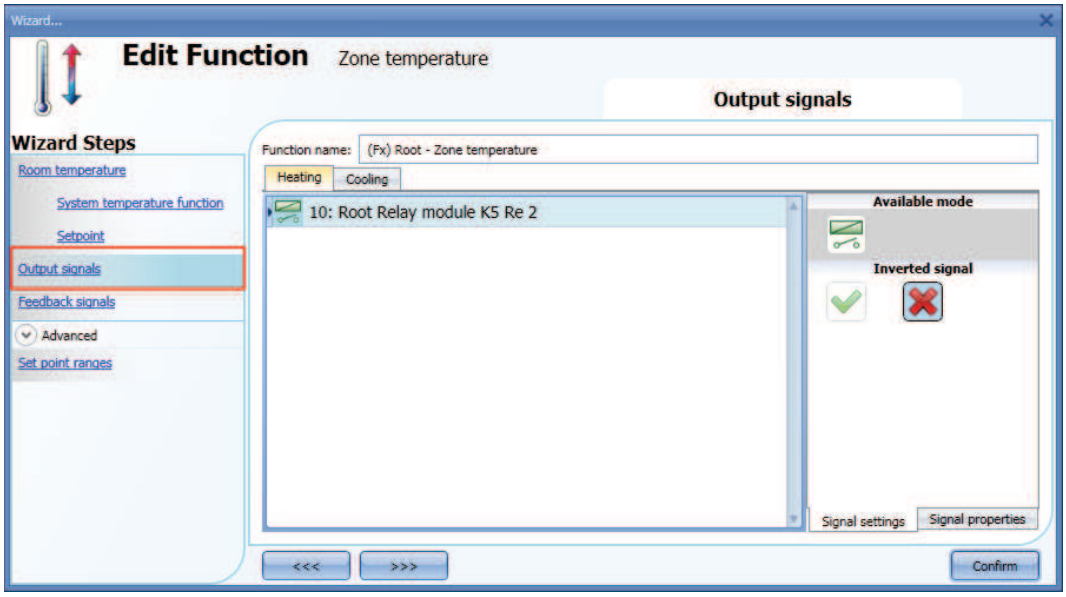


In the Advanced section of the wizard, in *Set point ranges*, the user can select the operating range for the set points. This range will be used by the TEMDIS modules and all the remote commands.



10.11.3 How to add the heating output

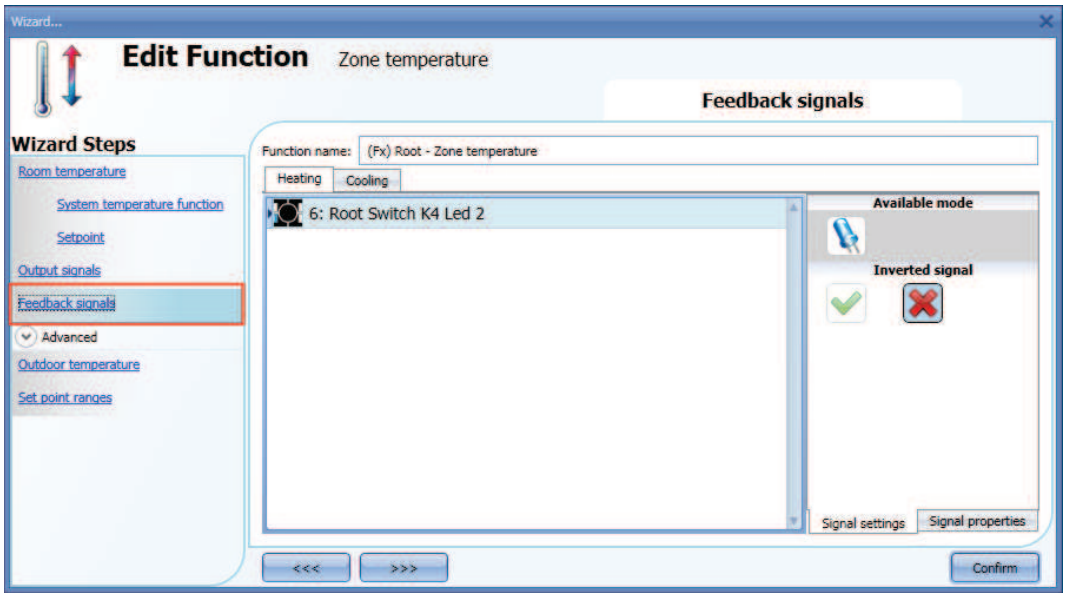
The heating output must be added in the relevant field of the function (see picture below)



The on/off switching of the output is managed by the system temperature function according to the timing described in the paragraph *How to add the heating output*.

10.11.4 How to set a feedback signal

The feedback signal can be used to advise the user about the status of the zone temperature function. When the signal is on, the system function is active and the output is on. When the feedback signal is off, the output is off.
To add the feedback signal, the user should select the relevant section in the wizard of the function, then double click on the *Signals* window and select the feedback signal from the list of those available.

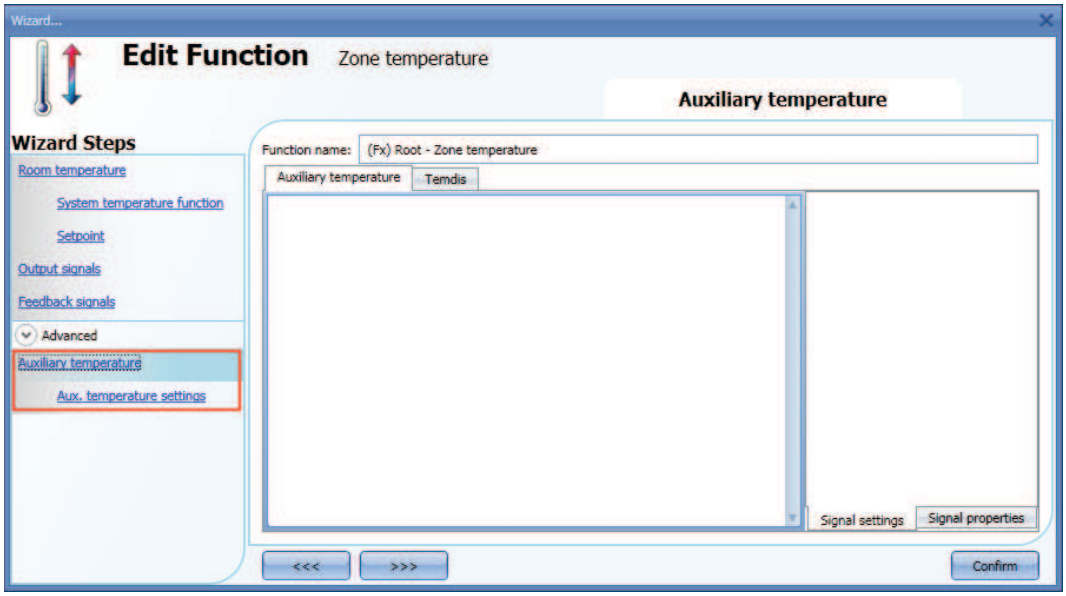


The inverted logic for the feedback can be selected in the *Signal settings* tab window.

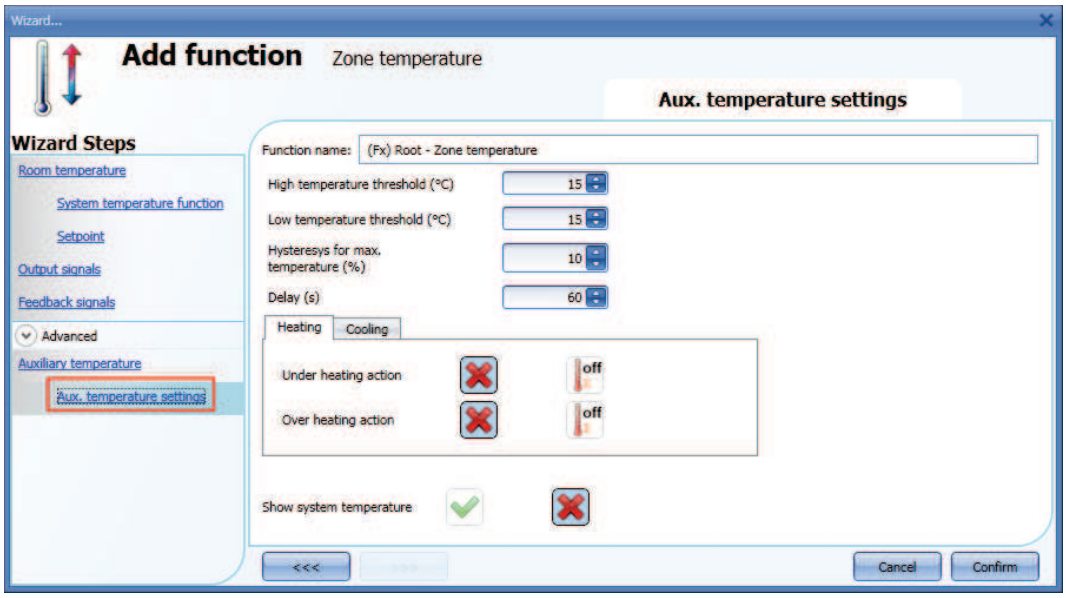
10.11.5 How to use an auxiliary temperature to monitor the temperature in the zone

The user can use an extra temperature signal to keep the zone “safe”. In the *Advanced* section, the user should select the relevant *Auxiliary temperature*.
Two different types of signals can be used: in the *Auxiliary temperature* signals window, the user should add one or more temperature signals read from different temperature modules (e.g. BSI-TEMANA-U, SHA4XLS4TH, SHE5XLS4TH). In the *Temdis* signals window, the user should add the TEMDIS “T Auxiliary” signal (usually this is the probe that is often placed in the floor to monitor the temperature in the heating tubes).

When more auxiliary temperatures are used, the auxiliary temperature value is calculated as the average value of all the added ones. Should one of them be faulty, the average value is calculated from the other ones.



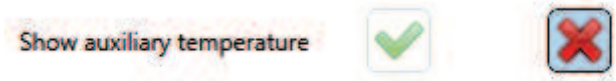
In the *Aux. temperature settings* of the function, the user can set two different thresholds: the *High temperature threshold* (over value) and the *Low temperature threshold* (under value).
The *Hysteresis* and the *Delay on* time are applied to both the thresholds.



The user can then select the action to be performed when the temperature goes over the high threshold limit and the action when the temperature goes below the low threshold limit. In the table below the possible actions are shown.

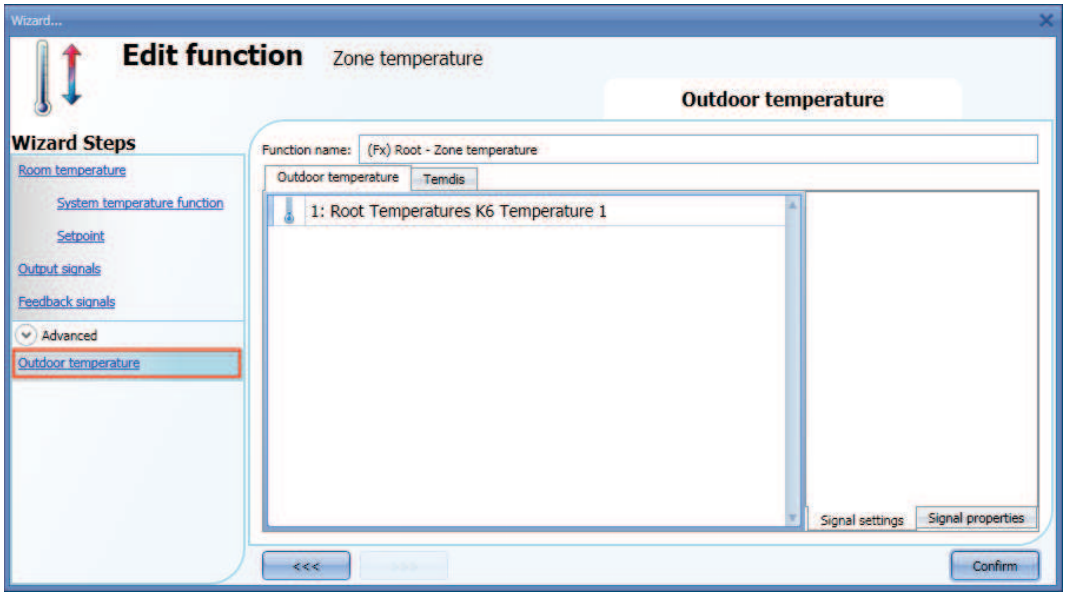
Under/over heating action	
	No action
	Force the heating OFF
Under/over cooling action	
	No action
	Force the cooling OFF

By selecting the green “V” icon at the bottom of the window *Show auxiliary temperature*, the auxiliary temperature is shown in the Temdis Display.



10.11.6 How to enable the display of the external temperature in the TEMDIS display

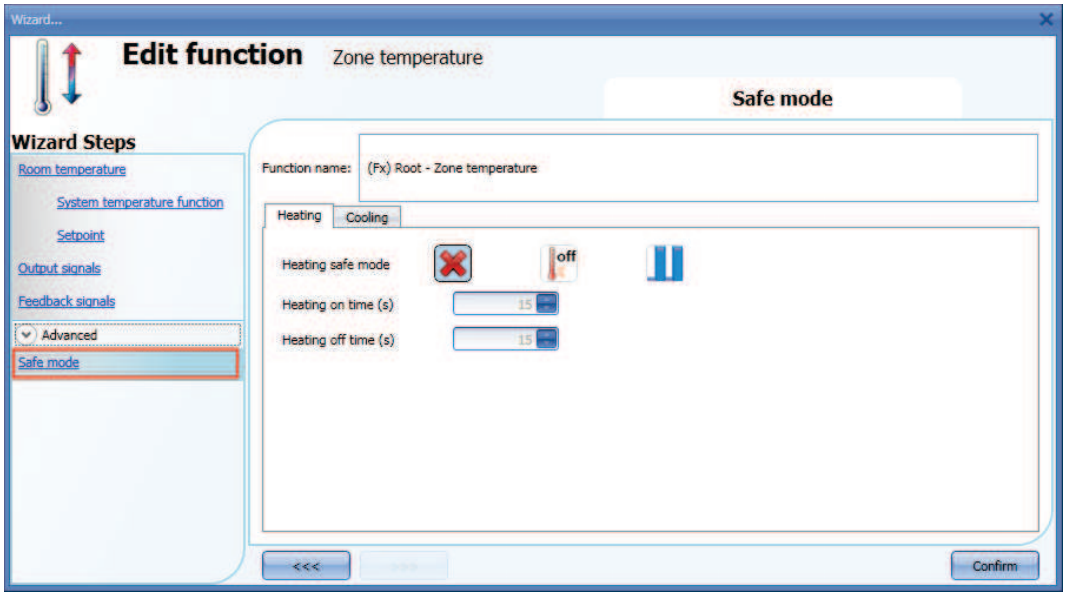
To add the external temperature signal, the user should select the relevant section in the wizard of the zone function, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



Two different types of signals can be used: in the *Outdoor temperature* signals window, the user can add one or more temperature signals from the sensor modules (e.g. BSI-TEMANA-U, SHA4XLS4TH, SHE5XLS4TH, SHGxxxW-BLSx and SHGxxxW-BSLT). In the Temdis signals window, the user can select to use the TEMDIS “T Auxiliary” signal.

10.11.7 How to set the safe mode

The safe condition can be set in order to keep the system in a safe working mode in case of a fault in the regulating temperature. The user should choose different actions to be performed for heating and cooling. To configure the safe mode settings, the user has to click on the relevant field *Safe mode* of the zone function wizard (see picture below).



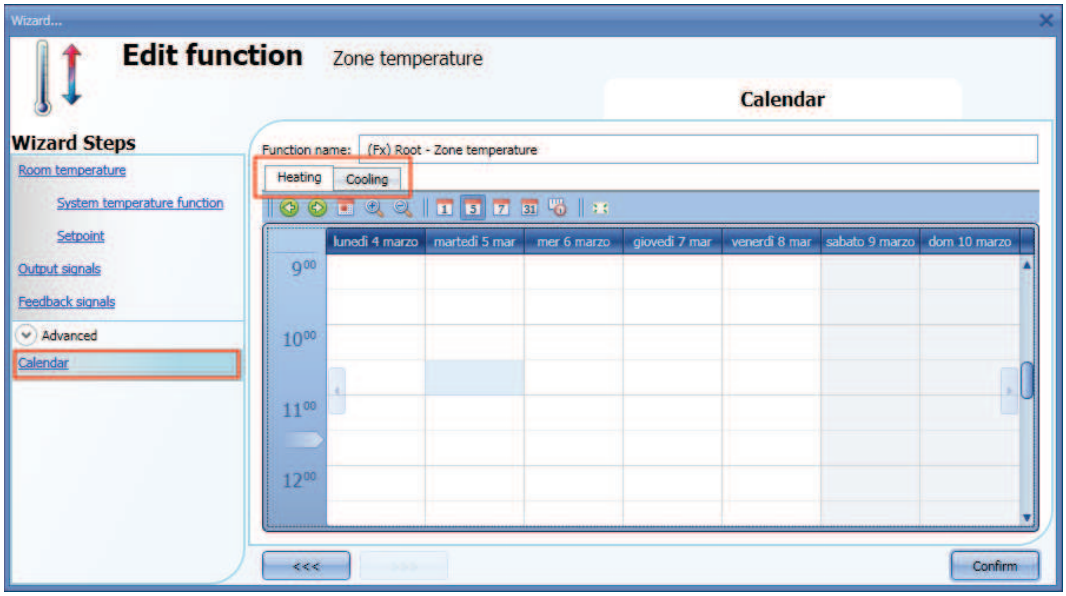
The user can then select the action to be performed when the safe condition is needed (faulty temperature sensor). In the table below the list of available actions is shown.

Safe action (heating)	
	No action
	Force the heating output OFF
	Force heating output to recycle (the output goes on/off according to the time settings). When this icon is selected, the on/off time settings are automatically enabled.
Safe action (cooling)	
	No action
	Force the cooling output OFF
	Force cooling output to recycle (the output goes on/off according the time settings). When this icon is selected, the on/off time settings are automatically enabled.

10.11.8 How to manage heating/cooling using the calendar automation

The user can program a calendar automation in order to activate/deactivate the heating/cooling in a defined period of time. There are two ways of managing the zone function with the calendar: by setting the “local” calendar inside the function or by using a “global” calendar function.

Local calendar
To enable this, the relevant menu has to be selected in the *Advanced* section (see picture below).



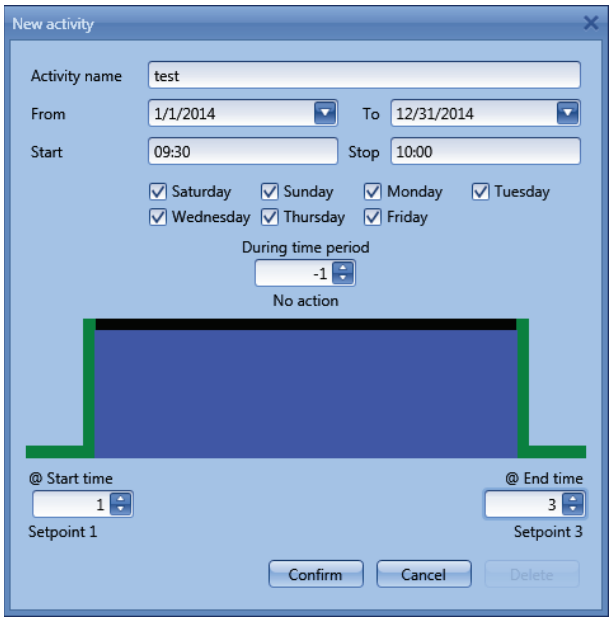
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activity

Once the user has selected his preferred visualization, to enter a time band he should double click on the required day and the following window will appear.



In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

***From**:* the start date for the calendar activity.

***To**:* the end date of the calendar activity.

***Start**:* The time of the start of the activity..

End: The time of the end of the activity.

The activity will be repeated in the following years, using the same dates and times.

The action managed by the calendar can be of two types:

1) Event activity: the system will perform the selected action only at start time and end time and they are managed as events (when an event occurs the set point is overwritten)
2) Level activity: during the time band, all the automation can be disabled.

If ***Event activity*** is selected, the user can decide what action he wants to be performed when the time band starts and ends.

> ***@ start time***: in this field the user selects the action he wants to perform when the activity starts.
> The available actions are:
> - (-1) No action: nothing will be done at start time
> - (0) Switch OFF: heating/cooling is switched Off
> - (1) Setpoint 1: heating/cooling setpoint 1 is selected
> - (2) Setpoint 2: heating/cooling setpoint 2 is selected
> - (3) Setpoint 3: heating/cooling setpoint 3 is selected
>
> ***@ end time***: in this field the user selects the action he wants to perform when the period starts.

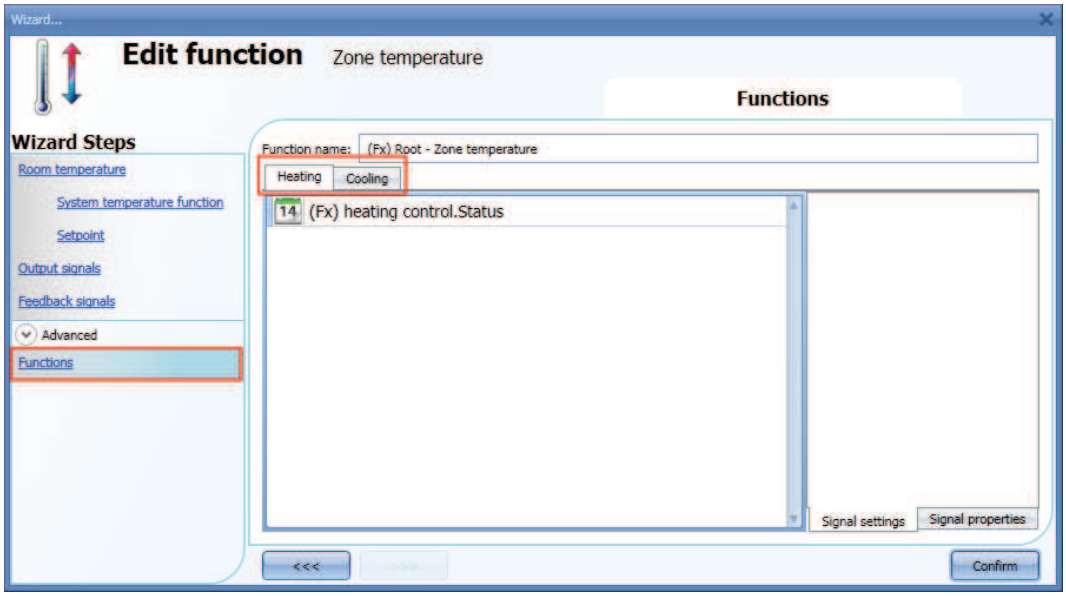
The available actions are:
- (-1) No action: nothing will be done at start time
- (0) Switch OFF: the heating/cooling is switched Off
- (1) Setpoint 1: heating/cooling setpoint 1 is selected
- (2) Setpoint 2: heating/cooling setpoint 2 is selected
- (3) Setpoint 3: heating/cooling setpoint 3 is selected

If ***Level activity*** is selected, the user can disable the automation of the calendar.

During time period: in this field the user selects the action he wants to perform during the time band.
- No action
- Disable automations

Global calendar

The global calendar must be created before using the calendar function.
Once the global calendar is created, it must be added in the *Functions* field (for more details see also the paragraph *Setpoint management using a function status*).
The behaviour of the calendar is the same as that described for the local calendar.

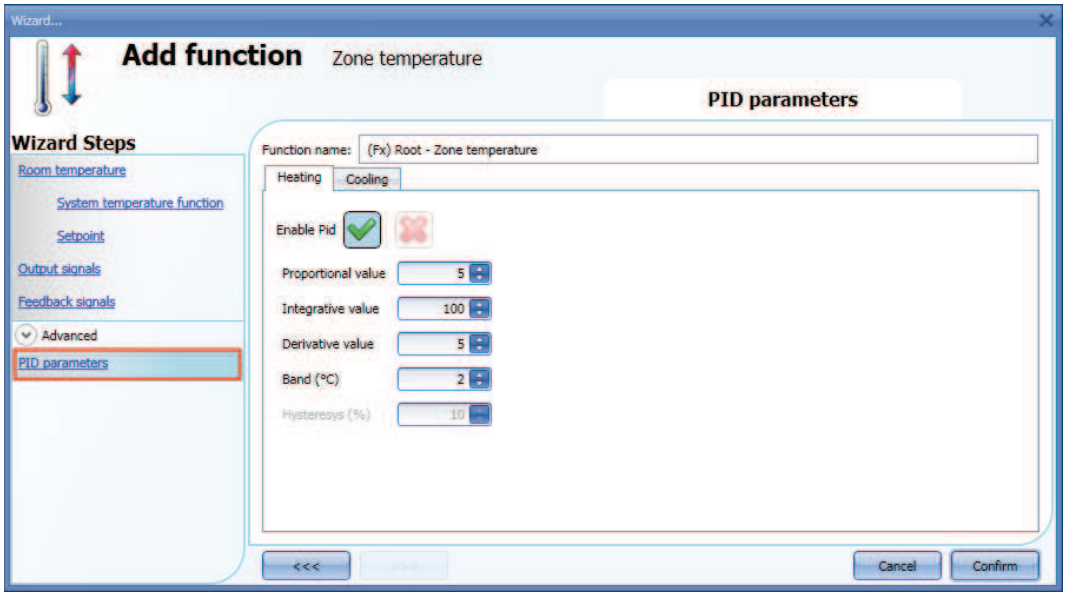


10.11.9 How to change the set point using function status

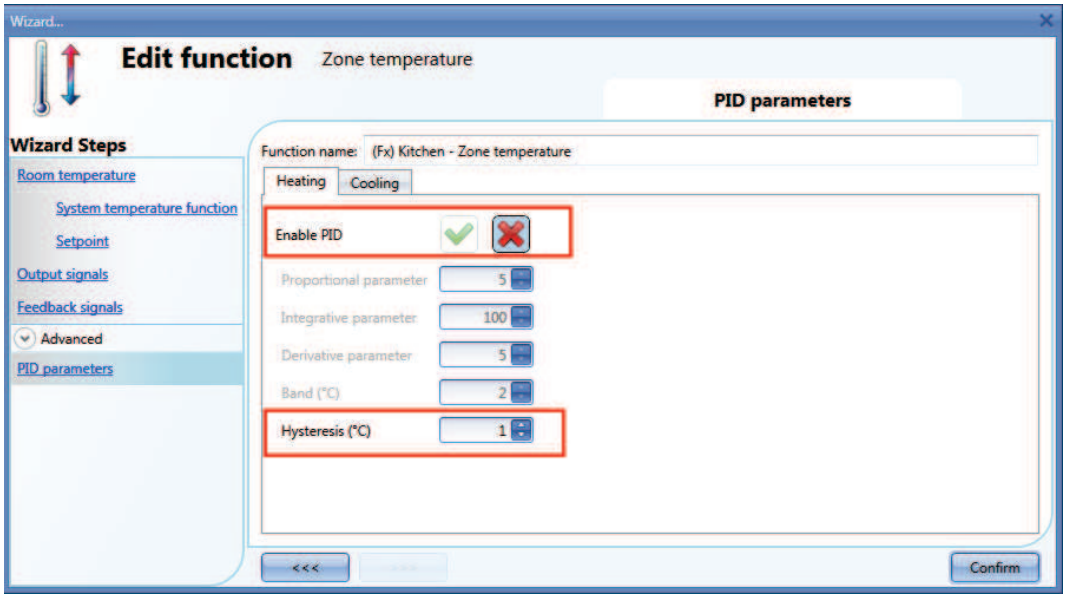
A generic function can be linked to the zone in order to change the setpoint according to its status: when the generic function status is one, setpoint 1 is selected, when it is two, setpoint 2 is selected, when it is three, setpoint3 is selected. When the status of the linked function is zero, the heating/cooling is switched off.
An example of the application could be an external calendar used to switch off all the temperature functions.

10.11.10 How to enable and set up the PID regulation

If the user wants to use the PID regulation algorithm, the relevant field must be selected in the *Advanced* sections. Once the green "V" is selected, the user can change all the settings of the algorithm.



By default, the zone temperature function works as a PID regulating function.
If the PID working mode is not selected, the function works as an on/off function and the hysteresis value can be changed (see picture below).



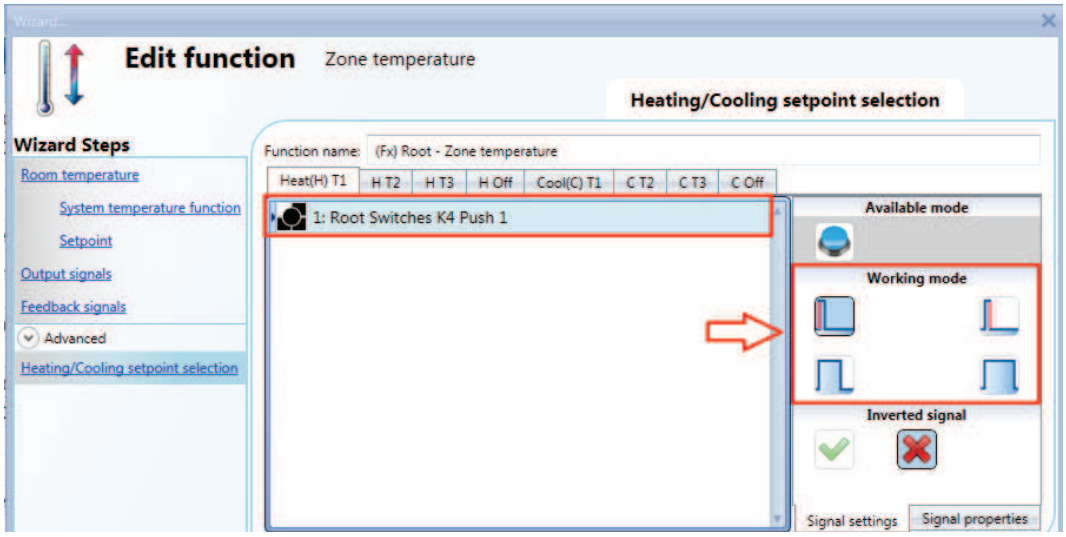
10.11.11 How to activate the set point with pushbuttons and functions

The user can manage the setpoint activation by using signals such as pushbuttons, switches and functions.
The activation of the setpoint works on events: when the pushbutton is pressed, the setpoint is changed.
The same input can also be used to activate two different setpoints: for example, with a short click setpoint 1 is selected, while with a long pressure the heating is switched OFF.

The user can select different working modes to activate the required setpoint1 (see table below).

Working mode	Action
	Setpoint is activated when the button is pressed (rising edge)
	Setpoint is activated when the button is released (falling edge)
	Setpoint is activated after a long pressure
	Setpoint is activated after a very long pressure

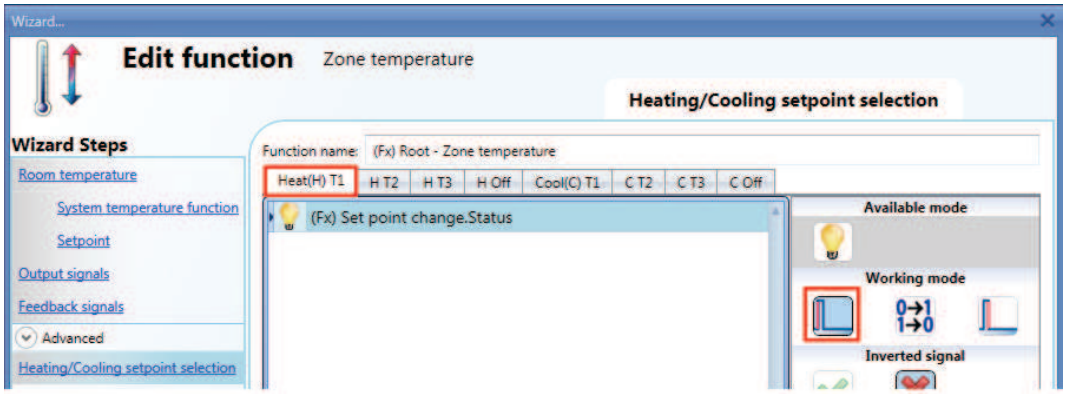
In the next picture, the push button is used to activate the heating setpoint1 as soon as it is pressed.

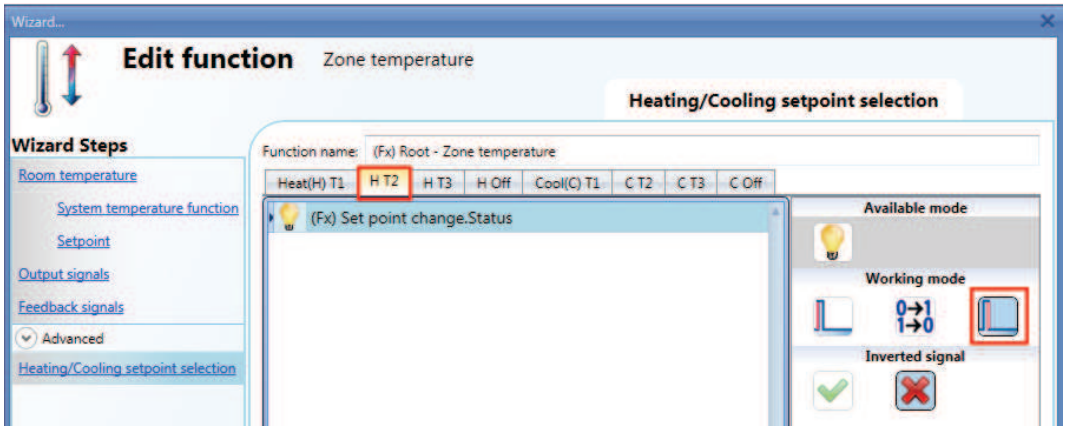


If the signal used is a function, the user can select different working modes to activate the required setpoint (see table below).

Working mode	Action
	Set point is activated when the function is activated (function goes On).
	Set point is activated when the function is deactivated (function goes Off).
	Set point is activated at each change of the status of the function (function goes on or off).

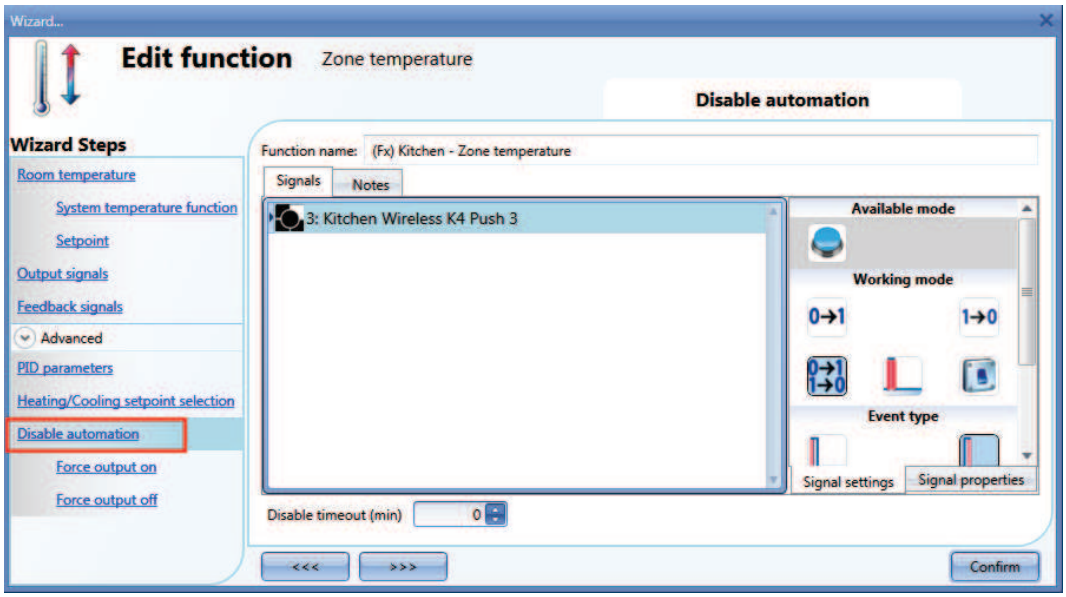
In the picture below, an example of configuration is shown, where the function "(FX) Set Point change" is used to set two different setpoints: when the light goes On, setpoint 1 is activated: when the light goes Off, setpoint 2 is activated.



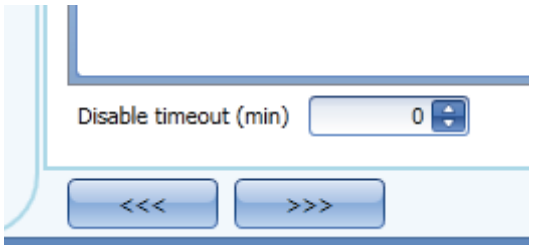


10.11.12 How to disable the automations

The user can disable the calendar automation by using a physical signal such as a pushbutton or by using the calendar level activity (for more info see the calendar paragraph).
To add the disable signal, the user should select *Disable automation* in the Advanced section, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



If the user needs to be sure that the disabling of the automation is automatically removed, the *disable automation timer* has to be set.
The timer starts each time the disable status is activated: the disable status is automatically deactivated as soon as its time has elapsed.
The maximum delay is 59minutes.



If the disable timeout is set to 0, the timer is disabled and the disable condition stays activated until it is removed manually.

If a push button is selected as the disable automation signal, the working mode, marked with the red rectangle, has to be carried out following the table below.

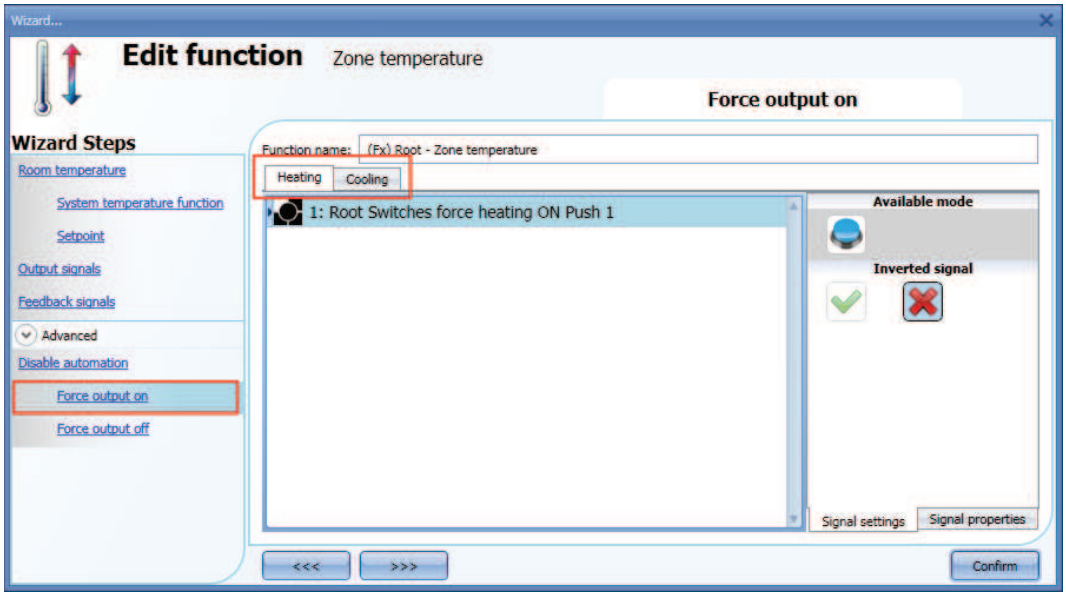
Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the disable condition is activated.	After a short press (less than 1 second), at the release of the push button, the disable condition is activated.	After a long press, the disable condition is activated at the release of the push button.	After a very long press, the disable condition is activated at the release of the push button.
1→0	As soon as the push button is pressed, the disable condition is deactivated.	After a short press (less than 1 second), the disable condition is deactivated at the release of the push button.	After a long press, the disable condition is deactivated at the release of the push button.	After a very long press, the disable condition is deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the disable condition is activated/deactivated in toggle mode.	After a short press (less than 1 second), the disable condition is activated/deactivated in toggle mode at the release of the push button.	After a long press, the disable condition is activated/deactivated in toggle mode at the release of the push button.	After a very long press, the disable condition is activated/deactivated in toggle mode at the release of the push button.
	The disable condition is activated/deactivated in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The disable condition is activated	No action
1→0	The disable condition is deactivated	No action
0→1 1→0	The disable condition is activated/deactivated in toggle mode	No action
	The disable condition is activated/deactivated in toggle mode	The disable condition is activated/deactivated in toggle mode
	The automation is disabled	The automation is enabled

10.11.13 How to force the heating/cooling ON

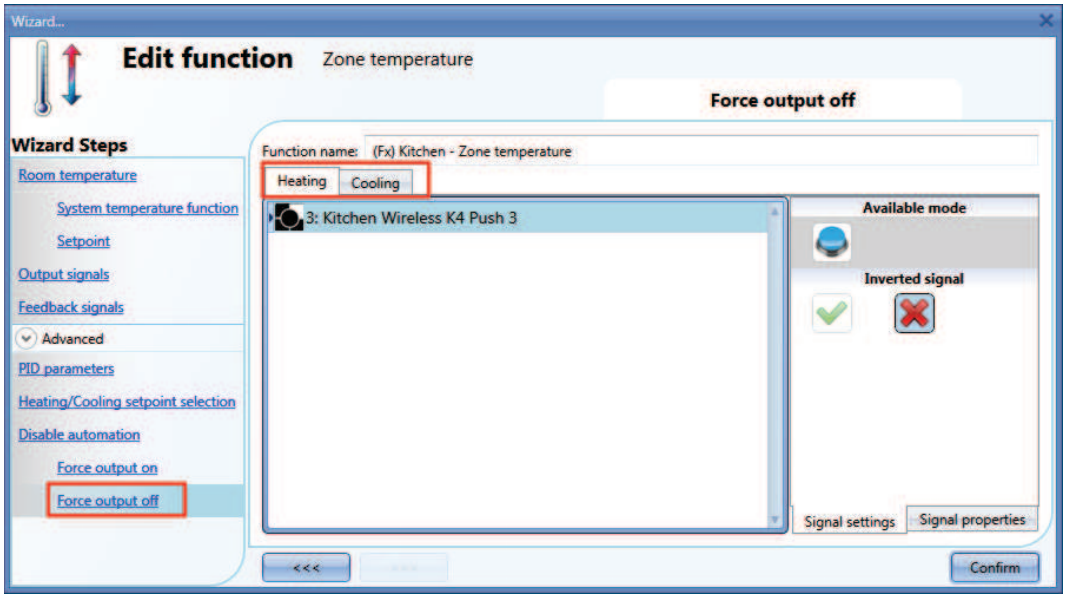
If the user wants to force the activation of the heating/cooling output regardless of all other signals used in the function, the *Force output on* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output on*, then double click on the signal window (there are two available windows: one for heating and one for cooling) and select the appropriate signal to use (see picture below).



Each signal used in the *Force output on* window works as a level signal. Until the signal is active, the heating/cooling output is forced on.
When the *Force output on* signal is activated and at the same time the *Force output off* signal is activated, the *Force output on* signal has priority.

10.11.14 How to force heating/cooling OFF

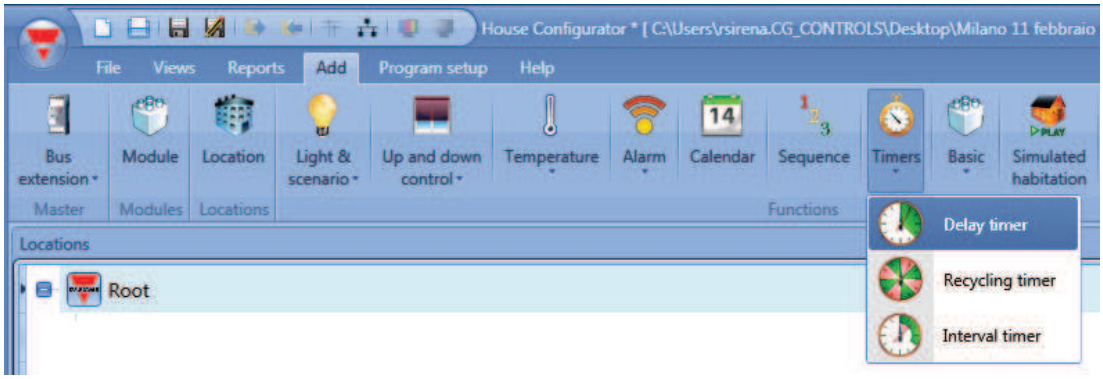
If the user wants to force the deactivation of the heating/cooling output regardless of all other signals used in the function, the *Force output off* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force output off*, then double click on the signal window (there are two available windows: one for heating and one for cooling) and select the appropriately signal to use (see picture below).



Each signal used in the *Force output off* window works as a level signal. Until the signal is active, the heating/cooling output is forced off.
When the *Force output on* signal is activated and at the same time the *Force output off* signal is activated, the *Force output on* signal has priority.

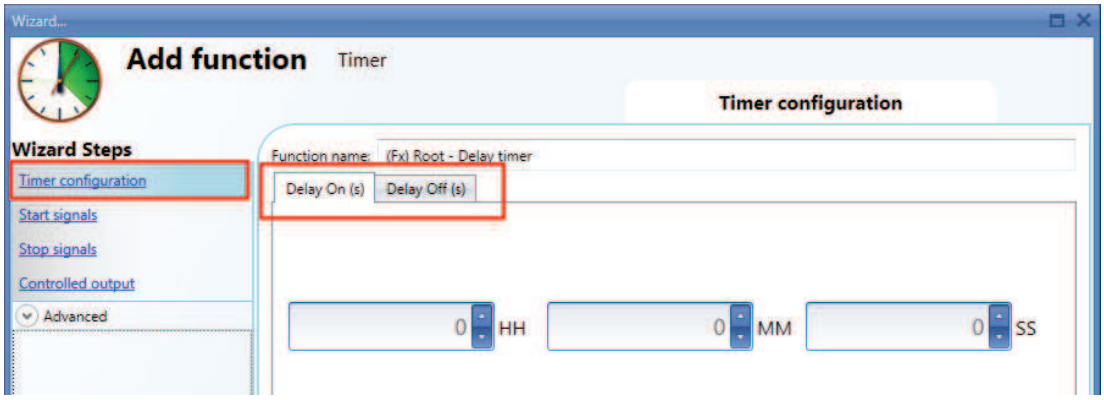
10.12 How to set a delay timer function

To set up a delay timer function the user has to select *Timer* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Timer function can also be opened by typing Alt+A+E.

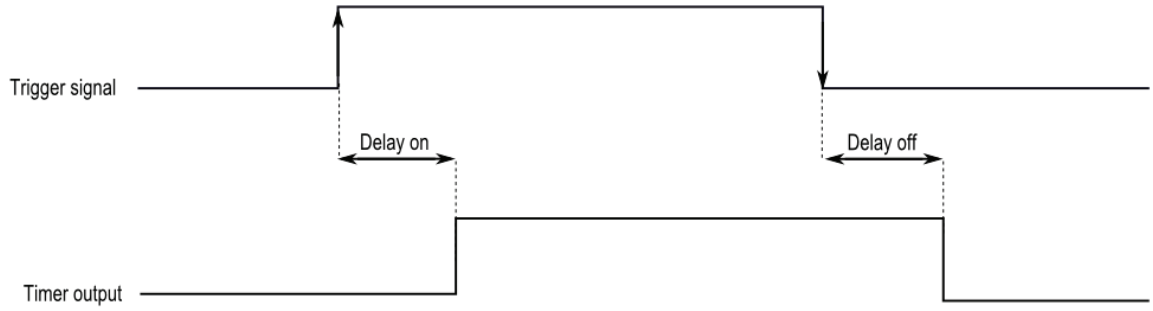


Using the delay timer, the output replicates the status of the input, applying a delay On and/or a delay Off time.
This timer function is driven by the level of the input signal: the start condition is the activation of the signal present in *Trigger signals*. The function will activate the output at the end of *Delay on*, and it will maintain this condition until the trigger signal is active.
When the input goes off, the function will deactivate the output after a *Delay off* time.

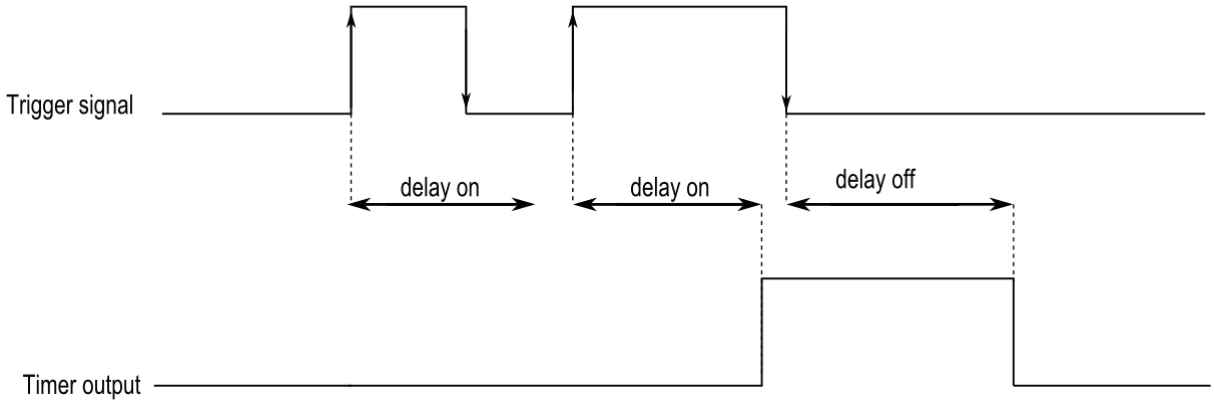
In the first step of the function, the user can manage the settings of the timer; in particular, the *delay on* and *off* can be set (see picture below).



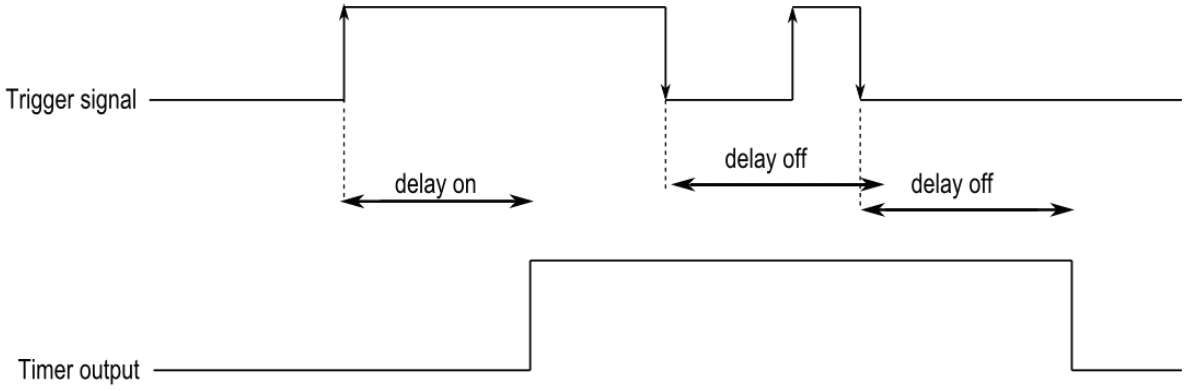
Example 1:
The output is turned on at the end of delay on and stays on until the trigger signal is active. When the trigger signal is deactivated, at the end of delay off the output is turned off.



Example 2:
If the trigger signal goes off before the end of the delay on time period, the delay on timer is reset and the function will not be activated.

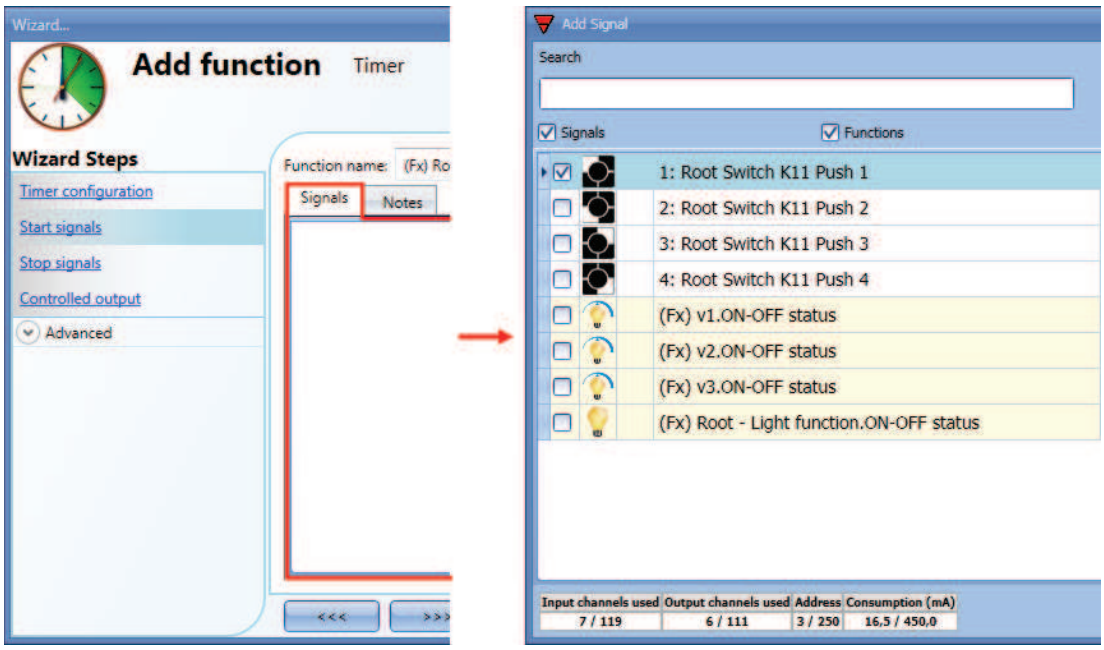


Example 3:
If the trigger signal goes on before the end of the delay off time period, the delay off timer is reset and the function will stay on.

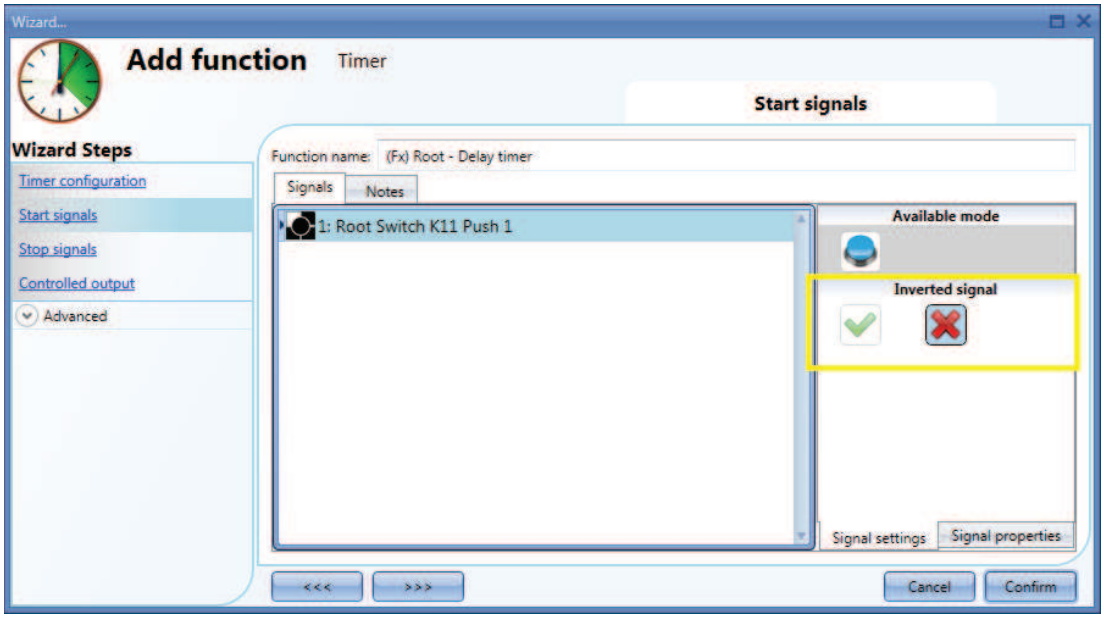


10.13 How to add the start signal

The timer needs to be started by a signal: this can be done directly by an input, or controlled by a function.
The reaction of the start signal is based on its level and only one input signal can be added to the delay timer function.
To add the input signal of the timer, the user has to select *Start signals* from the wizard menu (see picture below).

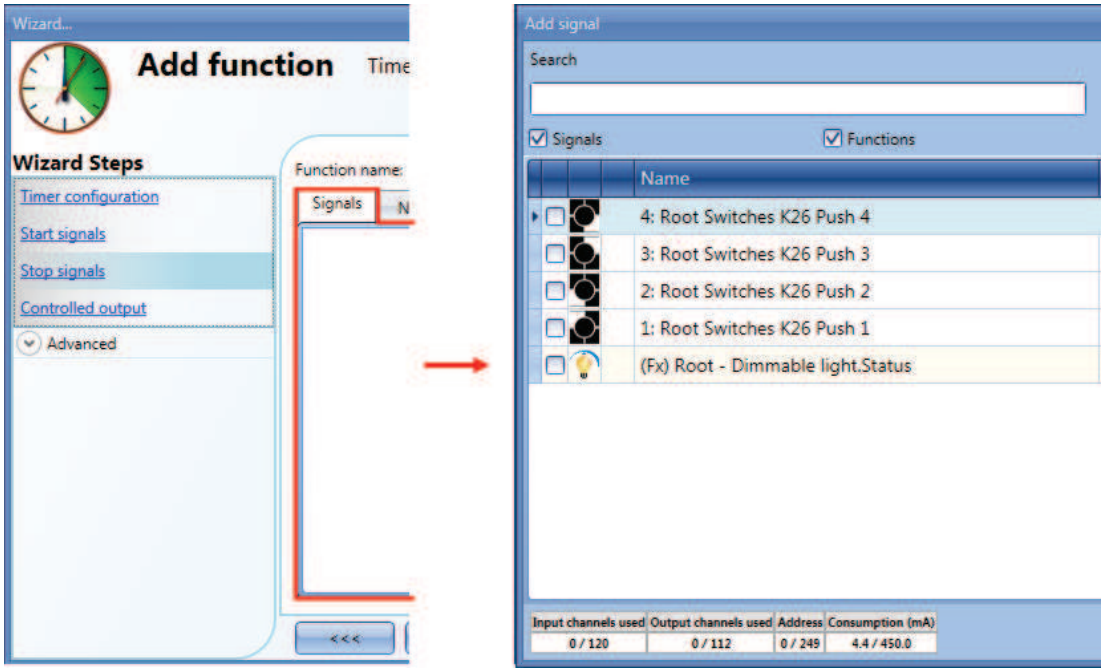


The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

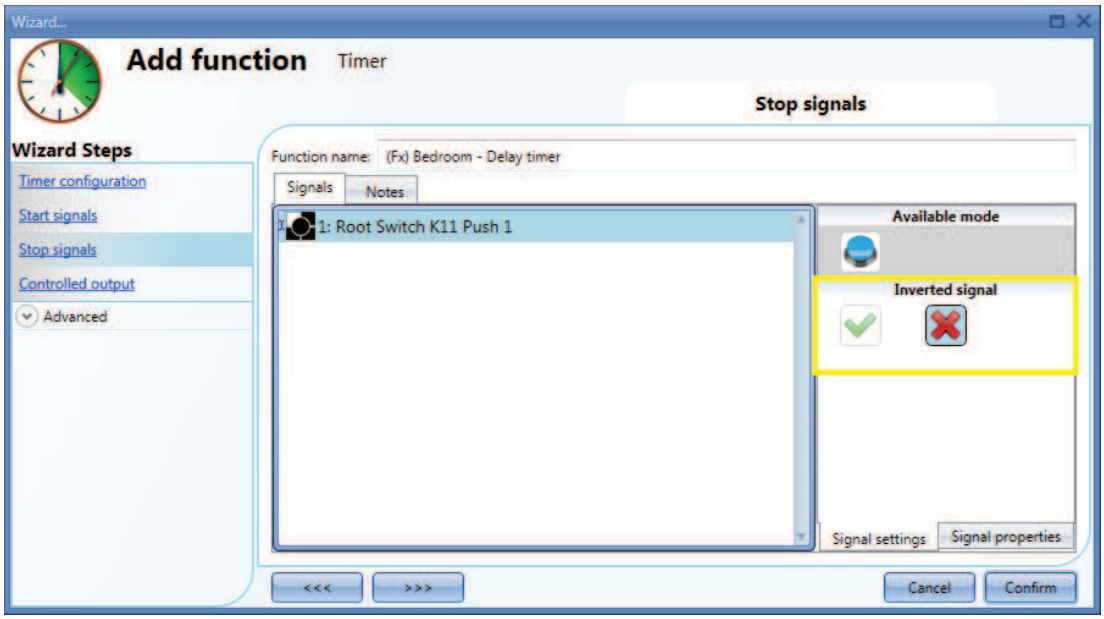


10.14 How to add the stop signal

If the timer needs to be stopped by a signal, a signal or a function can be used.
To add the stop signal of the timer, the user has to select *Stop signals* from the wizard menu (see picture below).
Only one signal can be added.
The timer is stopped when the signal is active.

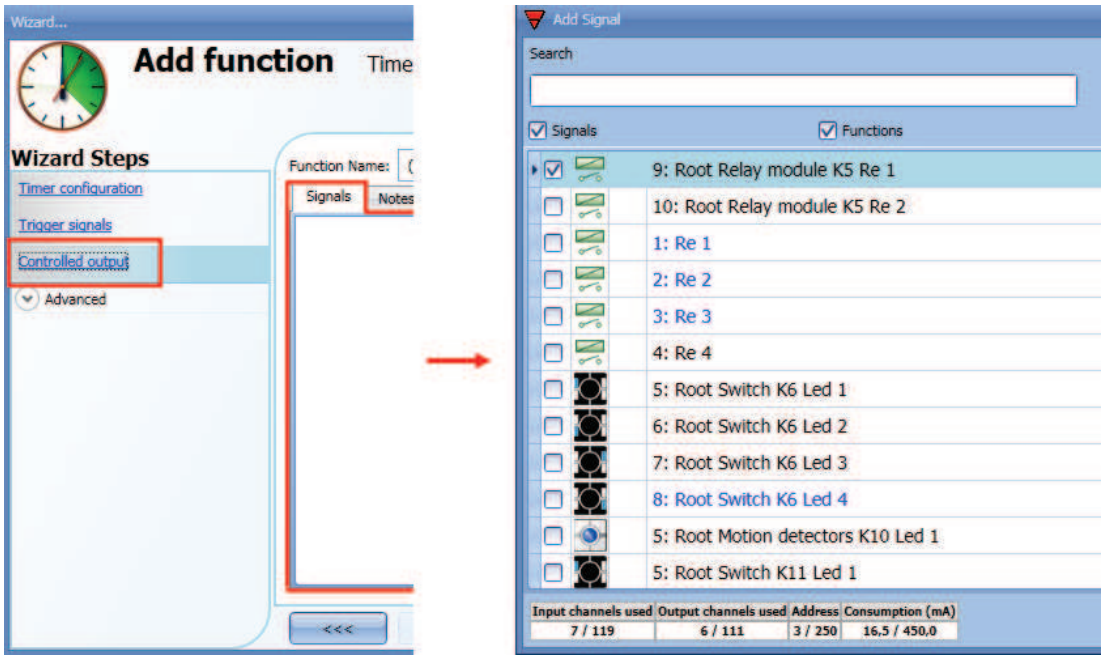


The inverted logic for the stop signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

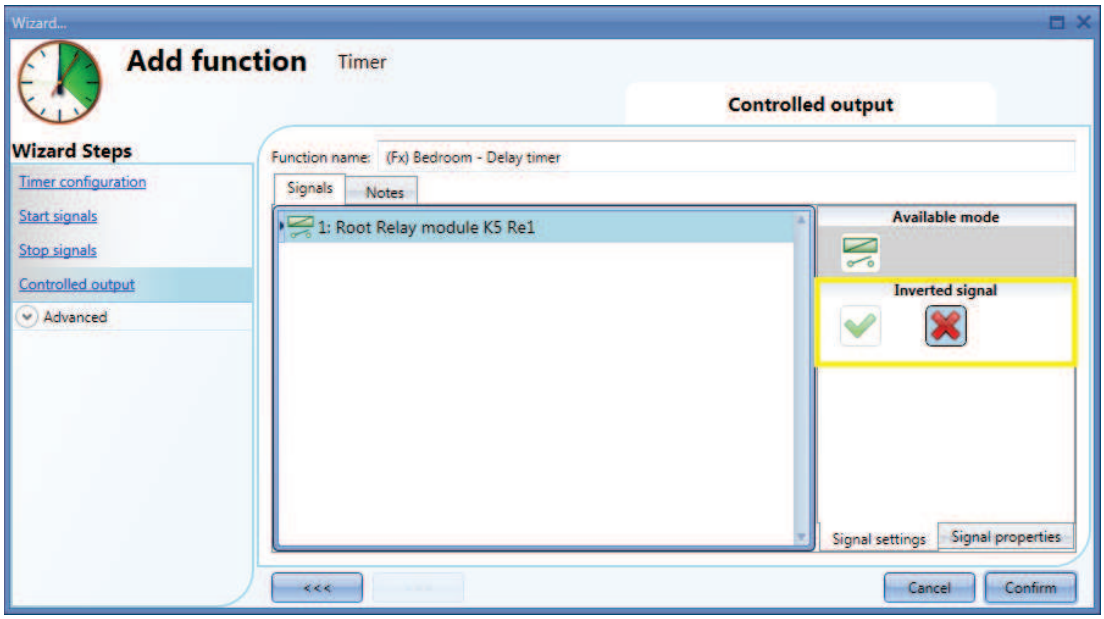


10.14.1 How to add the *output* signal

The timer can control an output directly by adding the signal to the *Controlled output* field (see picture below). If the user wants to use the function without any direct outputs, this field should be empty.

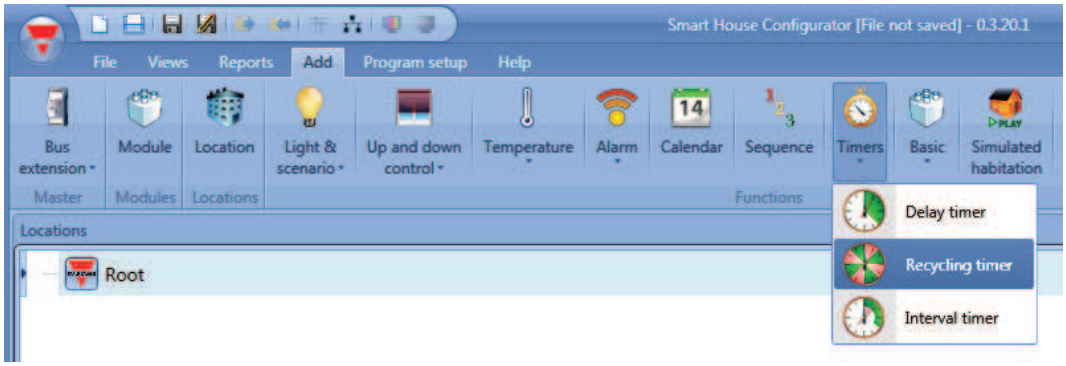


The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

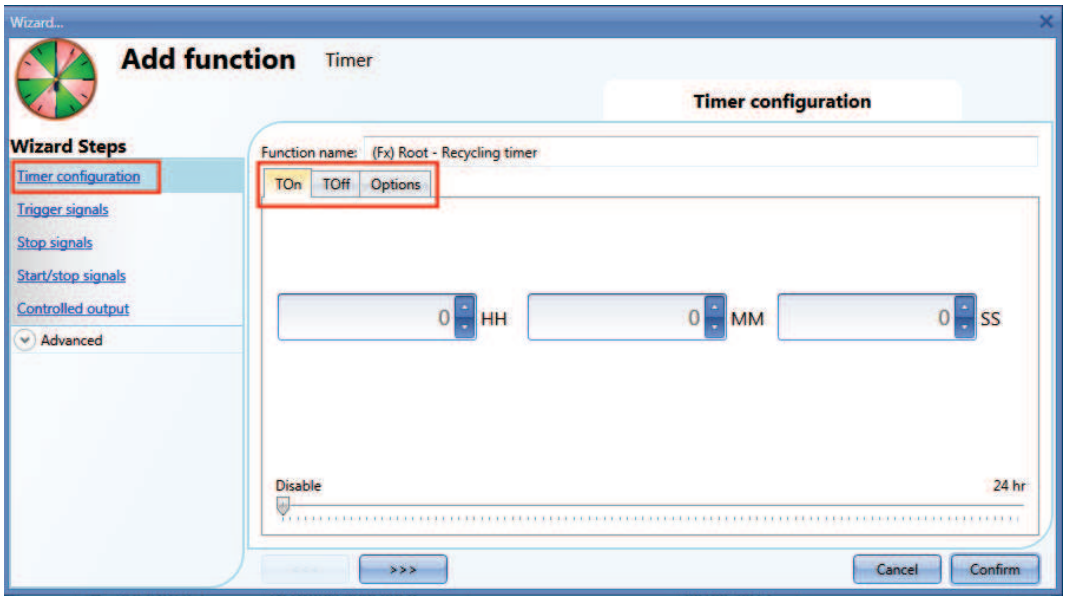


10.15 How to set a recycling timer function

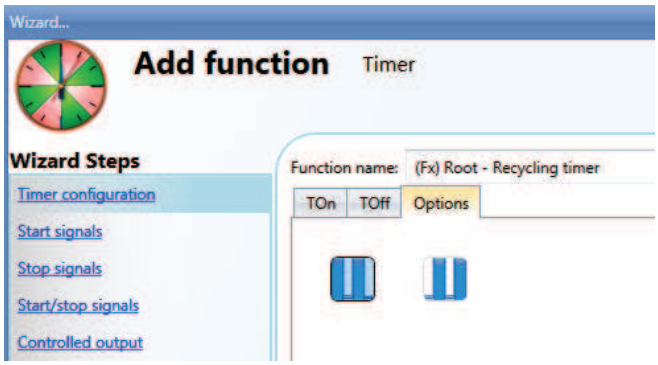
To set up a recycling timer function the user has to select *Timer* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Timer function can also be opened by typing Alt+A+E.



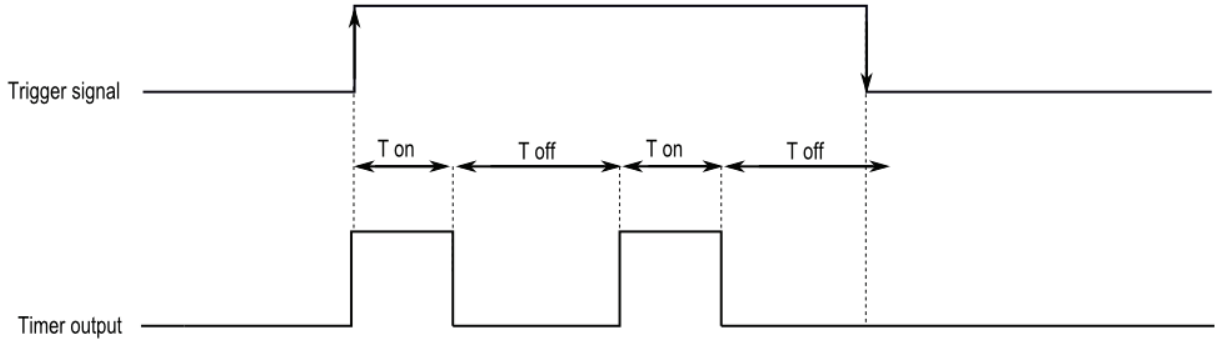
In the recycling timer function, until the trigger input is on, the output goes on and off with fixed timing. As soon as the trigger signal is activated, the output starts going on/off according to the Ton and Toff times; when the stop signal is activated, the output goes off.
To configure the recycling timer, the user has to select the relevant field when the timer function is added to the project (see picture below).



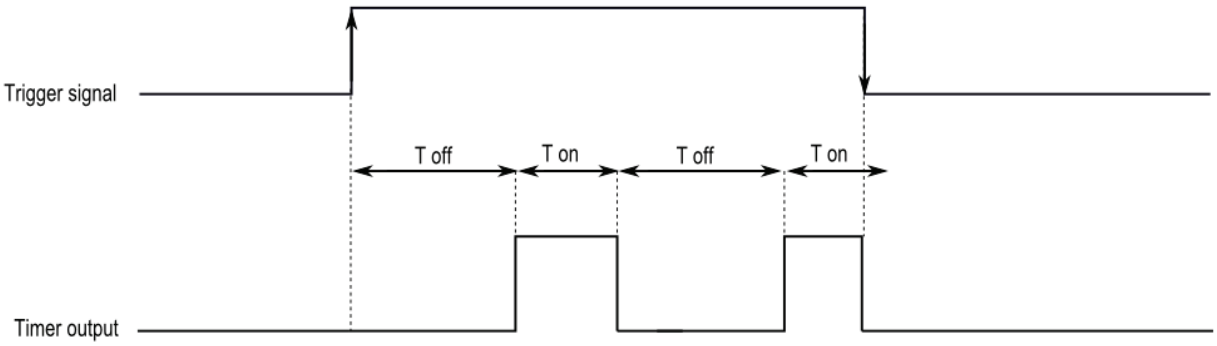
The Ton and Toff values can be entered in the relevant windows. In the *Options* field the user can set the first action for the output when the timer is activated (to start with the on or to start with the off condition).



Example 1:
In *Options* the recycling timer is selected to start with an on event: when the trigger signal is activated, the output starts with the on period.

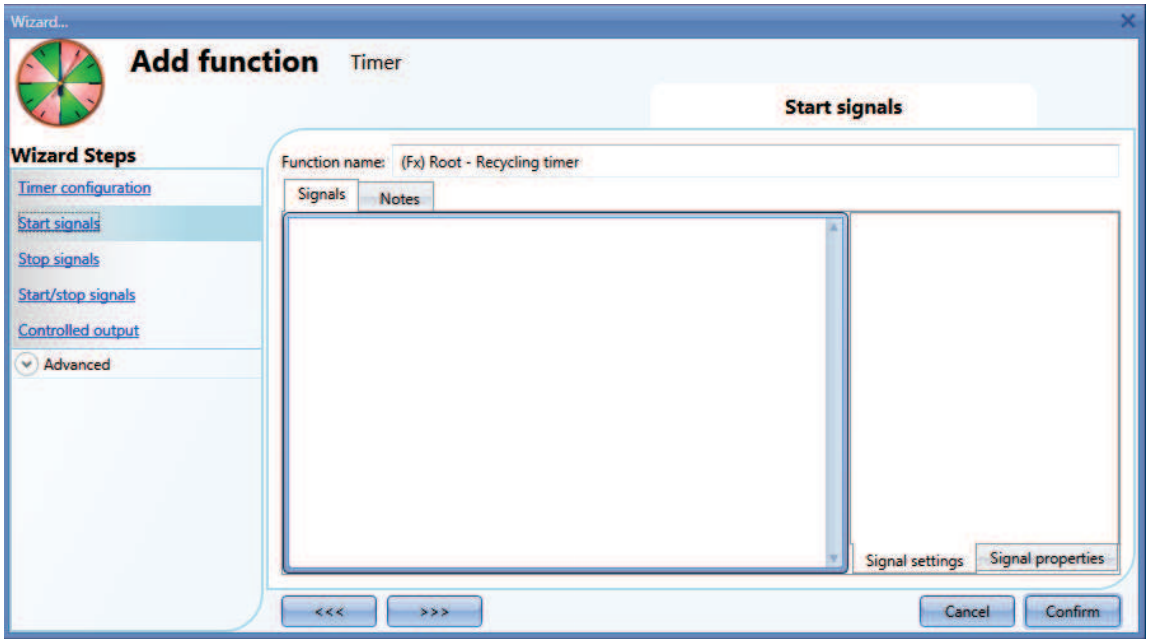


Example 2:
In *Options* the recycling timer is selected to start with an off event: when the trigger signal is activated, the output starts with the off period. As soon as the trigger signal is deactivated, the output goes off.

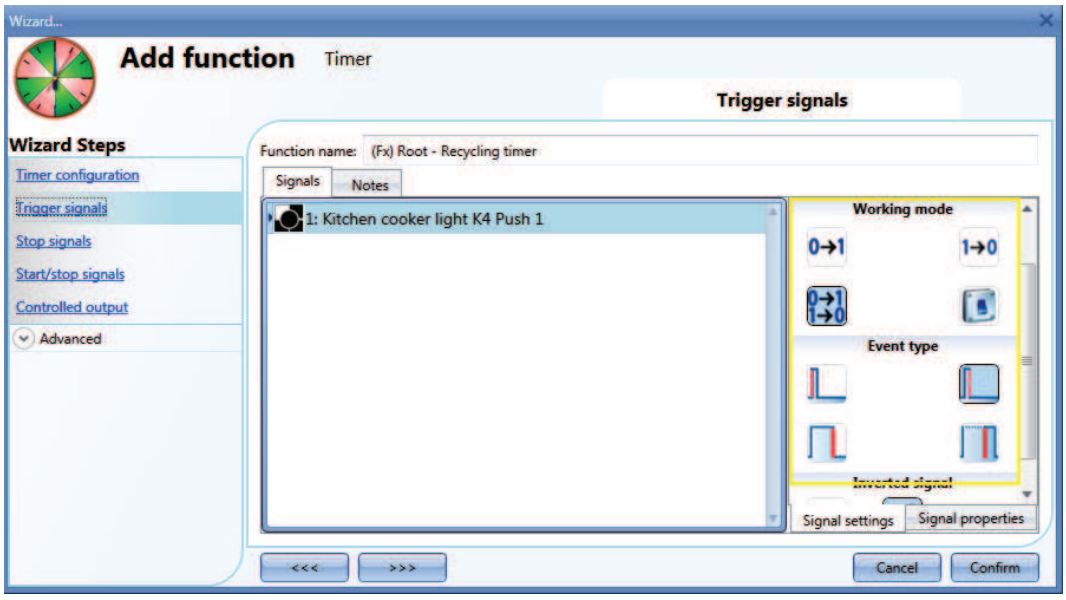


10.15.1 How to add the start signal

The timer needs to be started by a signal: this can be done directly by an input, or by means of a function. The reaction to this signal is programmable according to what is written below.
To add the trigger signal of the timer the user has to select *Start signals* from the wizard menu (see picture below).



When the trigger signal is entered, the user can set the working mode, the event type and the logic for it (shown in the picture below).



The activation of the output is according to the working mode of the trigger signal.
For example, if the trigger signal is set as “Switch on event”, the timer starts as soon as the trigger signal is activated (rising edge); if the trigger signal is set as “Switch off event”, the timer starts at the falling edge of the input.

If a push button type is selected, the way of working (yellow rectangle), has to be selected following the table below.

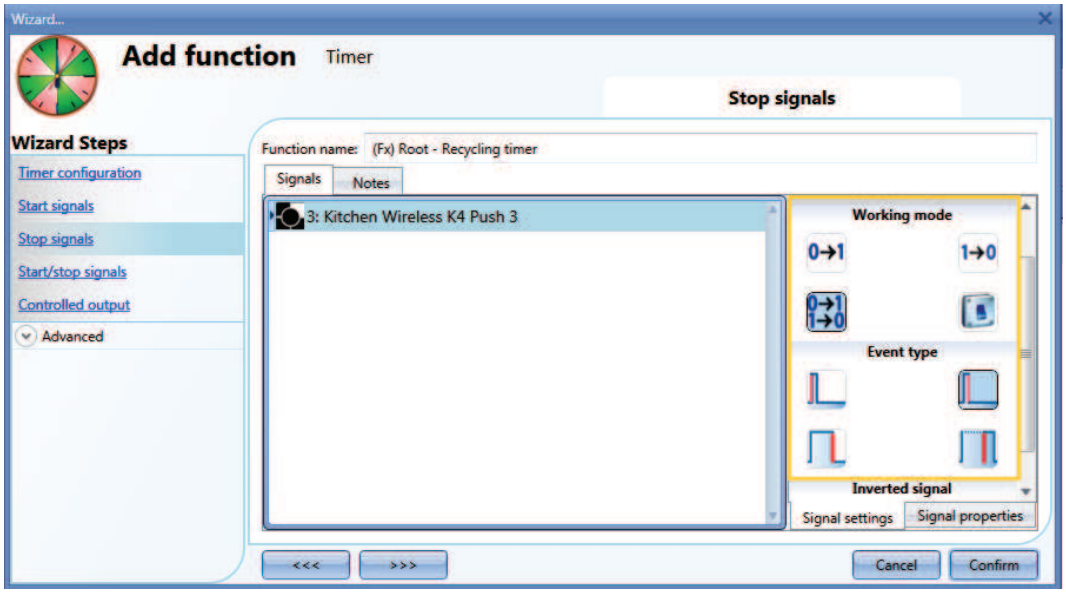
Working mode	Event type			
				
	As soon as the push button is pressed, the timer is started on the rising edge.	*With this combination the system does nothing.*	After a long activation, the timer is started on the rising edge.	After a very long activation, the timer is started on the rising edge.
	*With this combination the system does nothing.*	The interval timer is started on the falling edge.	After a long activation, the timer is started on the falling edge.	After a very long activation, the timer is started on the falling edge.
	As soon as the push button is activated, the timer is activated on the rising and falling edge.	After a short activation (less than 1 second), the timer is activated on the rising and falling edge.	After a long activation, the timer is activated on the rising and falling edge.	After a very long activation, the timer is activated on the rising and falling edge.
	The timer will be started when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the set of the working mode has to be carried out following the table below:

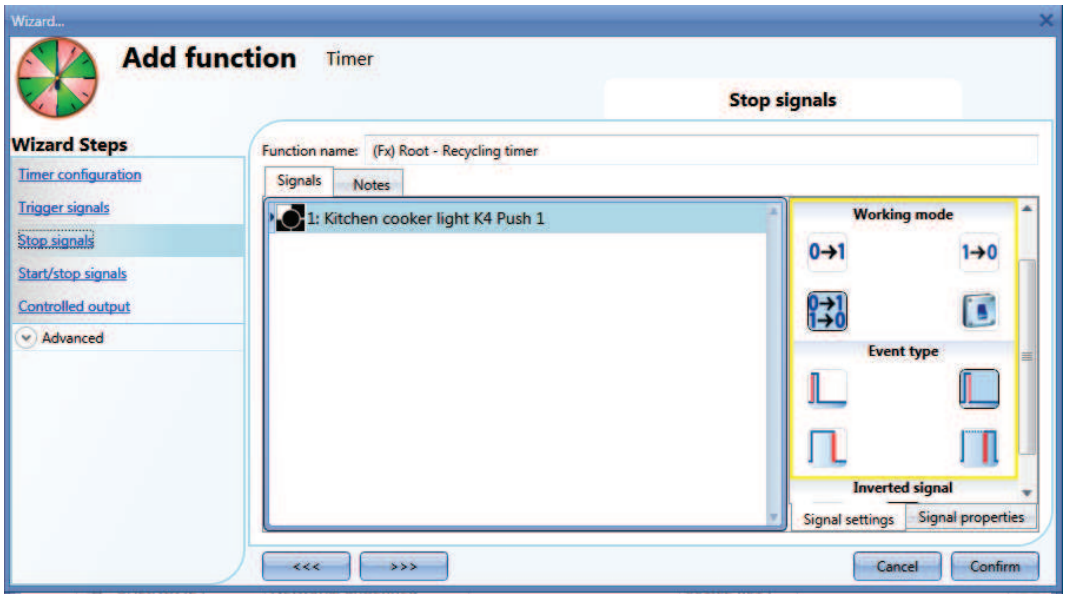
Working mode	Event type	
	Signal activated 	Signal deactivated 
	The timer is started	No action
	No action	The timer is started
	The timer is started	The timer is started
	The timer is started	The timer is started

10.15.2 How to add the stop signal

The timer needs to be stopped by a signal: this can be done directly by an input, or by means of a function. The reaction to this signal can be programed.
To add the stop signal of the timer, the user has to select *Stop signals* from the wizard menu (see picture below).



When the trigger signal is entered, the user can set the working mode, the event type and the logic for the trigger signal (see the picture below).



In the table below, all the possible activations of the stop signal are shown.

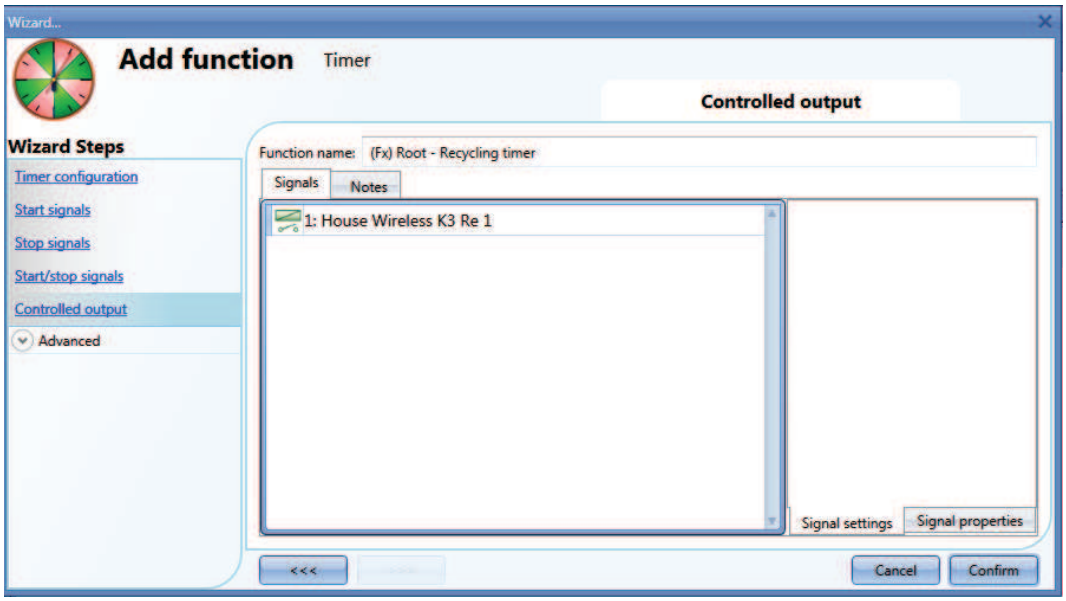
Working mode	Event type			
				
0→1	As soon as the push button is pressed, the timer is stopped on the rising edge.	*With this combination the system does nothing.*	After a long activation, the timer is stopped on the rising edge.	After a very long activation, the timer is stopped on the rising edge.
1→0	*With this combination the system does nothing.*	The timer is stopped on the falling edge	After a long activation, the timer is stopped on the falling edge	After a very long activation, the timer is stopped on the falling edge
0→1 1→0	As soon as the push button is activated, the timer is stopped on the rising and falling edge.	After a short activation (less than 1 second), the timer is stopped on the rising and falling edge.	After a long activation, the timer is stopped on the rising and falling edge.	After a very long activation, the timer is stopped on the rising and falling edge.
	The timer is stopped when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the setting of the working mode has to be done following the table below:

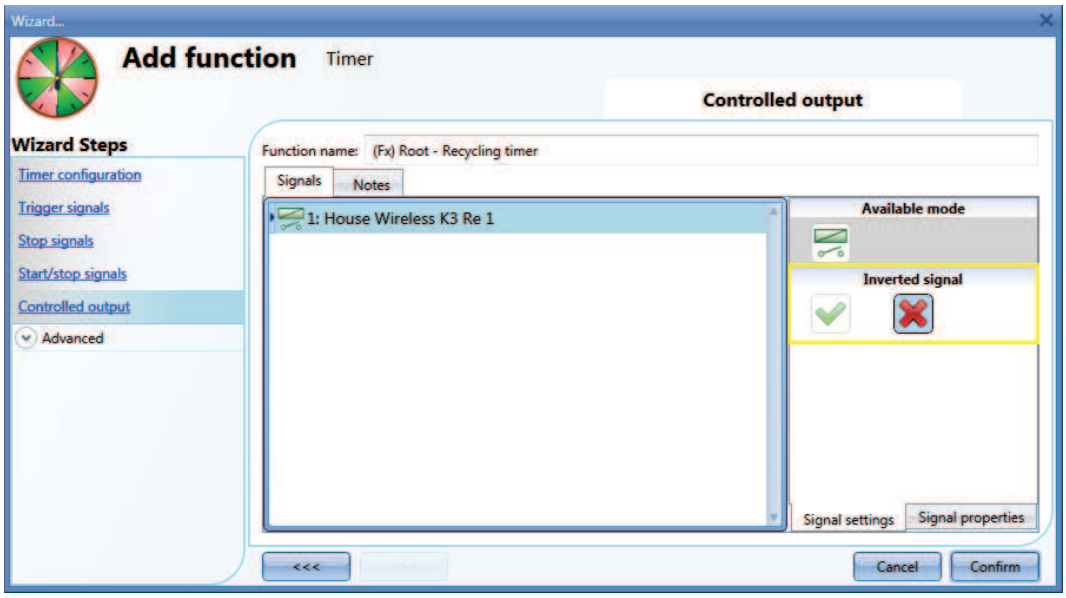
Working mode	Event type	
	Signal activated 	Signal deactivated 
0→1	The timer is stopped	No action
1→0	No action	The timer is stopped
0→1 1→0	The timer is stopped	The timer is stopped
	The timer is stopped	The timer is stopped

10.15.3 How to add the *output* signal

The timer can control an output directly by adding the signal to the *Controlled output* field (see picture below). If the user wants to use the function without any direct outputs, this field must be empty.

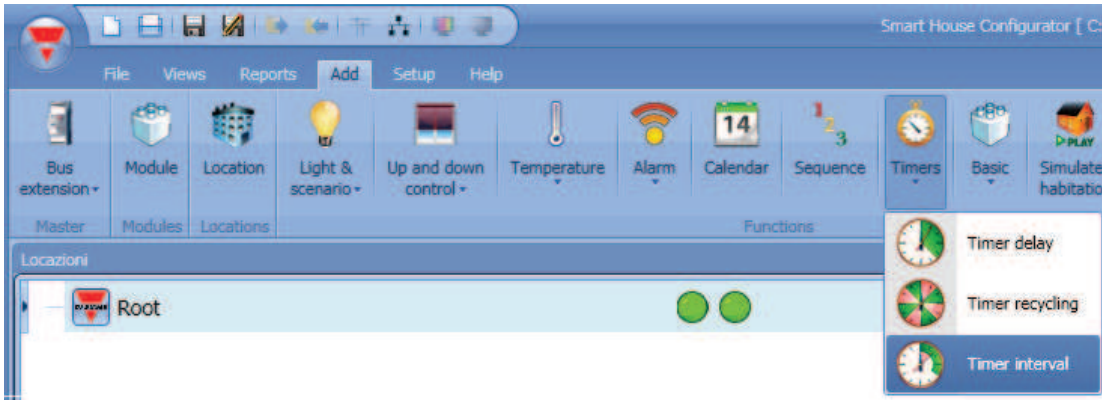


The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).



10.16 How to set an interval timer function

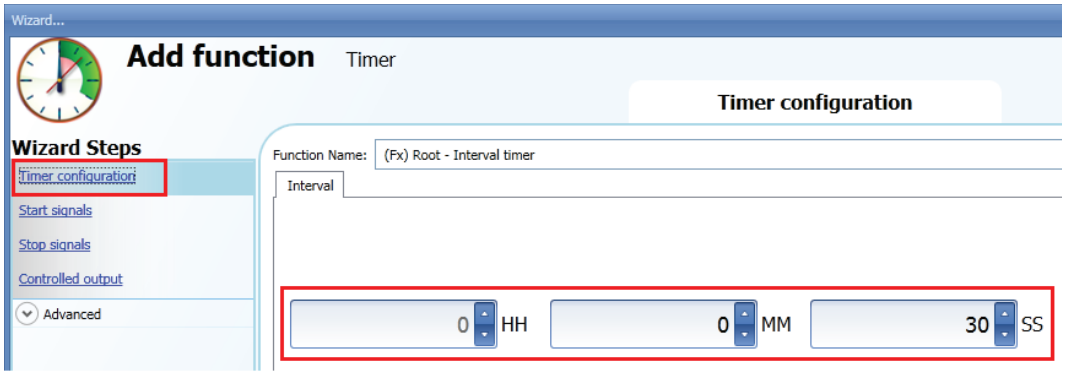
The timer function can be used to control an output where an automated temporization is required.
To set up a timer function, the user should select *Timer* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Timer function can also be opened by typing Alt+A+E.



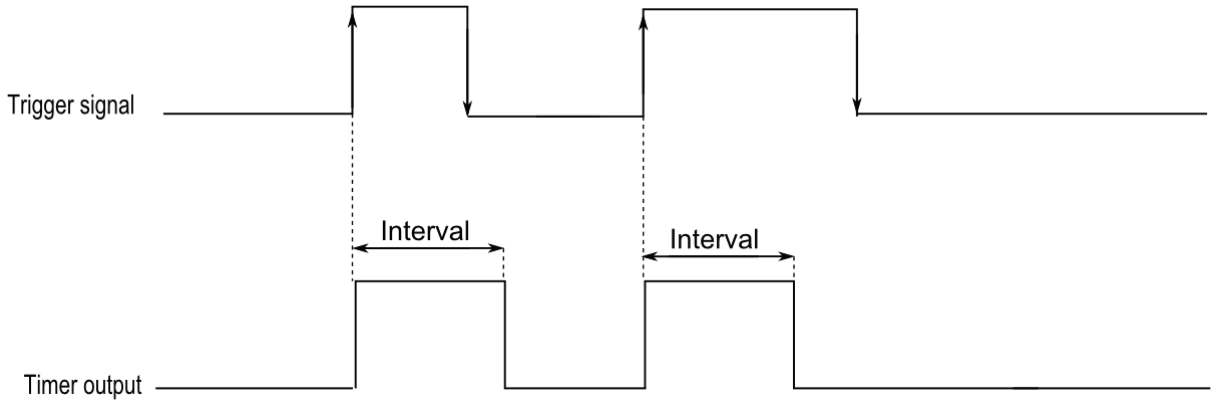
Using the interval timer, the output is activated by the trigger signal for a configurable interval time.
The output of the timer is activated when one of the following events happens:

- A rising edge of the trigger signal (eOn)
- A falling edge of the trigger signal (eOff)
- On each change of the trigger signal (each change)

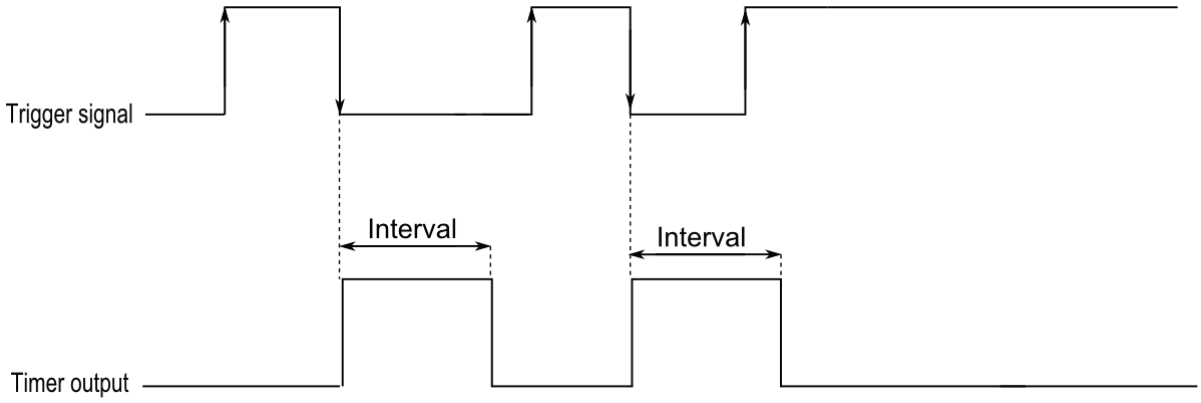
In the first step of the wizard the user can set the interval time for the output.



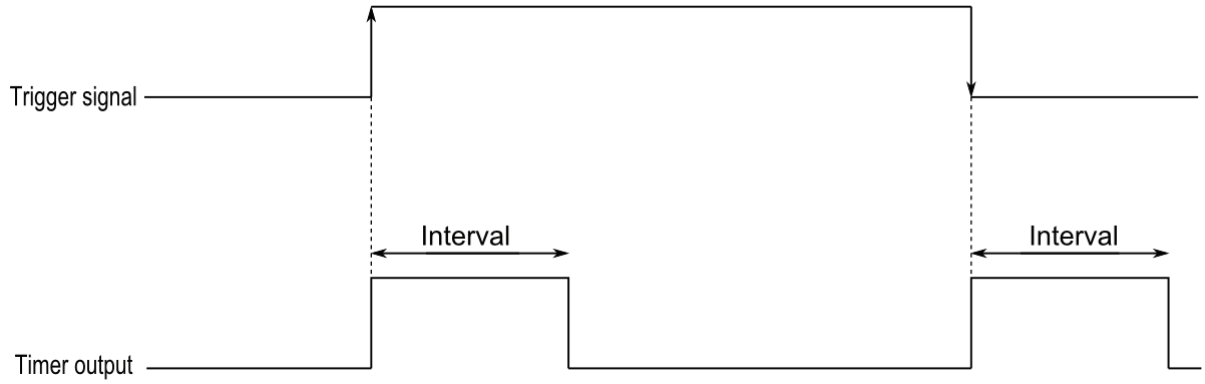
Example 1:
The timer is started on the rising edge of the input signal.



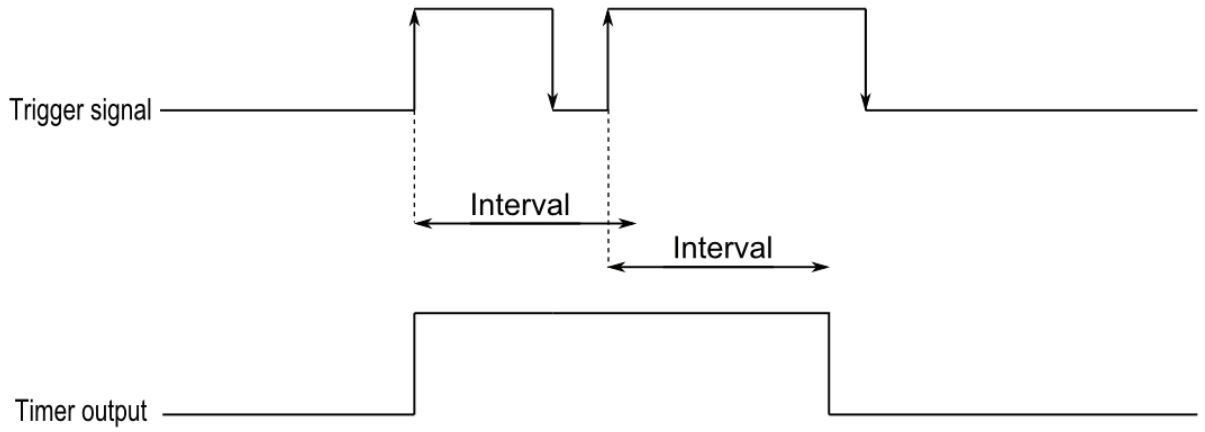
Example 2:
The timer is started on the falling edge of the input signal.



Example 3:
The timer is started on each change of the input signal.

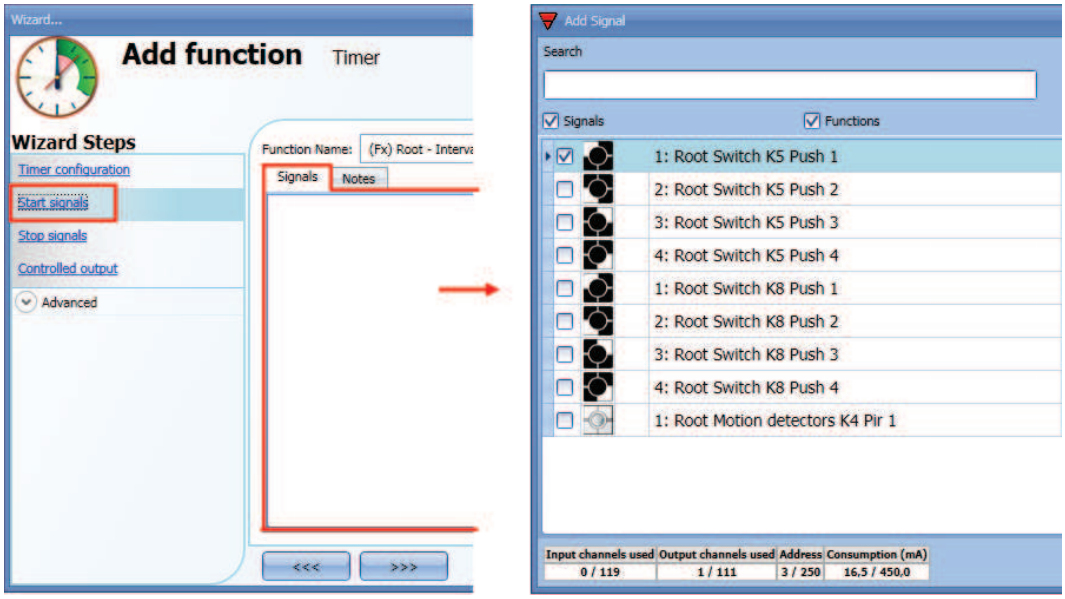


Example 4:
If a trigger event is received before the timer has expired, the timer is reloaded.

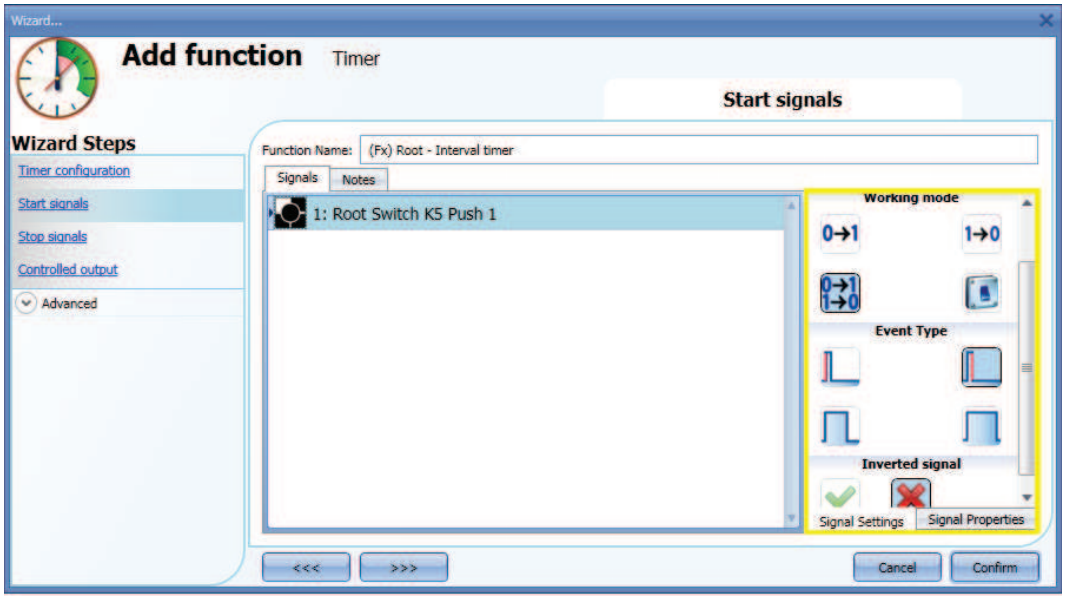


10.16.1 How to add the start signal

The timer needs to be started by a signal: this can be done directly by an input, or by means of a function. The reaction to this signal is event based.
To add the trigger signal, the user should select *Trigger signals* from the wizard menu (see picture below).



When the trigger signal is entered, the user can set the working mode, the event type and the logic for the trigger signal (shown in the picture below).



The activation of the output is according to the working mode of the trigger signal.
For example, if the trigger signal is set as “Switch on event”, the timer starts as soon as the trigger signal is activated (rising edge); if the trigger signal is set as “Switch off event”, the timer starts at the falling edge of the input.

If a push button type is selected, the way of working has to be selected following the table below.

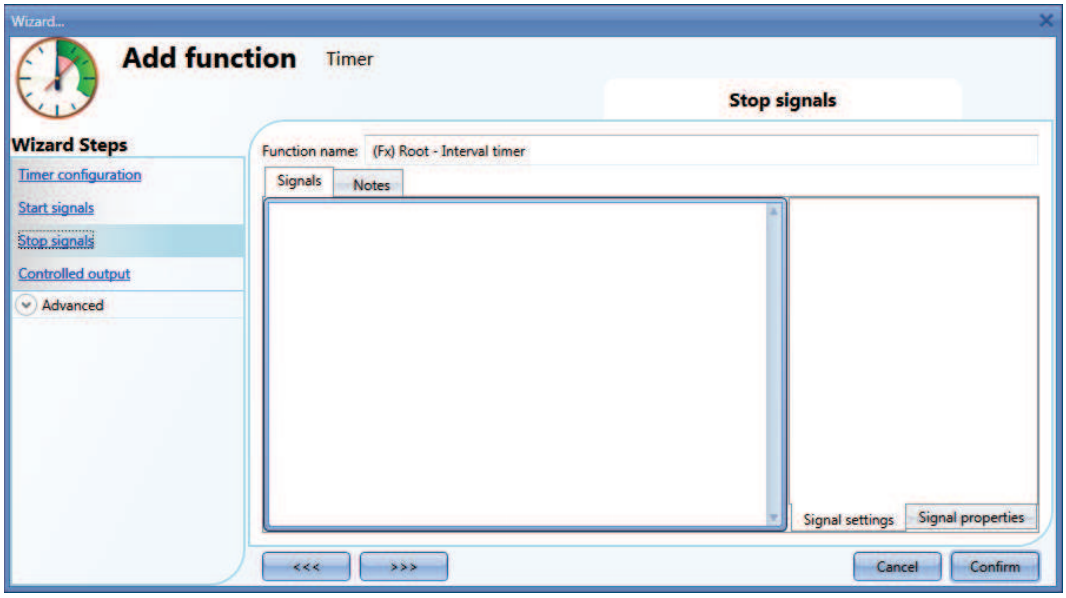
Working mode	Event type			
				
	As soon as the push button is pressed, the interval timer is started on the rising edge.	*With this combination the system does nothing.*	After a long activation, the interval timer is started on the rising edge.	After a very long activation, the interval timer is started on the rising edge.
	*With this combination the system does nothing.*	The interval timer is started on the falling edge.	After a long activation, the interval timer is started on the falling edge	After a very long activation, the interval timer is started on the falling edge
	As soon as the push button is activated, the interval timer is activated on the rising and falling edge.	After a short activation (less than 1 second), the interval timer is activated on the rising and falling edge.	After a long activation, the interval timer is activated on the rising and falling edge.	After a very long activation, the interval timer is activated on the rising and falling edge.
	The interval timer will be started when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the setting of the working mode has to be done following the table below:

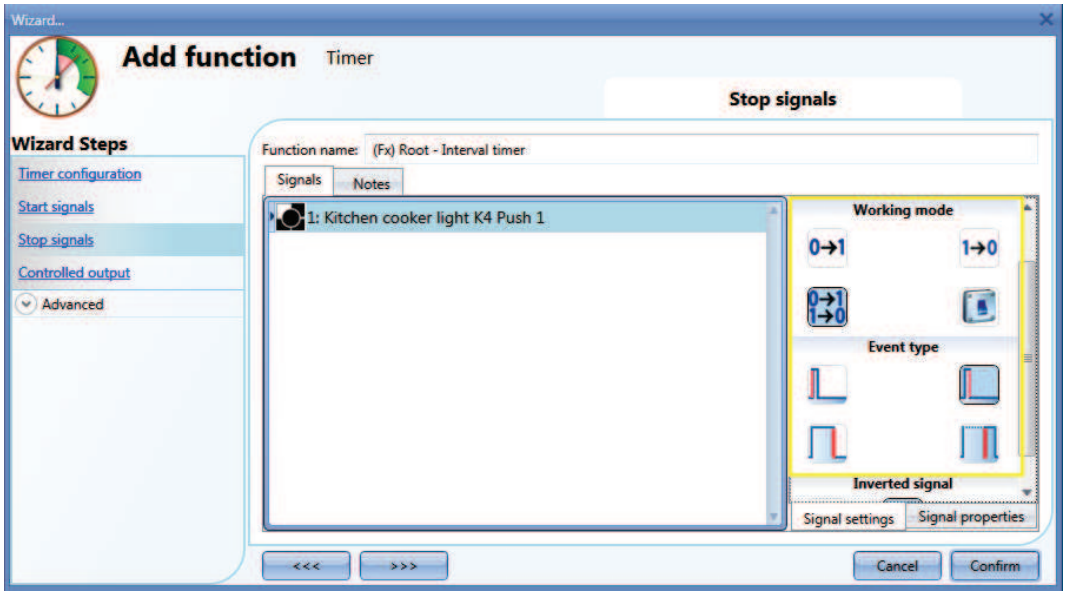
Working mode	Event type	
	Signal activated 	Signal deactivated 
	The timer is started	No action
	No action	The timer is started
	The timer is started	The timer is started
	The timer is started	The timer is started

10.16.2 How to add the stop signal

The timer needs to be stopped by a signal: this can be done directly by an input, or by means of a function. The reaction to this signal is event based.
To add the stop signal, the user has to select *Stop signals* from the wizard menu (see picture below).



The stop signal works only if the timer *(the delay off)* is in progress.
When the trigger signal is entered, the user can set the working mode, the event type and the logic for the trigger signal (shown in the picture below).



In the table below, all the possible activations of the stop signal are shown.

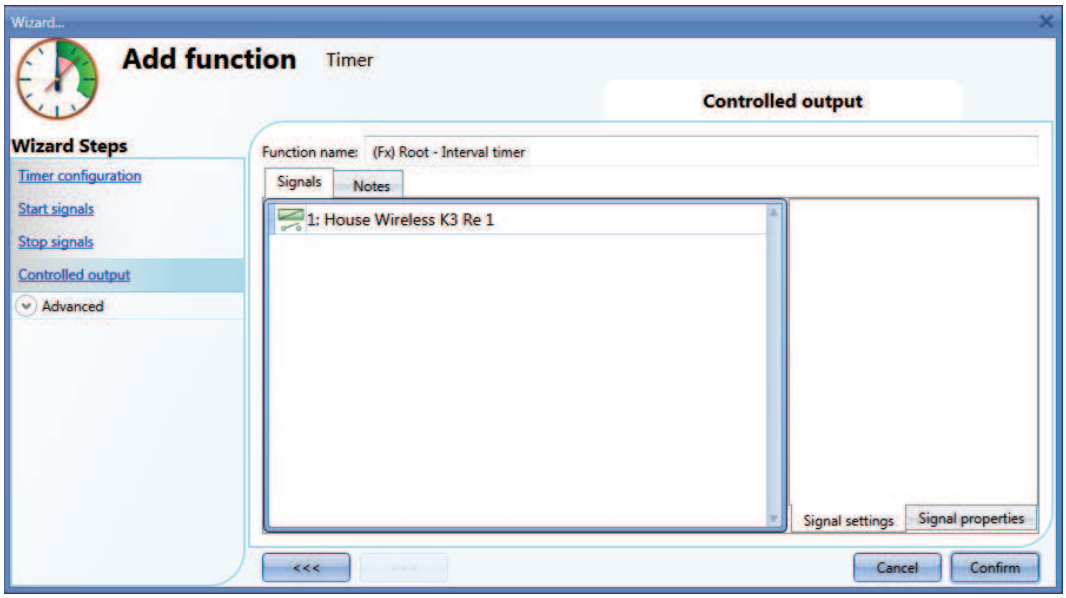
Working mode	Event type			
				
	As soon as the push button is pressed, the interval timer is stopped on the rising edge.	*With this combination the system does nothing.*	After a long activation, the interval timer is stopped on the rising edge.	After a very long activation, the interval timer is stopped on the rising edge.
	*With this combination the system does nothing.*	The interval timer is stopped on the falling edge	After a long activation, the interval timer is stopped on the falling edge	After a very long activation, the interval timer is stopped on the falling edge
	As soon as the push button is activated, the interval timer is stopped on the rising and falling edge.	After a short activation (less than 1 second), the interval timer is stopped on the rising and falling edge.	After a long activation, the interval timer is stopped on the rising and falling edge.	After a very long activation, the interval timer is stopped on the rising and falling edge.
	The interval timer is stopped when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the setting of the working mode has to be done following the table below:

Working mode	Event type	
	Signal activated 	Signal deactivated 
	The timer is stopped	No action
	No action	The timer is stopped
	The timer is stopped	The timer is stopped
	The timer is stopped	The timer is stopped

10.16.3 How to add the *output* signal

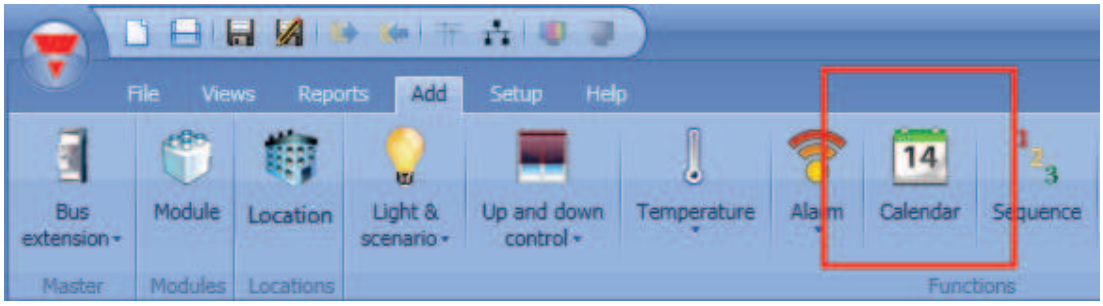
The timer can control an output directly by adding the signal to the *Controlled output* step (see picture below). If the user wants to use the function without any direct outputs, this field must be empty.



The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal.*

10.17 How to set a global calendar function

The calendar function can be used to automatically activate other functions during the year creating special automations.
To set up a calendar function the user has to select *Calendar* from the Add menu (see picture below).
The new function will be added into the selected location.
The wizard relevant to a Calendar function can also be opened by typing Alt+A+C.

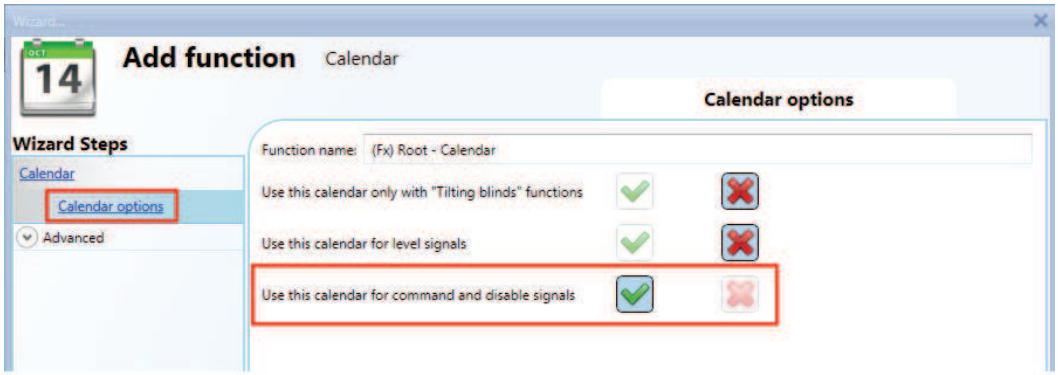


The calendar function can be used to perform different actions: for example, an external calendar could be created in order to switch off all the lights in an office at the end of the day, or move down all blinds at a certain hour in the evening.
The calendar can also be used to disable the automation of a function: for example, the switching on/off of the light with the PIR sensor can be disabled during the day.

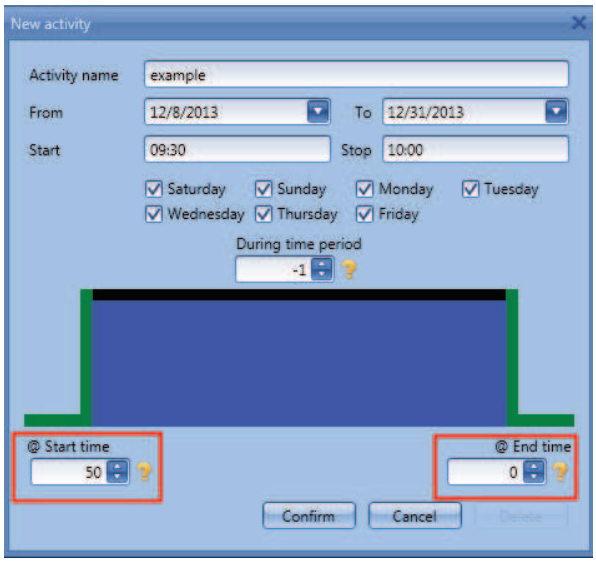
10.17.1 How to use a global calendar in different functions

As described in the previous paragraph, the calendar activities have different meanings according to the function where the calendar is used.

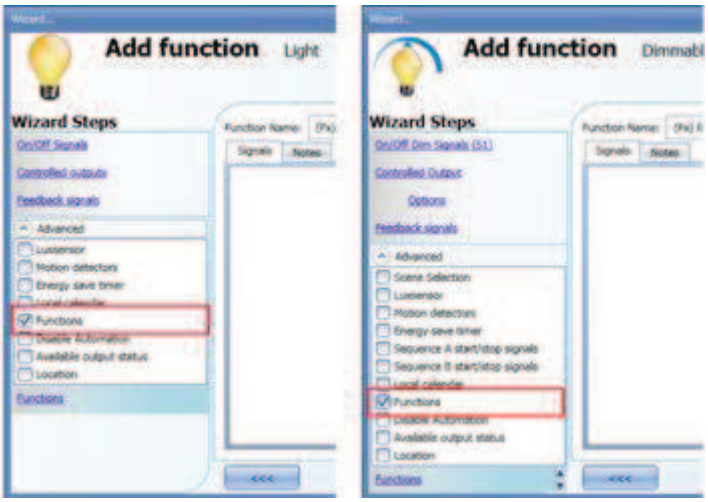
A simple example is where the user uses the calendar to control two functions: an on/off light and a dimmable light.
In the *Calendar options*, the user should select the green V *Use this calendar for command and disable signals.*



The calendar settings are the ones shown in the picture below. The event at start time is 50 and the event at stop time is 0.



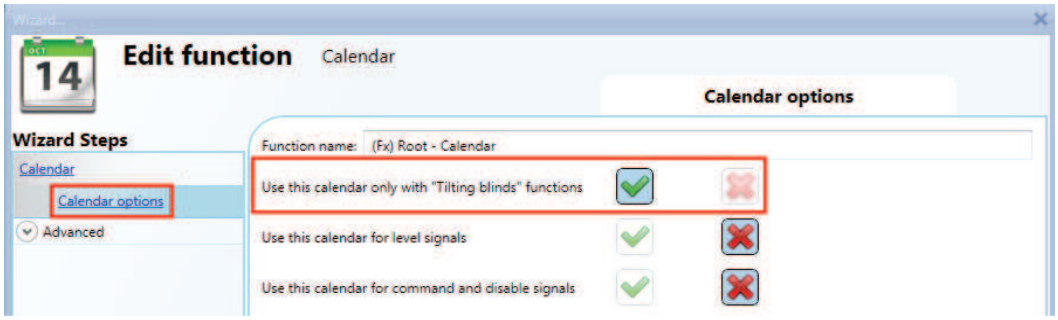
Once the external calendar function is created, the calendar must be linked to the other functions by using the advanced field *Functions*.

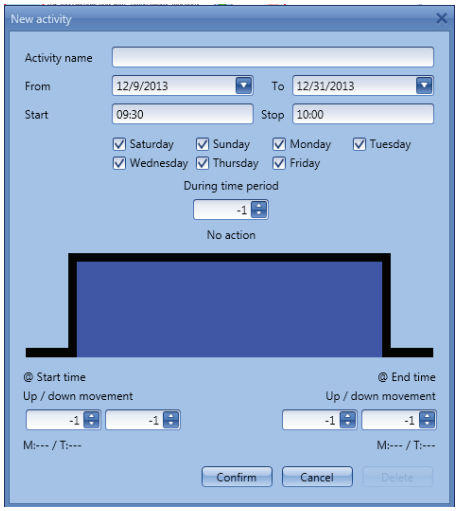


At the start time, the dimmable light is switched on at 50%, the light on/off is switched on. At the end time, both the on/off light and dimmer are switched off.

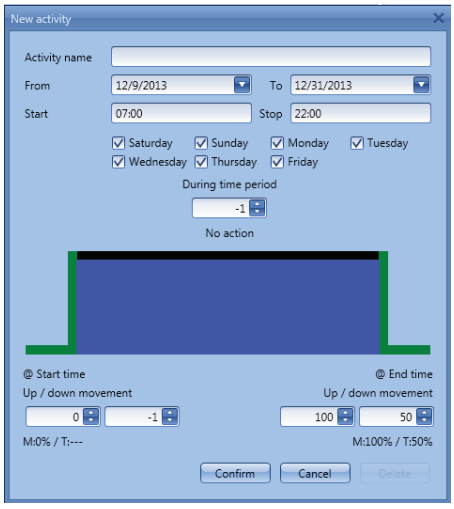
10.17.2 How to use a global calendar in roller blind functions

When the user wants to control the automation of *Tilting blinds* functions, a special global calendar has to be created.
In the *Calendar options*, the user should select the green V *Only for blinds with tilting.*





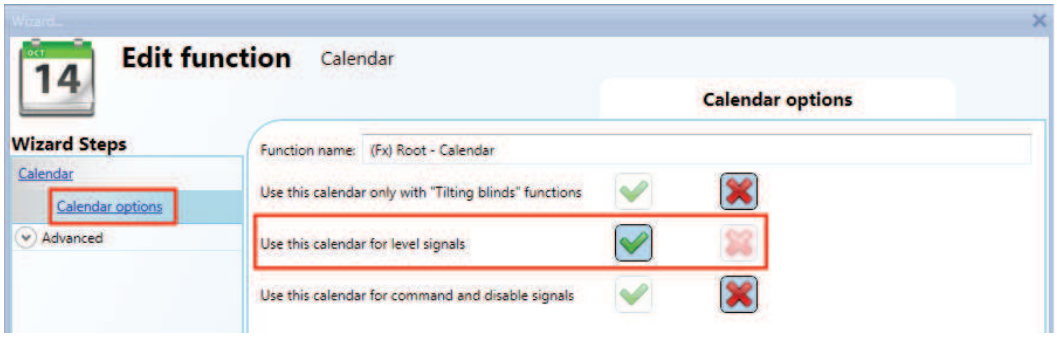
When the green V is selected, the activity menu of the calendar is changed, showing two actions at start time and at end time: the action for the up/down movement and the action for the tilting movement.



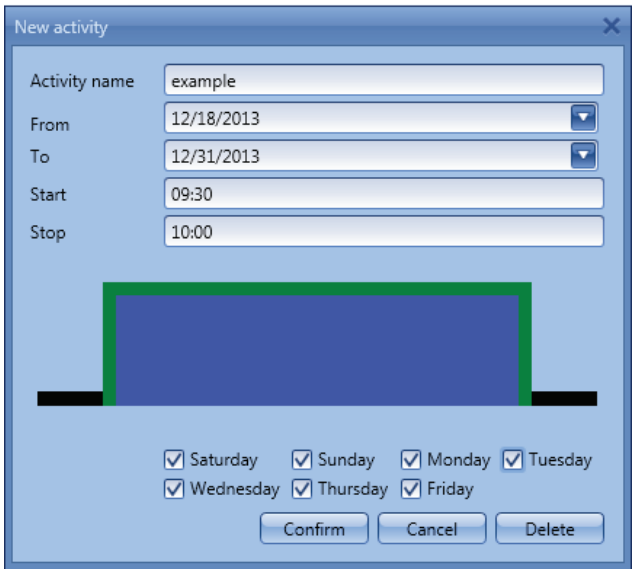
All the functions where the calendar is added will go up/down and tilt their slats according to the calendar settings.
In the next picture an external function used in all the *Tilting blind* functions is shown. At 7:00 in the morning, the blinds go up and at 22:00 in the evening they all go down and are half tilted.

10.17.3 How to use a global calendar in Multigate functions or as a level input signal in any type of function

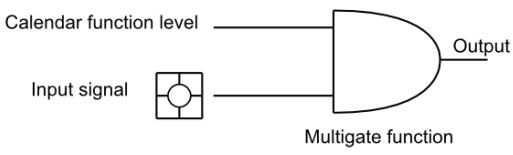
When the user wants to control the input signal in a Multigate function or use the calendar as a level input signal, a global calendar *Use this calendar for level signals* has to be created.
In the *Calendar options*, the user should select the green V *Use this calendar for Multigate function.*
By selecting this option, the user can use the calendar as an input signal in any type of function according to the calendar settings.

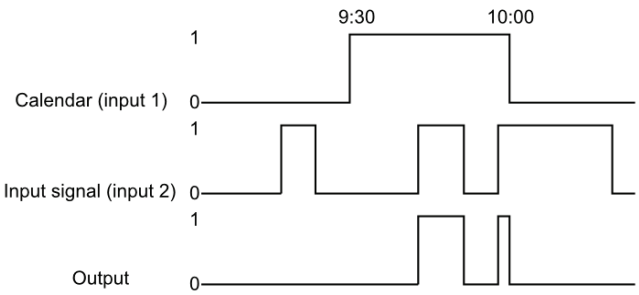


When the green V is selected, the activity menu of the calendar is changed, showing the level action during the time.
The user must enter the time interval during which the calendar is active. The green border indicates that the calendar is active during the entire selected period.



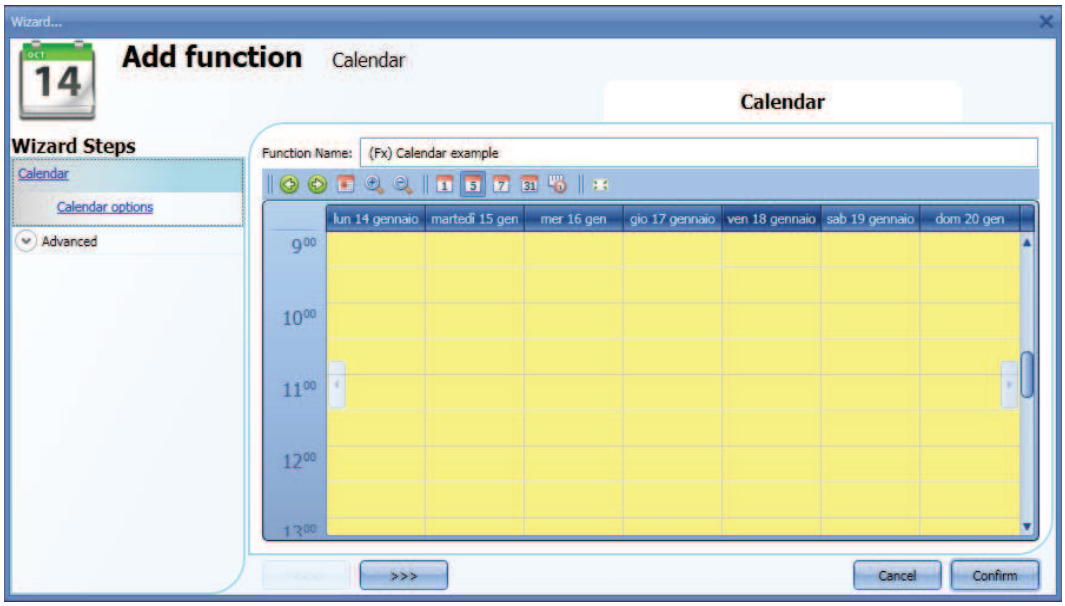
In the next picture a global calendar function is used to enable the input in a multigate function: the output signal is activated when the enable input is on and the pushbutton is activated. At 9:30 in the morning, the calendar signal goes On (multigate input 1 enabled) at 10:00 in the morning the calendar signal goes off (multigate input 1 disabled) and the output is switched off.



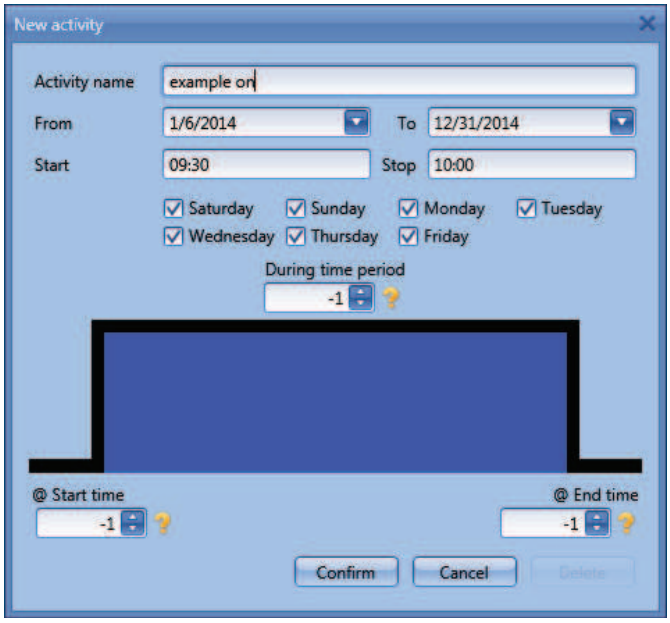


10.17.4 Add a new activity to the calendar

Once the calendar function is added, to configure a new activity the user can double click anywhere in the calendar (yellow area).



It is not necessary to go to a specific day of the calendar; the user can change the day in the activity window.



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

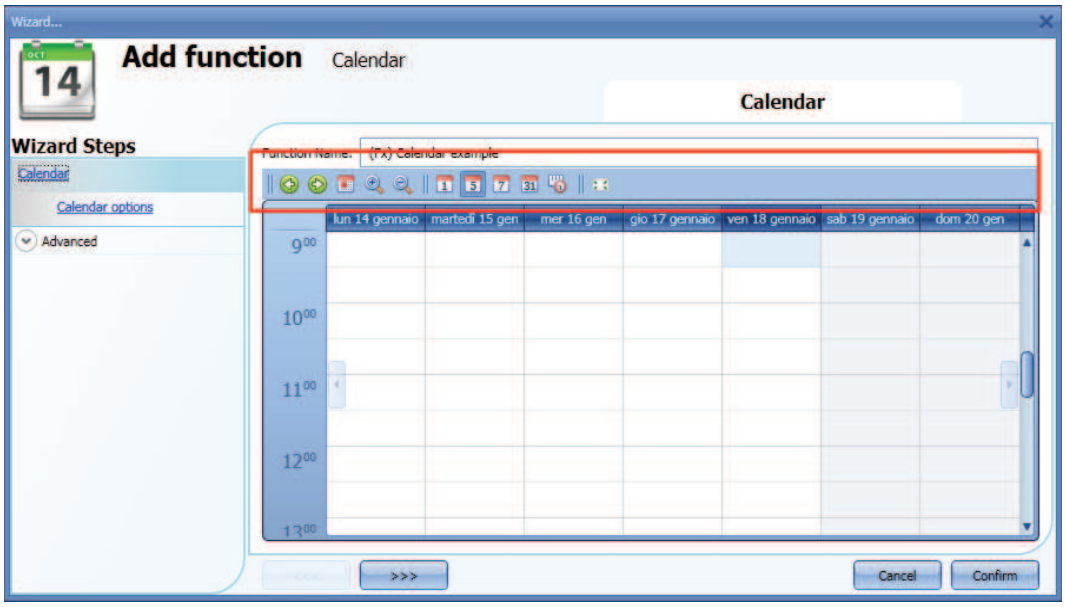
Stop: The time of the end of the activity.

@ start time: in this field the user can select the action of the function at the start time.
The action is identified by a number from -1 to 100. According to the function which the calendar is linked to, the number identifies a specific action (see paragraph *Calendar actions*).
The rising edge is marked in green indicating that an action is selected at the end time.

@ end time: in this field the user can select the action of the function at the end time.
The action is identified by a number from -1 to 100. According to the function which the calendar is linked to, the number identifies a specific action (see paragraph *Calendar actions*).
The falling edge is marked in green indicating that an action is selected at the end time.

Days: The user should select the days when the calendar activities must be applied.

At the top of the wizard of the calendar function, the user can access the bar to change the visualization of the calendar:



Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

10.17.5 Meaning of the actions in the different functions

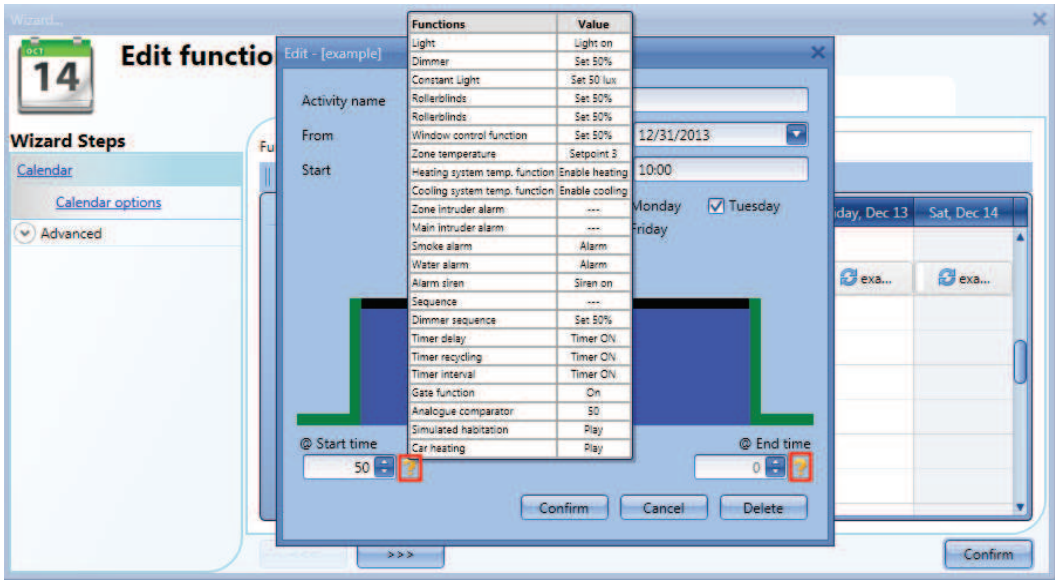
According to the function where the global calendar is used, the actions defined in the activity settings of the calendar can have different meanings.
In the table below, the different actions are shown according to the type of function.

n	Functions									
	ON/OFF light	Dimmable light	Intruder alarm	Roller blind	Window	Sequence	Car-heating	Playback	System temp.	Zone temp.
-1	No action	No action	No action	No action	No action	No action	No action	No action	No action	No action
0	OFF	OFF	Disarm alarm	0%	0%	Stop	OFF	Stop	OFF	OFF
1	ON	S1	Arm alarm	1%	1%	Start	Car ready	Play	ON	T1
2	ON	S2		2%	2%	Start		Play	ON	T2
3	ON	S3		3%	3%	Start		Play	ON	T3
4	ON	S4		4%	4%	Start		Play	ON	
5	ON	S5		5%	5%	Start		Play	ON	
6	ON	6%		6%	6%	Start		Play	ON	
7	ON	7%		7%	7%	Start		Play	ON	
8	ON	8%		8%	8%	Start		Play	ON	
9	ON	9%		9%	9%	Start		Play	ON	
10	ON	10%		10%	10%	Start		Play	ON	
11	ON	11%		11%	11%	Start		Play	ON	
12	ON	12%		12%	12%	Start		Play	ON	
13	ON	13%		13%	13%	Start		Play	ON	
14	ON	14%		14%	14%	Start		Play	ON	
15	ON	15%		15%	15%	Start		Play	ON	
16	ON	16%		16%	16%	Start		Play	ON	
17	ON	17%		17%	17%	Start		Play	ON	
18	ON	18%		18%	18%	Start		Play	ON	
19	ON	19%		19%	19%	Start		Play	ON	
20	ON	20%		20%	20%	Start		Play	ON	
21	ON	21%		21%	21%	Start		Play	ON	
22	ON	22%		22%	22%	Start		Play	ON	
23	ON	23%		23%	23%	Start		Play	ON	
24	ON	24%		24%	24%	Start		Play	ON	
25	ON	25%		25%	25%	Start		Play	ON	
26	ON	26%		26%	26%	Start		Play	ON	
27	ON	27%		27%	27%	Start		Play	ON	
28	ON	28%		28%	28%	Start		Play	ON	
29	ON	29%		29%	29%	Start		Play	ON	
30	ON	30%		30%	30%	Start		Play	ON	
31	ON	31%		31%	31%	Start		Play	ON	
32	ON	32%		32%	32%	Start		Play	ON	
33	ON	33%		33%	33%	Start		Play	ON	
34	ON	34%		34%	34%	Start		Play	ON	
35	ON	35%		35%	35%	Start		Play	ON	
36	ON	36%		36%	36%	Start		Play	ON	
37	ON	37%		37%	37%	Start		Play	ON	
38	ON	38%		38%	38%	Start		Play	ON	
39	ON	39%		39%	39%	Start		Play	ON	
40	ON	40%		40%	40%	Start		Play	ON	
41	ON	41%		41%	41%	Start		Play	ON	
42	ON	42%		42%	42%	Start		Play	ON	

43	ON	43%		43%	43%	Start		Play	ON	
44	ON	44%		44%	44%	Start		Play	ON	
45	ON	45%		45%	45%	Start		Play	ON	
46	ON	46%		46%	46%	Start		Play	ON	
47	ON	47%		47%	47%	Start		Play	ON	
48	ON	48%		48%	48%	Start		Play	ON	
49	ON	49%		49%	49%	Start		Play	ON	
50	ON	50%		50%	50%	Start		Play	ON	
51	ON	51%		51%	51%	Start		Play	ON	
52	ON	52%		52%	52%	Start		Play	ON	
53	ON	53%		53%	53%	Start		Play	ON	
54	ON	54%		54%	54%	Start		Play	ON	
55	ON	55%		55%	55%	Start		Play	ON	
56	ON	56%		56%	56%	Start		Play	ON	
57	ON	57%		57%	57%	Start		Play	ON	
58	ON	58%		58%	58%	Start		Play	ON	
59	ON	59%		59%	59%	Start		Play	ON	
60	ON	60%		60%	60%	Start		Play	ON	
61	ON	61%		61%	61%	Start		Play	ON	
62	ON	62%		62%	62%	Start		Play	ON	
63	ON	63%		63%	63%	Start		Play	ON	
64	ON	64%		64%	64%	Start		Play	ON	
65	ON	65%		65%	65%	Start		Play	ON	
66	ON	66%		66%	66%	Start		Play	ON	
67	ON	67%		67%	67%	Start		Play	ON	
68	ON	68%		68%	68%	Start		Play	ON	
69	ON	69%		69%	69%	Start		Play	ON	
70	ON	70%		70%	70%	Start		Play	ON	
71	ON	71%		71%	71%	Start		Play	ON	
72	ON	72%		72%	72%	Start		Play	ON	
73	ON	73%		73%	73%	Start		Play	ON	
74	ON	74%		74%	74%	Start		Play	ON	
75	ON	75%		75%	75%	Start		Play	ON	
76	ON	76%		76%	76%	Start		Play	ON	
77	ON	77%		77%	77%	Start		Play	ON	
78	ON	78%		78%	78%	Start		Play	ON	
79	ON	79%		79%	79%	Start		Play	ON	
80	ON	80%		80%	80%	Start		Play	ON	
81	ON	81%		81%	81%	Start		Play	ON	
82	ON	82%		82%	82%	Start		Play	ON	
83	ON	83%		83%	83%	Start		Play	ON	
84	ON	84%		84%	84%	Start		Play	ON	
85	ON	85%		85%	85%	Start		Play	ON	
86	ON	86%		86%	86%	Start		Play	ON	
87	ON	87%		87%	87%	Start		Play	ON	
88	ON	88%		88%	88%	Start		Play	ON	
89	ON	89%		89%	89%	Start		Play	ON	
90	ON	90%		90%	90%	Start		Play	ON	
91	ON	91%		91%	91%	Start		Play	ON	
92	ON	92%		92%	92%	Start		Play	ON	
93	ON	93%		93%	93%	Start		Play	ON	
94	ON	94%		94%	94%	Start		Play	ON	
95	ON	95%		95%	95%	Start		Play	ON	
96	ON	96%		96%	96%	Start		Play	ON	
97	ON	97%		97%	97%	Start		Play	ON	

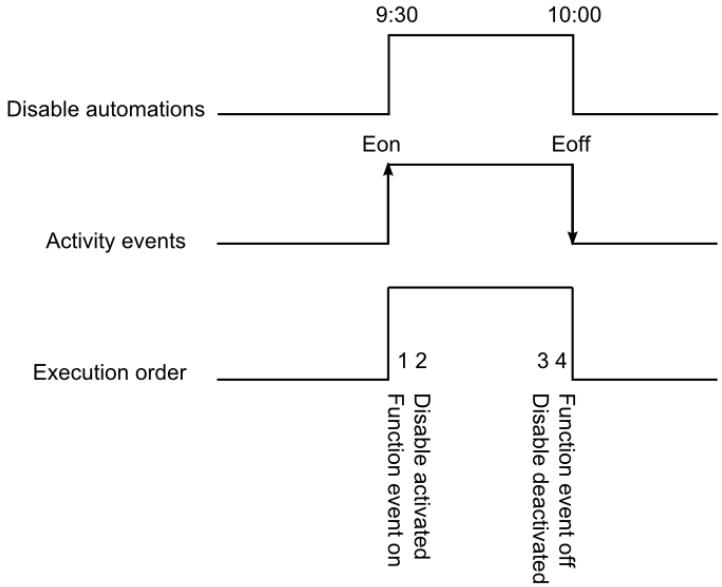
98	ON	98%		98%	98%	Start		Play	ON	
99	ON	99%		99%	99%	Start		Play	ON	
100	ON	100%		100%	100%	Start		Play	ON	

The user can look at the table in any time by moving the mouse cursor on the yellow question mark icon near the value (see picture below).



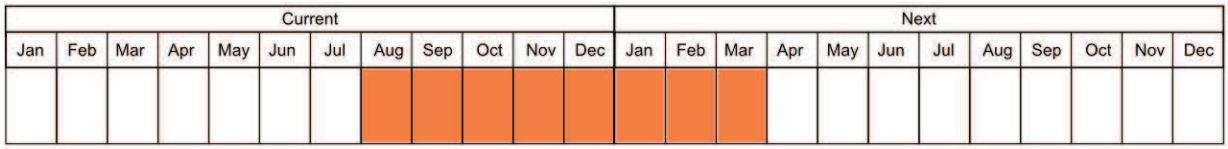
10.17.6 Simultaneous activities

When the user sets two activities in the same calendar (an event activity and a level activity) using the same start/stop times and dates, at start time the event activities are always executed before the level activity, at stop time the event activity is executed after the level activity (see picture below).

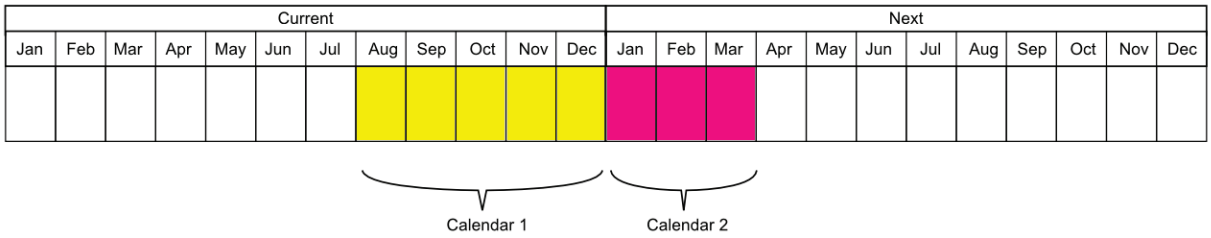


10.17.7 How to create a calendar in-between two years

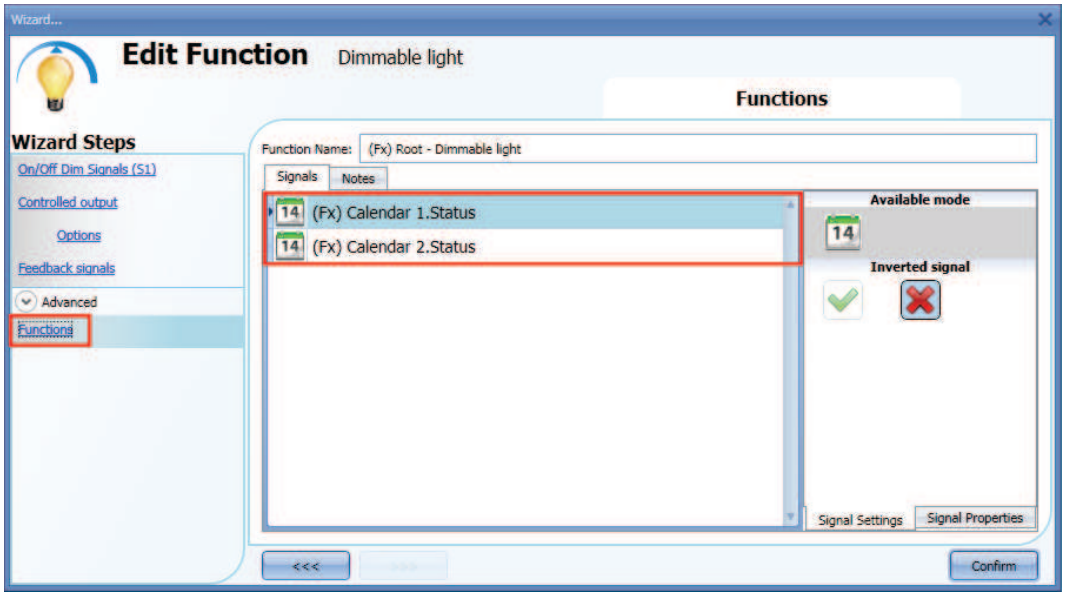
If the user wants to create an automation with a calendar where an activity starts in the current year and finishes in the next year, two separate activities must be created and linked to the function.
As an example, let us consider the creation of an automation that has to start on 1st August and finish on 1st March.



Both activities are set with the same actions at start/end time; the only difference is the date: the first activity will start on 1st August and end on 31st December, the second activity will start on 1st January and end on 1st March.



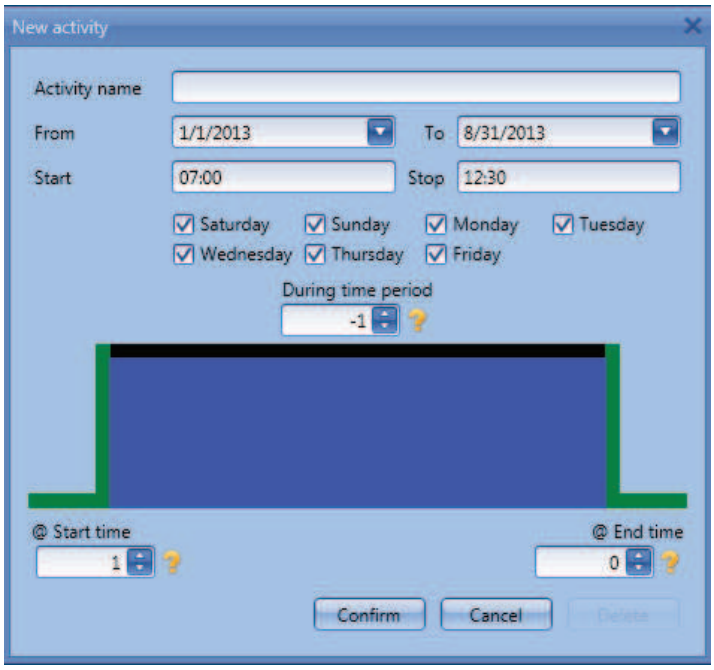
Once configured, the calendar must be added in the field *Function* of the function that has to be automated (see picture below).



10.17.8 How to create a recurring calendar

Once a calendar function is configured, in the following years it is not necessary to update the settings of the activities, since the calendar is automatically renewed.

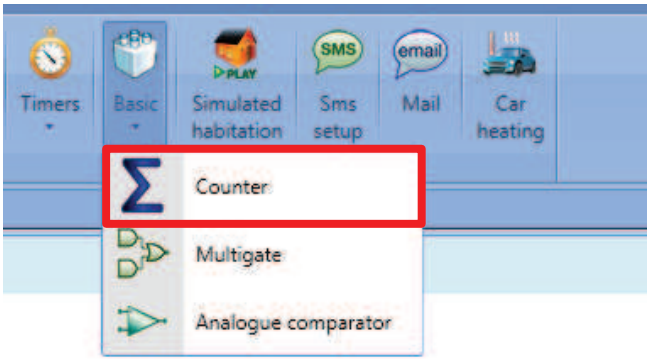
In the example below, a calendar is set to work from 1st January to 31st August 2013. The green edges indicate that an action is present both at the start and end time.



The calendar will automatically be updated to 2014 the following year and so on so forth.

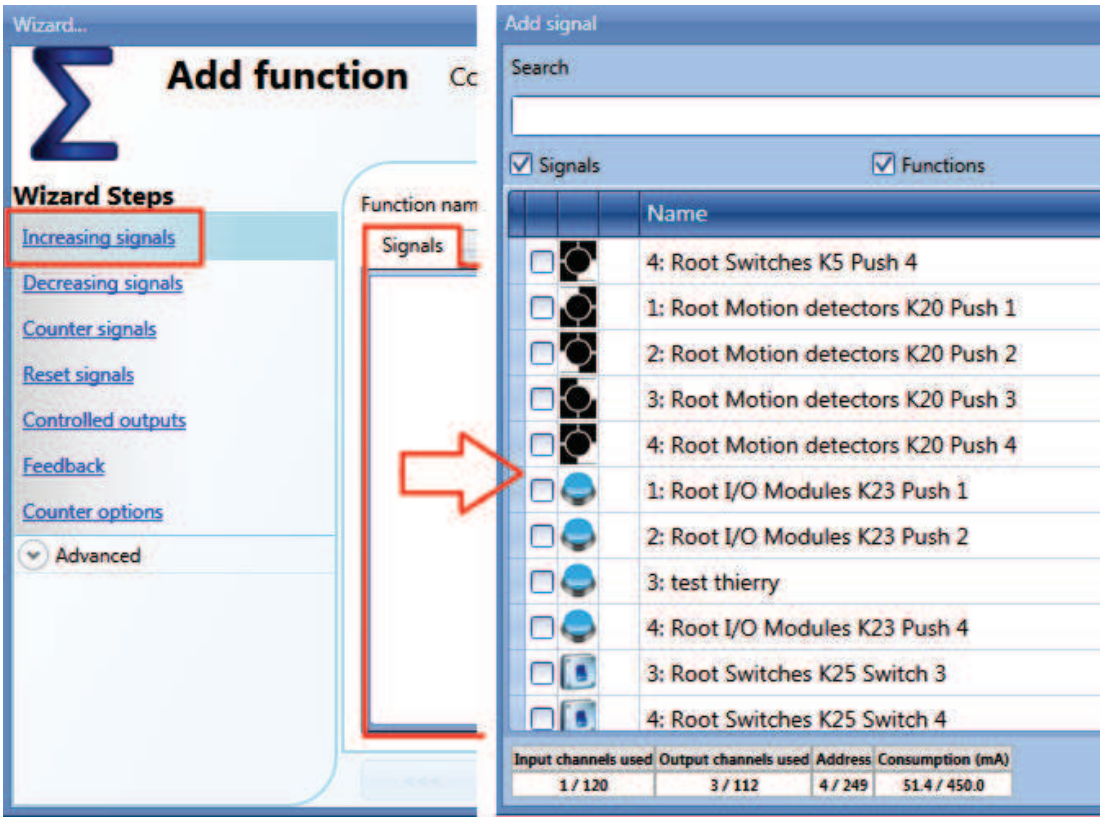
10.18 How to configure a counter function

The *Counter* function is a counter of input pulses with increments and decrements, which logs the total counter or just the partial one between the last two sampling times. The counted value can also be used to control an analogue output module.
To set up a counter function, the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Counter function can also be opened by typing Alt+A+7+C (See table of short cuts).



10.18.1 How to add the increasing input

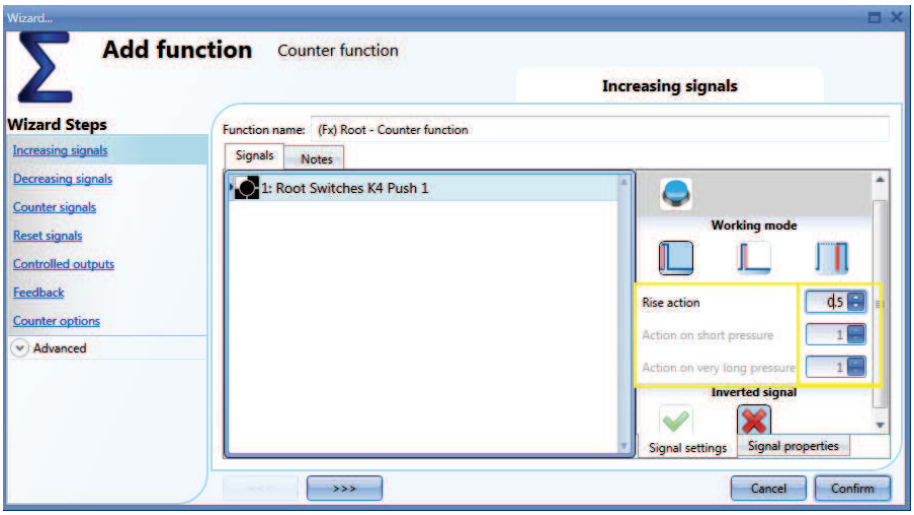
To add the input signals that will make the output value increase, the user has to click on *Increasing signals*, then double click on the *Signals* window and select the input signal from the list (see picture below).
The increasing signals may be actual signals such as pushbutton or switch, or functions, so that the number of activations can be counted.



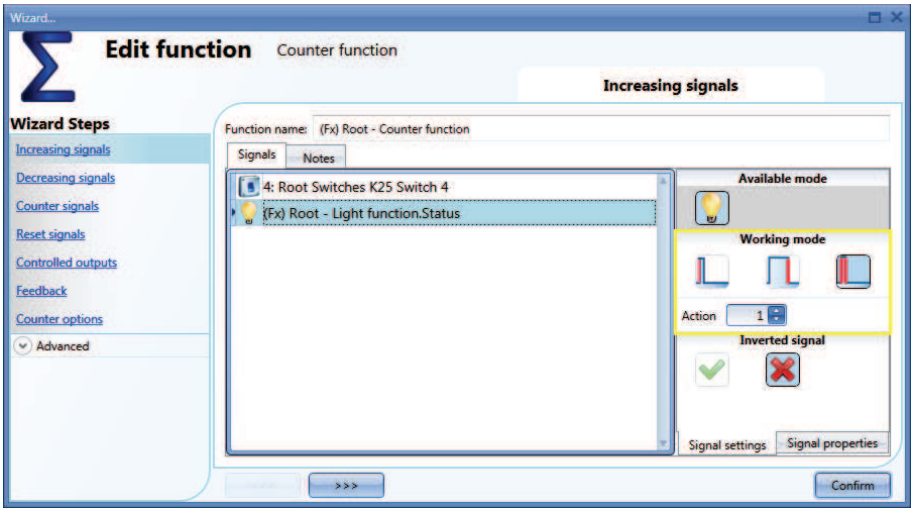
10.18.1.1 How to configure the selected increasing signals

As shown in the picture below, if a pushbutton is selected, the user can select the type of action that will make the counter increase: rising edge (i.e. as soon as the pushbutton is pressed), falling edge (i.e. as soon as the pushbutton is released), very long pressure (i.e. when the pushbutton is kept pressed for the set seconds). For each of these actions, the increasing value can be set (yellow rectangle).

For example, in the picture below, as soon as the pushbutton is pressed, the counter is increased by 0.5. This means that every two pulses, the counter is incremented by 1.

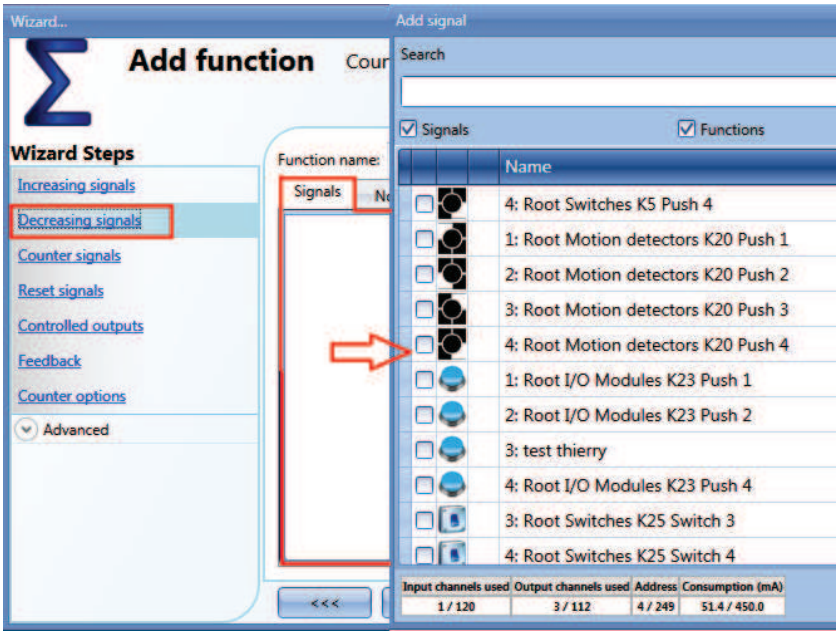


If a level signal is selected, such as a switch or a function, the available actions are rising edge (i.e. when the switch is closed or the function is activated), falling edge (i.e. when the switch is open or the function is deactivated), or both. For each of them, the user can set the increasing value (yellow rectangle).



10.18.2 How to add the decreasing input

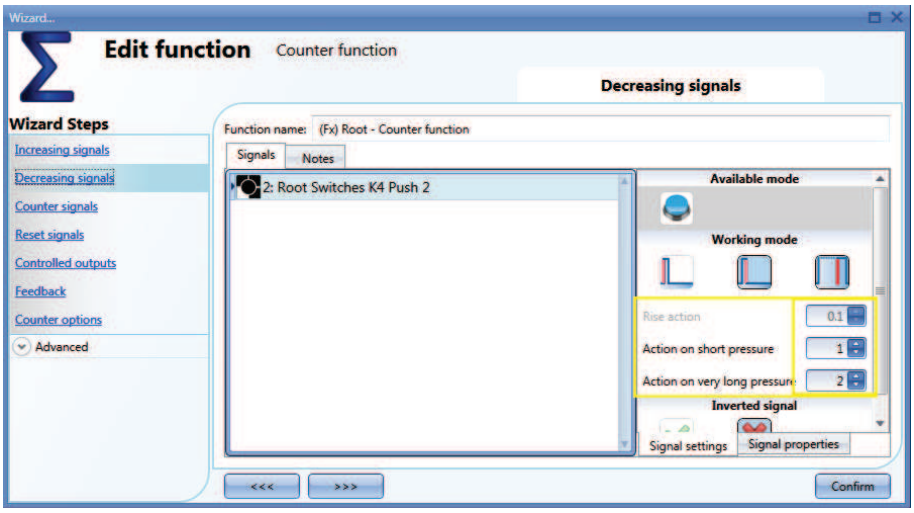
To add the input signals that will make the output value decrease, the user has to click on *Decreasing signals*, then double click on the *Signals* window and select the input signal from the list (see picture below). The decreasing signals may be actual signals such as pushbutton or switch, or functions, so that the number of activations can be counted.



10.18.2.1 How to configure the selected decreasing signals

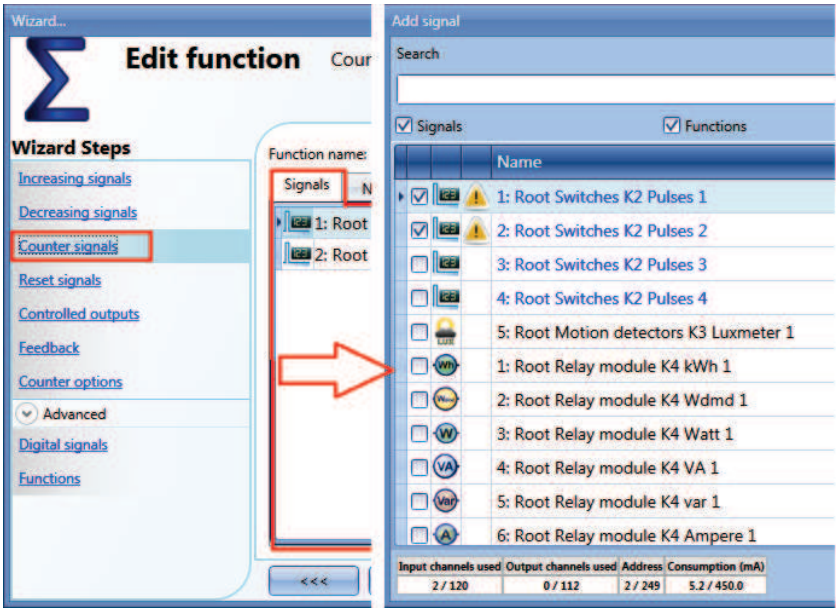
As shown in the picture below, if a pushbutton is selected, the user can select the type of action that will make the counter decrease: rising edge (i.e. as soon as the pushbutton is pressed), falling edge (i.e. as soon as the pushbutton is released), very long pressure (i.e. when the pushbutton is kept pressed for the set seconds). For each of these actions, the decreasing value can be set (yellow rectangle).

For example, in the picture below, as soon as the pushbutton is released, the counter is decreased by 1, while if the pushbutton is kept pressed, the counter is decreased by two.



10.18.3 How to sum up analogue values

To add analogue values or values coming from a counting module, the user has to select *Counter signals.*



In this field any analogue signals can be added and the counting function calculates the sum. It can be used as a virtual energy meter to sum up the values coming from different meters or it can be used to sum up the counting values coming from different input modules.

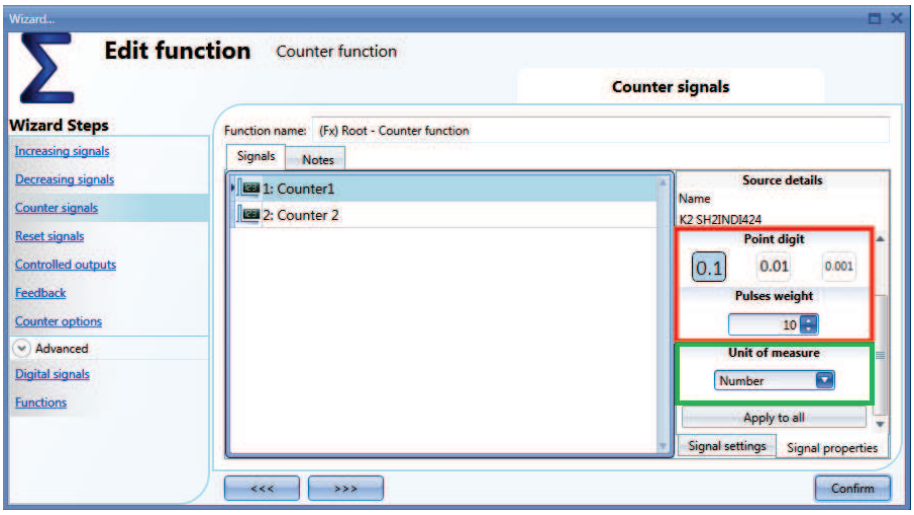
In the figure below, two counter values are added in the counter function, sourced from the module SH2INDI424: the result of the function is the sum of the two.

Counter function= Counter 1+ Counter 2

To set the increasing value of each pulse received on the counting input, in the *Signal properties* tab window the *Point digit* and *Pulses weight* field have to be correctly set.
In the figure below, each pulse received will increase the function by one, since the increasing factor is calculated in the following way:

Increasing value = Number of pulses x Point digit x Pulses weight

Thanks to this calculation, the user can define any increasing value.



10.18.4 How to configure the counting function to count visitors to retail outlets

The counting systems can be divided into 2 groups: one-way systems or two-way systems.

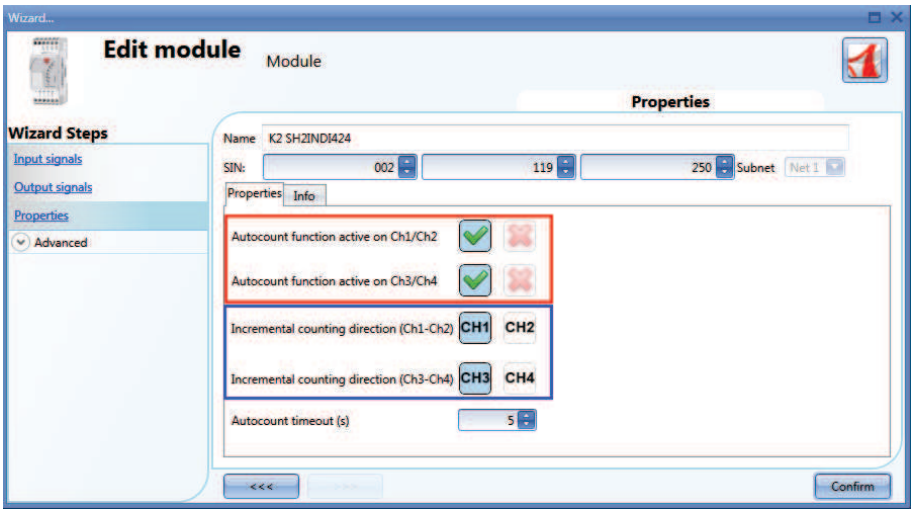
10.18.4.1 One-Way System

One-way systems count the number of passages in front of the detector, regardless of whether the passage is incoming or outgoing. The total number of visitors is obtained thanks to the division by 2 performed by our system.
To set the Sx2WEB system for this kind of detection, the paragraph *How to configure the selected increasing signals* has to be followed, setting the *action* on the signal activation equal to *0.5* to obtain the division by 2.

10.18.4.2 Two-Way System

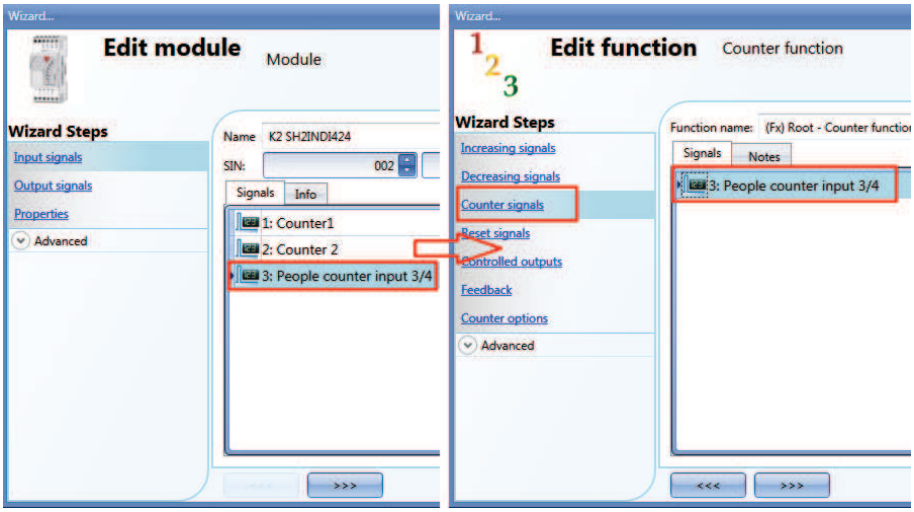
Two-way systems count the number of passages in front of the detectors, taking into account the direction of movement. The distinction is thus made between entrances and exits. The exact number of people present within the premises is available at all times.
The direction of movement is detected by using two sensors: if sensor **1** detects movement *before* sensor **2**, people are entering and the counter is incremented; if sensor **1** detects movement *after* sensor **2**, people are exiting and the counter is decremented.
This operation is carried out directly by the module SH2INDI424, which has to be configured as described below.

In the *Properties* field in the wizard of the input modules, if two inputs have to work in a pair as described above, the check boxes marked in red have to be enabled: by doing this, input 1 is coupled with input 2 and input 3 is coupled with input 4. It is not mandatory to couple all the four inputs.
Once this check box is enabled, the module increments/decrements the internal counter, according to which sensor is detected first (fields marked in blue).



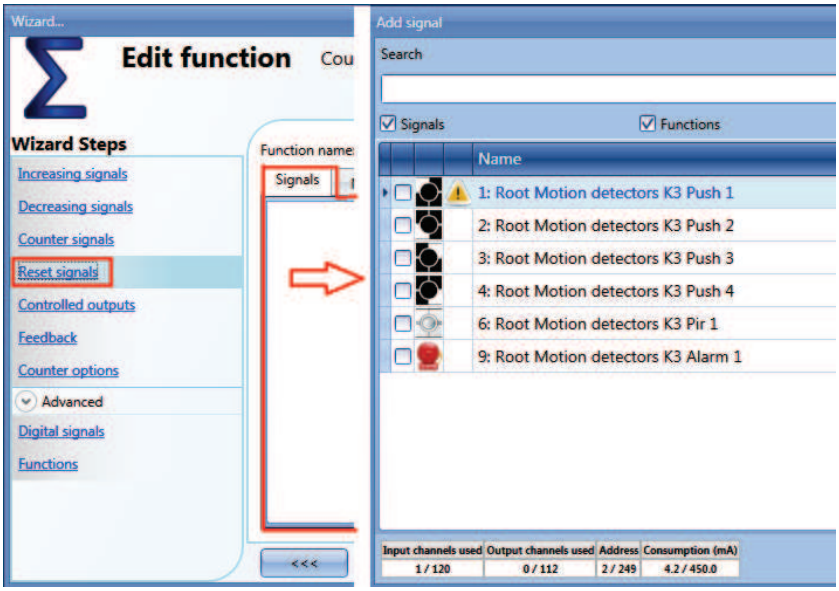
The *Auto count timeout* field is used to make no increment or decrement if the paired sensors are detected with an interval time longer than the number of seconds set in this field.

In the picture below, an example is shown where input 1 and input 2 are configured as “standalone” pulse counter 2, while inputs 3 and 4 are configured to count people by detecting the direction: since they are working together, only one counter is present. This counter then has to be added in the field *Counter signals* of the Counting function.



10.18.5 How to reset the counting value

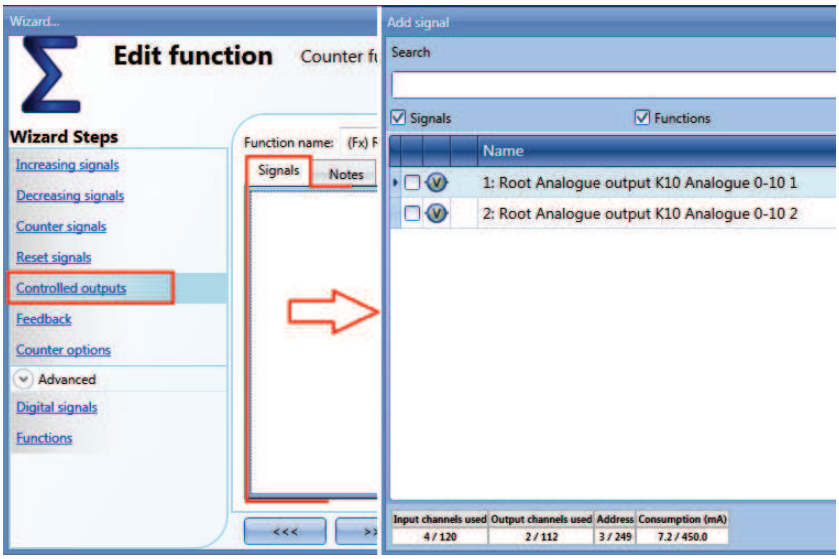
To reset the counting value, the user has to click on *Reset signal*, then double click on the *Signals* window and select the input signal from the list (see picture below).
The reset signals may be actual signals such as pushbutton or switch, or functions.



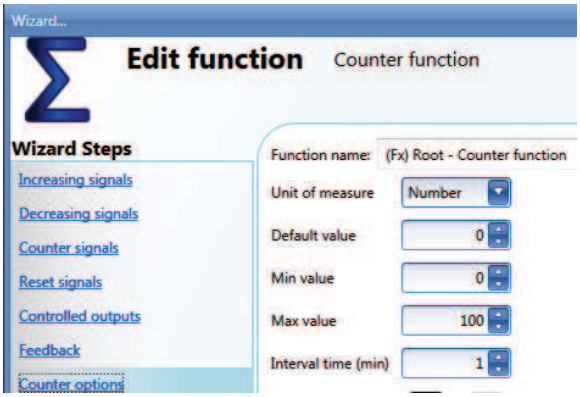
Each time the reset signal is activated, the counting value is reset.

10.18.6 How to add an analogue output signal

To add an analogue output signal, the user has to click on *Controlled outputs*, then double click on the *Signals* window and select the output signal from the list (see picture below).
The outputs are the signals from the SHPOUTV224. The analogue output value of the SHPOUTV224 is set at the value calculated by the counter.



The 0-10 V output value is calculated based on a linear relation between the minimum and maximum values set in the counter function, as explained in the example below.

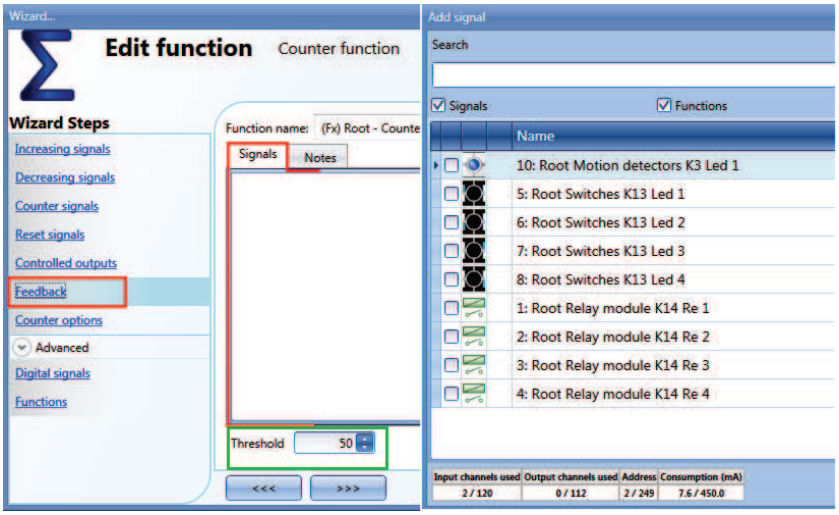


If the max and min values of the counting function are 100 and 0, and the virtual output value is 30, the voltage output of the SHPOUTV224 will be 3V.
If the output of the counting function is 50, the voltage output of the SHPOUTV224 will be 5V.

The output could also be a virtual output, not linked to any actual signal.

10.18.7 How to add a feedback signal or a relay output

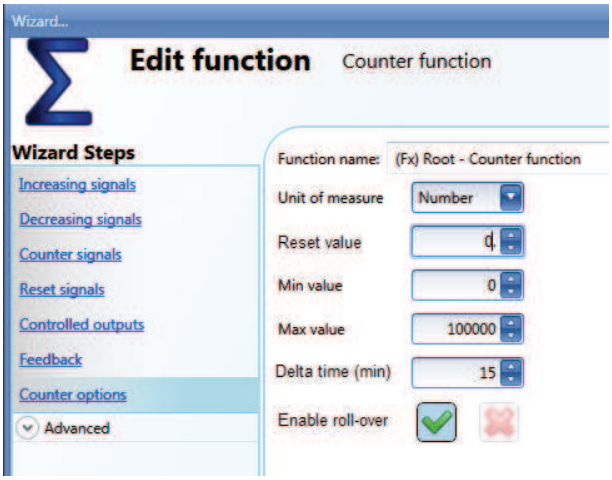
To add a feedback signal or a relay output, the user has to click on *Feedback signal*, then double click on the *Signals* window and select the input signal from the list (see picture below).
The feedback signals may be LEDs or relay outputs.



The selected signals will be on if the counter is greater than a configurable threshold, otherwise it will be off.
The threshold can be set in the field marked with the green rectangle.

10.18.8 How to set the counting options

To configure the counting options, the user has to click on *Counter options*: a window with the different configuration options will appear (see picture below).



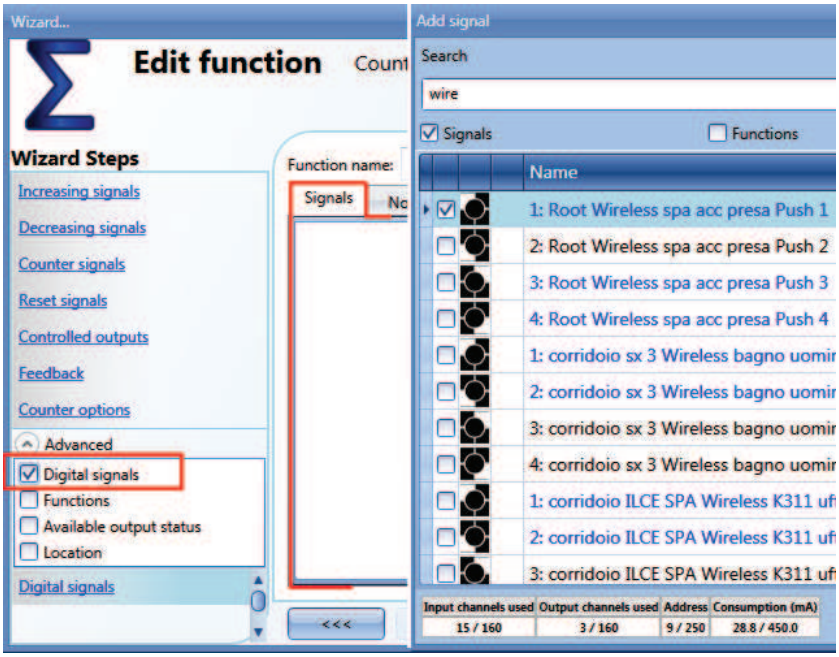
In this window, the user has to set the *Reset value* of the counter at start-up, the *maximum* and the *minimum* values the counter is to have and above or below which the counter will not go, and the *Delta time,* which is the interval time used to calculate how much the counter has been increased.

Delta= Counter $_{\text{Delta time}}$ - Counter $_{\text{Delta time-1}}$
This is also the value logged if the *Delta time* is not zero. If *Delta time* is set to 0, no delta calculation is

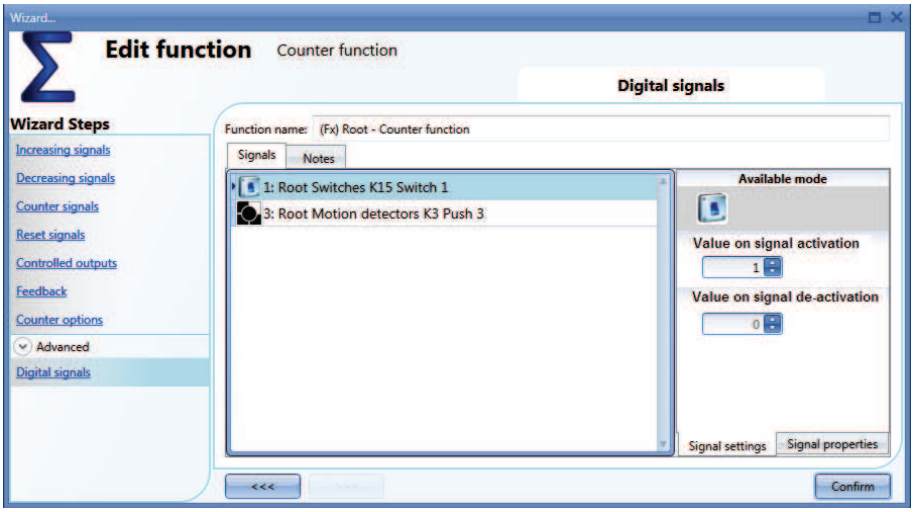
made.
If the field *Enable roll-over* is selected, the function starts again from the minimum value once the maximum value is reached. If the roll-over is not enabled, once the maximum is reached, the function stops at this value.

10.18.9 How to set a predefined value using signals

If the user needs to set a predefined value activating a signal (e.g. the output is set to 10 if a push button is pressed), in the *Advanced* settings *Digital signals* has to be selected.

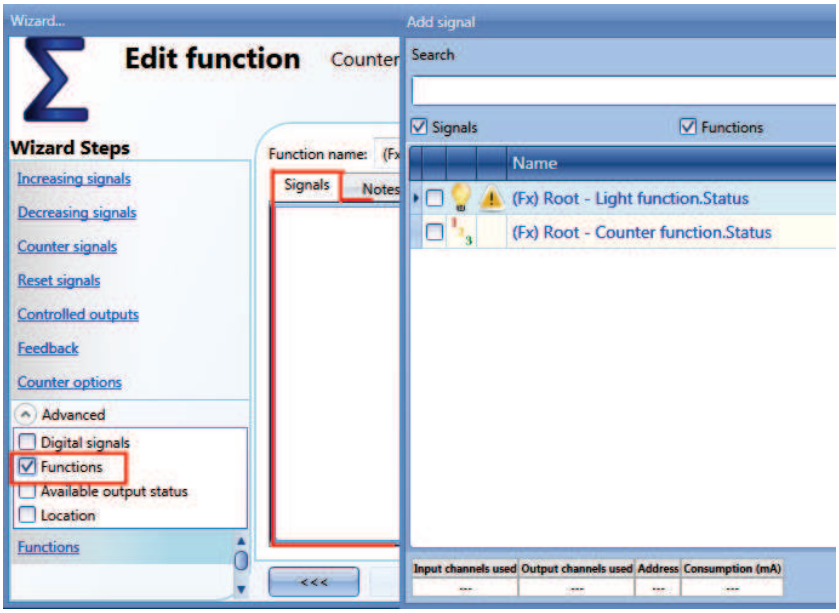


As shown in the picture below, in the *Signal settings* tab window, the user can define the value the counter function is to have when the signal is activated (*Value on signal activation*) and the value the function is to have when the signal is deactivated (*Value on signal de-activation*).
Different settings can be configured for each output.



10.18.10 How to set the counter function equal to another function

If the user needs to set the counter function equal to another function, *Function* has to be selected in the *Advanced* settings.



10.18.11 How to log the outputs of the counting function

To be logged, the counter function has to be added to the database in the usual way.
In the logged file, two columns will be present: the first one (*COUNTER 1*) indicates the total value calculated; the second one (*COUNTER 2*) the difference in the Delta time:

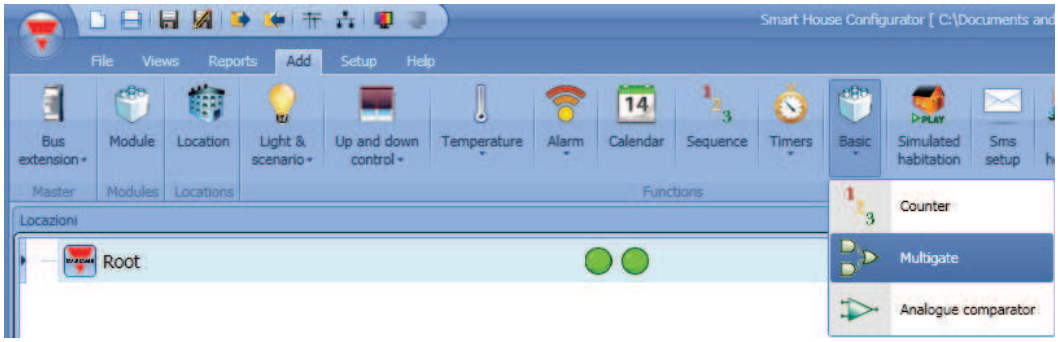
Delta= Counter $_{\text{Delta time}}$ - Counter $_{\text{Delta time-1}}$

Since the *Delta time* can be different from the sampling time, the difference calculated from two consecutive rows in column *COUNTER 1* might not correspond to the relevant line in column *COUNTER 2*. If *Delta time* is set to 0, the column *COUNTER 2* will not be present.

A	B	C	D	F	G	L	M
Position	Timestam	Date	Hour	Object Name	Location Name	COUNTER 1	COUNTER 2
3	1,4E+09	07/07/2014	15:08:30	(Fx) Root - Counter function1	Root	10	0
4	1,4E+09	07/07/2014	15:09:30	(Fx) Root - Counter function1	Root	31	21
5	1,4E+09	07/07/2014	15:10:30	(Fx) Root - Counter function1	Root	31	0
6	1,4E+09	07/07/2014	15:11:30	(Fx) Root - Counter function1	Root	39	0
7	1,4E+09	07/07/2014	15:12:30	(Fx) Root - Counter function1	Root	42	11
8	1,4E+09	07/07/2014	15:13:31	(Fx) Root - Counter function1	Root	47	5
9	1,4E+09	07/07/2014	15:14:30	(Fx) Root - Counter function1	Root	47	0
10	1,4E+09	07/07/2014	15:15:30	(Fx) Root - Counter function1	Root	47	0
11	1,4E+09	07/07/2014	15:16:30	(Fx) Root - Counter function1	Root	47	0
12	1,4E+09	07/07/2014	15:17:30	(Fx) Root - Counter function1	Root	47	0
13	1,4E+09	07/07/2014	15:18:30	(Fx) Root - Counter function1	Root	47	0
14	1,4E+09	07/07/2014	15:19:30	(Fx) Root - Counter function1	Root	47	0
15	1,4E+09	07/07/2014	15:20:30	(Fx) Root - Counter function1	Root	47	0
16	1,4E+09	07/07/2014	15:21:30	(Fx) Root - Counter function1	Root	47	0
17	1,4E+09	07/07/2014	15:22:30	(Fx) Root - Counter function1	Root	47	0
18	1,4E+09	07/07/2014	15:23:30	(Fx) Root - Counter function1	Root	47	0
19	1,4E+09	07/07/2014	15:24:30	(Fx) Root - Counter function1	Root	47	0
20	1,4E+09	07/07/2014	15:25:30	(Fx) Root - Counter function1	Root	47	0

10.19 How to set a multigate function

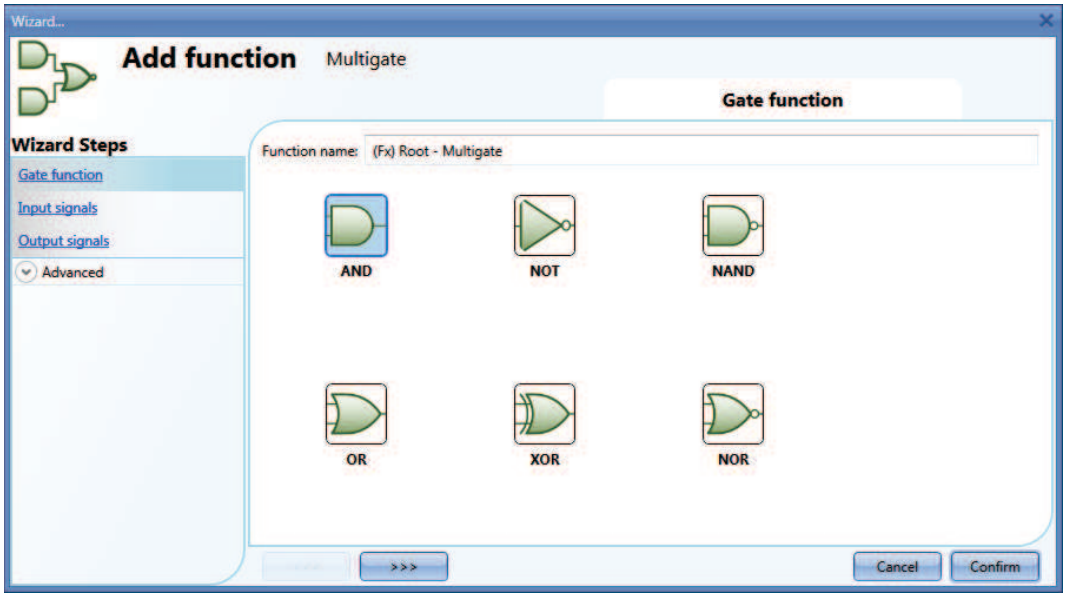
The multigate function can be used to perform a logical operation with one or more inputs to have a single logic output status.
To set up a multigate function the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Multigate function can also be opened by typing Alt+A+7+M.



The multigate function can be used to perform different actions: for example to collect signals from more than one point to monitor, for example, door contacts or window switches in an alarm function, or to monitor more signals and/or functions to get a quick overview of a status.
The user can link together more multigate functions to achieve customized logical functions.

10.19.1 How to select the logic operation

In the first step of the wizard, the user can select the logic operation of the multigate function by clicking on the required icon (in the picture below the AND logic is selected).

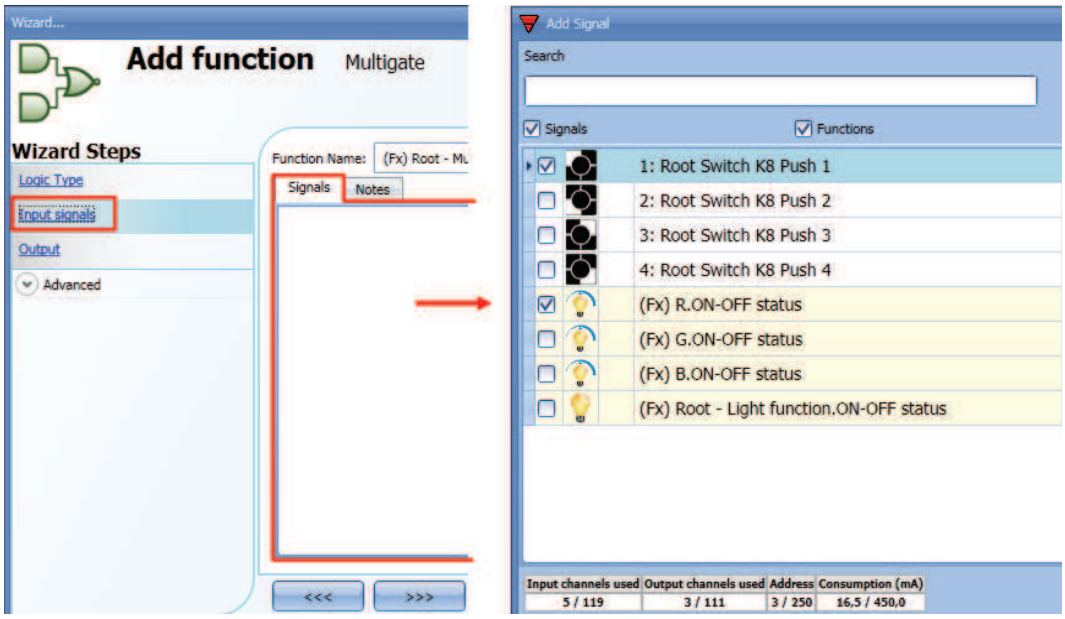


The selectable logic operators are:

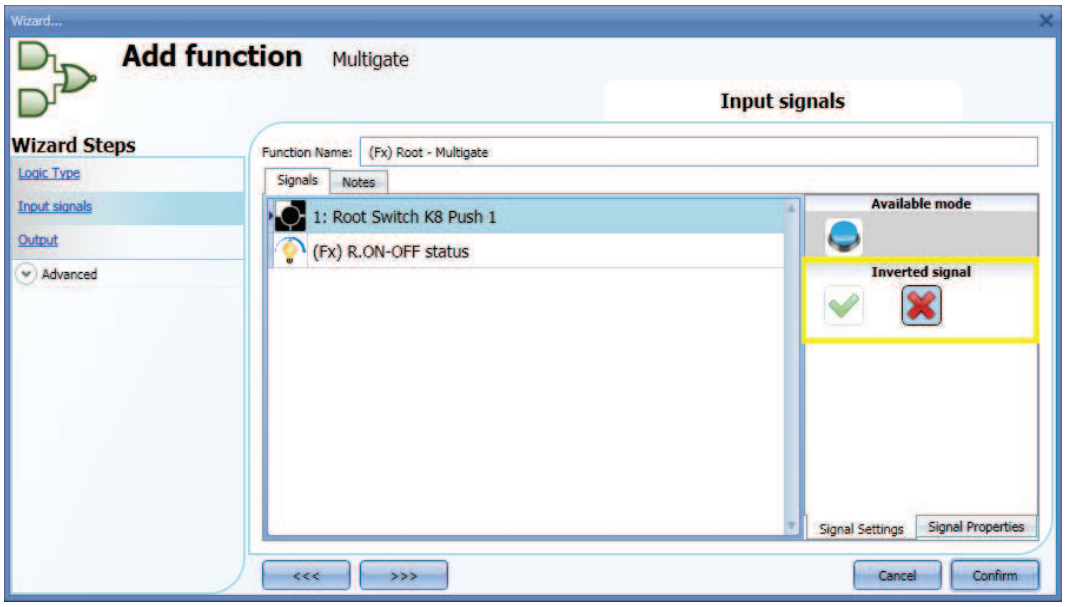
- And
- Not
- Nand
- Or
- Xor
- Nor

10.19.2 How to add the input signals

In the *Input signals* step of the wizard, the user should enter all the signals used for the logic operation of the multigate function.
The user can use physical signals such as pushbutton or switch, or status signals from the other functions configured in the project. Up to 100 input signals can be added.
When the NOT logic is selected, only the first added input signal will be inverted.

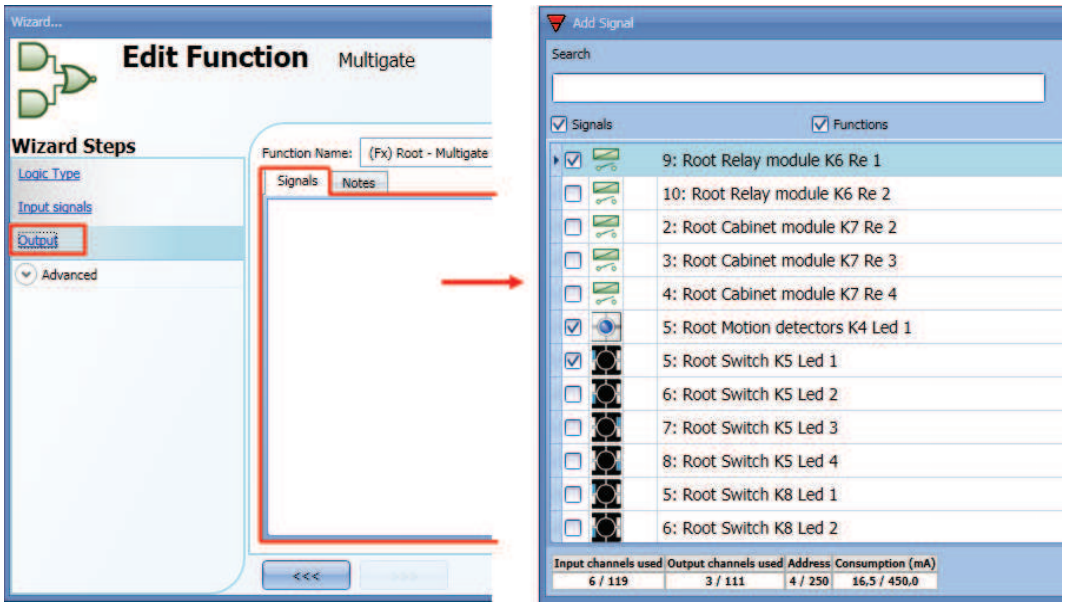


Once the input signals are entered, the user can also choose to use the inverted logic (see yellow rectangle in the picture below).
The inverted logic is enabled by selecting the green V.

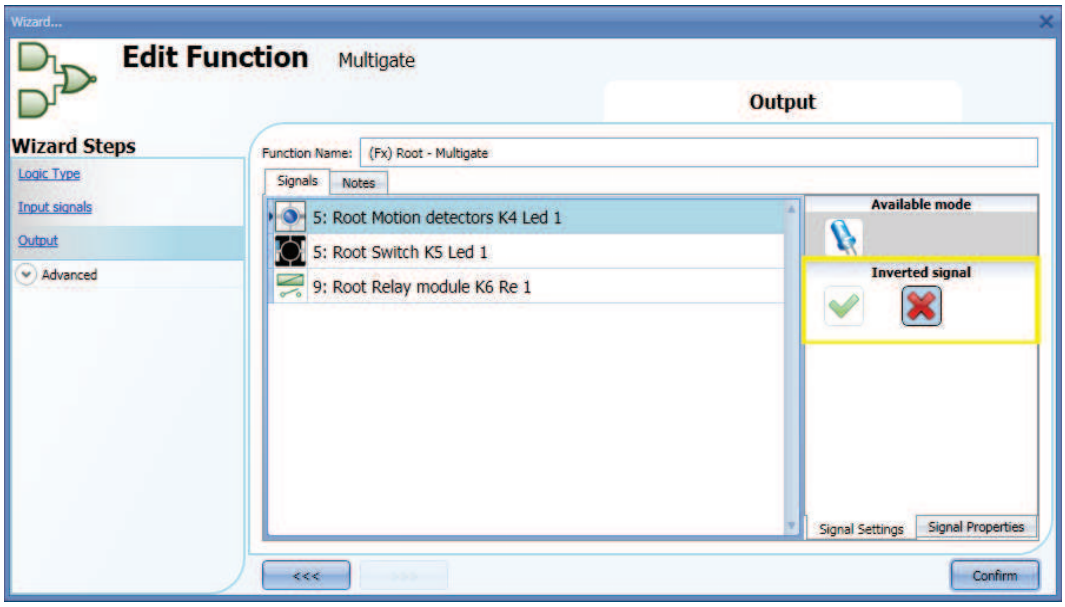


10.19.3 How to add the output signal

The multigate can be used as an input signal for other functions or an output signal can be directly activated by it.



Once the output signals are entered, the user can also choose to use the inverted logic of the signal (see yellow rectangle in the picture below).
The inverted logic is enabled by selecting the green V (when the multigate function is activated, the output stays deactivated).

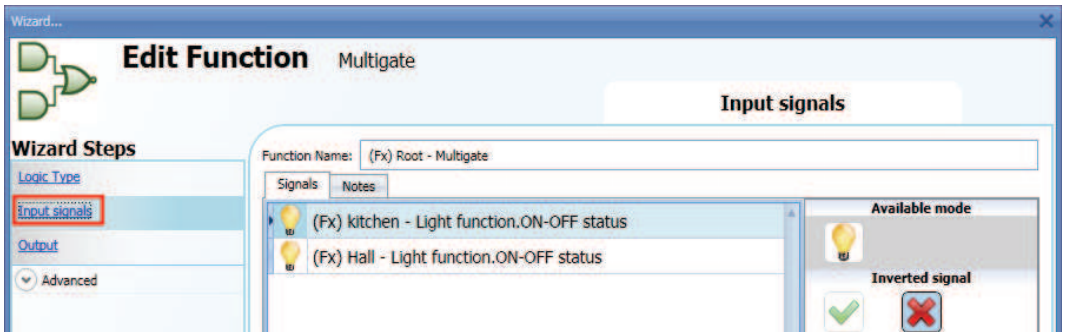


10.19.4 How to check the status of more functions

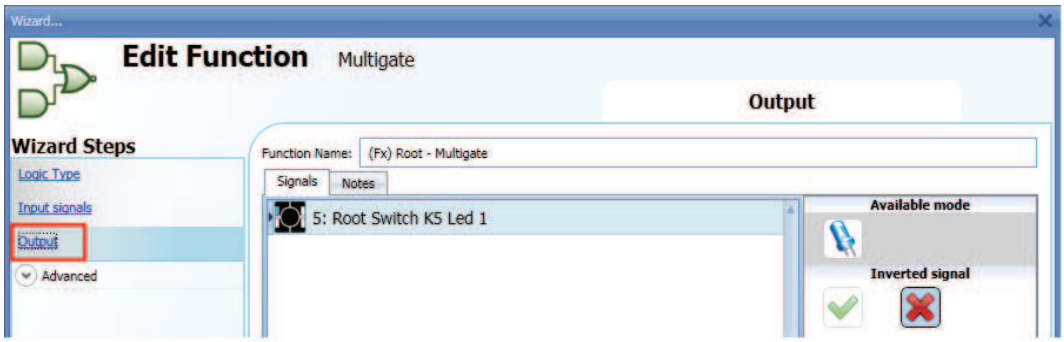
In the first example, the multigate function is used to check the status of two light functions: when both the lights are on, the multigate is activated. The status of the multigate is indicated by the LED output.

The *Logic type* used is the AND gate.

In the *Input signals* step, the user has to add the two light functions.



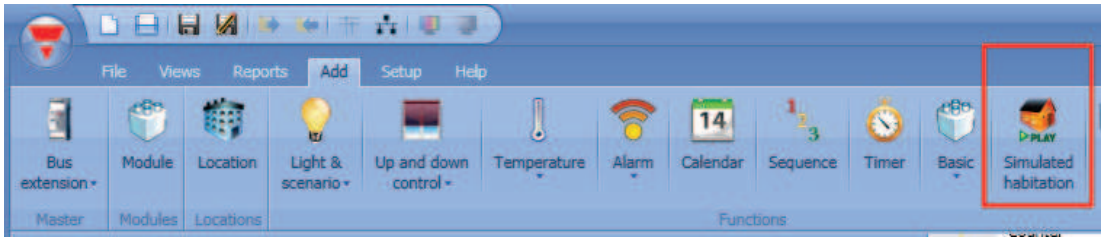
In the *Output signals* step, the user has to add the LED signal.



When both the two lights are ON, the multigate function is activated and the LED output is on.

10.20 How to set the simulated habitation function

The simulated habitation function can be used to give the impression that the house is inhabited even if the user is out.
To set up a simulated habitation function the user has to select *Simulated habitation* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Simulated habitation function can also be opened by typing Alt+A+D. (See table of short cuts).



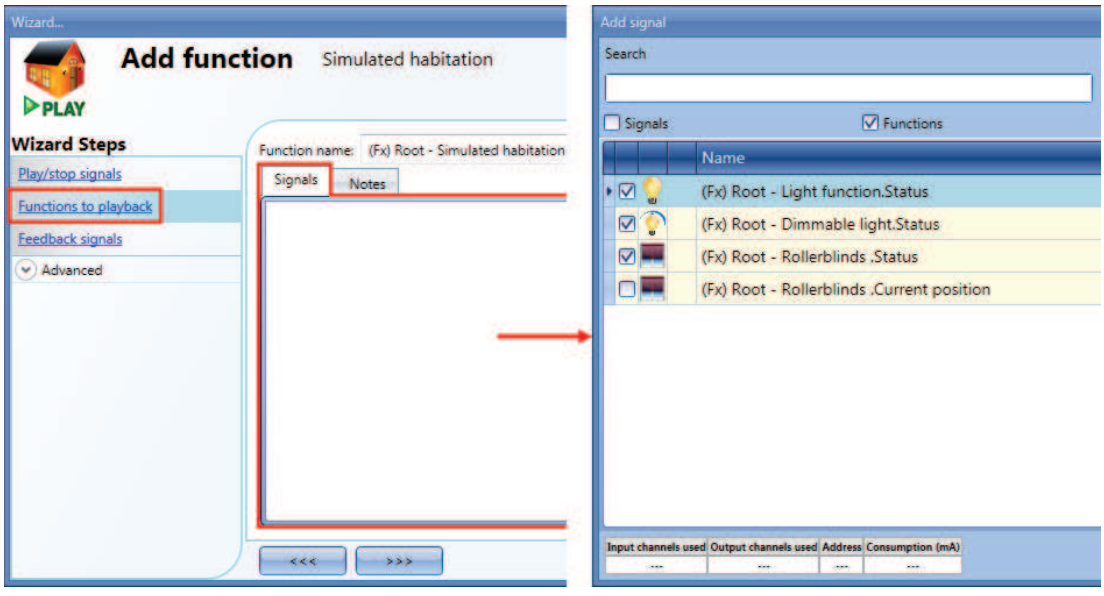
In the Simulated habitation function, the user can add all the functions that he wants to reproduce and that have been recorded during the previous week.
The system always records every change in the output status of the selected function when it is not in playback, and then, when the signal used to start the playback is active, the pattern that has been recorded during the past week is played back.
The system does not record any event when the function is in playback mode.

10.20.1 How to add a function to be recorded

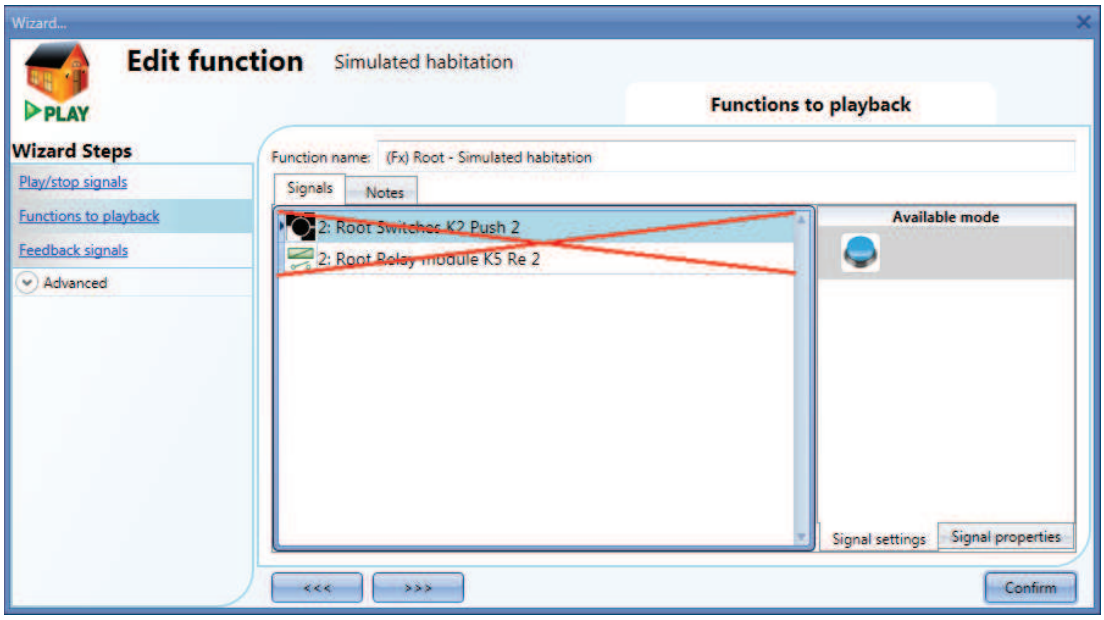
The functions that can be recorded are:

- Light on/off
- Dimmable light
- Rollerblind
- Siren
- Timer (only interval type)

To select the output signals that have to be recorded and played back by the simulated habitation function, click on *Functions to playback* and then double click on the Signals window. Once the output window is opened, select the required functions from the list (see picture below).
Only Functions can be recorded.



Other types of signals (e.g. relays, push buttons), will not be recorded.



Each added function is automatically recorded. The logging starts as soon as the configuration file is written into the Sx2WEB24. The recording period is a week (the week starting from the writing of the configuration) and when it ends the new data overwrites the previous data.

Example:
In this simple example, the user has set up a simulated habitation function in order to record a light function. The recording starts as soon as the configuration is written (Monday at 12:00) and ends the following week at the same time (highlighted in yellow in the picture below).
Starting from Monday in week 2, all the actions recorded the previous week are overwritten with the new light activations.

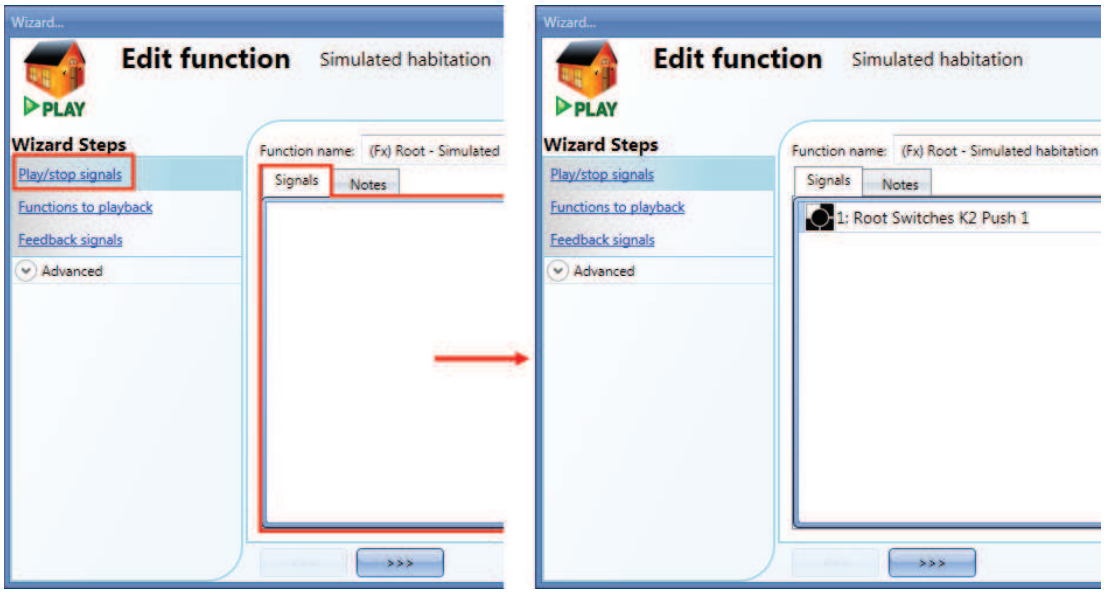
Week 1							Week 2		
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
12:00 Write configuration	10:00 light on 11:30 light off	14:00 light on 19:00 light off	17:00 light on 21:00 light off		18:00 light on 23:00 light off	13:00 light on 19:00 light off	12:00 End of the recording week		

Let us assume that the controller has been running for some time, and at 10:00 on Wednesday week 2 the user leaves the house for a holiday and activates the playback of the simulated habitation.
All the patterns recorded the previous week are played back (highlighted in blue), giving the impression that somebody is using the light in the house.

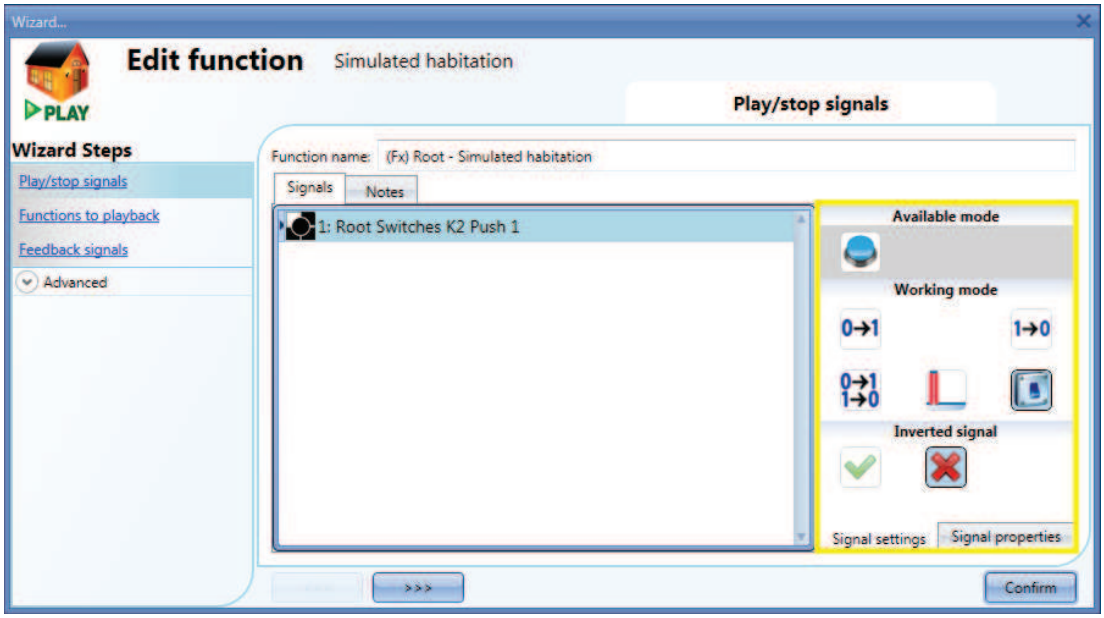
Week 1							Week 2						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12:00 Write configuration	10:00 light on 11:30 light off	14:00 light on 19:00 light off	17:00 light on 21:00 light off		18:00 light on 23:00 light off	13:00 light on 19:00 light off			10:00 start playback 14:00 light on 19:00 light off	17:00 light on 21:00 light off		18:00 light on 23:00 light off	13:00 light on 19:00 light off

10.20.2 How to play/stop the simulated habitation function

To add a play/stop signal, the user has to select the relevant section *Play/stop signals* in the menu, then double click on the *Signals* window and select the input signal from the list (see picture below).



When the signal is added, the user should select the working mode and the type of the event required:



If a push button type is selected, the way of working has to be selected according to the table below.

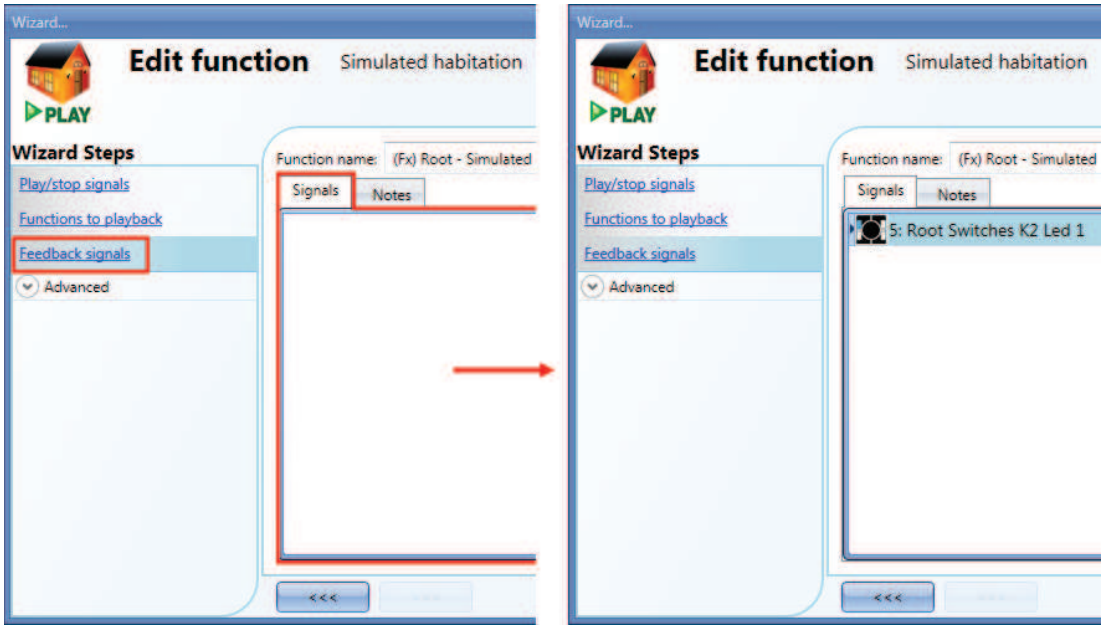
	Event type			
Working mode				
1→0	As soon as the push button is pressed, the function is played.	After a short press (less than 1 second), the function is played at the release of the push button.	After a long press, the function is played at the release of the push button.	After a very long press, the function is played at the release of the push button.
0→1	As soon as the push button is pressed, the function is stopped.	After a short press (less than 1 second), the function is stopped at the release of the push button.	After a long press, the function is stopped at the release of the push button.	After a very long press, the function is stopped at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the function will be played/stopped in toggle mode.	After a short press (less than 1 second), the function will be played/stopped in toggle mode at the release of the push button.	After a long press, the function will be played/stopped in toggle mode at the release of the push button.	After a very long press, the function will be played/stopped in toggle mode at the release of the push button.
	The function will be played/stopped in toggle mode when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the setting of the working mode has to be carried out following the table below:

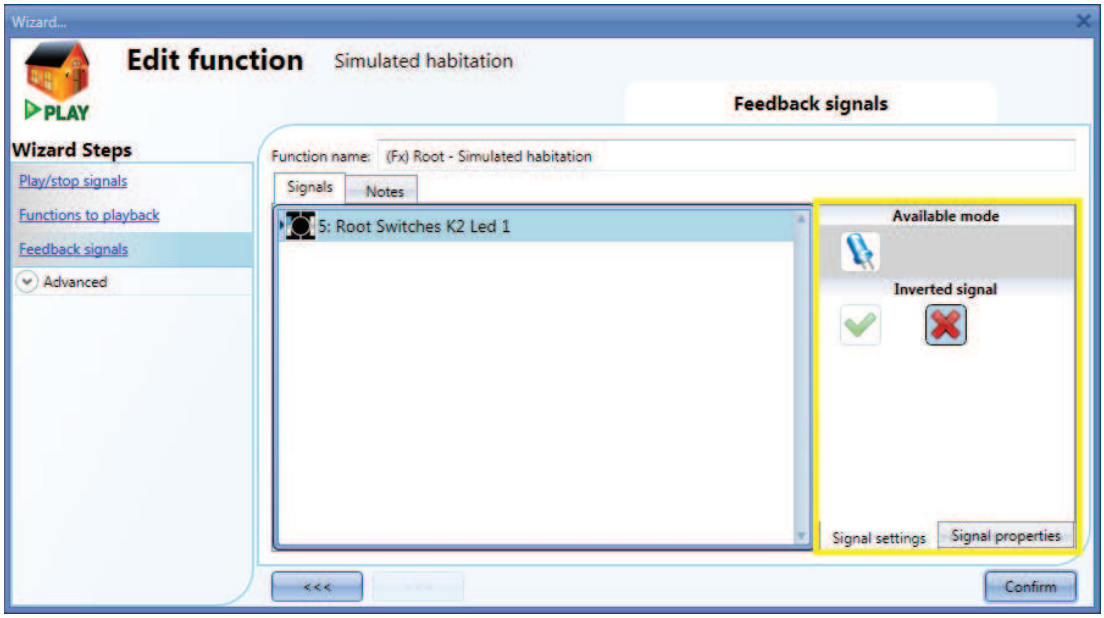
	Event type	
Working mode	**Signal activated**	**Signal deactivated**
1→0	The function is played	No action
0→1	The function is stopped	No action
0→1 1→0	The automation is played/stopped in toggle mode	No action
	The automation is played/stopped in toggle mode	The automation is played/stopped in toggle mode

10.20.3 How to add the feedback signals

If the user wants a feedback signal to check the status of the simulated habitation function, he has to select the relevant section, then double click on the *Signals* window and then add the input signal from the list of those available (see picture below).
The feedback signal can be a relay, a LED or a buzzer, and it behaves according to the status of the function: when the function is in *play* mode, the feedback is on; when the function is in *stop* mode, the feedback is off.

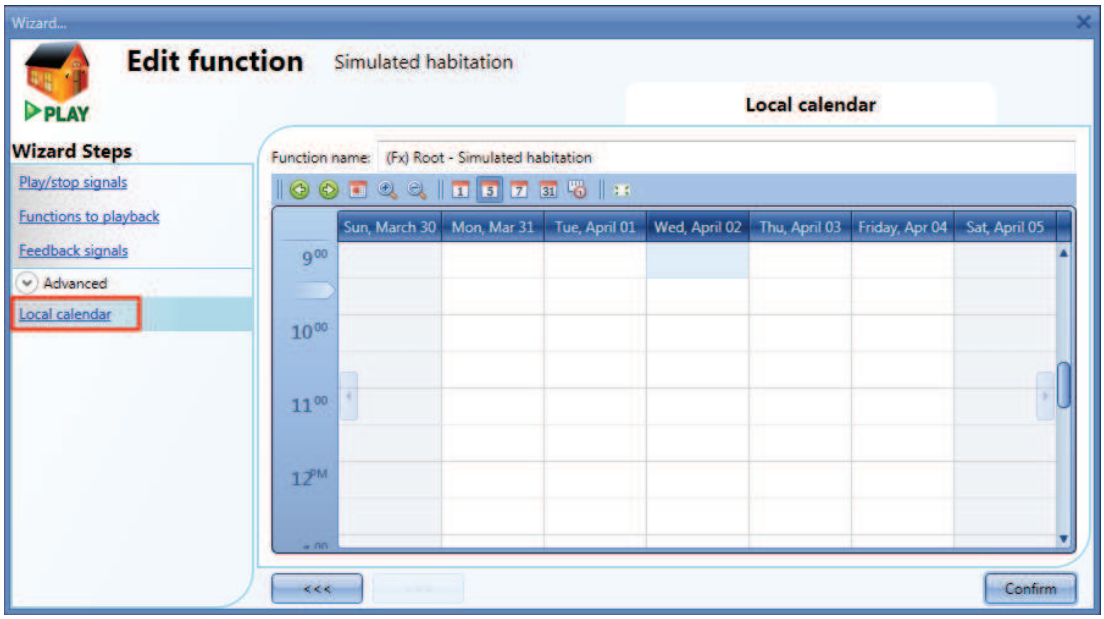


Once the feedback signal is entered, the user can also choose to use the inverted logic (see yellow rectangle in the picture below). The inverted logic is enabled by selecting the green V.



10.20.4 How to play/stop the function using a calendar

The user can play/stop the simulated function by setting the calendar inside the function.
To enable it, select *Local calendar* in the *Advanced* section (see picture below).

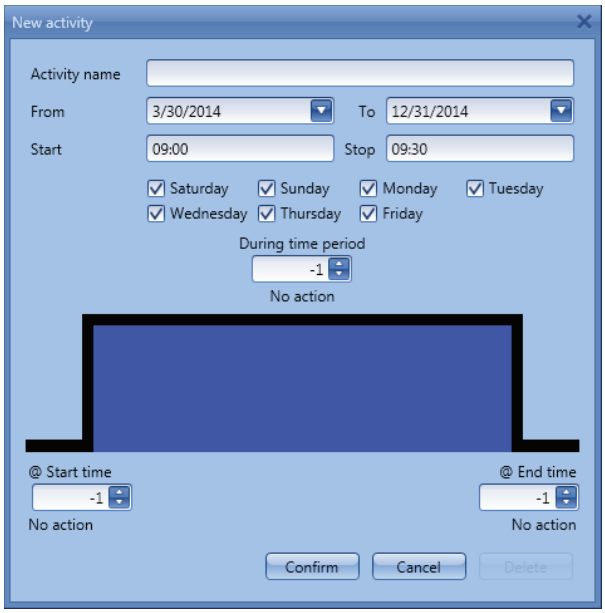


The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as seen below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day.
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activities
Once the user has selected his preferred visualization, to enter a time band he should double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

@ start time: in this field the user can select the action of the function at start time.
At the start time the actions that the user can choose are:

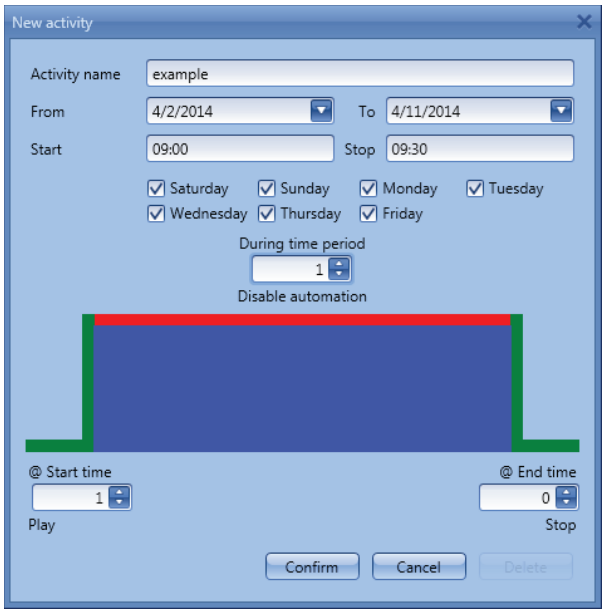
- No action (-1)
- Stop the simulation (0)
- Play the simulation (1)

@ end time: in this field the user can select the action of the function at end time.
At the stop time the actions that the user can choose are:

- No action (-1)
- Stop the simulation (0)
- Play the simulation (1)

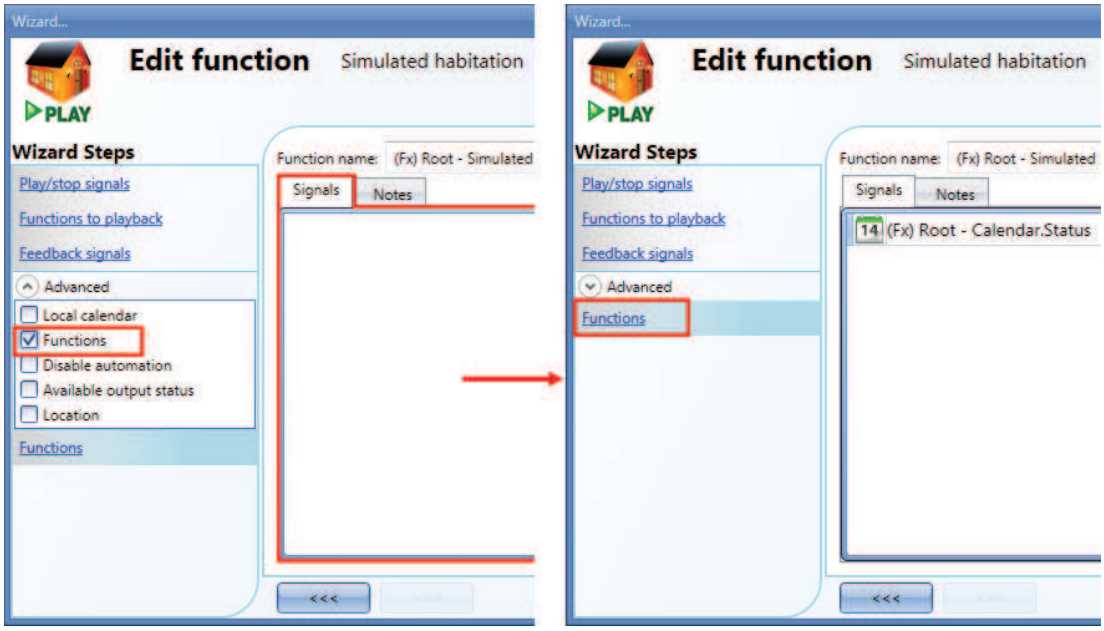
Days: The user should select the days when the calendar has to work.

In the example below, the calendar is set to play the simulation at 09:00 on 2nd April.



10.20.5 How to play/stop Simulated habitation using a Function

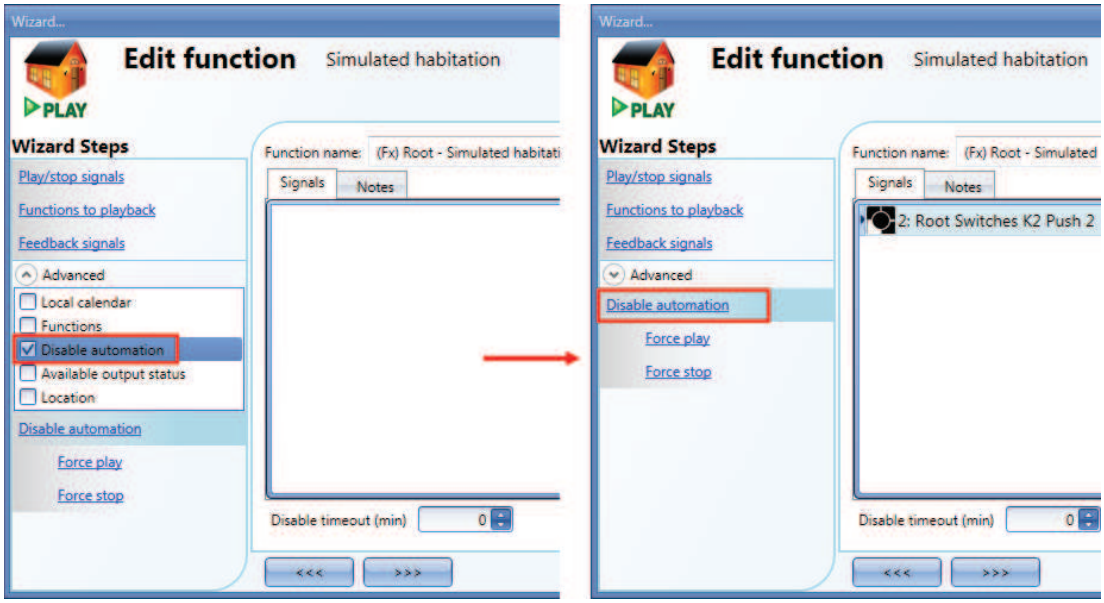
The user can play/stop the simulated habitation by means of a Function such as the *Global calendar*, the L*ight function*, etc…To use it, select *Functions* in the *Advanced* section; then double click on the *Signals* window and select the appropriate function to be used (see picture below):



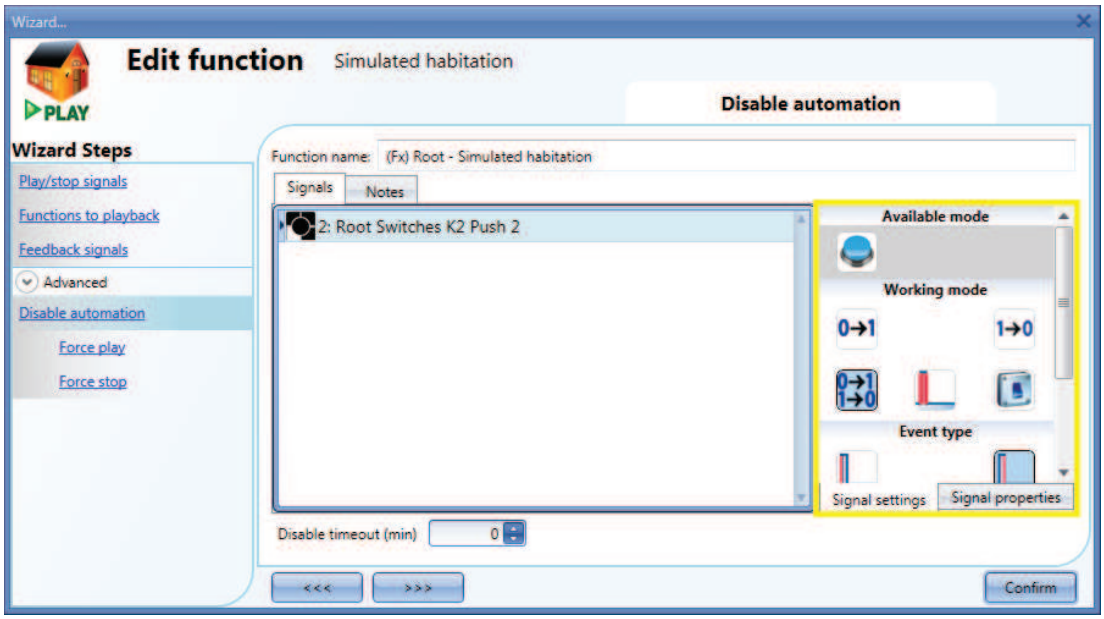
The playback of the simulated habitation acts according to the function status: when the function is active, the simulation is played; when the function is not active, the simulation is stopped.

10.20.6 How to disable the calendar automation

If the user wants to disable the automation from the internal calendar, the *Disable automation* field has to be used: to enable it, select *Disable automation* in the *Advanced* section, then double click on the signal window and select the appropriate signal to use (see picture below).



When the signal is added, the user should select the working mode and the type of the event required:



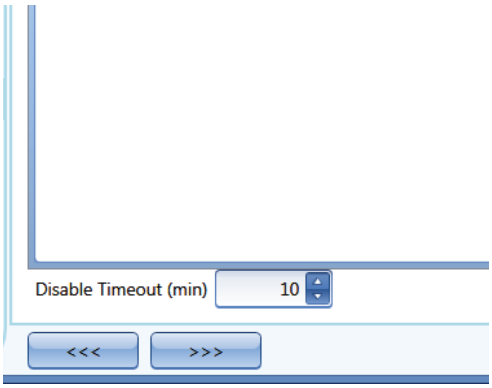
If a push button type is added, the working mode, highlighted with the yellow rectangle, has to be selected according to the table below:

Working mode	Event type			
				
0→1 Switch on event	As soon as the push button is pressed, all automations are disabled.	After a short press (less than 1 second), at the release of the push button all automations are disabled.	After a long press, all automations are disabled at the release of the push button.	After a very long press, all automations are disabled at the release of the push button.
1→0 Switch off event	As soon as the push button is pressed, the automations are enabled again.	After a short press (less than 1 second), the automations are enabled again at the release of the push button.	After a long press, the automations are enabled again at the release of the push button.	After a very long press, the automations are enabled again at the release of the push button.
0→1 1→0 Event toggle	As soon as the push button is pressed, the automations will be disabled/enabled in toggle mode.	After a short press (less than 1 second), the automations will be disabled/enabled in toggle mode at the release of the push button.	After a long press, the automations will be disabled/enabled in toggle mode at the release of the push button.	After a very long press, the automations will be disabled/enabled in toggle mode at the release of the push button.
Level signal	The automations will be disabled/enabled in toggle mode when the push button is pressed and toggled again when the push button is released.			

If a switch signal is used, the setting of the working mode has to be carried out following the table below:

Working mode	Event type	
	Signal activated 	Signal deactivated 
0→1 Switch on event	The automations are disabled	No action
1→0 Switch off event	The automations are enabled	No action
0→1 1→0 Event toggle	The automations are disabled/enabled in toggle mode	No action
Level signal	The automations are disabled/enabled in toggle mode	The automations are disabled/enabled in toggle mode

If the user needs to be sure that the disabling of the automation is automatically removed, the *disable automation timer* has to be set.



The timer starts every time the reset status becomes activated. The disable status is automatically deactivated as soon as the time has elapsed.
The timer starts each time the disable status becomes activated: the disable status is automatically deactivated as soon as the time has elapsed.
In the figure above, a disable timeout of 10 minutes is set. The maximum delay is 59minutes.

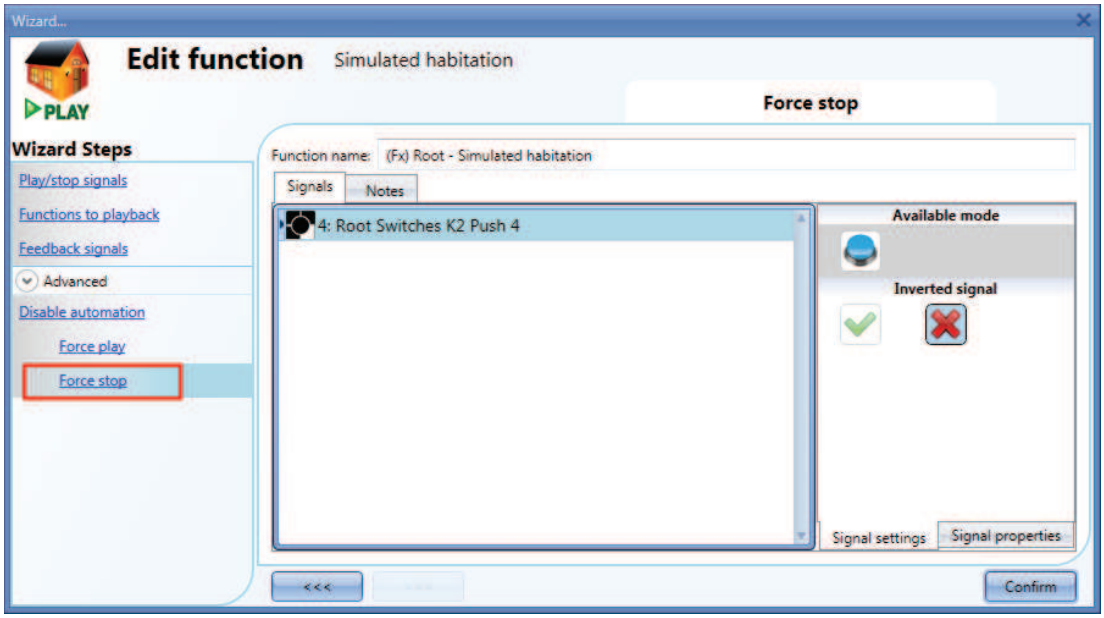
10.20.7 How to force the function to play

If the user wants to force the playback of the simulated habitation regardless of all other signals used in the function, the *Force play* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force play*, then double click on the signal window and select the appropriate signal to use (see picture below).

Each signal used in the *Force play* window works as a level signal. Until the signal is active, the function is forced to play.
When the *Force play* signal is activated and at the same time the *Force stop* signal is activated, the *Force play* signal has priority.

10.20.8 How to force the function stop

If the user wants to force the stop of the simulated habitation regardless of all other signals used in the function, the *Force stop* step has to be used: to enable it, select *Disable automation* in the *Advanced* section, select *Force stop*, then double click on the signal window and select the appropriate signal to use (see picture below).



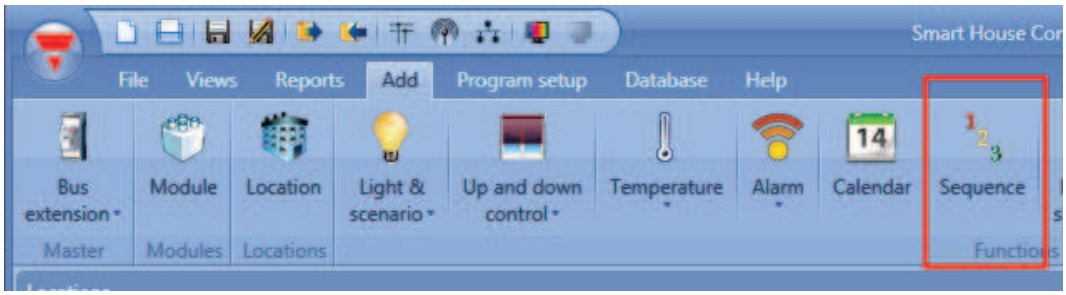
Each signal used in the *Force stop* window works as a level signal. Until the signal is active, the function is forced to stop (no simulation active).
When the *Force play* signal is activated and at the same time the *Force stop* signal is activated, the *Force play* signal has priority.

10.21 How to set the sequence function

The sequence function allows the user to put together the functions already created and activate/deactivate them with just one click.
All the selected functions are activated according to a certain time and order. The sequence starts activating the first function in the list and goes on to activate the others following the predefined order, until the last function in the list is executed.

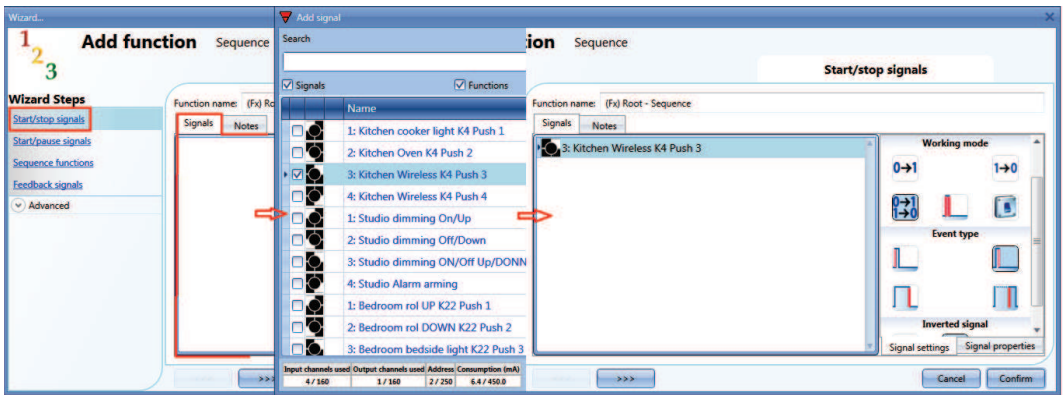
The functions that can be controlled are: lights, roller blinds and windows, intruder alarm, sirens, timers and zone temperature functions.

To add a sequence function the user should select *Sequence* from the Add menu (see picture below).
The new function will be added in the selected location.
The wizard relevant to a Sequence function can also be opened by typing Alt+A+S



10.21.1 How to set the start/stop signals

If the user wants to add the start/stop signals, he has to select the relevant field, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



The input signal can be used either to start or to stop the sequence. Every time the sequence is started, it restarts from the beginning.

If a push button type is added, the working mode should be selected according to the table below:

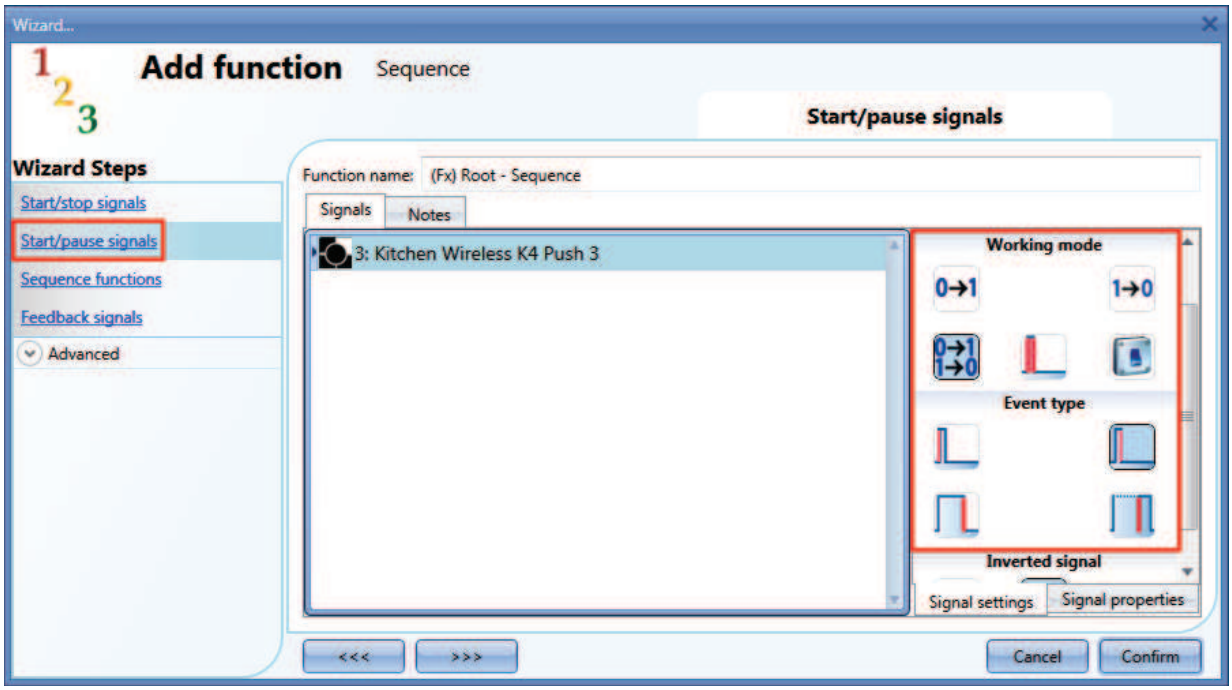
Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, the sequence is started.	After a short press (less than 1 second), the sequence is started at the release of the push button.	After a long press, the sequence is started at the release of the push button.	After a very long press, the sequence is started at the release of the push button.
1→0	As soon as the push button is pressed, the sequence is stopped.	After a short press (less than 1 second), the sequence is stopped at the release of the push button.	After a long press, the sequence is stopped at the release of the push button.	After a very long press, the sequence is stopped at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the sequence will be started/stopped in toggle mode.	After a short press (less than 1 second), the sequence will be started/stopped in toggle mode at the release of the push button.	After a long press, the sequence will be started/stopped in toggle mode at the release of the push button.	After a very long press, the sequence will be started/stopped in toggle mode at the release of the push button.
	The sequence will be started/stopped in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The sequence will be started when the signal goes ON, and it will be stopped when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The sequence is started	No action
1→0	The sequence is stopped	No action
0→1 1→0	The sequence is started/stopped in toggle mode	No action
	The sequence is started/stopped in toggle mode	The sequence is started/stopped in toggle mode
	The sequence is started	The sequence is stopped

10.21.1 How to set the start/pause signals

If the user wants to add the start/pause signals, he has to select the relevant field, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



The input signal can be used either to start or to pause the sequence. Every time the sequence is started, it starts from where it was paused.

If a push button type is added, the working mode should be selected according to the table below:

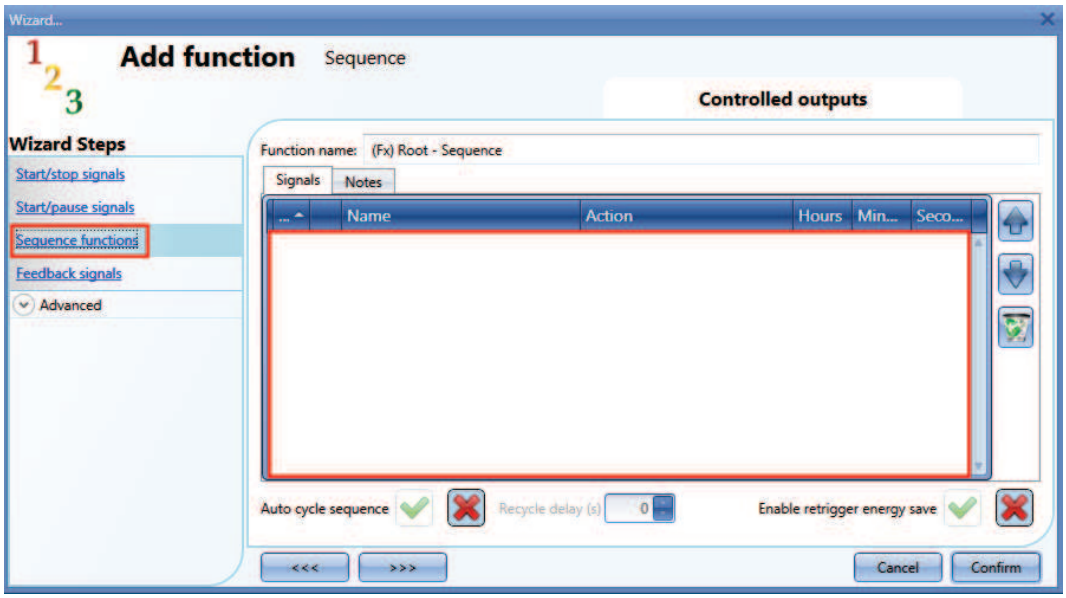
Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, the sequence is started.	After a short press (less than 1 second), the sequence is started at the release of the push button.	After a long press, the sequence is started at the release of the push button.	After a very long press, the sequence is started at the release of the push button.
1→0	As soon as the push button is pressed, the sequence is paused.	After a short press (less than 1 second), the sequence is paused at the release of the push button.	After a long press, the sequence is paused at the release of the push button.	After a very long press, the sequence is paused at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the sequence will be started/paused in toggle mode.	After a short press (less than 1 second), the sequence will be started/ paused in toggle mode at the release of the push button.	After a long press, the sequence will be started/ paused in toggle mode at the release of the push button.	After a very long press, the sequence will be started/ paused in toggle mode at the release of the push button.
	The sequence will be started/ paused in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The sequence will be started when the signal goes ON, and it will be paused when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The sequence is started	No action
1→0	The sequence is paused	No action
0→1 1→0	The sequence is started/paused in toggle mode	No action
	The sequence is started/paused in toggle mode	The sequence is started/paused in toggle mode
	The sequence is started	The sequence is paused

10.21.2 How to add a function to the sequence

If the user wants to add a function to the sequence, he should select the relevant field, then double click on the *Signals* window to enter the list of available functions (see picture below).



Auto cycle sequence: if this option is enabled, the sequence is repeated continuously: each time the last function is executed, the sequence starts again from the beginning. All the functions are executed in a loop and the sequence can be stopped by using the stop signal(s).

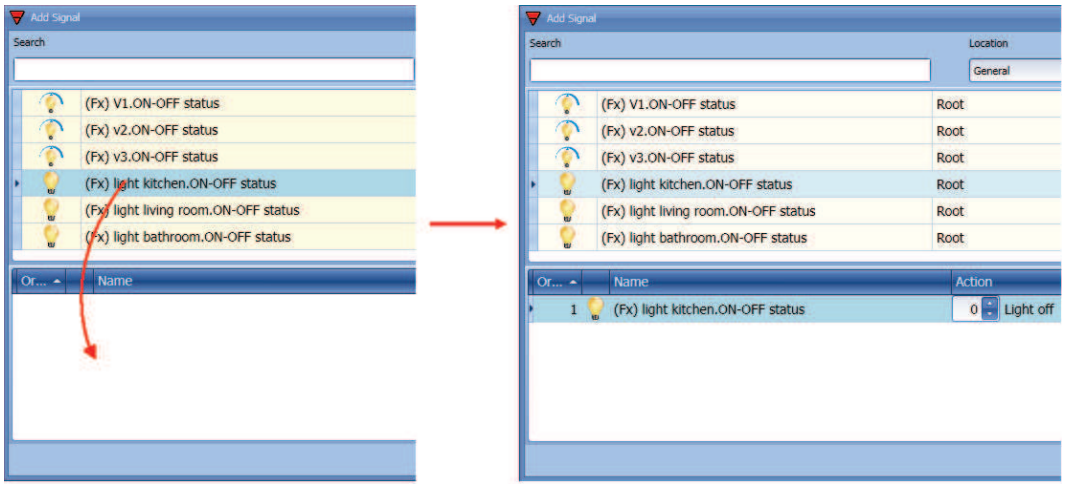
Recycle delay (s): It is the delay (in seconds) between two repetitions of the sequence if the recycling option is enabled.

Enable energy save timer: if this option is enabled, if a light function with energy save timer is started by the sequence, it will be switched off as soon as the relevant timer is expired. If this option is not enabled, the energy save timer is not used in any function.

Once the functions list is opened, the user should select the functions he wants to add.

The functions can be added using *drag-and-drop* according to the following steps:

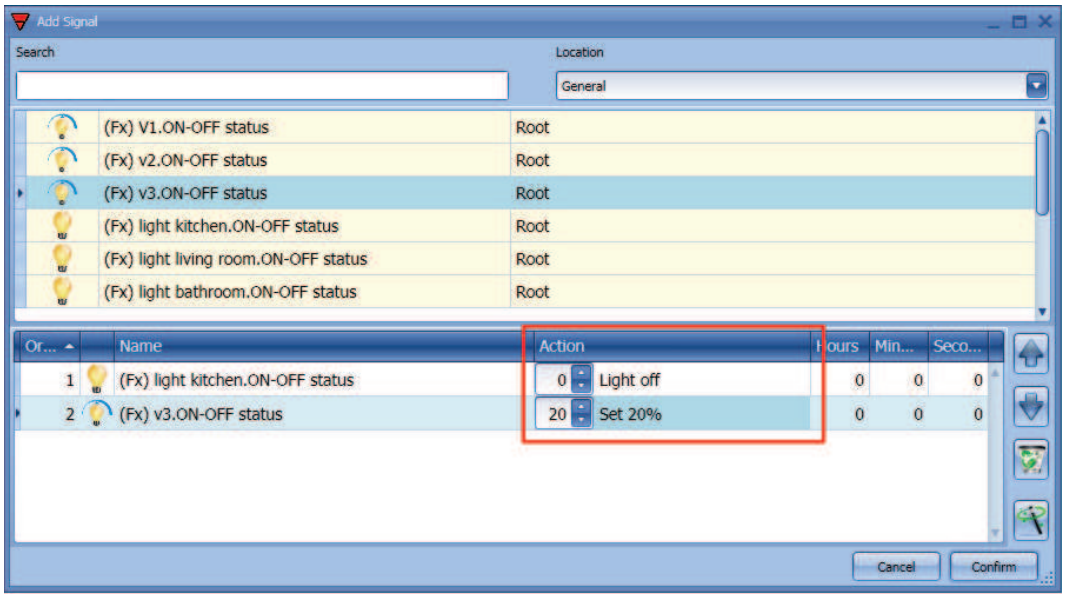
1. Move the mouse pointer until it is directly over the function you want to add.
2. Hold down the left mouse button.
3. With the left mouse button held down, move the pointer to where you want to drop the object (in the bottom window).
4. Drop the object by releasing the left mouse button.
5. The function is now added to the sequence (see picture below).



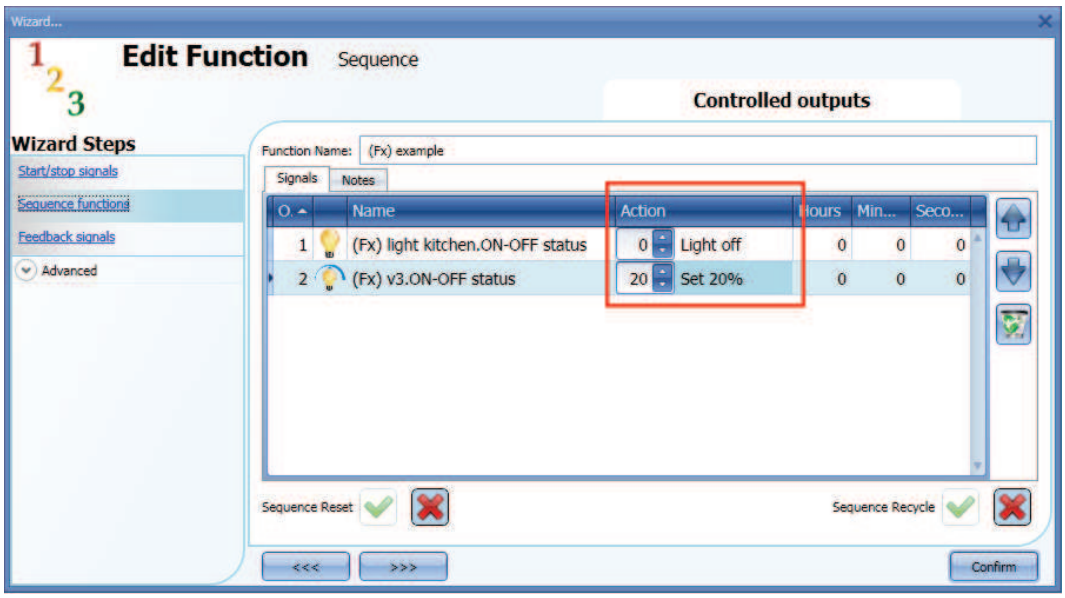
Another way to add a function to the sequence is by double clicking the line of the function.

10.21.3 How to set the action for the functions in the sequence

When a function is added to the sequence, the user can modify the action to be performed. The action of each function can be changed using the spin-box (see picture below).



The user can also change the action of the function in the sequence functions window.

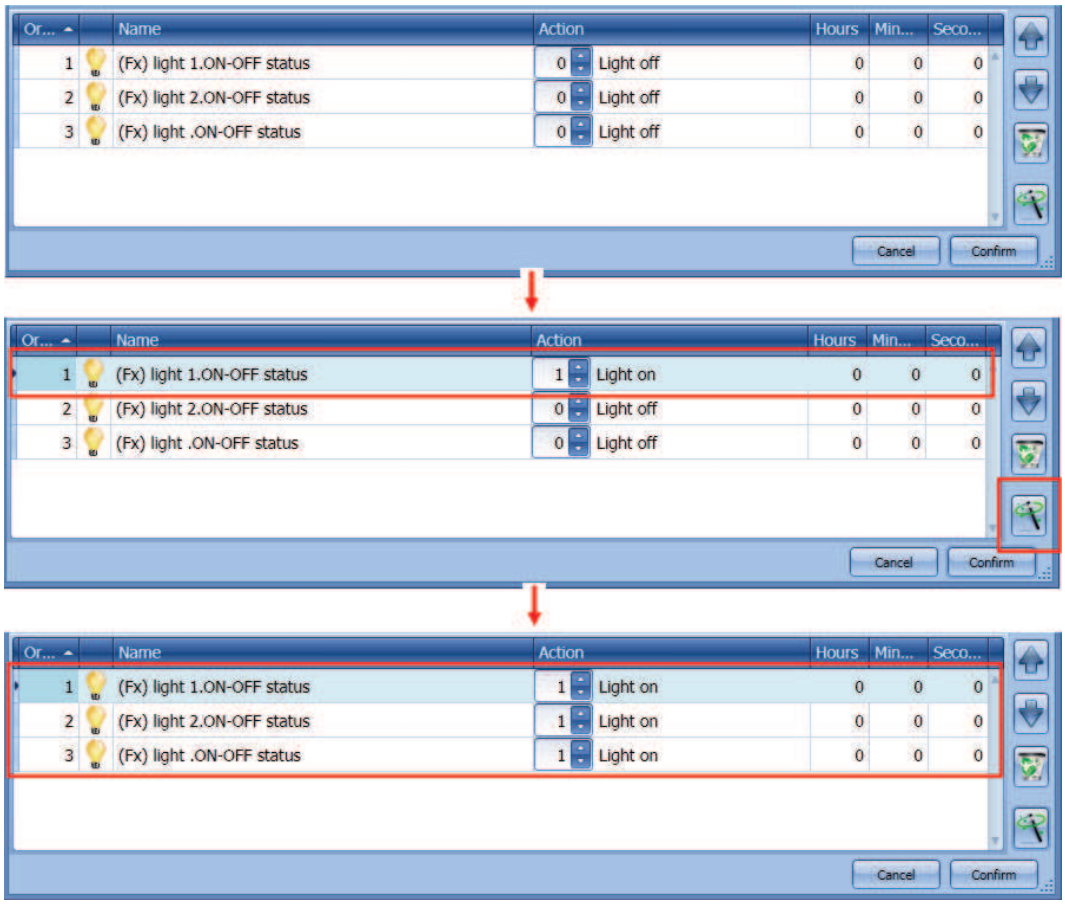


In the table below, all the possible actions are shown according to the type of function:

Function	Available actions
Light on/off	- no action - light ON - light OFF
Dimmable light	- no action - light OFF - set Scenario 1 - set Scenario 2 - set Scenario 3 - set Scenario 4 - set Scenario 5 - set % (from 6 to 100)
Main intruder alarm	- no action - arm intruder alarm - disarm intruder alarm
Rollerblind	- no action - set position (from 1 to 100) - set tilting position (from 1 to 100)
Window	- no action - set position (from 1 to 100)
Zone temperature	- no action - set T1 - set T2 - set T3 - set off
Siren	- no action - trigger ON - trigger OFF
Interval timer	- no action - trigger ON - trigger OFF

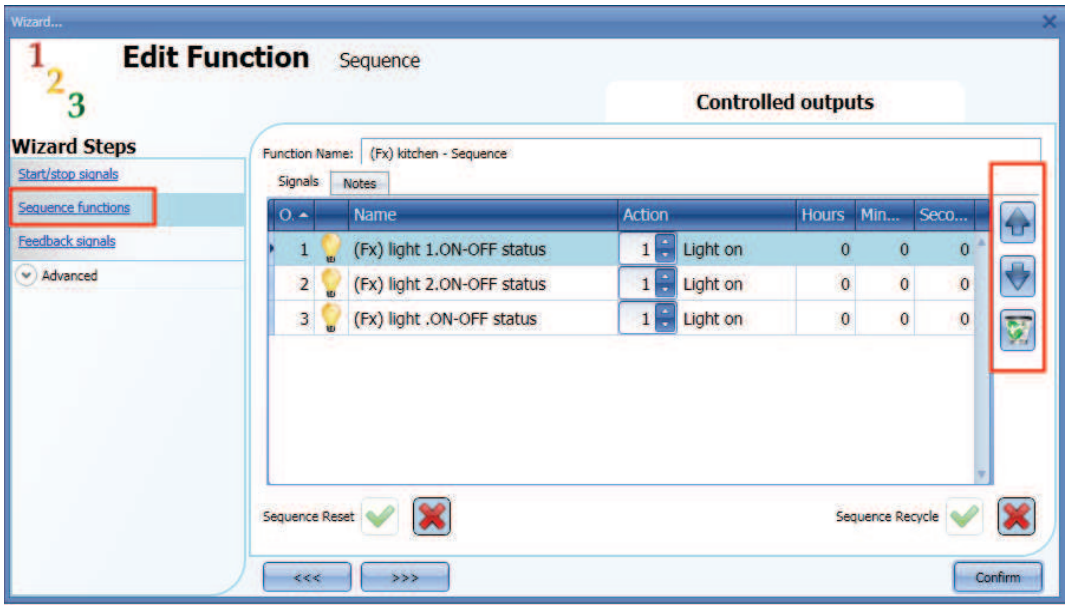
The *Apply to all* icon allows the user to set the same actions for all the functions of the same type with a simple click. This feature is useful to configure a sequence with a number of functions that perform the same action; an example could be a “welcome” sequence, which is used to switch all lights on when the user arrives home.
In the picture below an example of how to use this option is shown.

First, all the required functions have to be added; secondly, the required action has to be selected in one function; thirdly, by clicking on *Apply to all,* the action will be configured in all the functions of the same type.

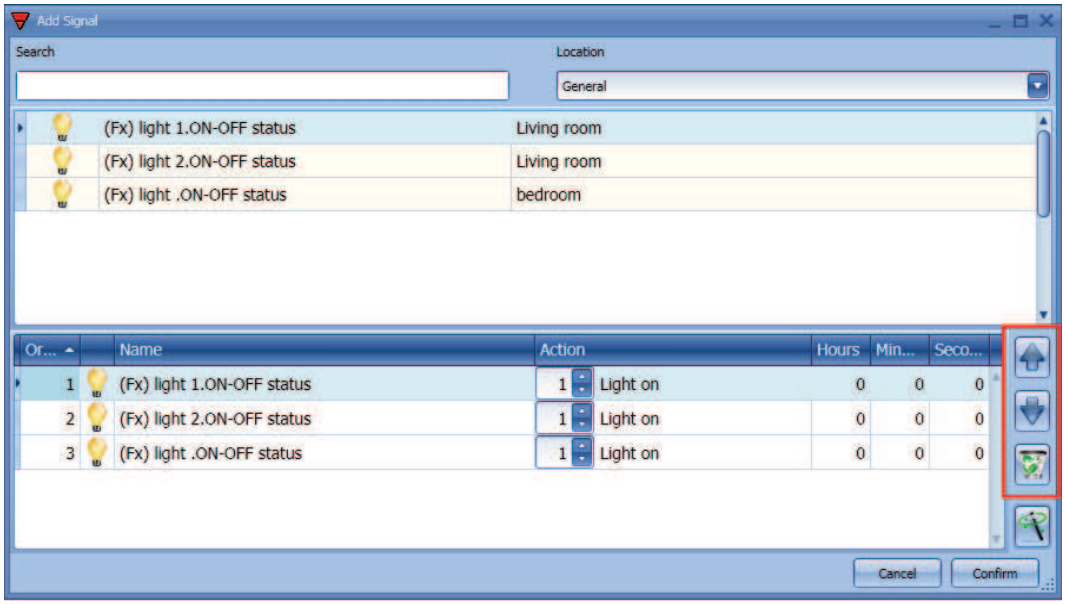


10.21.4 How to modify the sequence

All the functions added to the sequence can be changed at any time. The user can do this in the main window of the sequence function (as shown below).



Or in the window where the functions are added to the sequence.



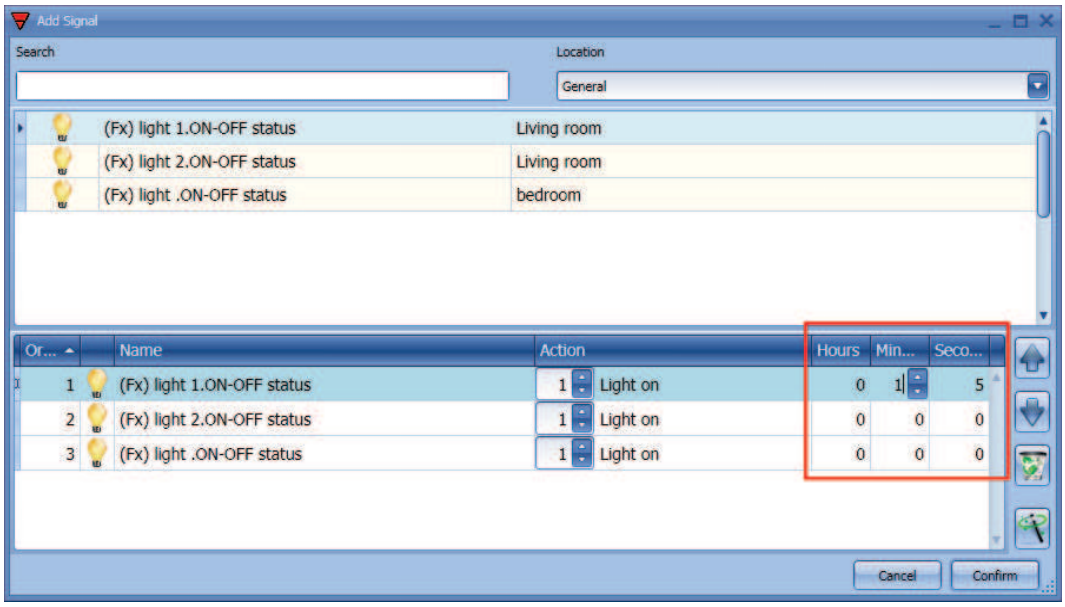
Using the icons on the right side of the window, the user can move up/down or delete a function from the list.

Table of actions:

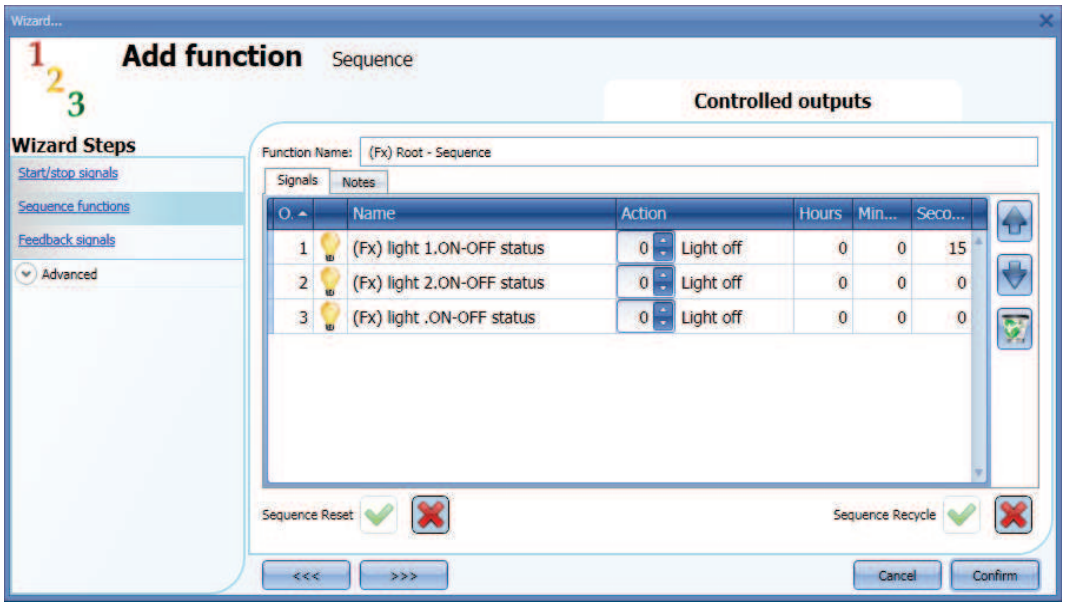
	By clicking on this icon the selected function will be moved upwards
	By clicking on this icon the selected function will be moved downwards
	By clicking on this icon the selected function will be deleted

10.21.5 How set the delay time between the activation of two functions

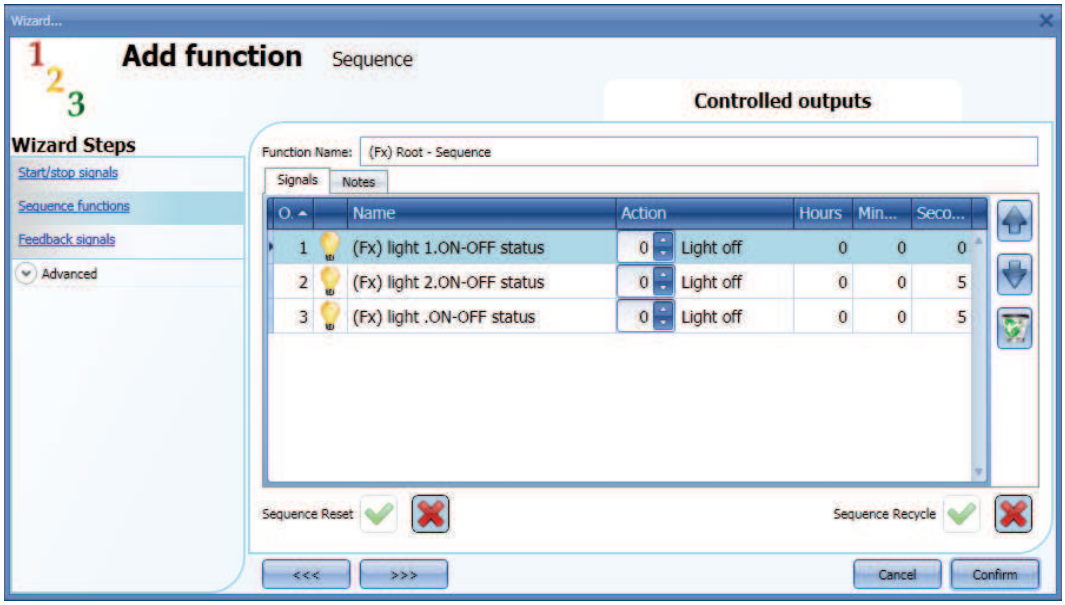
The delay between the activation of two functions can be set with a double click in the field *Hours, Minute, Seconds,* as highlighted by the red rectangle.
If the time value is set to 0, the function is activated without any delay in respect to the previous function. This means that the two functions will be managed at the same time.
In the first function of the list, this time is the delay between the activation of the start command and the activation of the first action.



Example 1:
After 15 seconds from the activation of the start signal all the lights (lights 1-2-3) are switched off at the same time and the sequence ends.

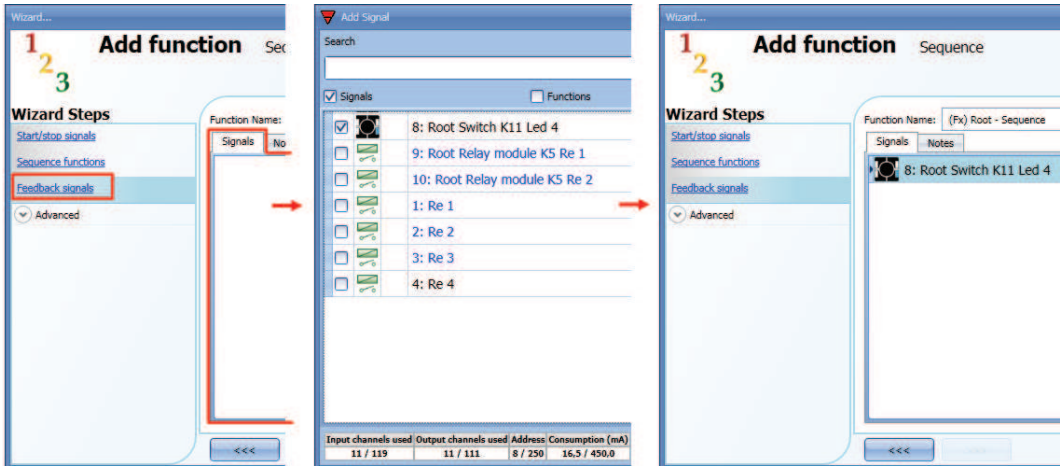


Example 2:
The first light function is switched on as soon as the start signal is activated. After 5 seconds light two is switched on and after another 5 seconds light 3 is switched on, then the sequence ends.

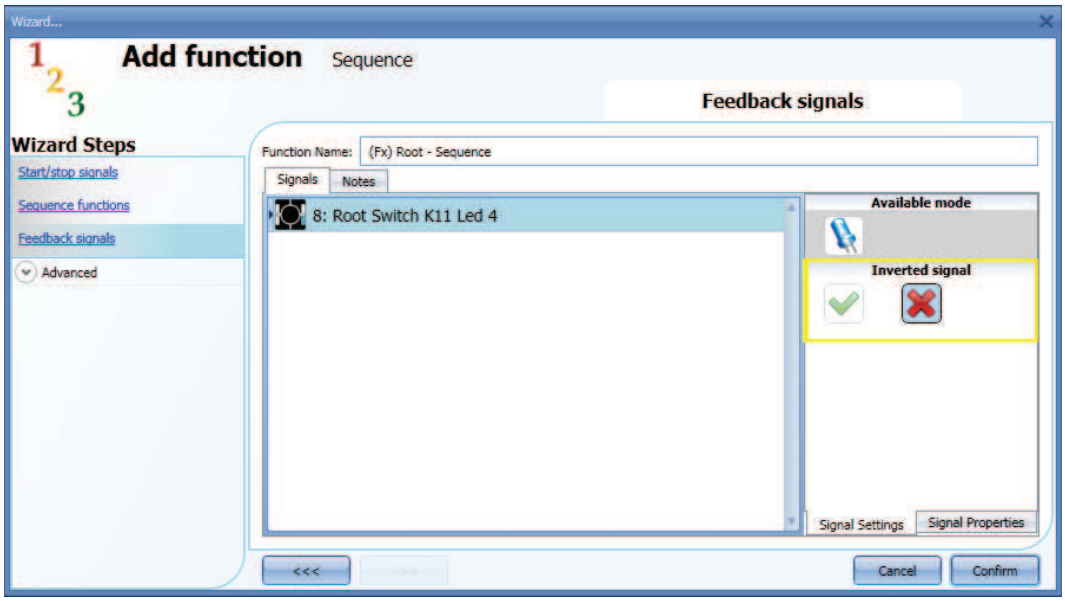


10.21.6 How to add the feedback signals

If the user wants to use a feedback signal to check the status of the sequence function, he has to select the relevant section, then double click on the *Signals* window and select the feedback signal from the list of those available (see picture below).
The feedback signal can be a relay, a LED or a buzzer, and it behaves according to the status of the function: when the sequence is in progress the feedback signal is on; when the sequence is not running the feedback is off.

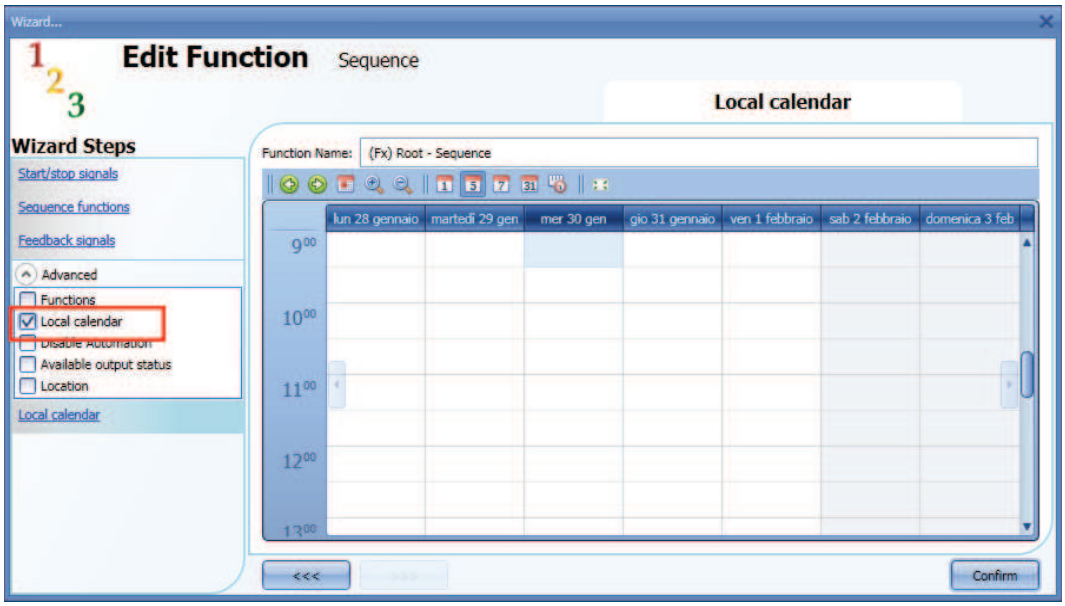


Once the feedback signal is entered, the user can also select to use the inverted logic.



10.21.7 How to start/stop the sequence using a calendar

If the user wants to start/stop the sequence using an automation with a calendar, the relevant menu has to be enabled in the *Local calendar* field (see picture below).

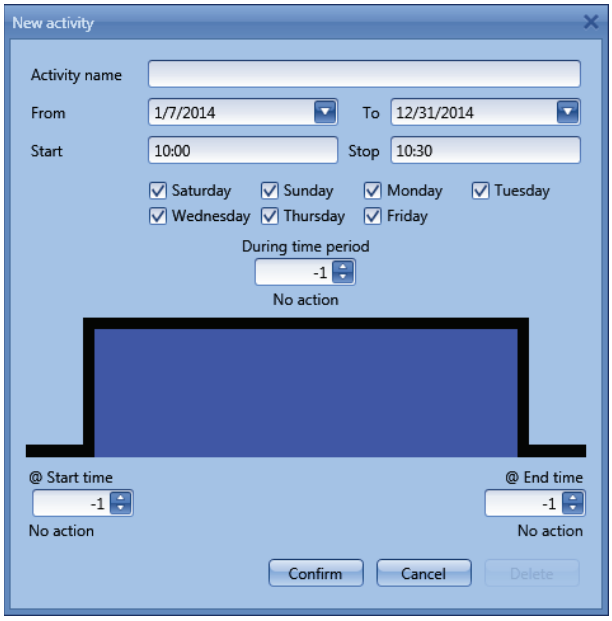


The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activities
Once the user has selected his preferred visualization, to enter a time band he should double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

@ start time: in this field the user can select the action of the function at start time.
At the start time the actions that the user can choose are:

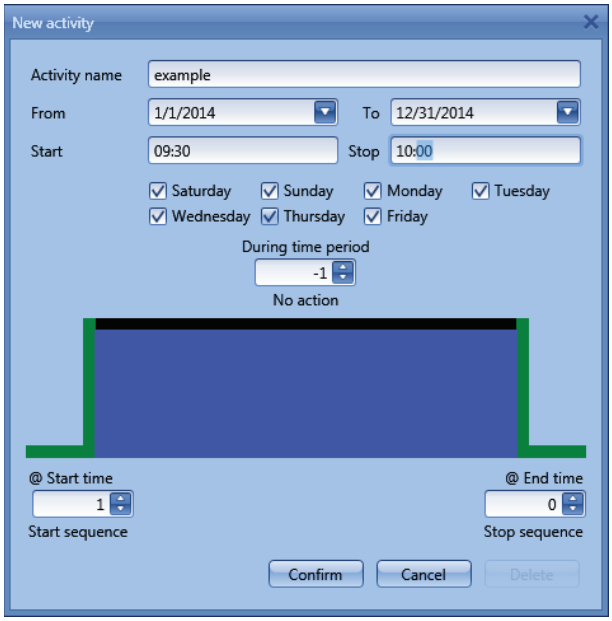
- No action (-1)
- Stop (0): the sequence is halted
- Start (1): the sequence is started

@ end time: in this field the user can select the action of the function at stop time.
At the stop time the actions that the user can choose are:

- No action (-1)
- Stop (0): the sequence is halted
- Start (1): the sequence is started

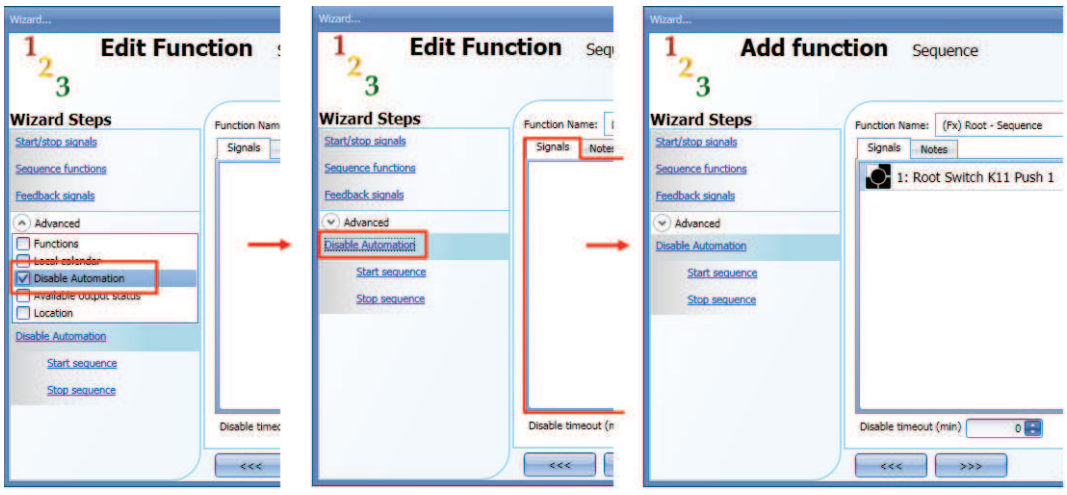
Days: The user should select the days when the calendar has to operate.

In the example below the calendar is set to start a sequence at 9: 30 and stop it at 10 o'clock.

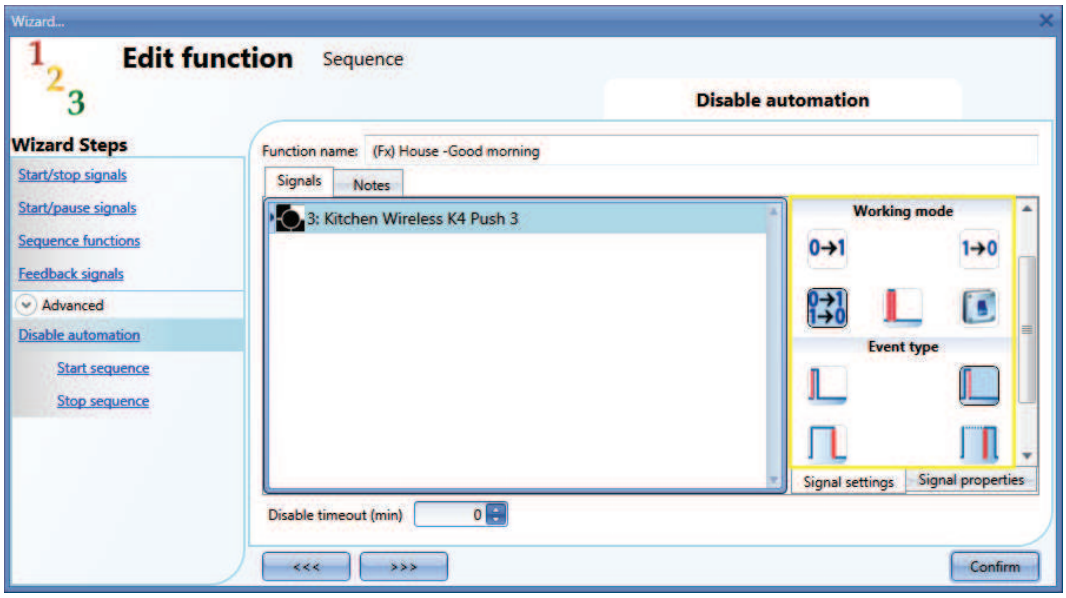


10.21.8 How to disable the calendar automation

If the user wants to disable the automation managed by the internal calendar, the *Disable automation* field has to be used: when the disabling is active, the sequence function can only be activated/deactivated by using manual start/stop commands.
To enable it, select *Disable automations* in the *Advanced* section, then double click on the signal window and select the signal to use (see picture below).



When the signal is added, the user has to select the working mode and the type of the event:



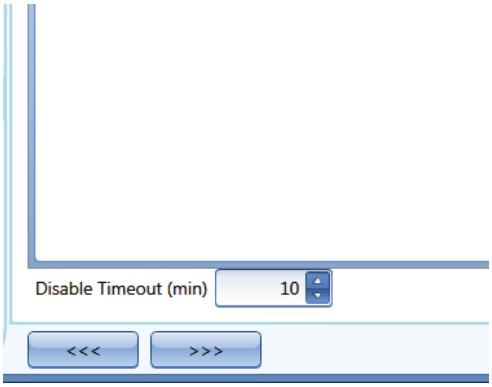
If a push button type is added, the working mode, highlighted by the yellow rectangle, has to be selected according to the table below:

Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, all automations are disabled.	After a short press (less than 1 second), at the release of the push button all automations are disabled.	After a long press, all automations are disabled at the release of the push button.	After a very long press, all automations are disabled at the release of the push button.
1→0	As soon as the push button is pressed, the automations are enabled again.	After a short press (less than 1 second), the automations are enabled again at the release of the push button.	After a long press, the automations are enabled again at the release of the push button.	After a very long press, the automations are enabled again at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the automations will be disabled/enabled in toggle mode.	After a short press (less than 1 second), the automations will be disabled/enabled in toggle mode at the release of the push button.	After a long press, the automations will be disabled/enabled in toggle mode at the release of the push button.	After a very long press, the automations will be disabled/enabled in toggle mode at the release of the push button.
	The automations will be disabled/enabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The automations are disabled	No action
1→0	The automations are enabled	No action
0→1 1→0	The automations are disabled/enabled in toggle mode	No action
	The automations are disabled/enabled in toggle mode	The automations are disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

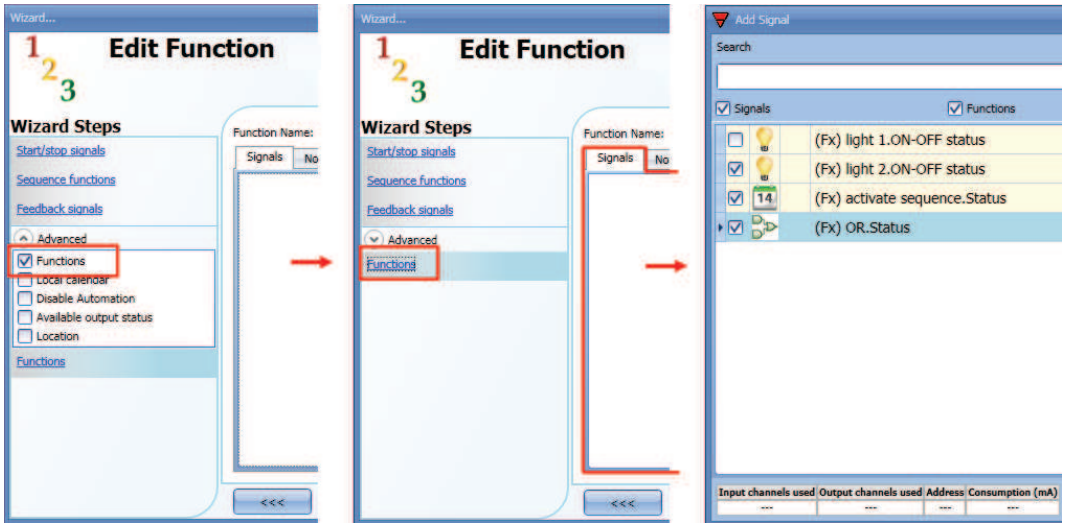
The user might need to set a time after which the calendar automation is enabled again, even if the selected signal is still active: to achieve this the *Disable timeout* field at the bottom of the window should be set.



The timer starts each time the disable status is activated: the disable status is automatically deactivated as soon as the time has elapsed.
In the figure above a disable timeout of 10 minutes is set. The maximum delay is 59 minutes.
If the timer is set to 0 minutes, the timer is disabled and the disable status will stay activated until a manual command is received.

10.21.9 How to use an external function to start/stop a sequence

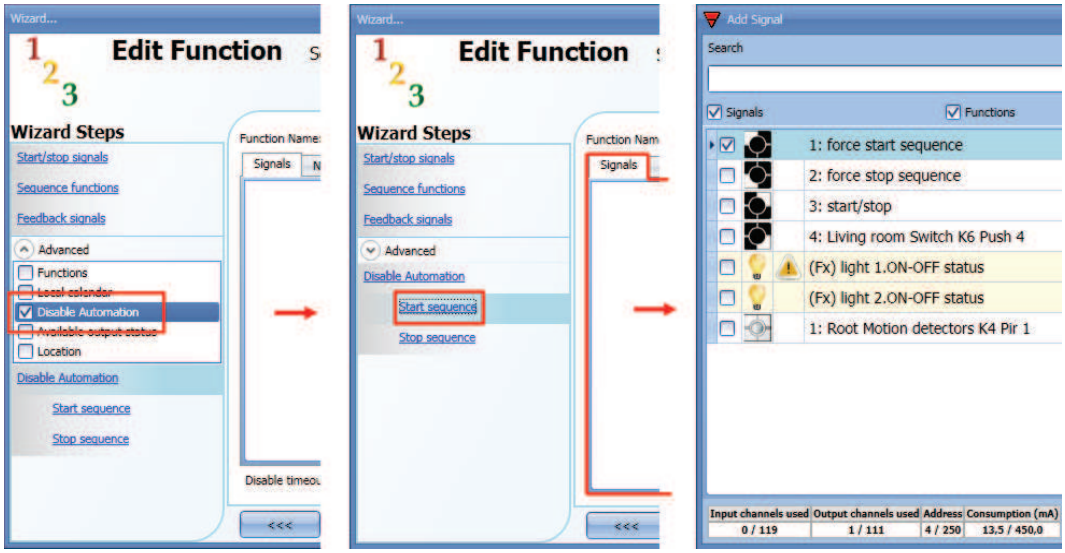
If the user wants to use an external function to start/stop a sequence, the *Function* field has to be used: to enable it, select *Functions* in the *Advanced* section, then double click on the signals window and select the relevant function from the list (see picture below).



All the added functions will trigger the sequence according to the status they have: for example, a light that is switched on will make the sequence start; the same function that is switched off will make the sequence stop.
The global calendar has to be added in this field and it works in the same way as the internal calendar.

10.21.10 How to force the sequence active

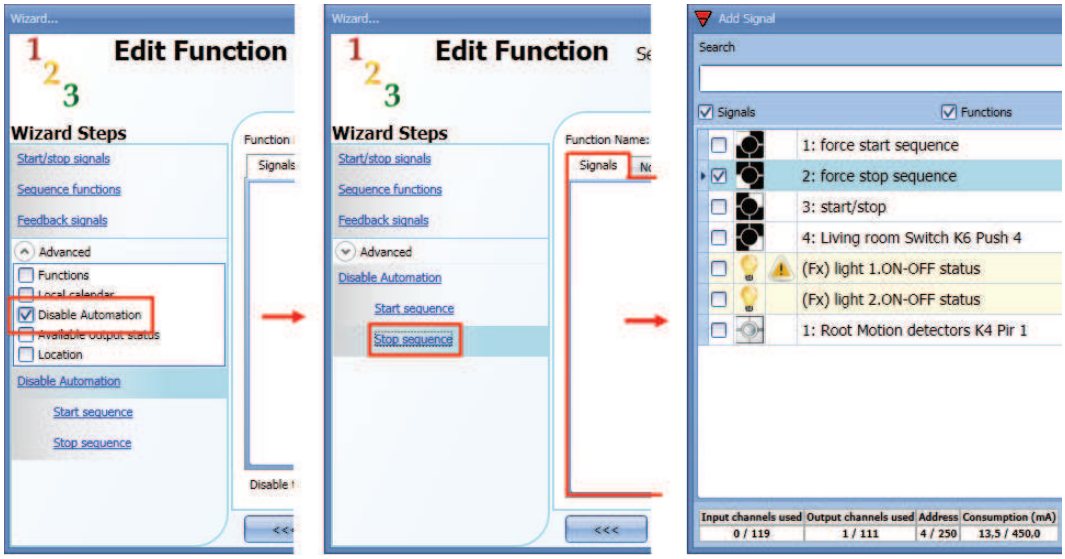
If the user wants to force the sequence active regardless of all the other signals used in the function, the *Start sequence* field has to be used: to enable it, select *Disable automations* in the *Advanced* section, select *Start sequence*, then double click on the signals window and select the signal to use (see picture below).



Each signal used in the *Start sequence* window works in level mode. Until the start signal is active, the function is executed and cannot be deactivated until the start signal disappears.
When the *Start sequence* signal is activated and at the same time the *Stop sequence* signal is activated, the start sequence signal has priority and the function stays activated.

10.21.11 How to force the sequence stop

If the user wants to force the sequence stop regardless of all the other signals used in the function, the *Stop sequence* field has to be used: to enable it, select *Disable automations* in the *Advanced* section, select *Stop sequence*, then double click on the signals window and select the signal to use (see picture below).



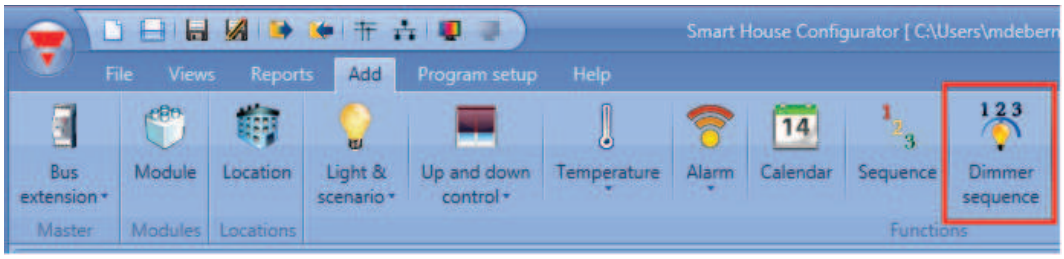
Each signal used in the *Stop sequence* window works in level mode. While the *Stop signal* is active, the function is stopped and cannot be activated until the stop signal disappears.
When the *Start sequence* signal is activated and at the same time the *Stop sequence* signal is activated, the *Start sequence* signal has priority and the function stays activated.

10.22 How to set the dimmer sequence function

The *Dimmer sequence* function allows the user to manage, together, the dimmable light functions already created.
The light level of all the added functions is set according to those defined in each step of the sequence, with the aim of making all the dimmers reach the final level at the same time.

This function can be used to create different scenarios, such as switching all the lights off at the same time regardless of the starting level of each single light.

To add a *Dimmer sequence* function the user should select *Dimmer sequence* from the Add menu (see picture below). The new function will be added in the selected location.

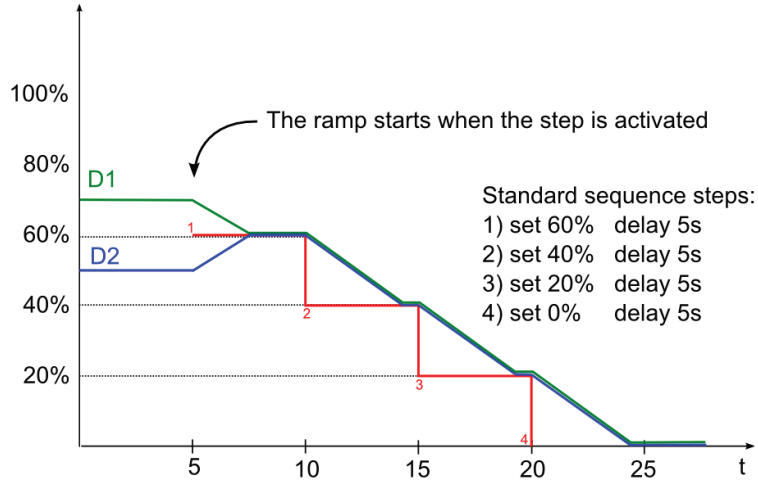


10.22.1 How the dimmer sequence works

The main difference between the standard sequence function and the dimmer sequence function is that the standard sequence executes all the steps, while the dimmer sequence skips the unnecessary steps and executes only the ones required if the *smart option* is enabled.

In the following figure, a standard sequence function is shown, where all the steps are executed regardless of the actual level (the starting level of dimmer 1 is 70%, the starting level of dimmer 2 is 50%).
At instant 0 the sequence is activated and the first step is executed with a delay of 5 seconds.
When the sequence is started, both the dimmers are set to 60%, so dimmer 2 is brought from 50% to 60% and then down to 0%.

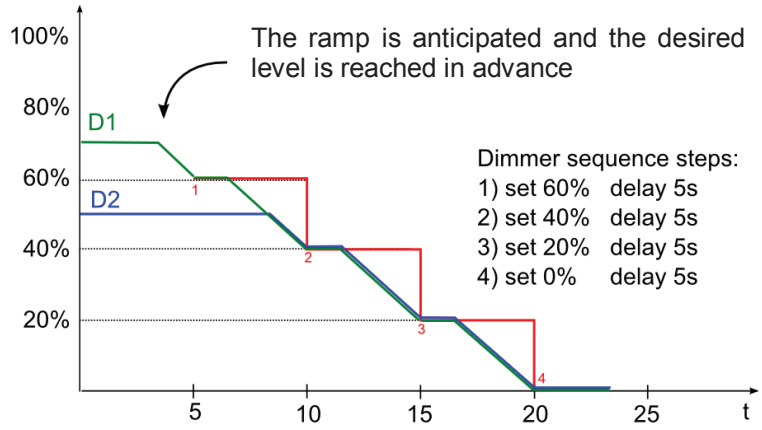
Standard sequence



The following figure shows the behaviour of the dimmer sequence using the same steps.
At instant 0 the sequence is activated and even if the first step is executed with a delay of 5 seconds,

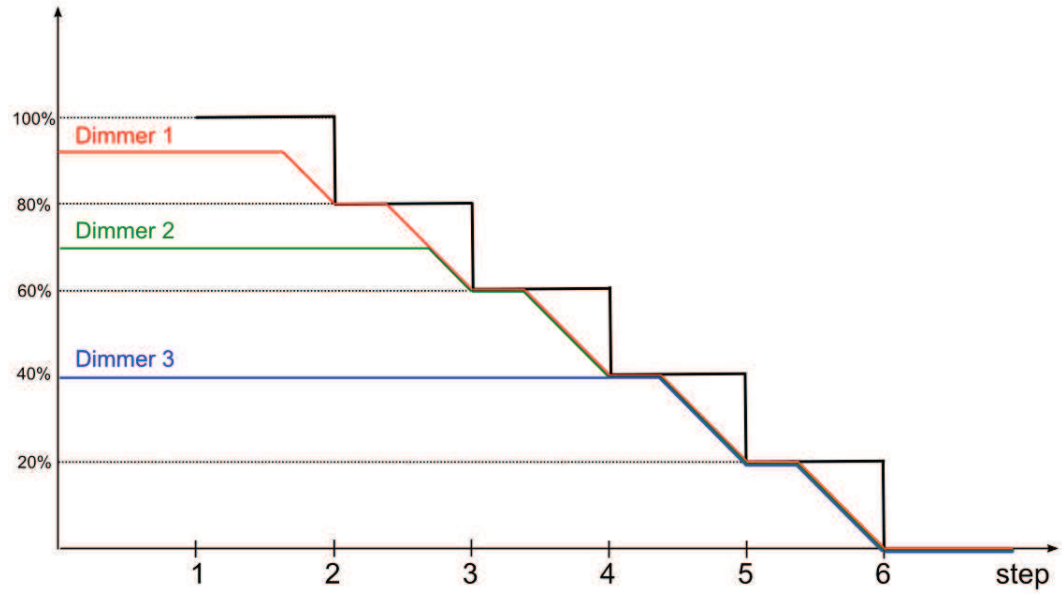
dimmer 1 starts going down immediately.
Dimmer 2 skips the first unnecessary step of the sequence, waits for dimmer 1 to reach 50% and then goes directly to the second step together with dimmer 1. In the dimmer sequence function, each dimmer starts dimming the output before the step activation in order to reach the required level at the beginning of each step.

Dimmer sequence

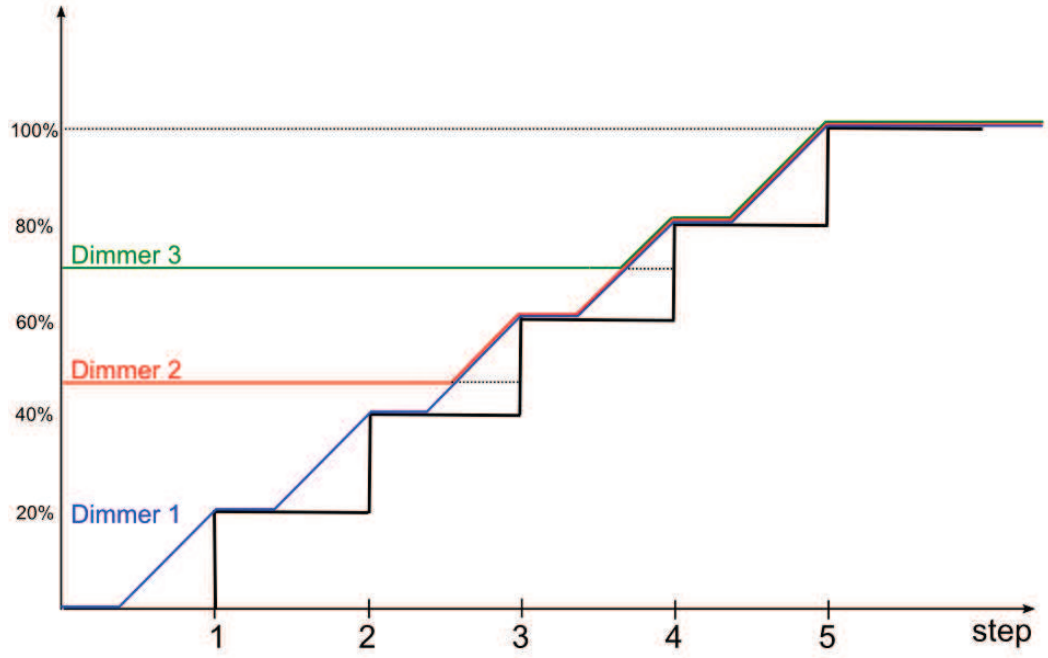


We suggest using the dimmer sequence with steps that are always increased or always decreased.

In the figure below, a “Switching off scenario” is shown, where all the steps are created in order to guarantee that all the dimmers of the sequence are managed at the same time. In this example, three dimmers are added to the sequence with three different starting light levels: each function starts dimming down only when needed.

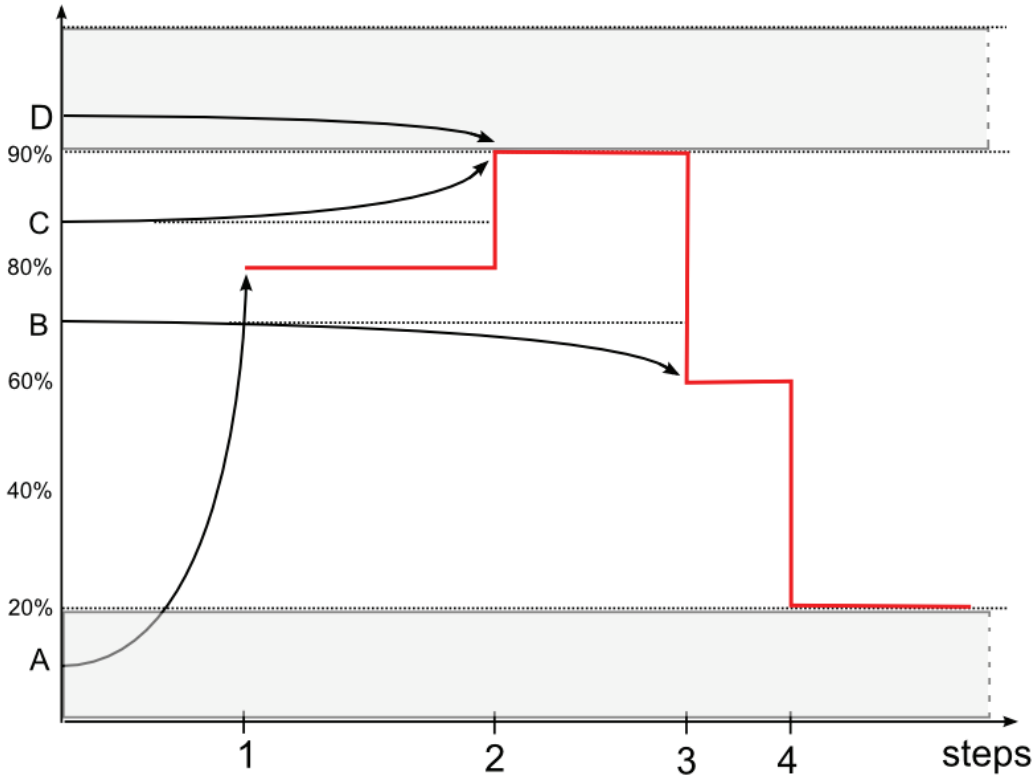


In the figure below, a “Switching on scenario” is shown where all the steps are created in order to reach the maximum level at the same time.



There are some special cases where the steps of the sequence are not designed for creating a linear sequence; the figure below shows the behaviour of the different sequence steps according to the starting light level (the steps are not added in a linear way). There could be three different situations:

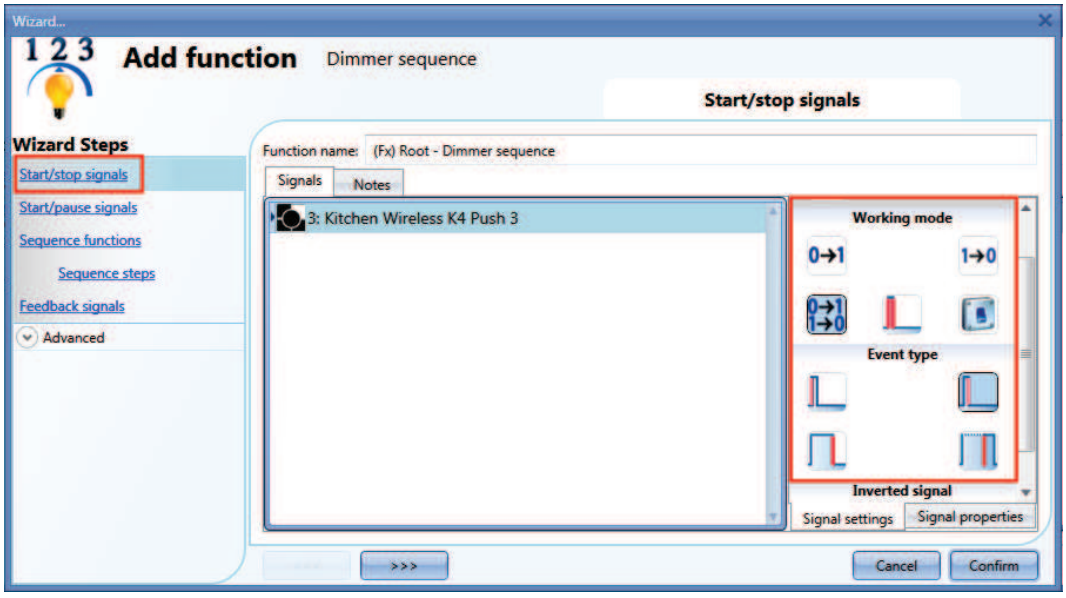
A. If the dimmer level is lower than the minimum step of the sequence, the dimmer is brought to the first step of the sequence (see dimmer A).
B. If the dimmer level is between the minimum and maximum steps of the sequence, the dimmer is brought to the closest step (see dimmers B and C).
C. If the dimmer status is higher than the maximum step of the sequence, the dimmer is brought to the highest sequence step (see dimmer D).



If a dimmer is switched off while a sequence is running, it will stay off and the sequence will not modify its status.

10.22.2 How to set the start/stop signals

If the user wants to add the start/stop signals, he has to select the relevant field, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



The input signal can be used either to start and/or to stop the sequence.

If a push button type is added, the working mode should be selected according to the table below:

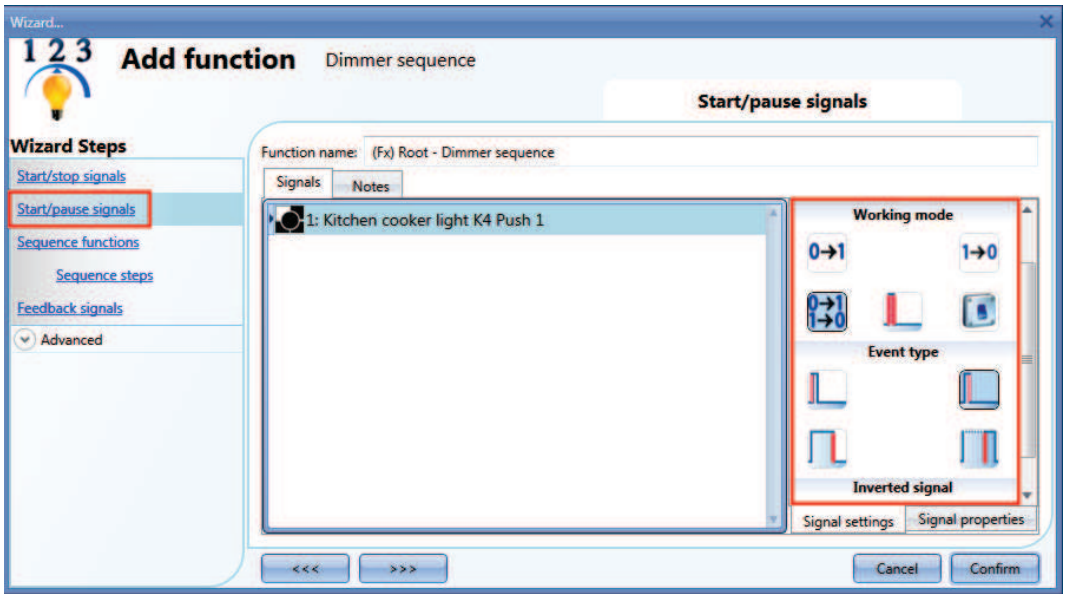
Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, the sequence is started.	After a short press (less than 1 second), the sequence is started at the release of the push button.	After a long press, the sequence is started at the release of the push button.	After a very long press, the sequence is started at the release of the push button.
1→0	As soon as the push button is pressed, the sequence is stopped.	After a short press (less than 1 second), the sequence is stopped at the release of the push button.	After a long press, the sequence is stopped at the release of the push button.	After a very long press, the sequence is stopped at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the sequence will be started/stopped in toggle mode.	After a short press (less than 1 second), the sequence will be started/stopped in toggle mode at the release of the push button.	After a long press, the sequence will be started/stopped in toggle mode at the release of the push button.	After a very long press, the sequence will be started/stopped in toggle mode at the release of the push button.
	The sequence will be started/stopped in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The sequence will be started when the signal goes ON, and it will be stopped when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The sequence is started	No action
1→0	The sequence is stopped	No action
0→1 1→0	The sequence is started/stopped in toggle mode	No action
	The sequence is started/stopped in toggle mode	The sequence is started/stopped in toggle mode
	The sequence is started	The sequence is stopped

10.22.3 How to set the start/pause signals

If the user wants to add the start/pause signals, he has to select the relevant field, then double click on the *Signals* window and select the input signal from the list of those available (see picture below).



The input signal can be used either to start and/or to pause the sequence. When the sequence is paused, a start event will activate the sequence from the step where it was paused.

If a push button type is added, the working mode should be selected according to the table below:

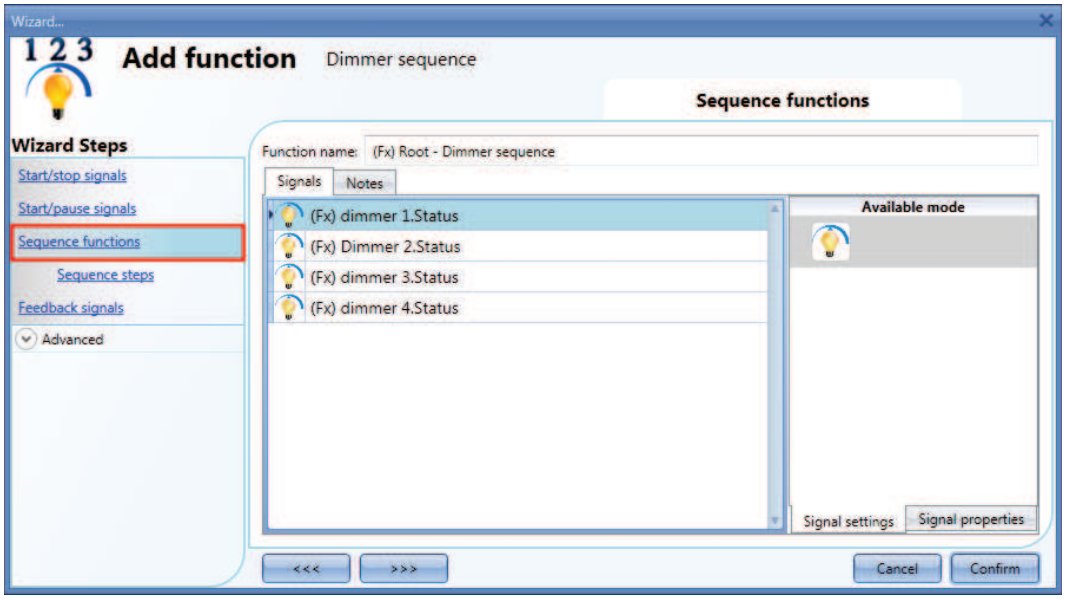
Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, the sequence is started.	After a short press (less than 1 second), the sequence is started at the release of the push button.	After a long press, the sequence is started at the release of the push button.	After a very long press, the sequence is started at the release of the push button.
1→0	As soon as the push button is pressed, the sequence is paused.	After a short press (less than 1 second), the sequence is paused at the release of the push button.	After a long press, the sequence is paused at the release of the push button.	After a very long press, the sequence is paused at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the sequence will be started/paused in toggle mode.	After a short press (less than 1 second), the sequence will be started/paused in toggle mode at the release of the push button.	After a long press, the sequence will be started/paused in toggle mode at the release of the push button.	After a very long press, the sequence will be started/paused in toggle mode at the release of the push button.
	The sequence will be started/paused in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The sequence will be started when the signal goes ON, and it will be paused when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The sequence is started	No action
1→0	The sequence is paused	No action
0→1 1→0	The sequence is started/paused in toggle mode	No action
	The sequence is started/paused in toggle mode	The sequence is started/paused in toggle mode
	The sequence is started	The sequence is paused

10.22.4 How to add a function to the sequence

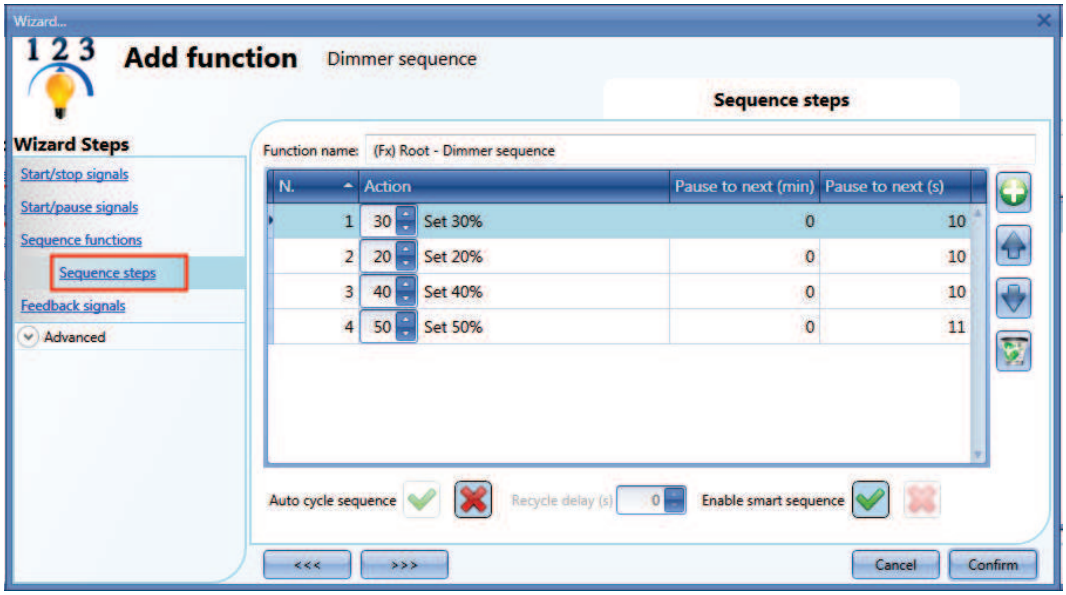
If the user wants to add a function to the dimmer sequence, he should select the relevant field, then double click on the *Signals* window to enter the list of available functions: once the functions list is opened, the user should select the functions he wants to add (see picture below).



Only *Dimmable light functions* can be added to the sequence.

10.22.5 How to set the sequence steps

When all the functions are added, the user can add and/or modify the actions to be performed. The set action will be carried out for all the functions added.
The action can be added/changed by selecting *Sequence steps* (see picture below).



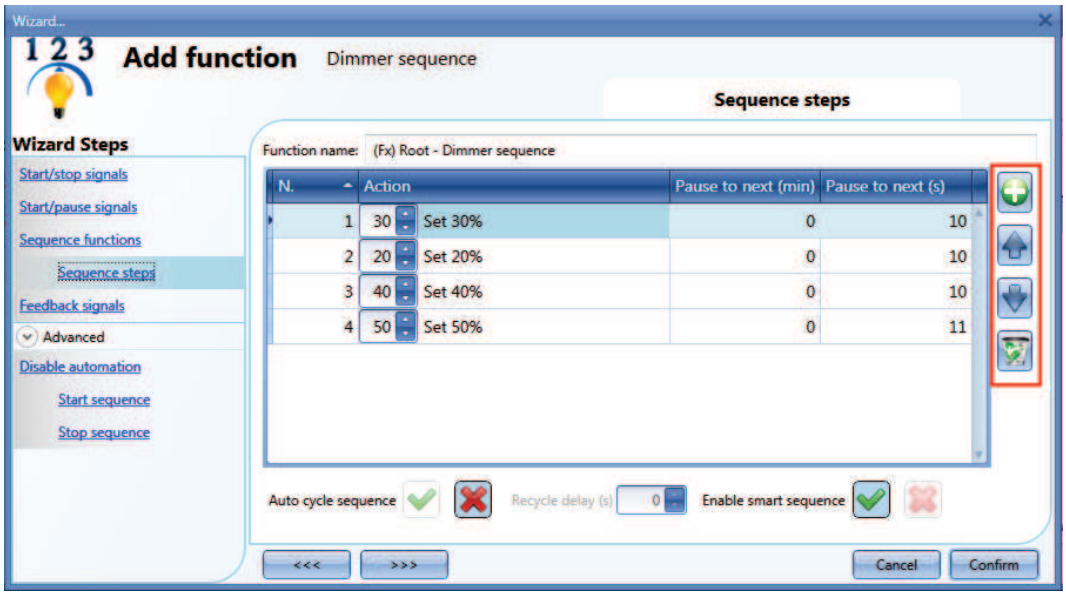
Auto cycle sequence: if this option is enabled, the sequence is repeated continuously: each time the last function is executed, the sequence starts again from the beginning. All the functions are executed in a loop and the sequence can be stopped by using the stop signal(s).

Recycle delay (s): It is the delay (in seconds) between two repetitions of the sequence if the recycling option is enabled.

Enable smart sequence: if this option is enabled, the sequence skips the unnecessary steps.

10.22.6 How to modify the sequence steps

All the steps added to the sequence can be changed at any time by clicking on *Sequence steps,* double clicking on the field to be changed..
The user can do this in the main window of the dimmer sequence function (as shown below).



Using the icons on the right side of the window, the user can add, move up/down or delete a step from the list.

Table of actions:

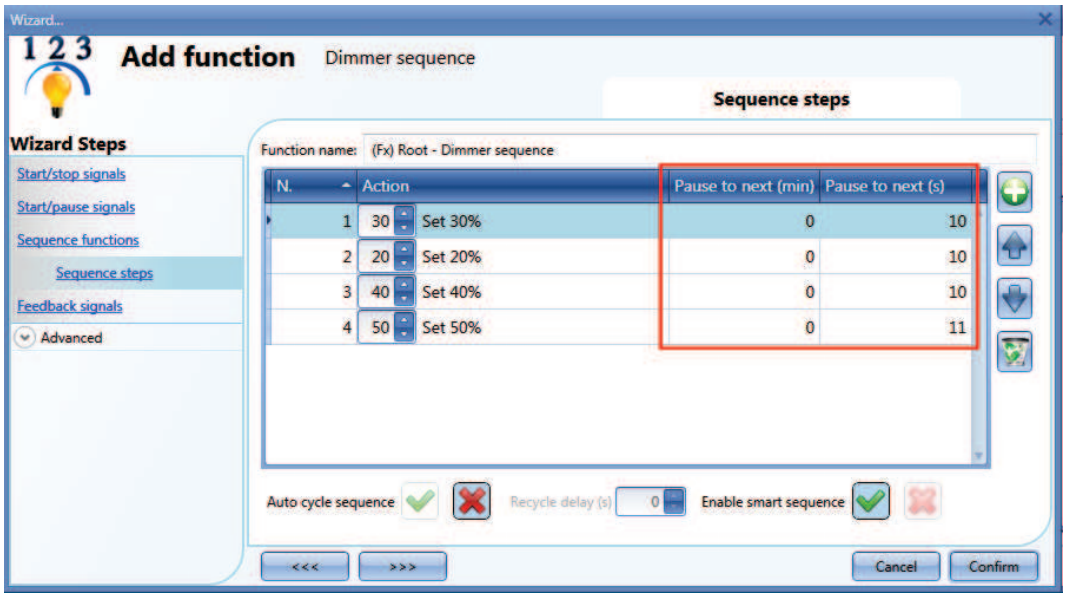
	By clicking on this icon a new step id added
	By clicking on this icon the selected step will be moved upwards
	By clicking on this icon the selected step will be moved downwards
	By clicking on this icon the selected step will be deleted

10.22.7 How to set the delay time between the activation of two steps

The delay between the activation of two steps can be set with a double click in the field *Pause to next,* as highlighted by the red rectangle.

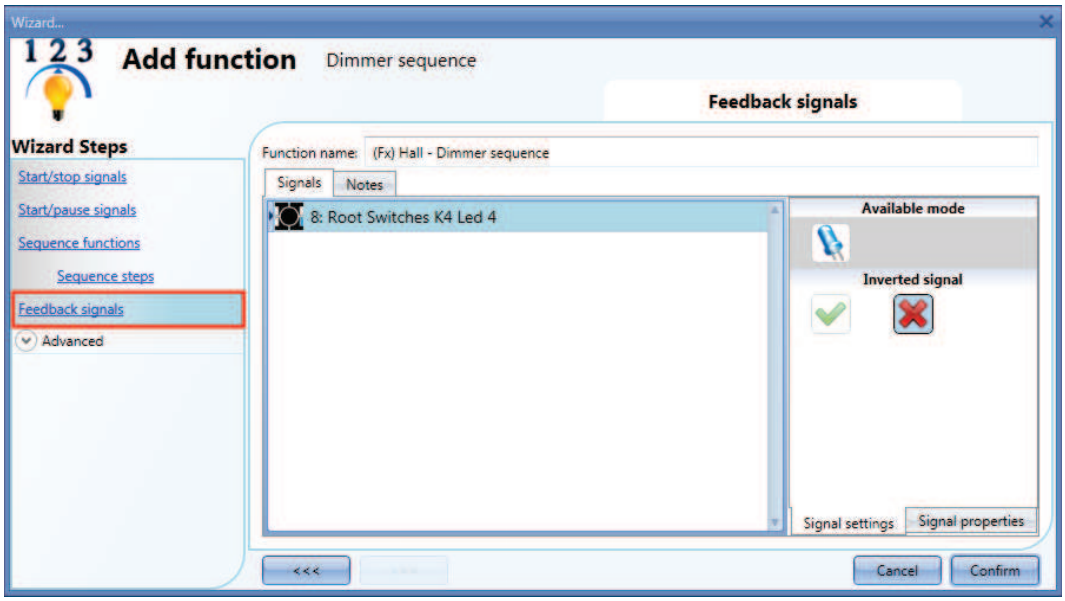
Note: If the pause time value is set to 0, the step is activated without any delay in respect to the previous one. This means that the two steps will be managed at the same time and this kind of setting is not recommended.

In the first step of the list, the *Pause to next* time is the delay between the start command and the activation of the first action.



10.22.8 How to add the feedback

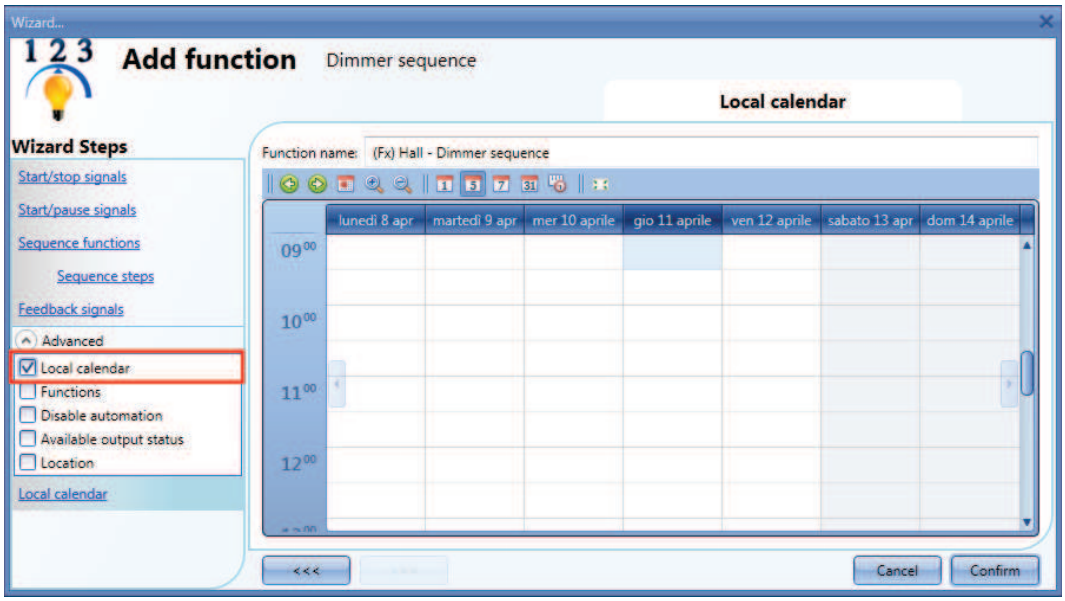
If the user wants to use a feedback signal to check the status of the sequence, he has to select the relevant section, then double click on the *Signals* window and select the feedback signal from the list of those available (see picture below).
The feedback signal can be a relay, a LED or a buzzer, and it behaves according to the status of the function: when the sequence is in progress the feedback signal is on; when the sequence is not running the feedback is off.



Once the feedback signal is entered, the user can also select the inverted logic.

10.22.9 How to start/stop the sequence using a calendar

If the user wants to start/stop the sequence using an automation with a calendar, the relevant menu has to be enabled in the *Local calendar* field (see picture below).



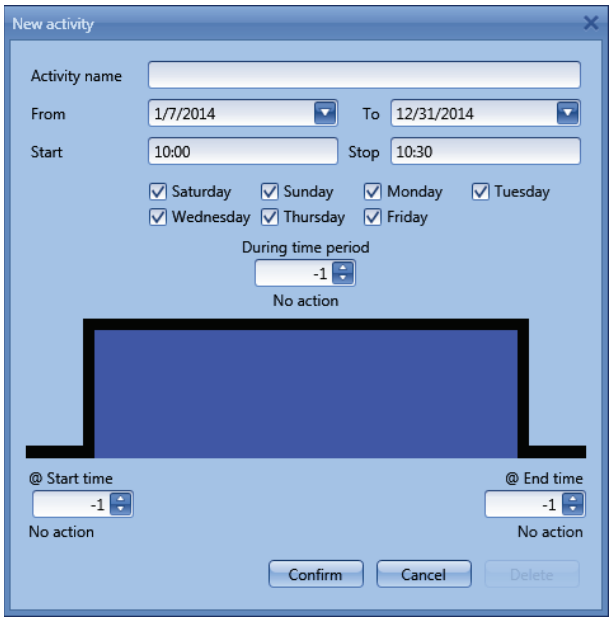
The user can select the type of visualization he prefers by clicking on the icons of the *Tool bar* as shown below:

Tool bar icons:

	One step back in the Calendar. E.g.: if a week is visualized, this button allows the user to go back to the previous week.
	One step forward in the calendar. E.g. if a week is visualized, this button allows the user to go to the next week.
	Go to the current day
	Magnifying lens to see more/fewer time bands.
	The calendar visualizes one day horizontally.
	The calendar visualizes 5 days horizontally.
	The calendar visualizes 7 days horizontally.
	The calendar visualizes 31 days horizontally.
	The calendar visualizes 7 days vertically.
	Full screen view

Calendar activities

Once the user has selected his preferred visualization, to enter a time band he should double click on the required day and the following window will appear:



Subject: In this field the user defines the name of the event that will appear on the calendar. This is a mandatory field.

From*:* the start date for the calendar activity.

To*:* the end date of the calendar activity.

Start*:* The time of the start of the activity.

Stop: The time of the end of the activity.

@ start time: in this field the user can select the action of the function at start time.
At the start time the actions that the user can choose are:

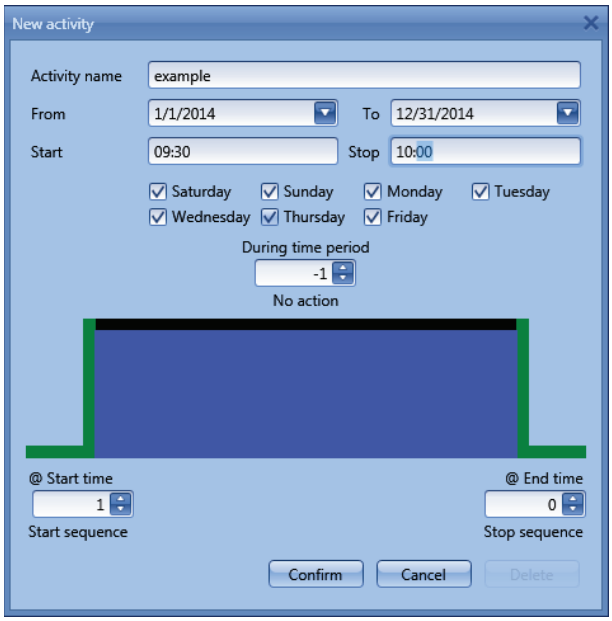
- No action (-1)
- Stop (0): the sequence is halted
- Start (1): the sequence is started

@ end time: in this field the user can select the action of the function at stop time.
At the stop time the actions that the user can choose are:

- No action (-1)
- Stop (0): the sequence is halted
- Start (1): the sequence is started

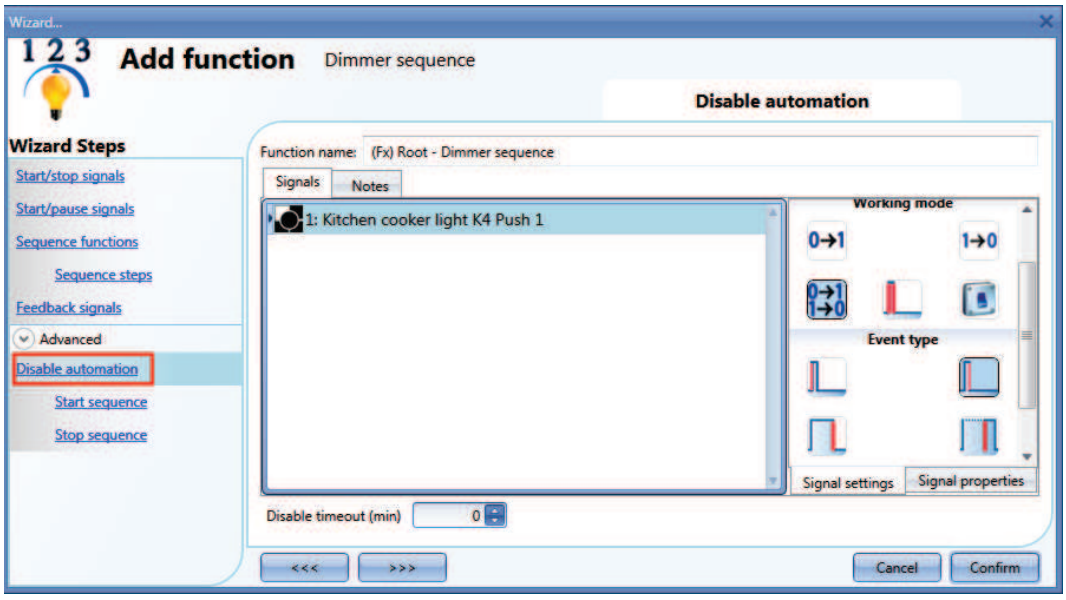
Days: The user should select the days when the calendar has to operate.

In the example below the calendar is set to start a sequence at 9:30 and stop it at 10 o'clock.



10.22.10 How to disable the calendar automation

If the user wants to disable the automation managed by the internal calendar, the *Disable automation* field has to be used: when the disabling is active, the sequence function can only be activated/deactivated by using manual start/stop commands.
To enable it, select *Disable automations* in the *Advanced* section, then double click on the signals window and select the signal to use (see picture below).



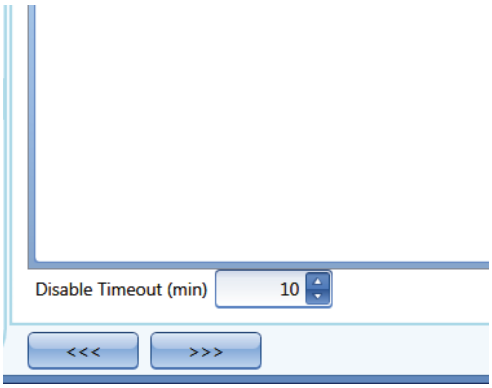
When the signal is added, the user has to select the working mode and the type of the event.
If a push button type is added, the working mode has to be selected according to the table below:

Working mode	Event type			
	Event when push button pressed	Event when push button released	Event with long pressure	Event with very long pressure
0→1	As soon as the push button is pressed, all automations are disabled.	After a short press (less than 1 second), at the release of the push button all automations are disabled.	After a long press, all automations are disabled at the release of the push button.	After a very long press, all automations are disabled at the release of the push button.
1→0	As soon as the push button is pressed, the automations are enabled again.	After a short press (less than 1 second), the automations are enabled again at the release of the push button.	After a long press, the automations are enabled again at the release of the push button.	After a very long press, the automations are enabled again at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the automations will be disabled/enabled in toggle mode.	After a short press (less than 1 second), the automations will be disabled/enabled in toggle mode at the release of the push button.	After a long press, the automations will be disabled/enabled in toggle mode at the release of the push button.	After a very long press, the automations will be disabled/enabled in toggle mode at the release of the push button.
	The automations will be disabled/enabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the setting of the working mode should follow the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The automations are disabled	No action
1→0	The automations are enabled	No action
0→1 1→0	The automations are disabled/enabled in toggle mode	No action
	The automations are disabled/enabled in toggle mode	The automations are disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

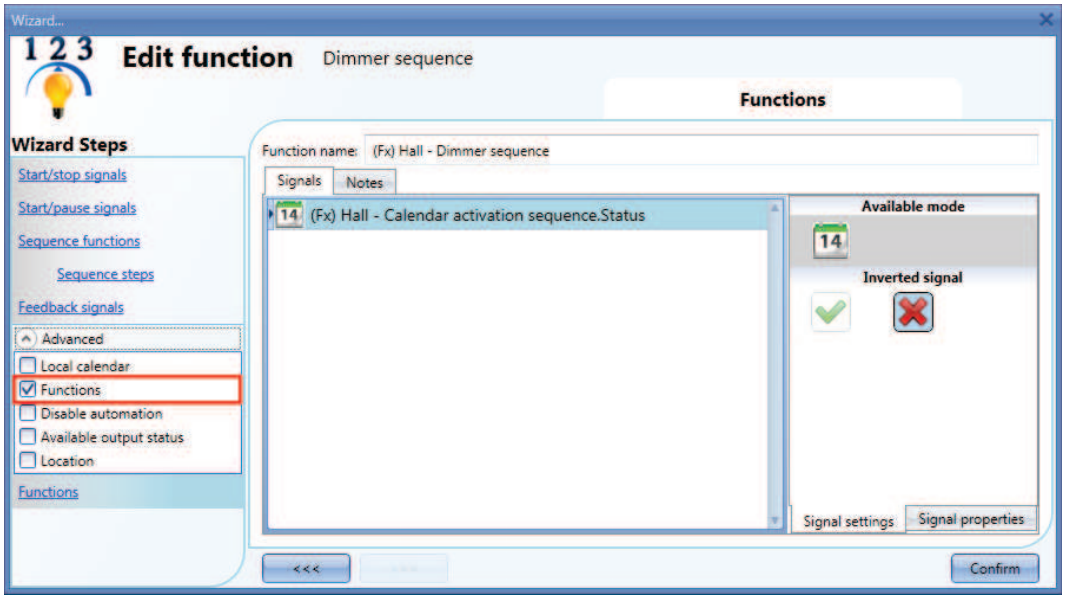
The user might need to set a time after which the calendar automation is enabled again, even if the selected signal is still active: to do this the *Disable timeout* field at the bottom of the window should be set.



The timer starts each time the disable status is activated: the disable status is automatically deactivated as soon as the time expires.
In the figure above a disable timeout of 10 minutes is set. The maximum delay is 59 minutes.
If the timer is set to 0 minutes, the timer is disabled and the disable status will stay activated until there is a manual command.

10.22.11 How to use an external function to start/stop a sequence

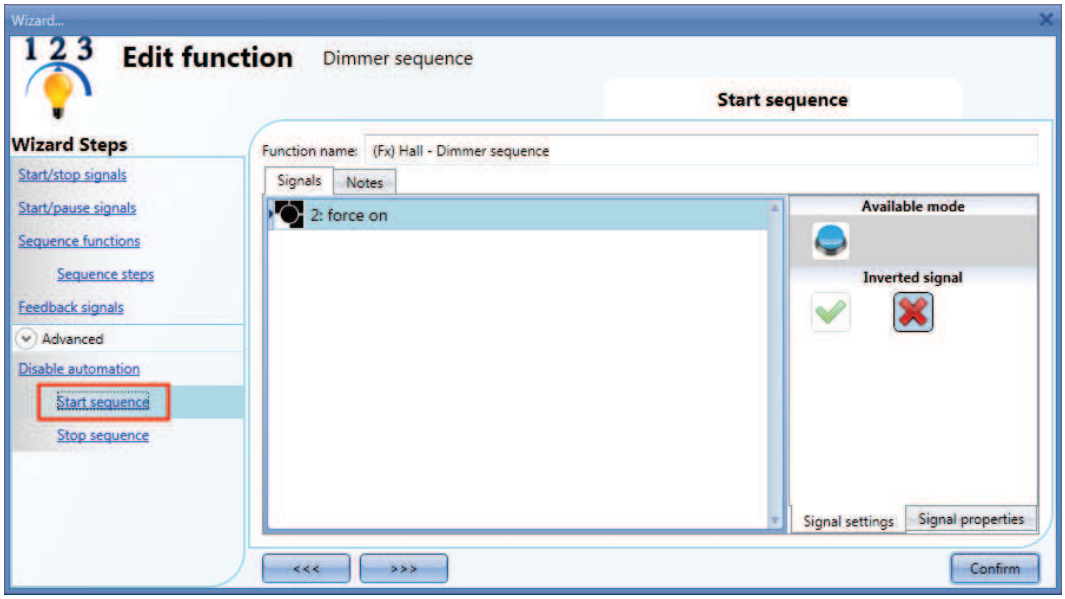
If the user wants to use an external function to start/stop a sequence, the *Function* field has to be used: to enable it, select *Functions* in the *Advanced* section, then double click on the signals window and select the relevant function from the list (see picture below).



All the added functions will trigger the sequence according to the status they have: for example, a light that is switched on will make the sequence start; the same function that is switched off will make the sequence stop.
The global calendar has to be added in this field and it works in the same way as the internal calendar.

10.22.12 How to force the sequence active

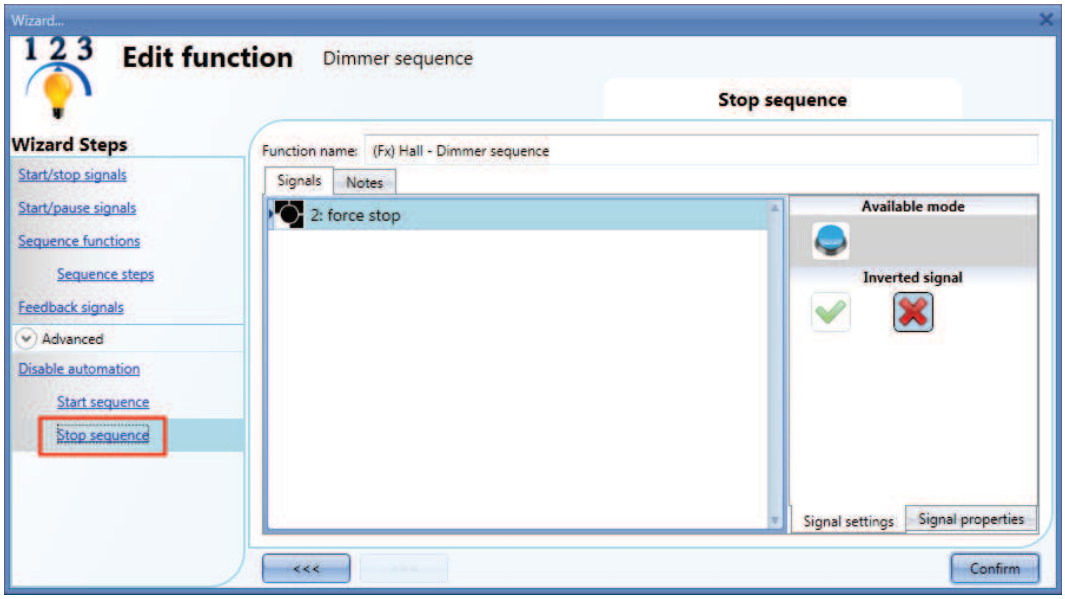
If the user wants to force the sequence active regardless of all the other signals used in the function, the *Start sequence* field has to be used: to enable it, select *Disable automations* in the *Advanced* section, select *Start sequence*, then double click on the signals window and select the signal to use (see picture below).



Each signal used in the *Start sequence* window works in level mode. While the start signal is active, the function is operative and cannot be deactivated until the start signal disappears.
When the *Start sequence* signal is activated and at the same time the *Stop sequence* signal is activated, the start sequence signal has priority and the function stays activated.

10.22.13 How to force the sequence stop

If the user wants to force the sequence stop regardless of all the other signals used in the function, the *Stop sequence* field has to be used: to enable it, select *Disable automations* in the *Advanced* section, select *Stop sequence*, then double click on the signals window and select the signal to use (see picture below).

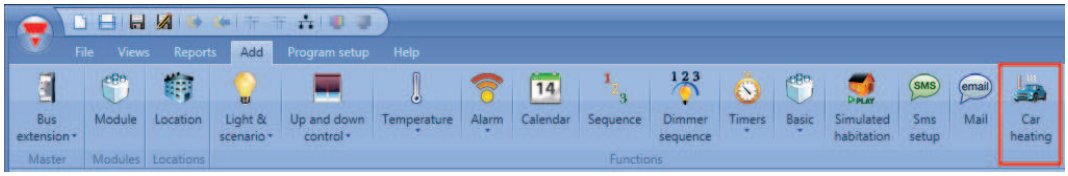


Each signal used in the *Stop sequence* window works in level mode. While the *Stop signal* is active, the function is stopped and cannot be activated until the stop signal disappears.
When the *Start sequence* signal is activated and at the same time the *Stop sequence* signal is activated, the *Start sequence* signal has priority and the function stays activated.

10.23 How to set the car heating function

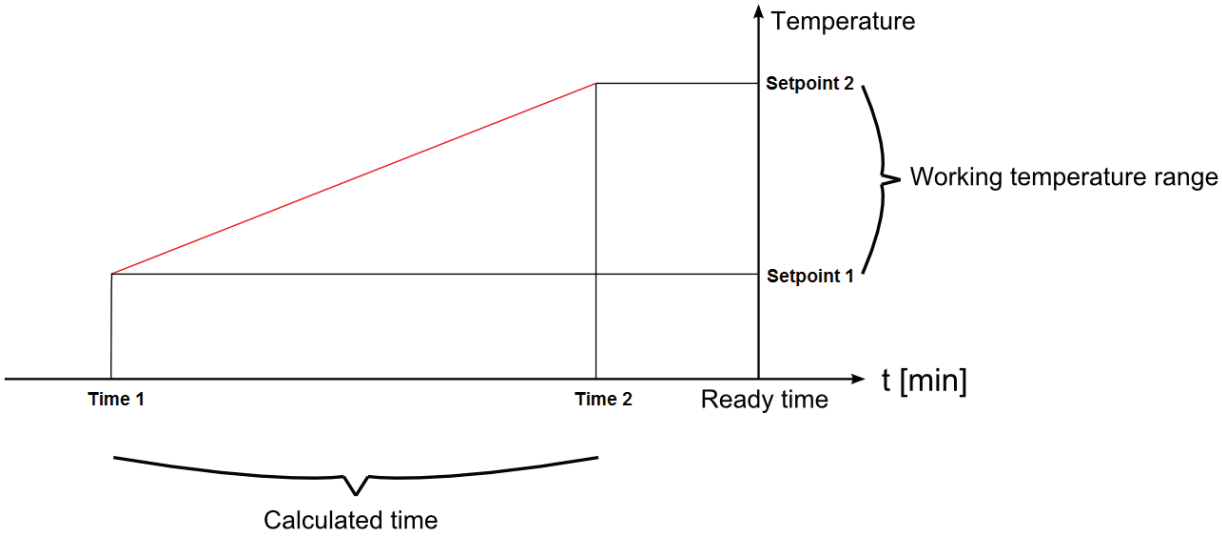
The car heating function allows the user to heat the car so that it is ready at a predefined set time. The user must set a time, two external temperatures limits (SP 1 and SP 2) and two timers (T1 and T2) so as to define the extreme points of a straight line. The straight line is used in the algorithm to define when the output should be on to heat the car.

To add a car heating function the user has to select *Car heating* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to a Car heating function can also be opened by typing Alt+Y.



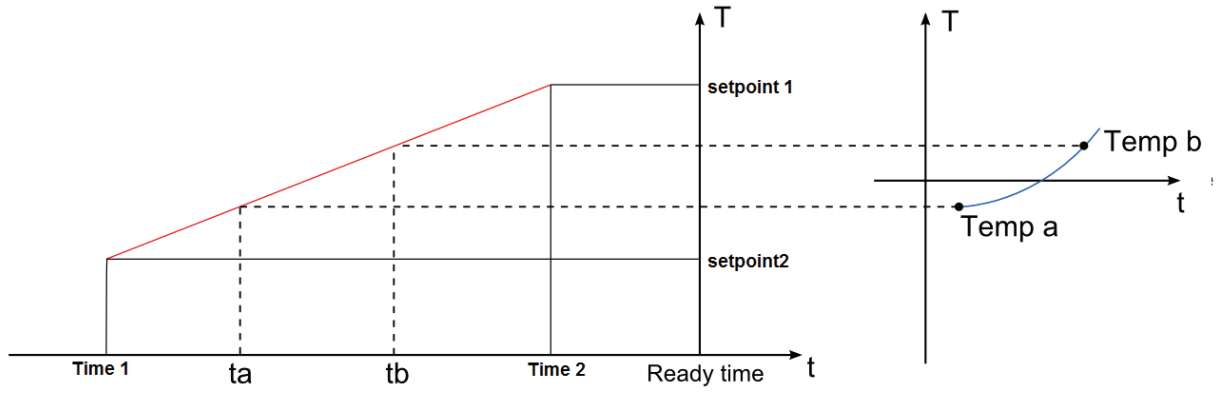
10.23.1 How the heating algorithm works

Referring to the picture below, the *Ready time* is the time at which the car must be ready and warmed. If the external temperature is inside the working limits (*Setpoint1* and *Setpoint2*), the output is activated before the *Ready time* according to a calculation on the measured temperature.
The activation time of the output is calculated on the basis of the defined parameters, using the straight line highlighted in red in the picture below.

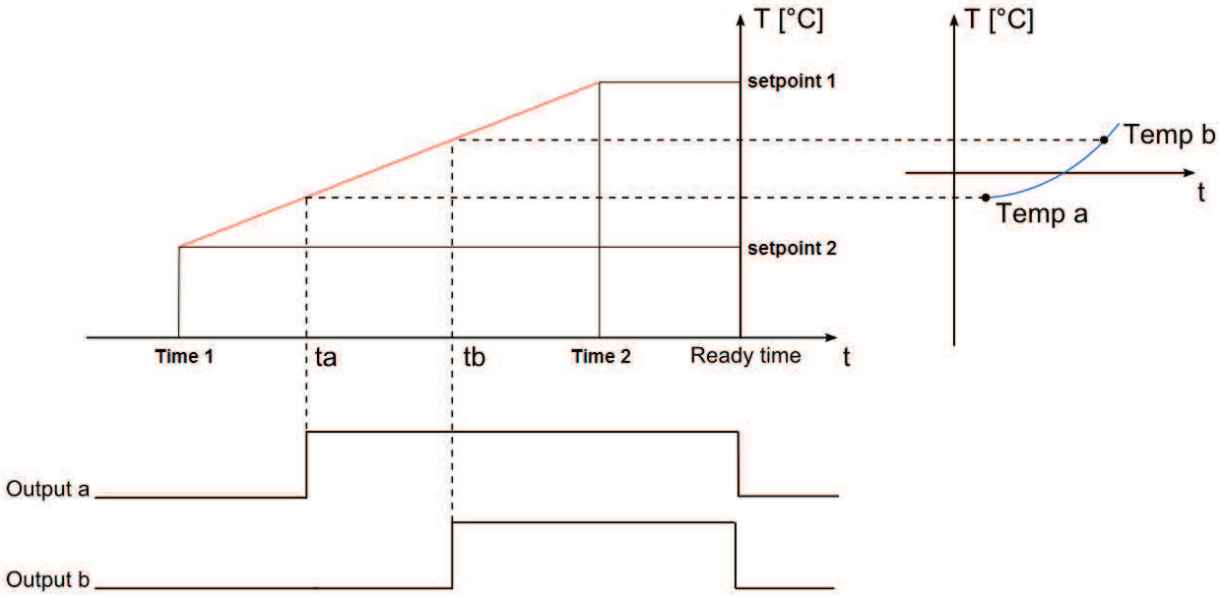


If the outdoor temperature is lower than or equal to *Setpoint1*, the heating is activated a *Time 1* before the *Ready time*. If the temperature is above *Setpoint2*, the heating is never activated. If the measured temperature is between *Setpoint1* and *Setpoint2*, the activation time of the heating output is calculated using the straight red line.

In the picture below it is shown how the algorithm works according to the outside measured temperature. If the temperature has a value “Temp a” inside the range [*Setpoint1*, *Setpoint2*], the output will be activated at the time “ta”.

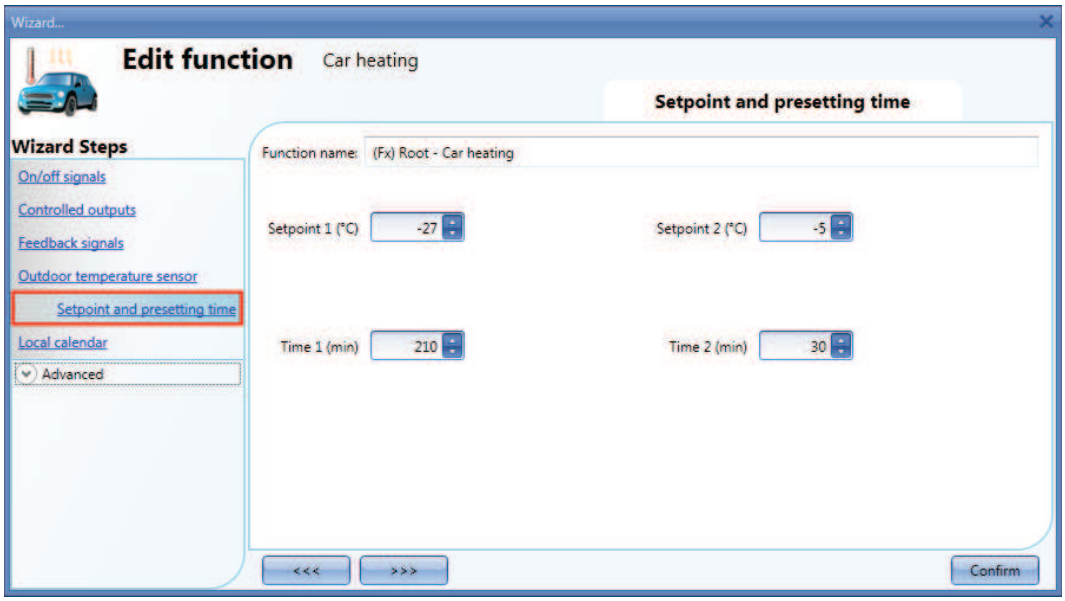


If the measured temperature has a value Temp b (higher than Temp a), the output will be activated later (at time tb), because the temperature is higher and the output requires less heating time to warm the car.



10.23.2 How to set the setpoints and times

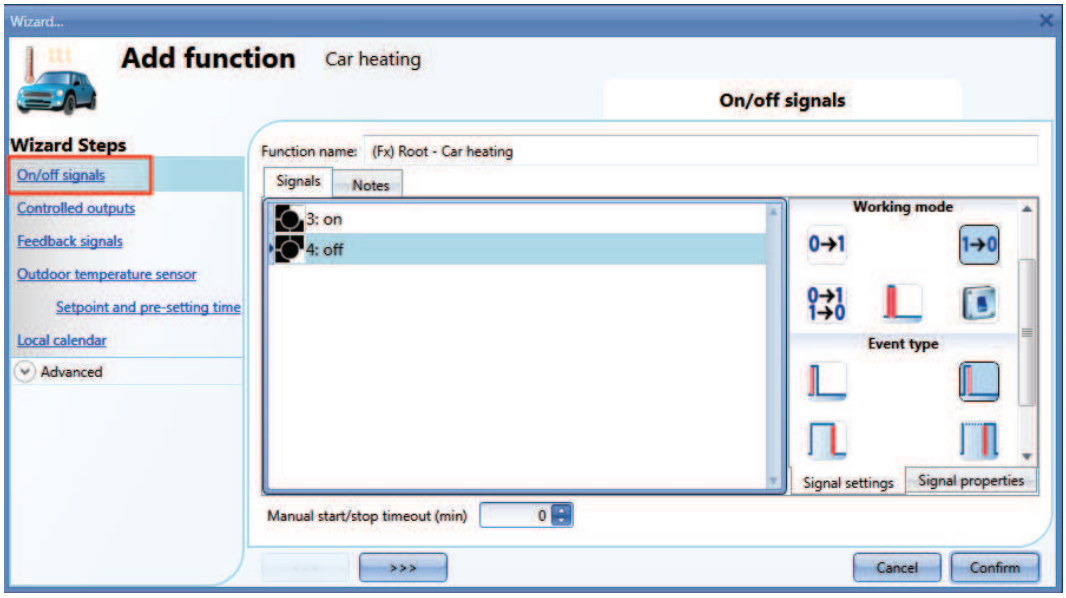
The pre-setting time and the setpoints have to be entered in the relevant field as shown in the pcture below.



To set the time at which the car has to be ready, please read paragraph *How to set the ready time*.

10.23.3 How to set the manual signals

Even if the function is not started on the basis of the algorithm described above, it is possible to activate it manually with manual inputs. Likewise, if the function is active, it is possible to switch it off manually with the stop inputs.
If the user wants to use a manual on/off signal, he has to select the relevant section, then double click on the *Signal* window and select the input signal from the list of available signals (see picture below).



The input signal can be used to start and stop the car heating: the start signal activates the function, the stop signal deactivates it.

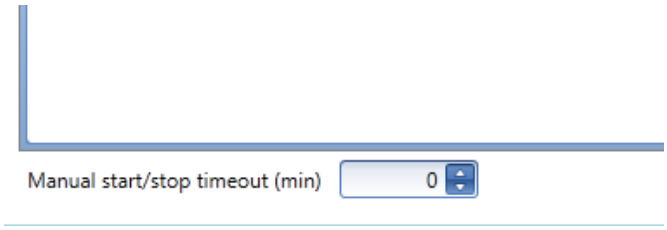
If a push button type is selected, the way of working marked with the red rectangle, has to be done following the table below.

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, the output is activated	After a short press (less than 1 second), the output is activated at the release of the push button.	After a long press, the output is activated at the release of the push button.	After a very long press, the output is activated at the release of the push button.
1→0	As soon as the push button is pressed, the output is deactivated.	After a short press (less than 1 second), the output is deactivated at the release of the push button.	After a long press, the output is deactivated at the release of the push button.	After a very long press, the output is deactivated at the release of the push button.
0→1 1→0	As soon as the push button is pressed, the output will be activated/deactivated in toggle mode.	After a short press (less than 1 second), the output will be activated/deactivated in toggle mode at the release of the push button.	After a long press, the output will be activated/deactivated in toggle mode at the release of the push button.	After a very long press, the output will be activated/deactivated in toggle mode at the release of the push button.
	The output will be activated/deactivated in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The function is switched on when the signal goes ON, and it is switched off when the signal goes OFF.			

If a switch signal is used, the set of the working mode has to be done following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The output is activated	No action
1→0	The output is deactivated	No action
0→1 1→0	The output is activated/deactivated in toggle mode	No action
	The output is activated/deactivated in toggle mode	The output is activated/deactivated in toggle mode
	The function is activated	The function is deactivated

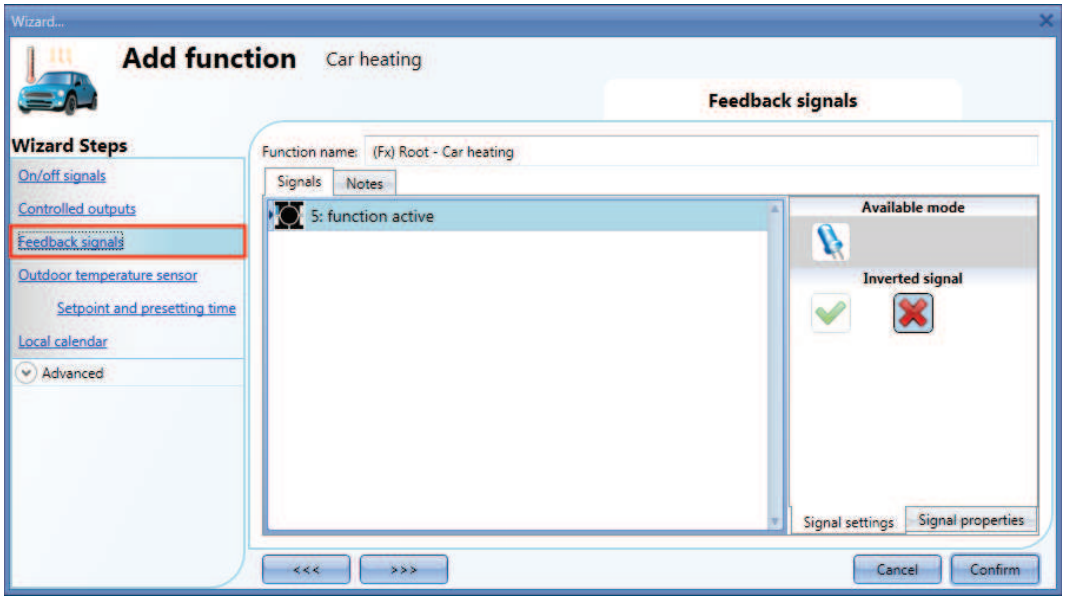
The user could set a time after which the output is switched off even if the selected start signal is still active, to achieve this the “manual start/stop timeout” field has to be set.



The timer starts counting every time an input signal is activated, as soon as this timer expires the output goes back to the previous status.
The maximum delay is 59 minutes, if the timer is set to 0 minutes, the timer is deactivated.

10.23.4 How to add the feedback signal

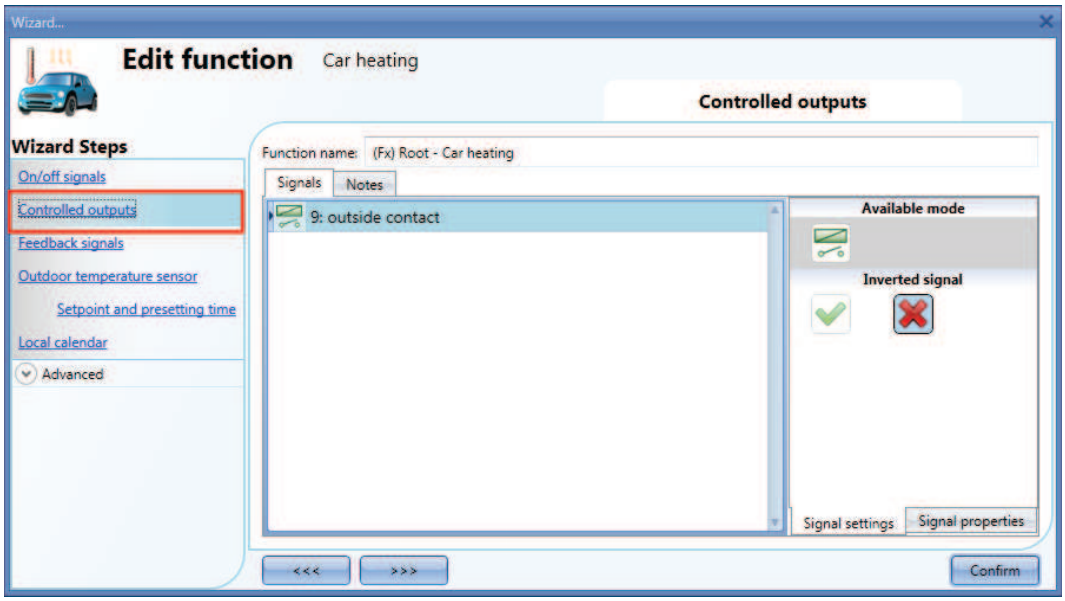
If the user wants to use a feedback signal to check the status of the car heating function, he has to select the relevant section, then double click on the *Signal* window and select the input signal from the list of available ones (see picture below).



The feedback signal can be a relay, a LED or a buzzer, and it follows the status of the function: when the function is ON the feedback is on, when the function is OFF the feedback is off.

10.23.5 How to add the output

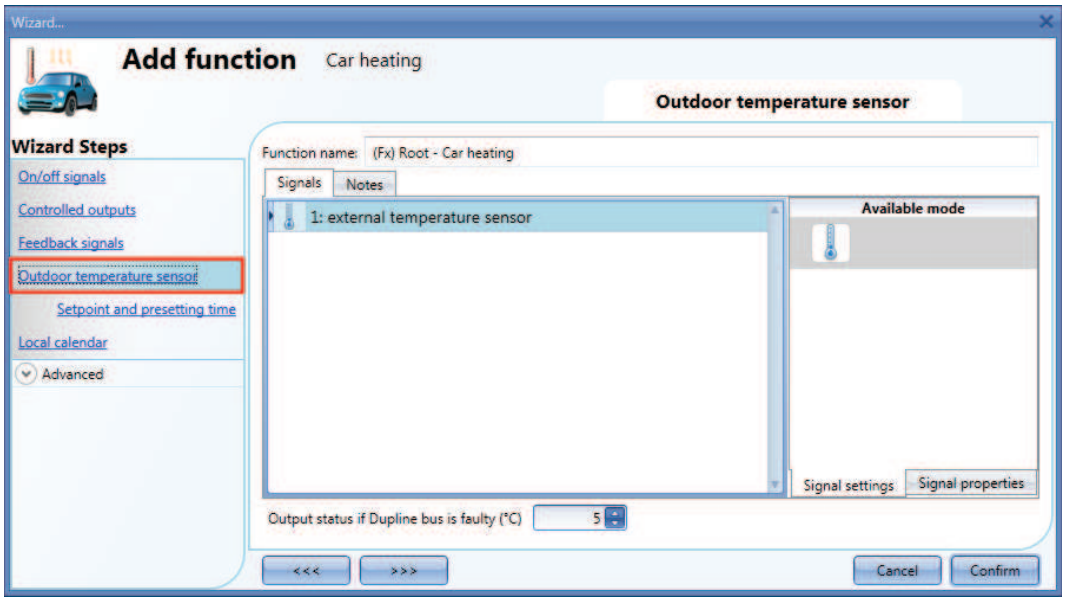
To add an output signal to the function, the user has to select the relevant section, then double click on the *Signal* window and select the output signal from the list of available ones (see picture below).



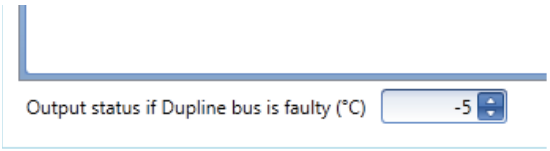
The output signal can be a relay, a LED or a buzzer, and it follows the status of the function: when the function is ON the output is activated, when the function is OFF the output is deactivated.

10.23.6 How add the temperature sensor

To add the temperature sensor to the car heating function, the user has to select the relevant section, then double click on the *Signal* window and select the temperature signal from the list of available ones (see picture below).
The user can add up to 10 different temperature signals: if more signal are present, the average value is used as reference temperature.
If one temperature sensor is faulty, the invalid temperature value is discarded from the calculation of the average temperature.



Should the temperature sensor be faulty, the system will use a default value that the user can set from -50°C to +50°C.



10.23.7 How to set the ready time

The *Ready time* (the time at which the car has to be ready) must be set in the Local calendar field (see picture below).

The user can select the kind of visualization he prefers clicking on the icons of the *Tool bar* reported below:

Tool bar icons description:

	One step back in the Calendar. Ex: if a week is visualized, this button let's the user go back to the previous week.
	One step forward in the calendar. Ex: if a week is visualized, this button let's the user go to the next week.
	Go immediately to the current day.
	Magnifying lens to see more/less time bands.
	The calendar visualizes horizontally one day.
	The calendar visualizes horizontally 5 days.
	The calendar visualizes horizontally 7 days.
	The calendar visualizes horizontally 31 days
	The calendar visualizes vertically 7 days
	Full screen view

Calendar activities
Once the user has selected his preferred kind of visualization, to enter a time band he has to double click on the wanted day and the following window will appear:

Activity name: In this field the user defines the name of the event that will appear on the calendar, this is a mandatory field.

From*:* the beginning date for the calendar automation.

To*:* the end date of the calendar automation.

Ready at: in this field the user can select the time when the car has to be ready.

Days: The user has to check the days when the calendar have to work.

In the example above the calendar is set to get the car ready at 7:30 during the week except on Saturday and Sunday.

10.23.8 How to disable the calendar automation

If the user wants to disable the heating managed by the calendar, the disable automations step has to be used: when the heating is disabled, the car heating output can only be activated using manual input signals.
To enable it, check *Disable automations* in the *Advanced* section, then double click on the signal window and select the real signal to use (see picture below).

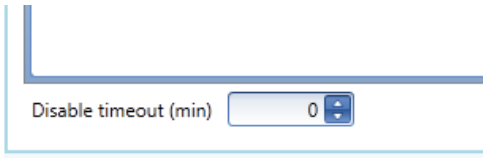
If a push button type is selected, the working mode can be selected according to the following table:

Working mode	Event type			
	Event on push button pressed	Event on push button released	Event on long pressure	Event on very long pressure
0→1	As soon as the push button is pressed, all automations are disabled.	After a short press (less than 1 second), at the release of the push button. All automations are disabled.	After a long press, all automations are disabled at the release of the push button.	After a very long press, all automations are disabled at the release of the push button.
1→0	As soon as the push button is pressed, the automations are enabled again.	After a short press (less than 1 second), the automations are enabled again at the release of the push button.	After a long press, the automations are enabled again at the release of the push button.	After a very long press, the automations are enabled again at the release of the push button.
0→1 1→0 Event toggle	As soon as the push button is pressed, the automations will be disabled/enabled in toggle mode.	After a short press (less than 1 second), the automations will be disabled/enabled in toggle mode at the release of the push button.	After a long press, the automations will be disabled/enabled in toggle mode at the release of the push button.	After a very long press, the automations will be disabled/enabled in toggle mode at the release of the push button.
	The automations will be disabled/enabled in toggle mode when the push button is pressed and toggled again when the push button is released.			
	The automation is disabled when the signal goes ON, and it is enabled again when the signal goes OFF.			

If a switch signal is used, the set of the working mode has to be done following the table below:

Working mode	Event type	
	Signal activated	Signal deactivated
0→1	The automations are disabled	No action
1→0	The automations are enabled	No action
0→1 1→0	The automations are disabled/enabled in toggle mode	No action
	The automations are disabled/enabled in toggle mode	The automations are disabled/enabled in toggle mode
	The automation is disabled	The automation is enabled

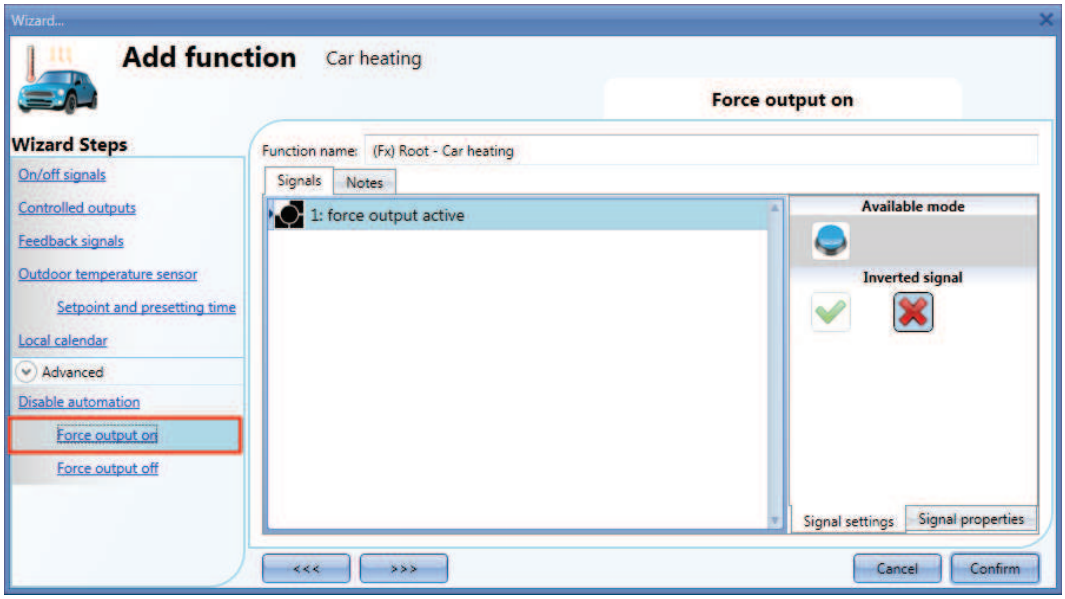
The user might need to set a time after which the calendar automation is enabled again even if the selected signal is still active: to achieve this the “Disable timeout” field at the bottom of the window has to be set.



The timer starts every time the disable inputs is activated: as soon as the timer expires, the disable status is automatically deactivated.

10.23.9 How to force the output on

If the user wants to force the output ON regardless of all the other signals used in the function, the *Force output on* step has to be used: to enable it check *Disable automations* in the *Advanced* section, select *Force output on*, then double click on the signal window and select the real signal to use (see picture below).



Each signal used in the *Force output on* window works as a level signal: until the signal is active, the car heating function is forced on.
When the *force output on* signal is activated and the *force output off* signal is activated, the force to output on signal has the priority.

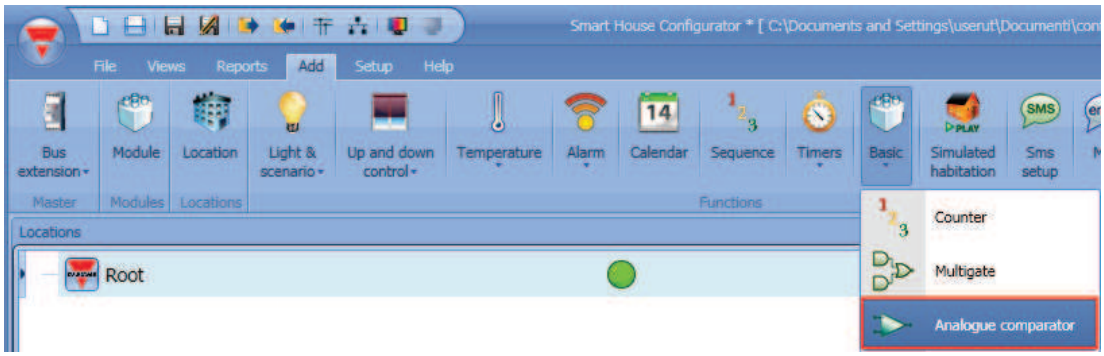
10.23.10 How to force the output off

If the user wants to force the output OFF regardless of all the other signals used in the function, the *Force output off* step has to be used: to enable it check *Disable automations* in the *Advanced* section, select *Force output off*, then double click on the signal window and select the real signal to use (see picture below).

Each signal used in the *Force output off* window works as a level signal: until the signal is active, the car heating function is forced off.
When the *force output on* signal is activated and the *force output off* signal is activated, the force to output on signal has the priority.

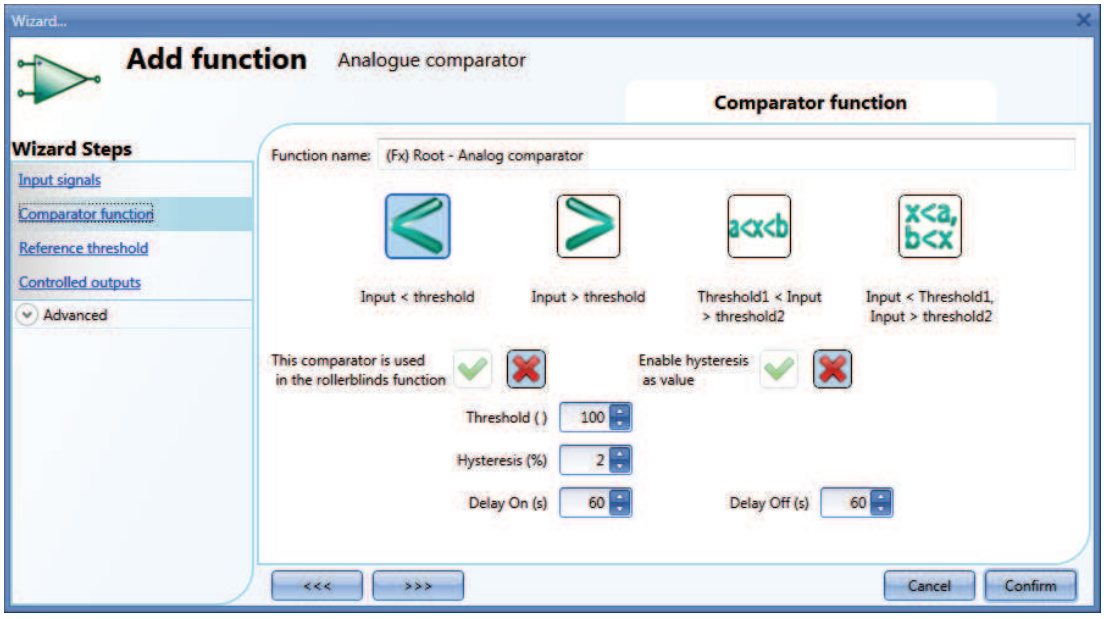
10.24 How to set an analogue comparator function

The analogue comparator function can be used to compare two values.
To add the analogue comparator function the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.
The wizard relevant to the analogue comparator function can also be opened by typing Alt+A+7+A.



10.24.1 Comparator settings

In the field *Comparator function*, the user can choose the type of comparator by selecting the desired icon (in the picture below the inside limits comparator is selected).

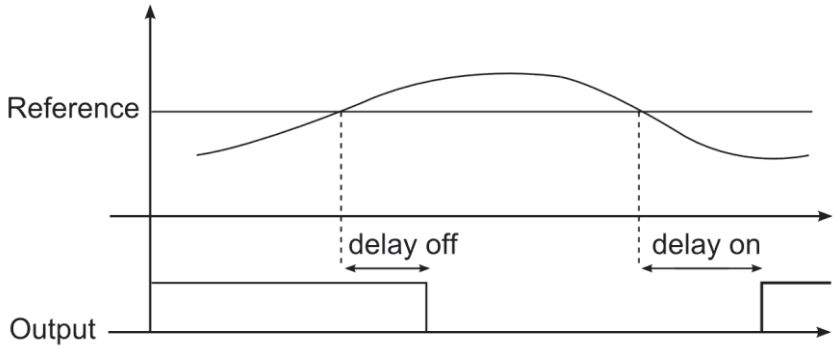


If this function is used into a roller blind function, the relevant check box has to be selected.

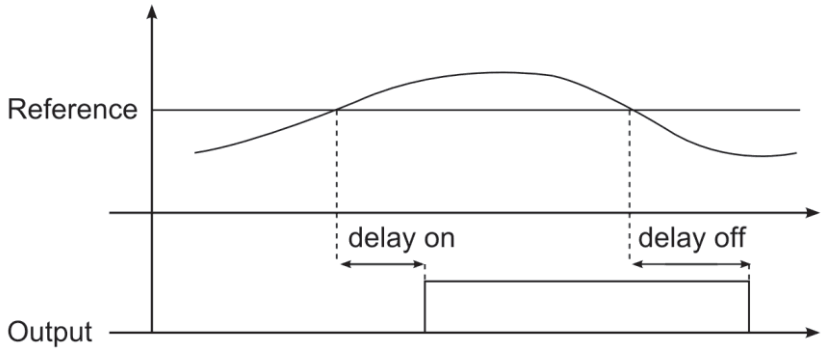
The user can also select the type of hysteresis: as a percentage of the full scale or as a fixed value (*Enable hysteresis as value* has to be checked).

The available types of comparison are the following:

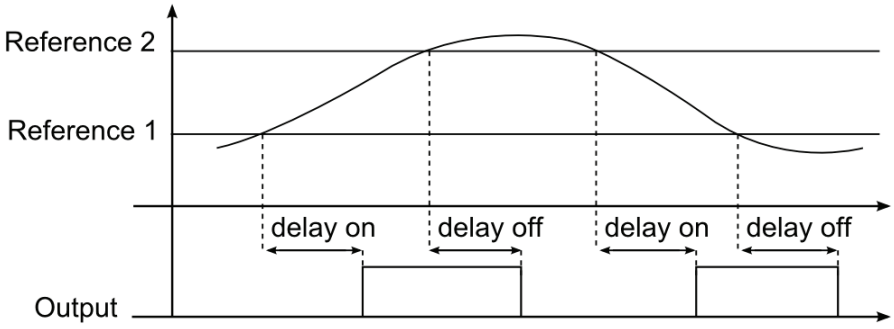
1) ***Lower than***:



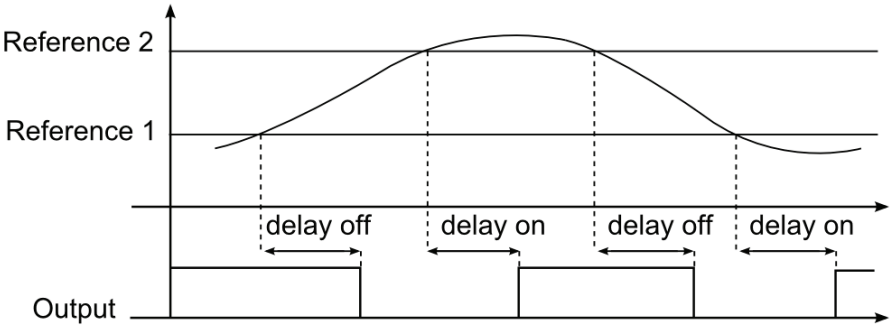
2) **Higher than**:



3) ***Inside limits***:



4) ***Outside limits***:

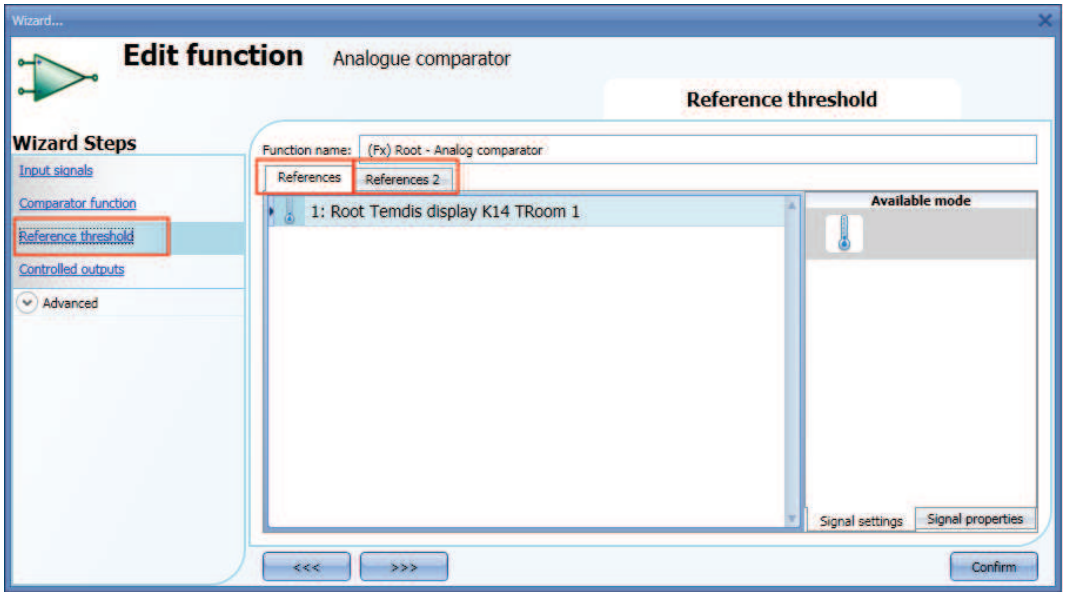


According to the comparator type selected, the user should then set the hysteresis and the threshold limits (when a comparator with two thresholds is used, the hysteresis is the same in both limits).
The *delay on* is the delay before the activation of the output when the comparison is true, the *delay off* is the delay before the deactivation of the output when the comparison is false.

10.24.2 How to set the reference values

There are two types of reference signals available in the comparator function: the first is a numeric value set as threshold in the field *Comparator function*, the second is an actual reference coming from a module (such as temperatures, light levels, energy measurement and so on) and configured in *Reference threshold*.

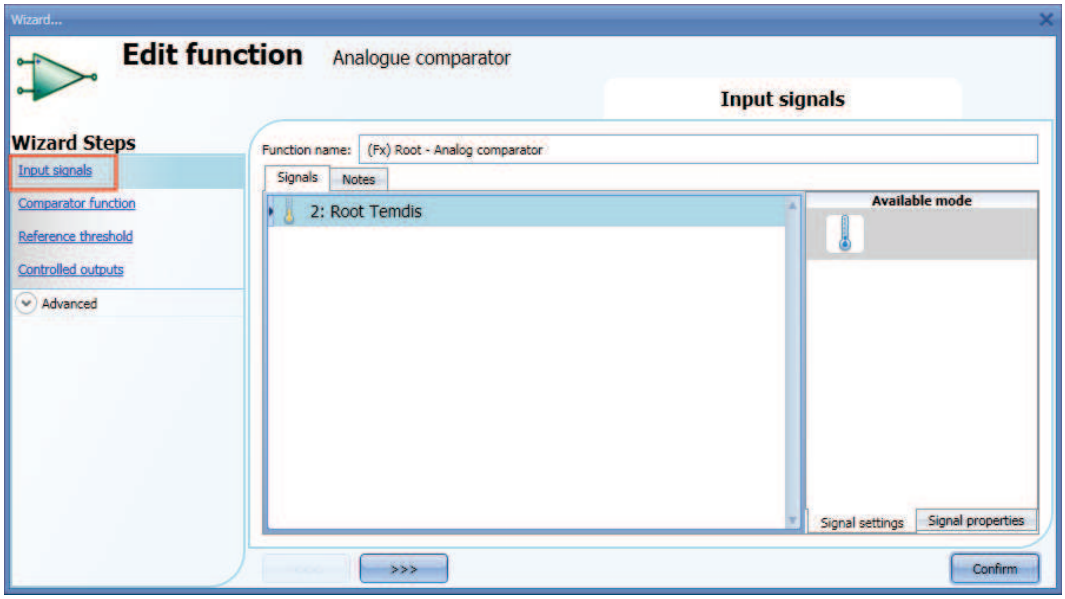
If the user does not add any actual signal in the *Reference threshold* field, the comparator works according to the threshold values configured in the field *Comparator function*.
The real reference signal has priority over the threshold limit and the latter is used only if a fault should occur to the real reference signal.



In the case of a comparator function with two reference signals (*inside limit* or *outside limit* type), *Reference 2* is always used as the high threshold limit; *Reference 1* is always used as the low threshold limit.
If the signal added as *Reference 1* (lower limit) has a higher value than the signal added as *Reference 2* (higher limit), the comparator function works as a comparator with a single reference (higher than or lower than type).

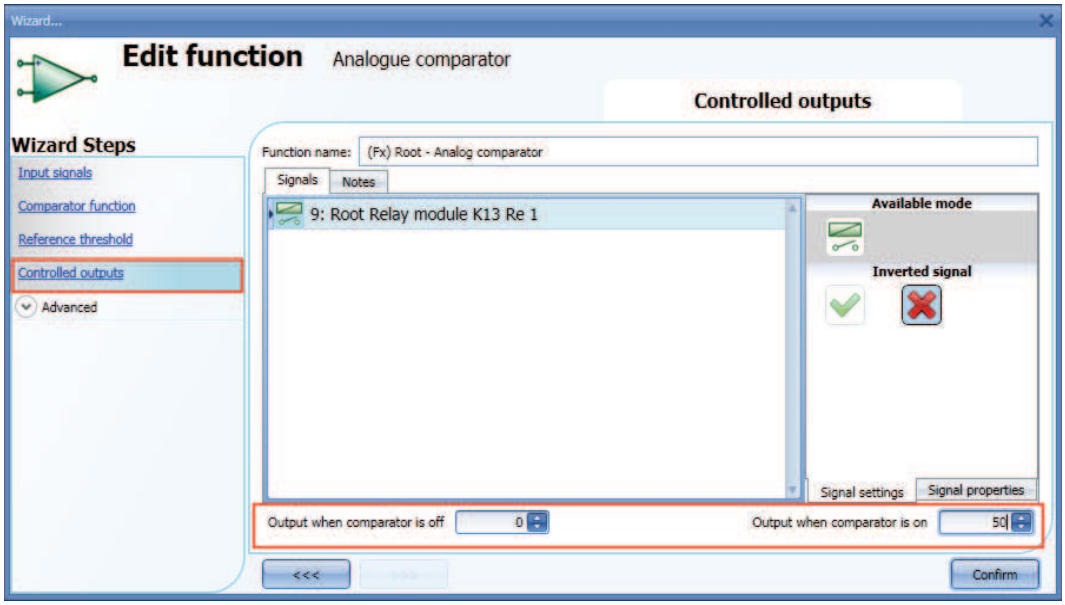
10.24.3 How to add the input signals to be compared

In the Input signals field of the wizard the user has to enter the signals to compare.
According to the signal added, the function automatically changes the units of measurement of the threshold limits.
In the picture below, a temperature signal is used as input and the unit of measurement displayed is °C/°F .



10.24.4 How to add the output signal

In the *Controlled output* field, the user can add one or more output signals which are activated according to the status of the comparator. When the function is on, the output is switched on; when the function is off the output is switched off. Once the output signals are entered, the user can also choose to use the reverse logic of the signal.



At the bottom of the window, the user can also set two analogue values for the output status of the function status when the comparator is respectively on and off.
This functionality is used when the analogue comparator status is used in other functions.
For example, the user can set an analogue comparator as shown in the picture above, which is then linked to a roller blind function. When the comparator status is true, the function output is 50, otherwise it is 0: the roller blind function will be set at 50% when the comparator is true, and then back to 0% (fully up or down) when the comparator is false.

The digital output like relay, are only managed is the output status is set to 0 or 1, other values are considered as “don’t care”.

11 How to configure BACnet objects in SB2WEB24

11.1 How BACnet is implemented in SB2WEB24

The SB2WEB24 operates as a server on BACnet/IP. This allows BACnet clients like DDC controllers and building management systems to read and control the SB2WEB I/O's and functions. Two different groups of BACnet objects are created:

- BACnet objects related to modules
- BACnet objects related to functions

All the BACnet objects in the SB2WEB supports COV, allowing the BACnet clients to be automatically updated by SB2WEB every time an object event occurs (e.g. change of present value).

11.2 BACnet objects related to modules

Each I/O-module, sensor or actuator that can be connected to the SB2WEB smart building system has a defined set of BACnet objects, reflecting the signals of the module. For example the bus-powered Co2/Temp sensor SHSUCOT has two BACnet objects of type "analog input", one for the CO2 value and the other for the temperature value. The PIR/Lux sensor SHSQP360L has two "binary input" objects for "presence" and "movement", and an "analog input" object for the lux value. The light switch B5X-LS4-U has 4 "binary input" objects (one for each button) and 4 "binary outputs" (one for each LED).

In general:

- For SBWEB digital input and digital sensor signals, BACnet "binary input" objects are created
- For SBWEB digital output signals, BACnet "binary output" objects are created
- For SBWEB analog input, analog sensor signals and energy meter values, BACnet "analog input" objects are created
- For SBWEB analog output signals, BACnet "analog output" objects are created

Since the scaling and engineering units of the analog signals have already been defined during the SBWEB setup, the tool has the information it needs to create the analog BACnet objects correctly.

The object names (property: Object Name) are identical to the signal names in the SBWEB tool, so they are very easy to identify when scanning the BACnet/IP network. If desired the object name can be changed.

This group of BACnet objects related to modules are typically used in those cases, where the controls strategy is performed by an external controller, and the SB2WEB is fully or partly acting as remote I/O system.

In App A of this manual is defined the complete list of modules with associated BACnet objects.

11.3 BACnet objects related to functions

Each SB2WEB function has a defined set of BACnet objects, reflecting the inputs, outputs and operating parameters of the function. For example the simple Light ON/OFF function has a "multi-state input" object to read the status of the light output, a "bitstringvalue" object with diagnostics information, a "multi-state output" object for switching the light ON or OFF, an "analog value" object to read/change the energy save time, and an "analog value" object to read/change the lux set-point defining day/night mode.

This group of BACnet objects related to functions are typically used in those cases, where the controls strategy is performed by SB2WEB (e.g. constant light control). The BACnet objects related to functions allows other controllers or the building management system to read the function status, change operating parameters and trigger the function to go to a specific output state.

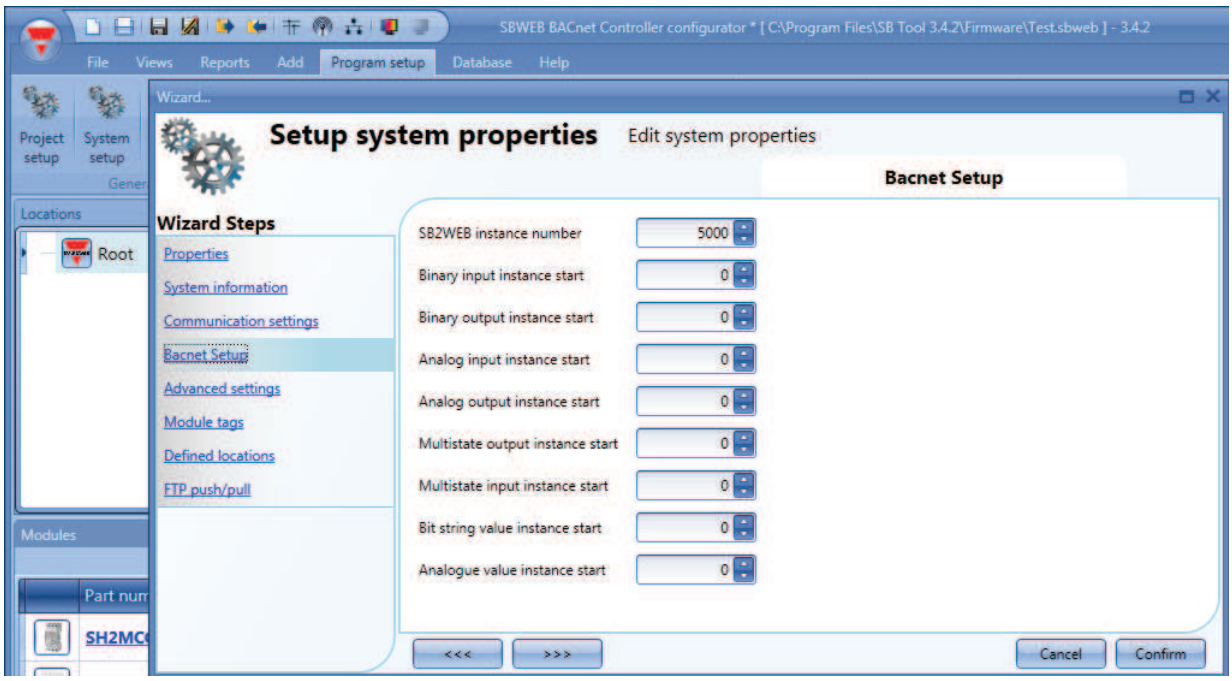
The SBB2WEB can be used in a mixed mode where it is partly acting as controller (typically lighting functions) and partly as remote I/O for a DDC controller for HVAC systems.

In App B of this manual is defined the complete list of functions with associated BACnet objects.

11.4 Basic settings for instance numbers

In the System setup menu, select BACnet setup as shown below. Here the instance number for the Device object can be defined (default:5000).

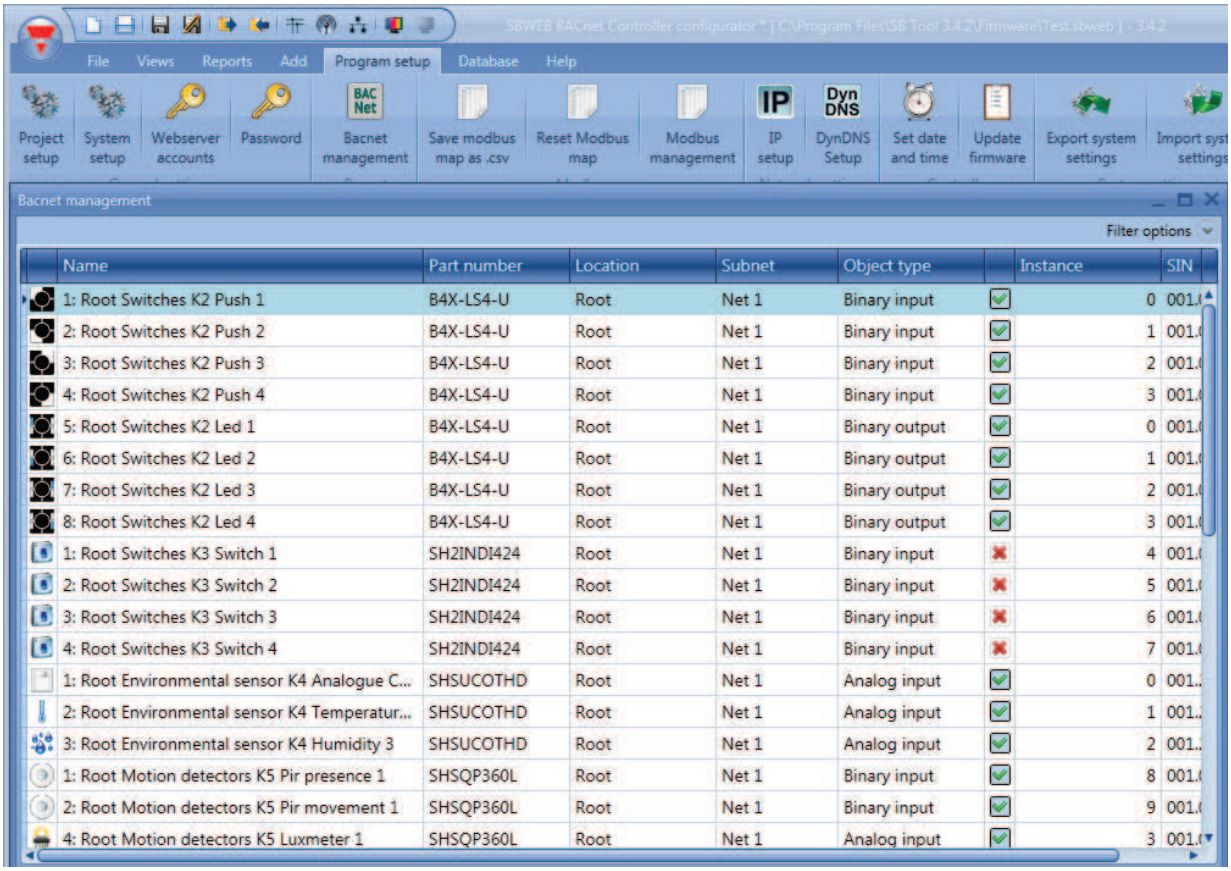
For the other BACnet object types that appear in the SB2WEB (Binary Input, Binary Output, Analog Input, Analog Output, Analog Value, Multi-state Input, Multi-state output, Bitstringvalue) there is the possibility to define the start instance number for each object type. The tool will then assign the first created object of this type with the entered instance number, and the rest objects of this type will be assigned the following numbers consecutively. If desired, the individual instance numbers can still be changed manually in the signal view menu if desired.



11.5 Selection of BACnet objects to be created

In the menu “BACnet management” under “Program setup” the user can define which BACnet objects shall be created. As can it can be seen in below screen shot, a list with all possible BACnet objects (as described in 11.2 and 11.3) appears, each with a tick box. The selection is very simple: Simply tick the objects to be used. Please note the column with the object instance numbers. These can be changed, simply by clicking the box and changing the number.

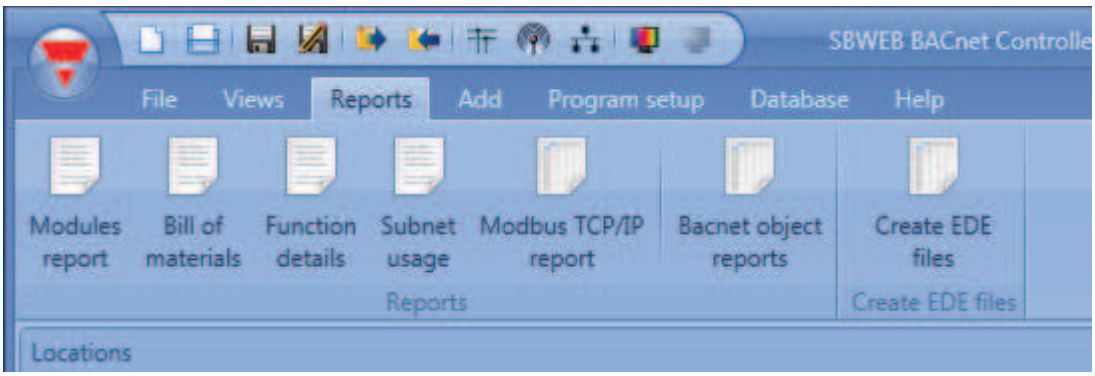
Also the live signal view contains the column with BACnet instance numbers for each signal, making it easy to identify the BACnet reference.



Name	Part number	Location	Subnet	Object type	Instance	SIN
1: Root Switches K2 Push 1	B4X-LS4-U	Root	Net 1	Binary input	0	001
2: Root Switches K2 Push 2	B4X-LS4-U	Root	Net 1	Binary input	1	001
3: Root Switches K2 Push 3	B4X-LS4-U	Root	Net 1	Binary input	2	001
4: Root Switches K2 Push 4	B4X-LS4-U	Root	Net 1	Binary input	3	001
5: Root Switches K2 Led 1	B4X-LS4-U	Root	Net 1	Binary output	0	001
6: Root Switches K2 Led 2	B4X-LS4-U	Root	Net 1	Binary output	1	001
7: Root Switches K2 Led 3	B4X-LS4-U	Root	Net 1	Binary output	2	001
8: Root Switches K2 Led 4	B4X-LS4-U	Root	Net 1	Binary output	3	001
1: Root Switches K3 Switch 1	SH2INDI424	Root	Net 1	Binary input	4	001
2: Root Switches K3 Switch 2	SH2INDI424	Root	Net 1	Binary input	5	001
3: Root Switches K3 Switch 3	SH2INDI424	Root	Net 1	Binary input	6	001
4: Root Switches K3 Switch 4	SH2INDI424	Root	Net 1	Binary input	7	001
1: Root Environmental sensor K4 Analogue C...	SHSUCOTHD	Root	Net 1	Analog input	0	001
2: Root Environmental sensor K4 Temperatur...	SHSUCOTHD	Root	Net 1	Analog input	1	001
3: Root Environmental sensor K4 Humidity 3	SHSUCOTHD	Root	Net 1	Analog input	2	001
1: Root Motion detectors K5 Pir presence 1	SHSQP360L	Root	Net 1	Binary input	8	001
2: Root Motion detectors K5 Pir movement 1	SHSQP360L	Root	Net 1	Binary input	9	001
4: Root Motion detectors K5 Luxmeter 1	SHSQP360L	Root	Net 1	Analog input	3	001

11.6 BACnet report

In the menu “BACnet object reports” documentation for the selected BACnet objects with object types, instance numbers and object names can be obtained.

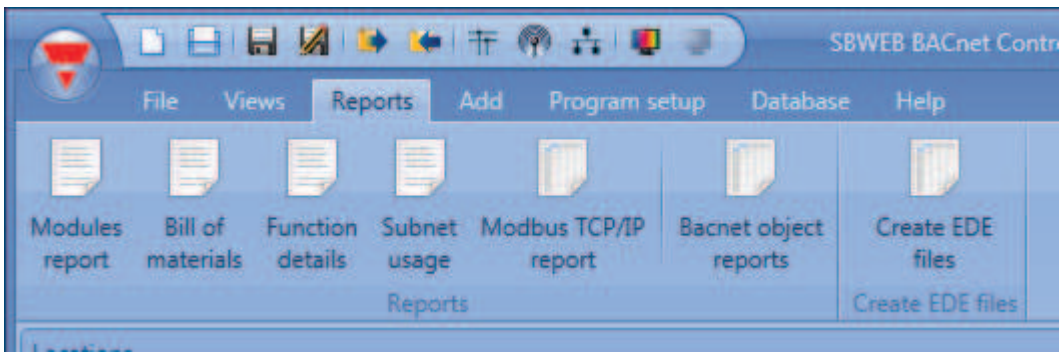


N.	Part number	Name	SIN	Subnet	Root	Object type	Instance number	Object identifier
1	B4X-LS4-U	1: Root Switches K2 Push 1	001.013.102	Net 1	Root	Binary input	0	12582912
2	B4X-LS4-U	2: Root Switches K2 Push 2	001.013.102	Net 1	Root	Binary input	1	12582913
3	B4X-LS4-U	3: Root Switches K2 Push 3	001.013.102	Net 1	Root	Binary input	2	12582914
4	B4X-LS4-U	4: Root Switches K2 Push 4	001.013.102	Net 1	Root	Binary input	3	12582915
5	B4X-LS4-U	5: Root Switches K2 Led 1	001.013.102	Net 1	Root	Binary output	0	16777216
6	B4X-LS4-U	6: Root Switches K2 Led 2	001.013.102	Net 1	Root	Binary output	1	16777217
7	B4X-LS4-U	7: Root Switches K2 Led 3	001.013.102	Net 1	Root	Binary output	2	16777218
8	B4X-LS4-U	8: Root Switches K2 Led 4	001.013.102	Net 1	Root	Binary output	3	16777219
9	SH2INDI424	1: Root Switches K3 Switch 1	001.054.189	Net 1	Root	Binary input	4	12582916

11.7 How to create an EDE-file

In some cases, if the BACnet client does not have the option to scan the network or if offline configuration is needed, EDE-files are needed to set up the BACnet client to communicate with the SB2WEB. The EDE-files define all the objects, object types, instance numbers etc. in the SBWEB in a standardized that can be read by the client.

To create the EDE-files, select the menu “Create EDE files”



The Sx Tool will ask for the name and path of the files to be saved, and subsequently they will be ready for use in the setup of the BACnet client

12 How to configure a DALI network

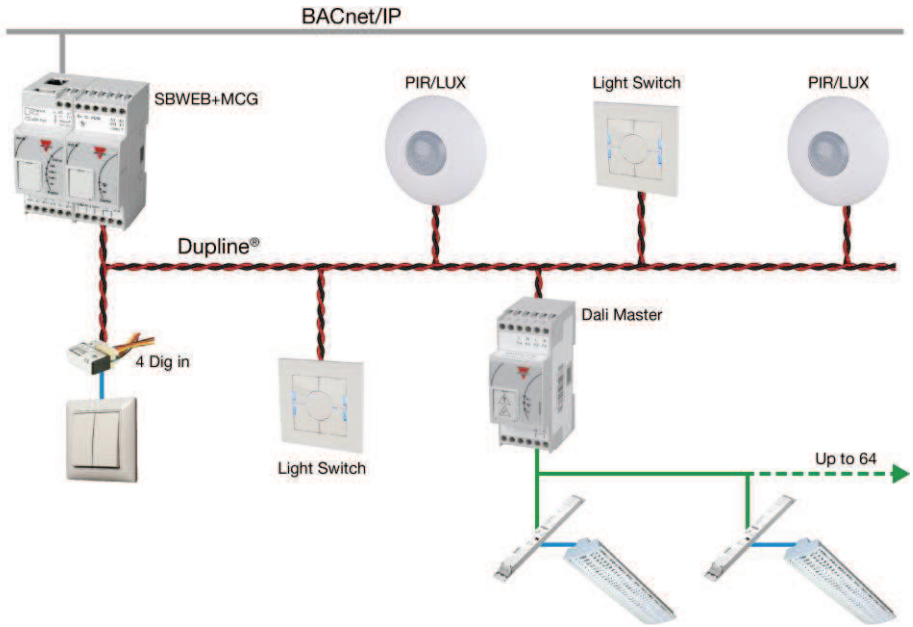
12.1 How to interface Dupline to DALI

The DALI bus is the standard for interfacing to lighting actuators like ballasts for dimming of fluorescent lighting, LED drivers, RGB lighting etc.

The SB2DALI230 module is a gateway between the Dupline bus and the DALI (Digital Addressable Lighting Interface) protocol and it operates as DALI master and has built-in DALI power supply. As shown below, the SB2DALI230 connects directly to the Dupline bus, hence it can be installed de-centrally.

Up to 7 SB2DALI230 modules can be connected to one Dupline bus, and each SB2DALI230 can manage up to 64 DALI actuators. The SB2DALI230 supports DALI actuators, but not DALI sensors and input modules. This because the concept is to use the bus-powered Dupline devices for this purpose, as shown below.

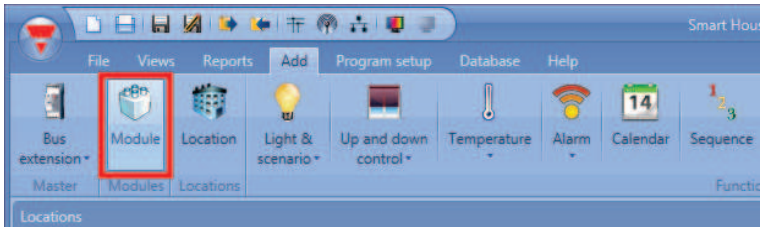
In the Sx tool, DALI dimmers are managed exactly the same way as Dupline dimmers. The grouping of the lighting outputs is also managed by the Sx tool, hence all the configuration can be done within the same programming environment using a single tool.



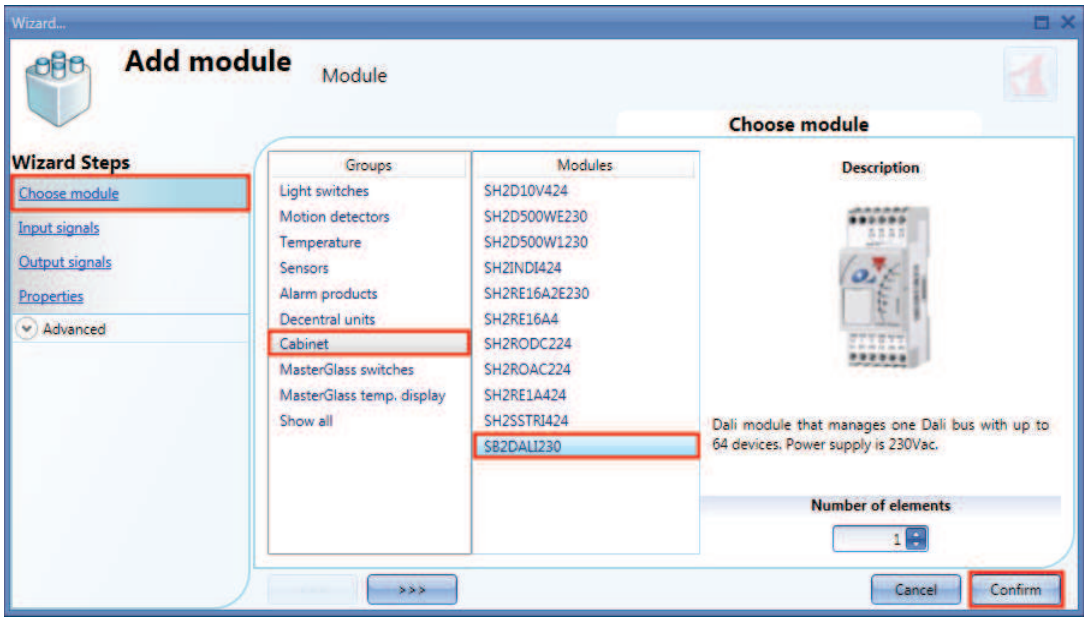
12.2 How to add the DALI master SB2DALI230

The SB2DALI230 is a gateway between the Dupline bus and the DALI (Digital Addressable Lighting Interface) protocol and is a DALI master. It manages one DALI bus.

To add it into the Sx tool, click on *Add module, Cabinet, SB2DALI230.*



When the *Confirm* button is pressed, the module is inserted.



12.3 How many SB2DALI230 can be managed

Each SH2MCG24 can control up to 7 SB2DALI230s and each DALI ballast is managed as a dimmer output from a Dupline point of view. Dimmer outputs from different Dupline networks **cannot** be mixed in one dimmer function.

Each smart-Dupline network can manage up to 256 dimmer functions:

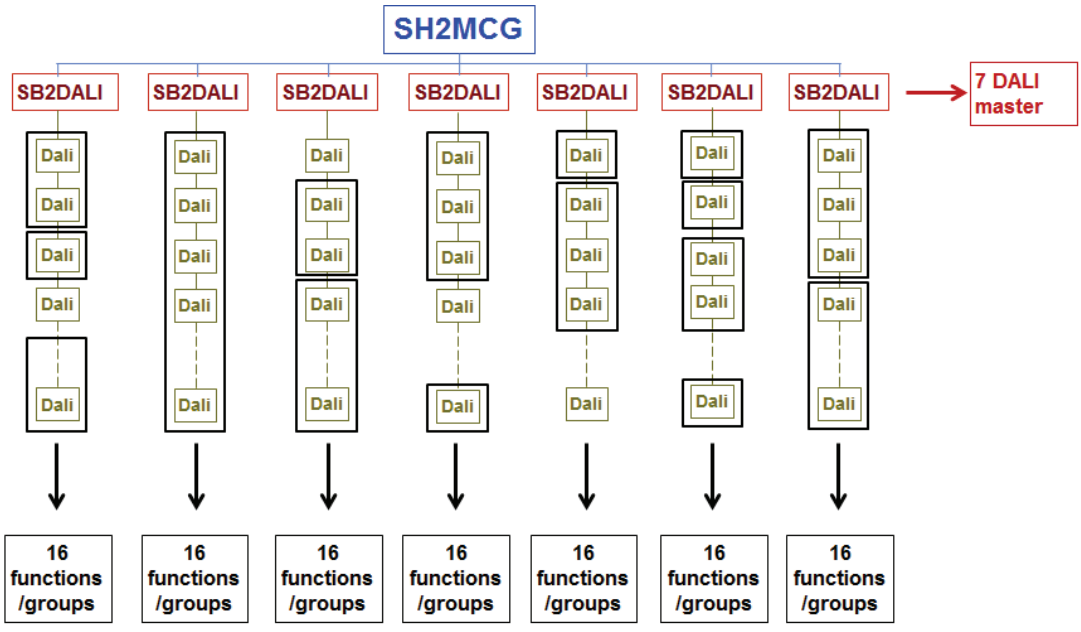
- 128 functions with 230V and 1-10V dimmers
- 128 functions with DALI devices

12.4 Functions and groups

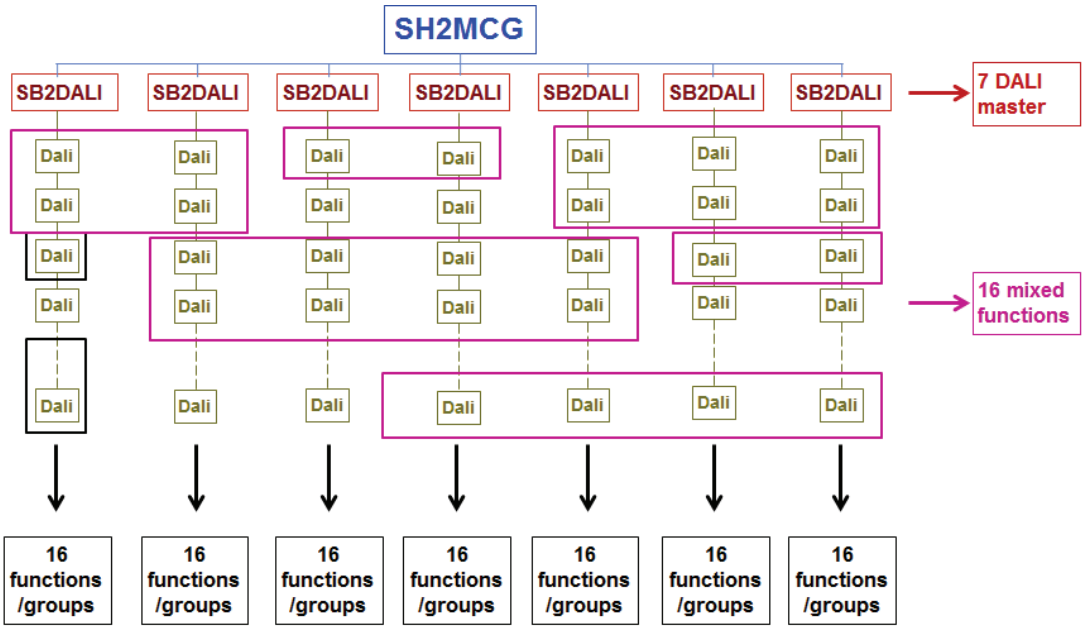
In the Sx Tool the DALI groups are managed via the Dimmable or Constant light functions. The maximum number of functions (groups) for each SB2DALI230 is 16, and in each function the user can add up to 64 dimmer outputs (ballasts). The SB2DALI230 (DALI Master) assigns an address (0 to 63) to each connected ballast. This address may be changed at any time in the Sx tool (*DALI network management* menu).

A Dimmable or Constant light function uses an average of 3 input channels and 2 output channels (Input 3/120 - Output 2/112): this should be considered in the design of a DALI network integrated into the Dupline bus.

A. Up to 16 dimmer functions for each DALI master SB2DALI230



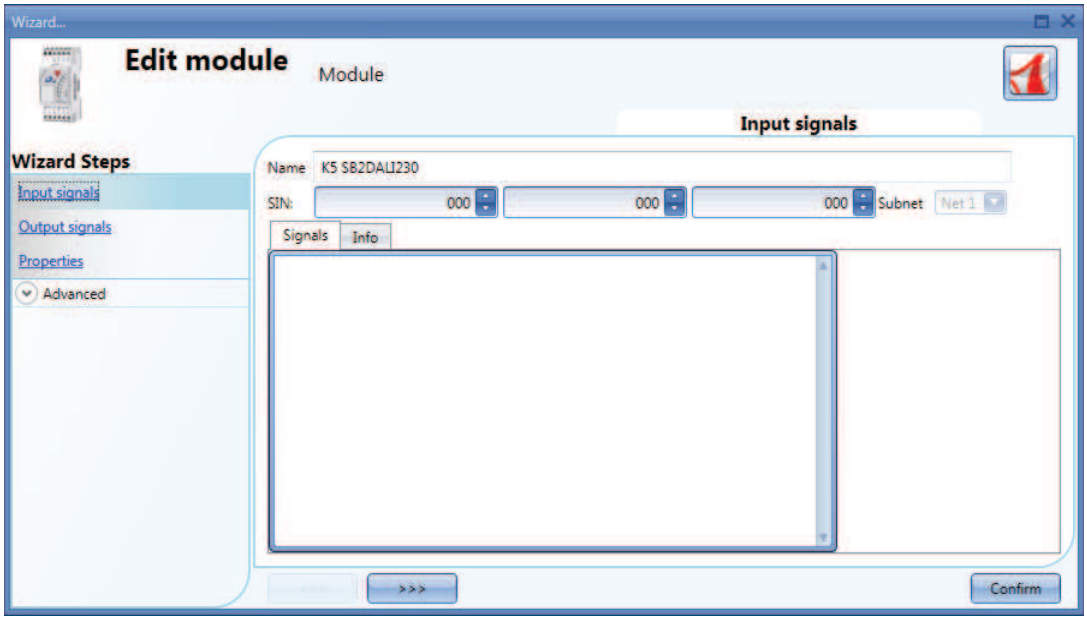
B. Up to 16 dimmer functions with DALI ballasts belonging to different DALI masters



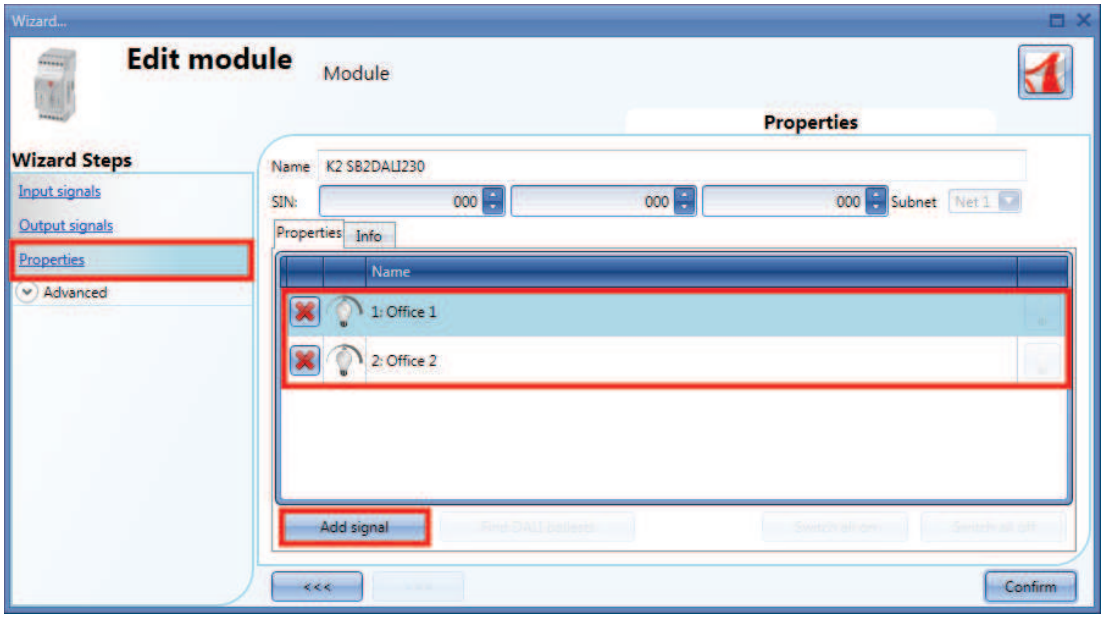
12.5 How to manually add a DALI ballast

To configure an SB2DALI230 module, click on the relevant picture once it is added to the project:

The configuration wizard will appear:

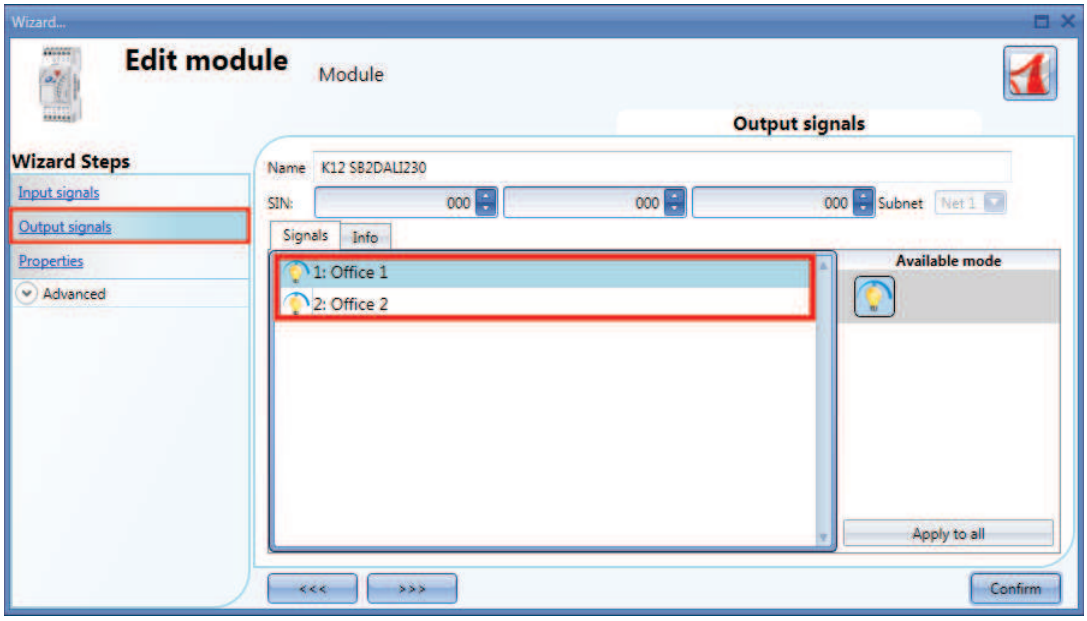


No input signals are present in this window.



In the *Properties* window the user can add up to 64 DALI outputs for each SB2DALI230.

Each time the *Add signal* button is pressed, a DALI dimmer output will be added. To save the configuration, press the *Confirm* button. If at least one SB2DALI230 is connected to the system, all the buttons next to *Add signal* will be active.

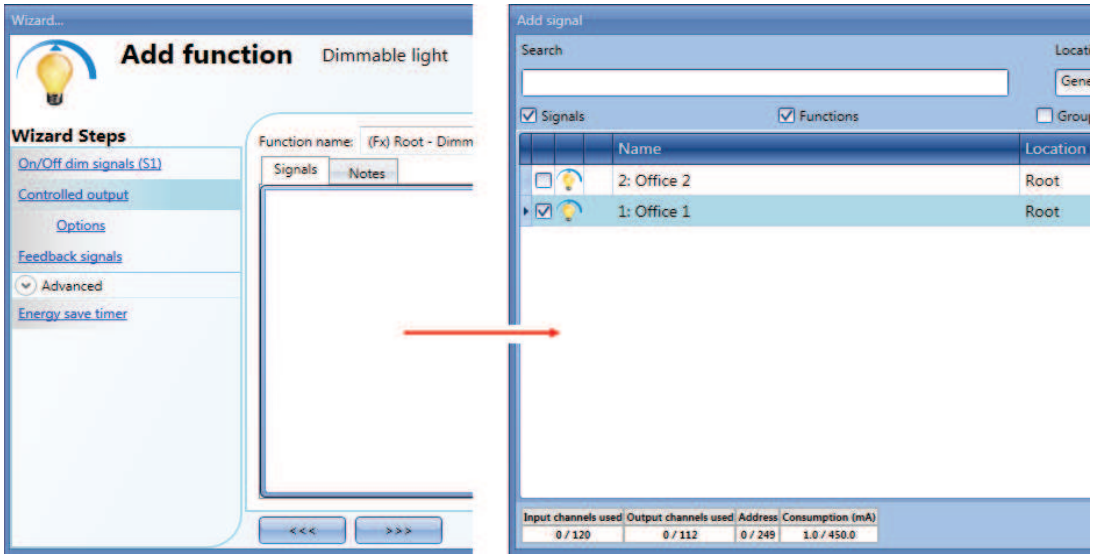


In the *Output Signals* window, all the DALI dimmers added in the *Properties* window will be shown.

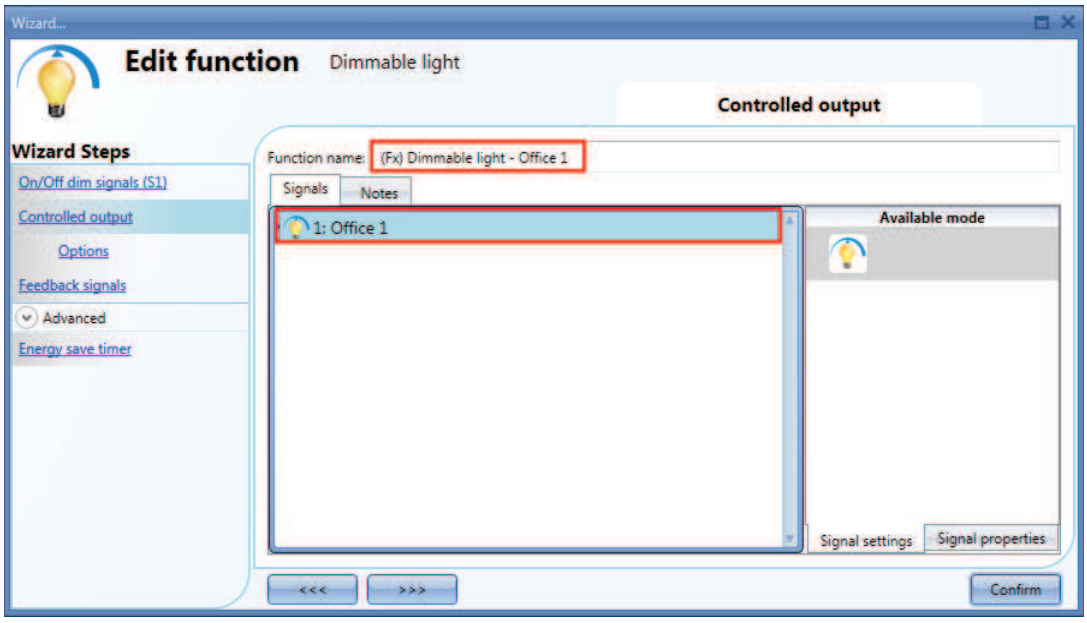
This configuration can be useful when the user needs to prepare an “off line” draft of the installation. Then, he will be able to load the project into a Sx2WEB24 connected to a DALI bus and configure the ballasts.

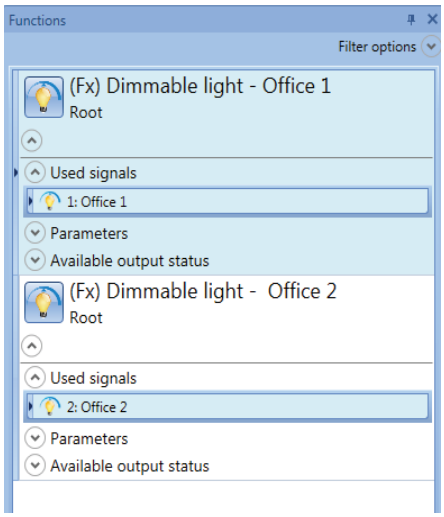
12.6 How to configure a dimmer function using DALI outputs

As shown in the example below, the user has to add the DALI outputs in the *Controlled output* field like a standard dimmer output.



To select the output signal that is controlled by the dimmable light function, click on *Controlled output* and then double click on the *Signals* window. Once the output window is opened, select the relevant outputs from the list: up to 64 dimmer outputs can be added.





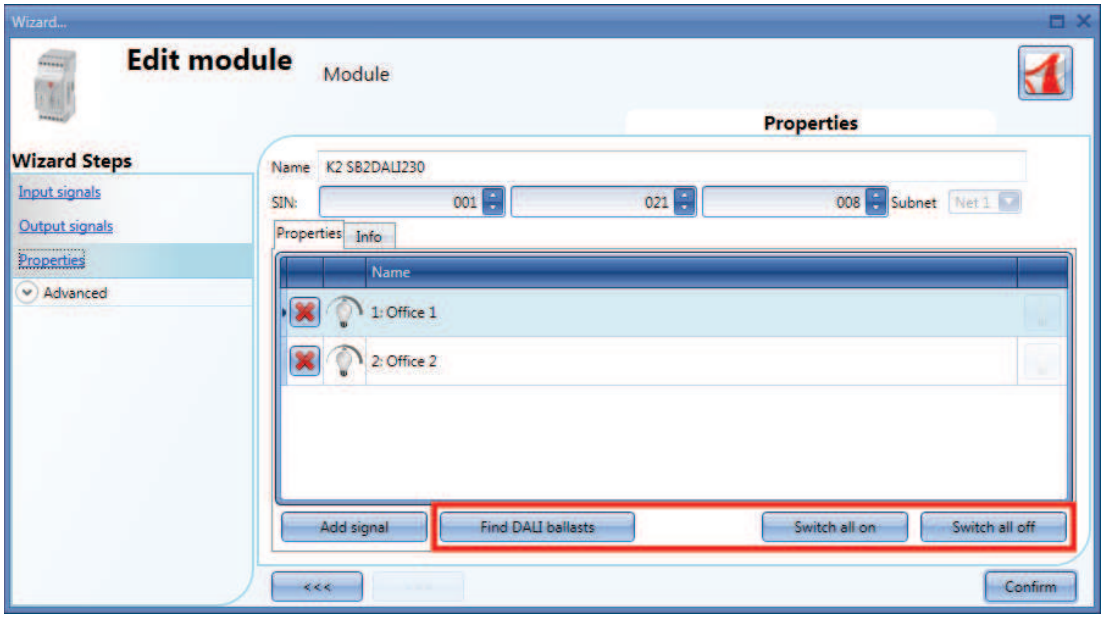
In the figure above, Office 1 and Office 2 Dimmable light functions are linked to the DALI outputs *Office 1* and *Office 2*.

12.7 How to automatically add a DALI ballast

The user connects an SB2DALI230 to the Smart House system and configures the module into the project.

12.8 How to automatically find the ballasts connected to the SB2DALI230

When an SB2DALI230 module is connected to the Sx2WEB24 system and recognized by means of a network scan, the DALI buttons will be made active in the *Properties* window of the wizard of the module:

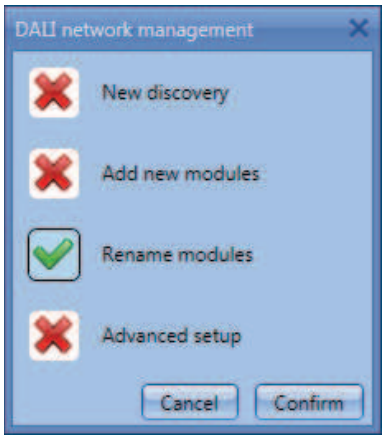


By means of the *Find DALI ballasts* button, the user can start a DALI network scan and the system will find the ballasts connected to the DALI bus.

By means of the *Switch all on* button, the user can switch on all the lamps connected to the DALI bus.

By means of the *Switch all off* button, the user can switch off all the lamps connected to the DALI bus.

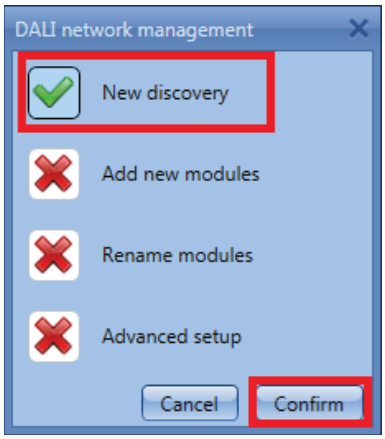
By clicking on *Find DALI ballasts,* the *DALI options* pop-up will appear (see picture below):



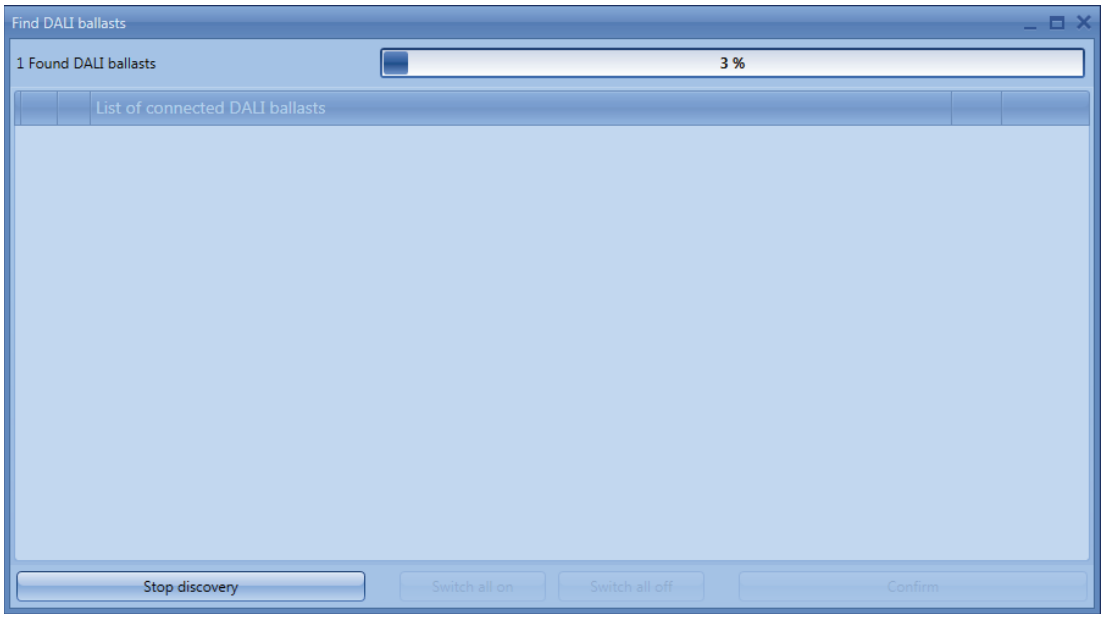
Field name	Description
New discovery	This provides a full scan and gives a new DALI address to all the ballasts found. This option is to be used the first time a network is configured or when completely new addresses have to be given to the DALI ballast.
Add new modules	This gives a DALI address **only** to the new ballasts and does not affect the already configured ones. This is to be used when most of the network is already configured and new ballasts have been added.
Rename modules	This allows the user to manually change the addresses of the already configured modules.
Advanced setup	This allows the user to manage advanced setup features

12.8.1 How to launch a new network discovery

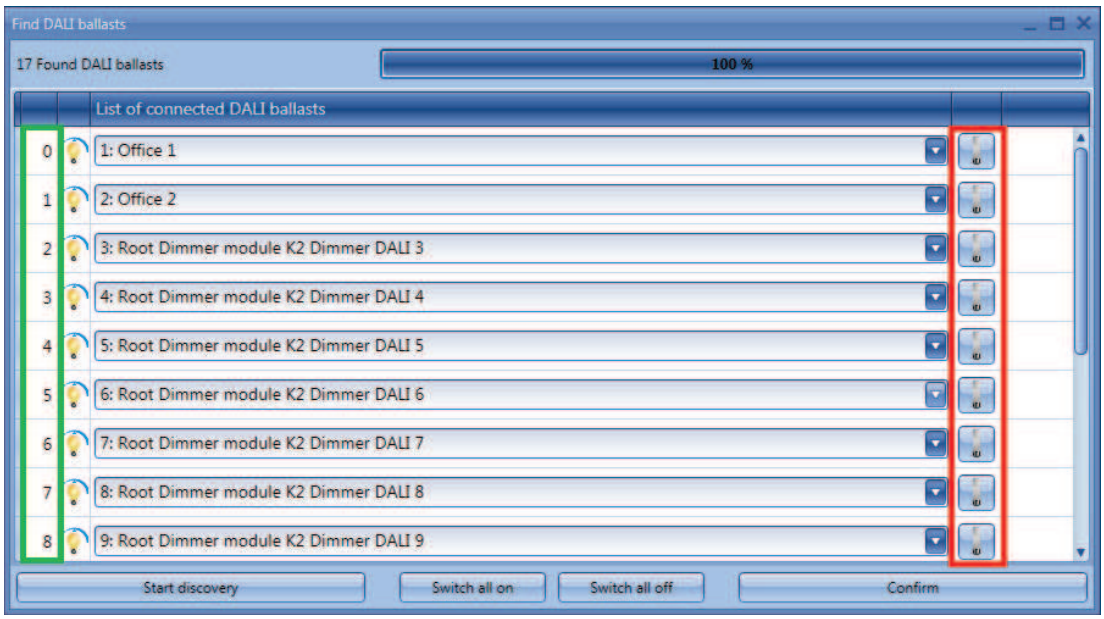
To perform a complete scan of the DALI bus, click on the *Find DALI ballasts* button and press on *New Discovery*:



The following window will appear:



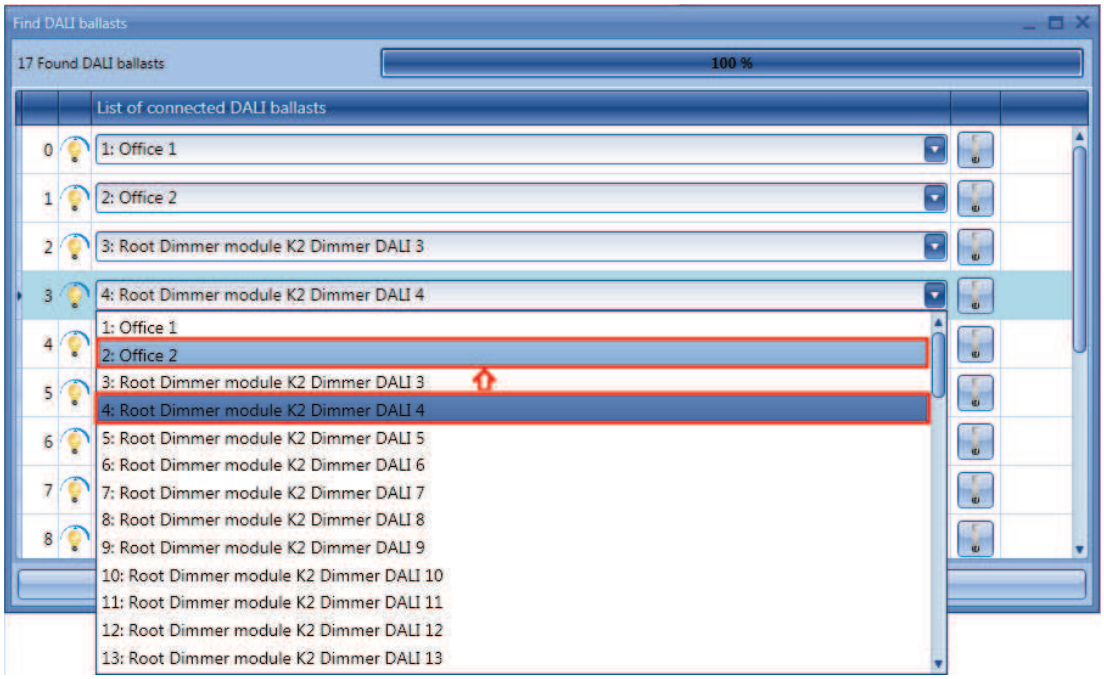
After a few seconds, when the bus scan is completed, all the ballasts found will be shown (see below).

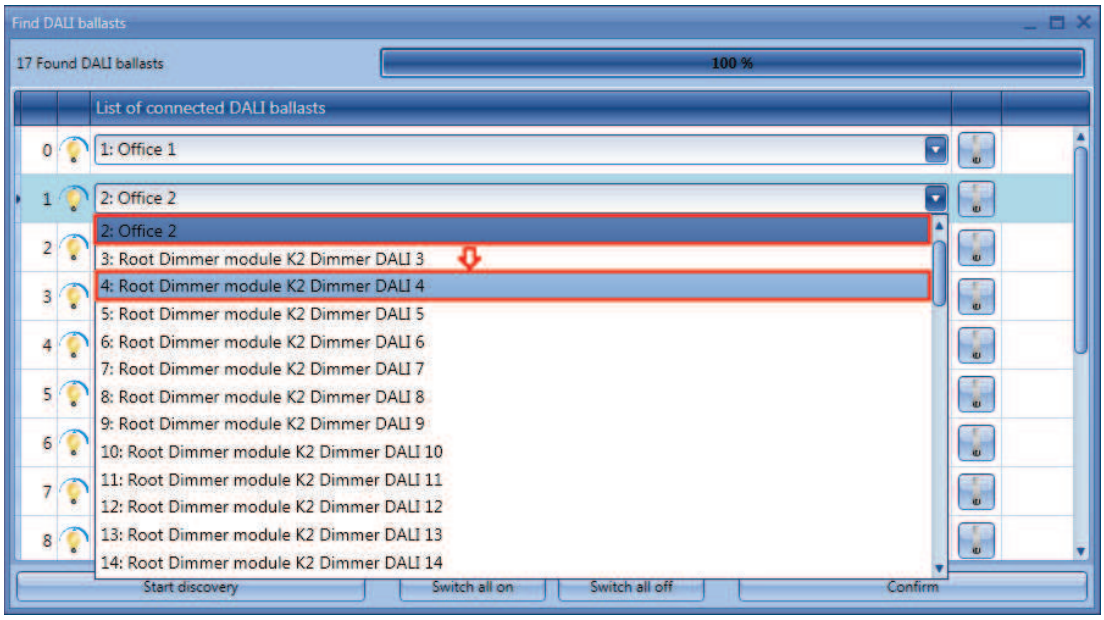


New discovery assigns a new address to each ballast, as shown in the first column (see the green rectangle). Each ballast can be switched on/off by means of the toggle button shown in the red rectangle. The installer can use this function to locate the ballast and give it the proper name.

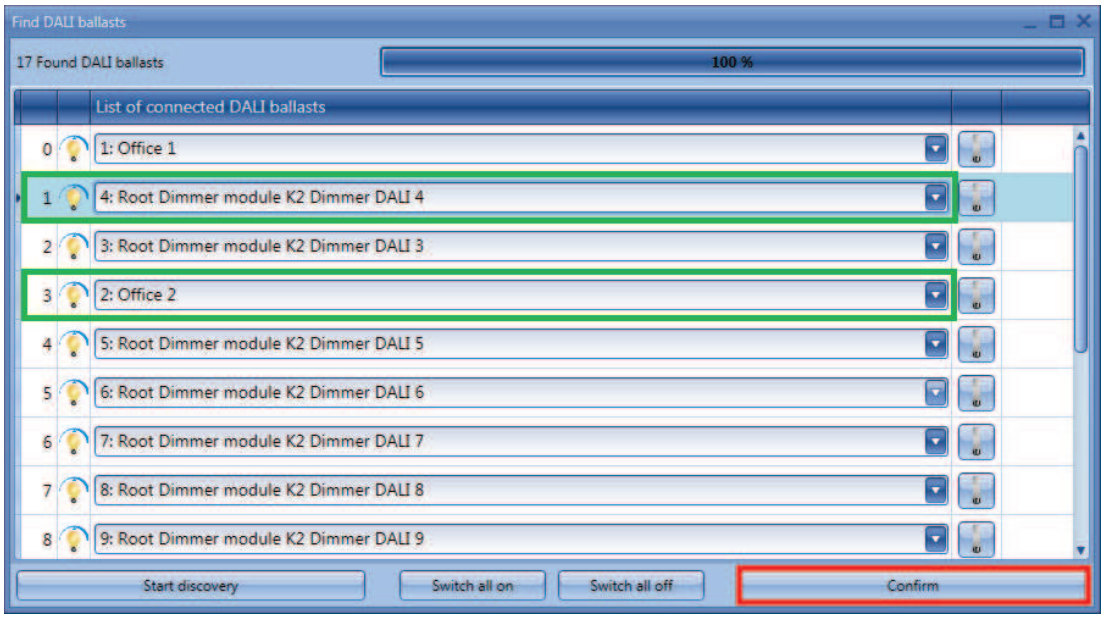
12.8.2 How to change a DALI address

In the example shown below, the lamp with address 3 (Dimmer output DALI 4) is given the address 1 (Office 2).



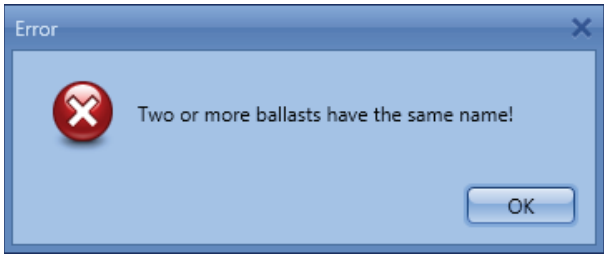


In the picture above, the ballast with address 1 (Office 2) has been addressed with address 3 (Dimmer output DALI 4)



The user may move all the desired devices to the new addresses. When all the devices have been addressed, press the *Confirm* button to save the configuration.

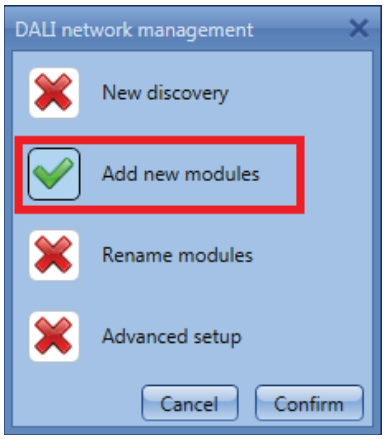
If two or more ballasts are given the same address, the following message will appear, preventing the user from saving the configuration until the correct mapping has been done.



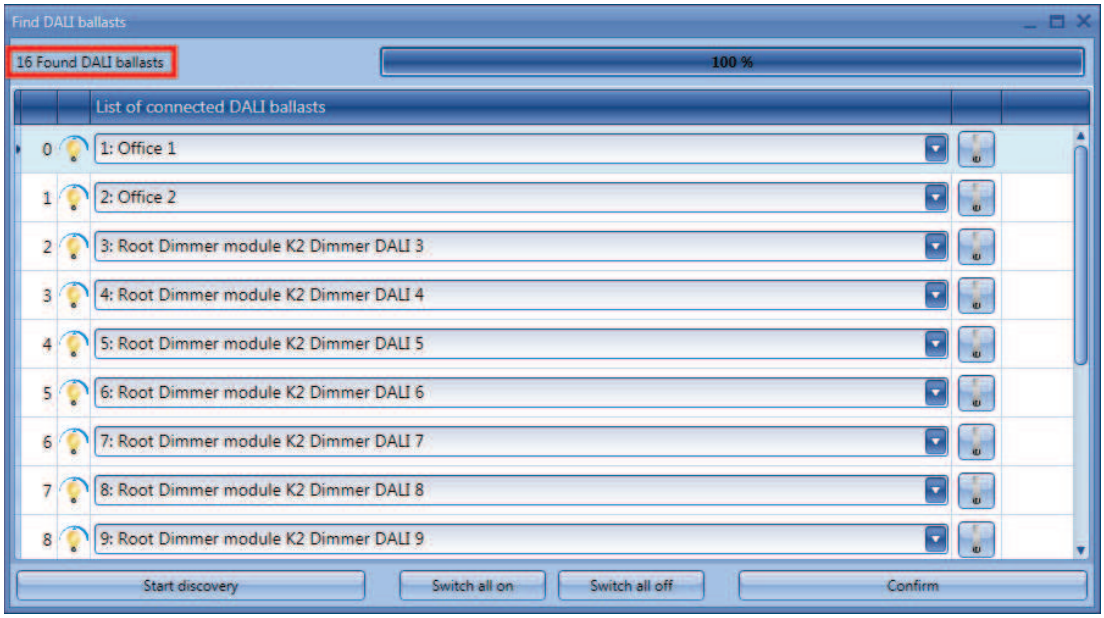
12.8.3 How to add new modules

At any time the user can add new DALI modules to the bus and configure them.

In the *Properties* window of the SB2DALI230 module press the *Find DALI ballasts* button, then select *Add new modules.*

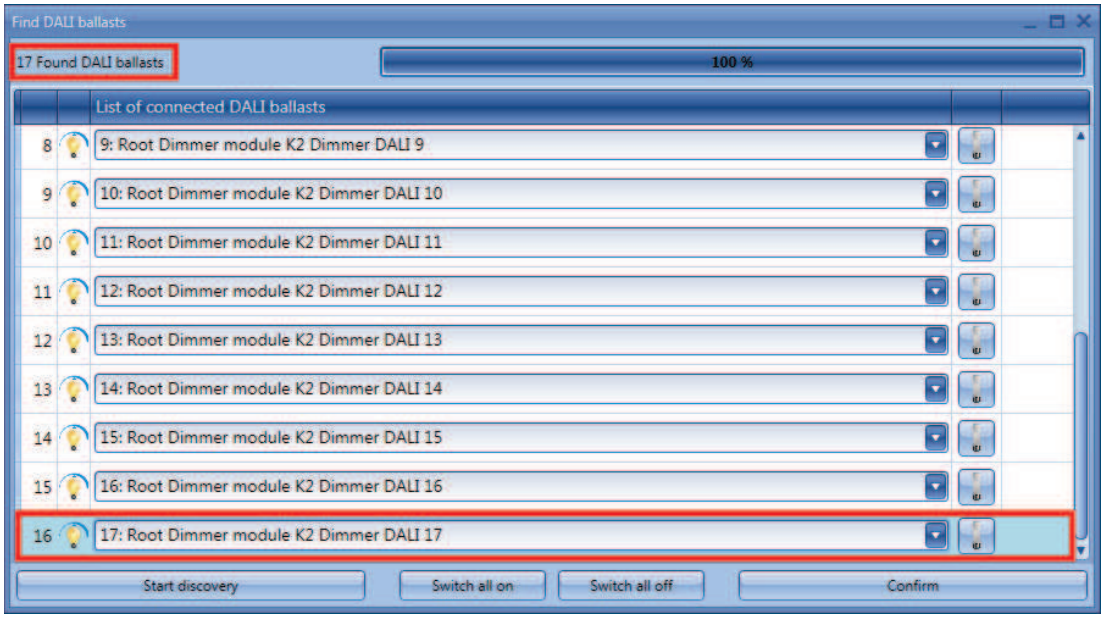


This function performs a new network scan, leaving unchanged the ballasts already configured.



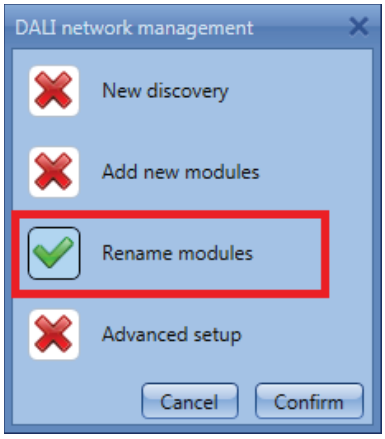
In the example shown below, one new DALI ballast has been found and added to the configuration with address 16.

All the newly discovered ballasts are shown at the bottom of the lists.

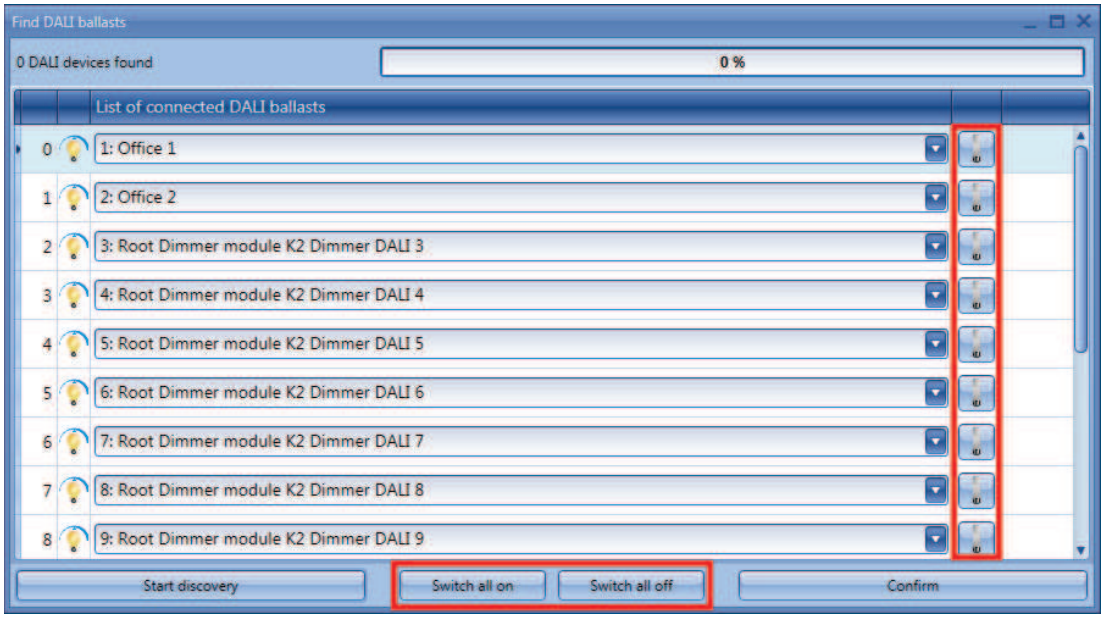


12.8.4 How to rename modules

By means of R*ename modules* the user can change the address of the already configured modules and rearrange the devices into a new order. In the *Properties* window of the SB2DALI230 module, press the *Find DALI ballasts* button and select *Rename modules*



The following window will appear:



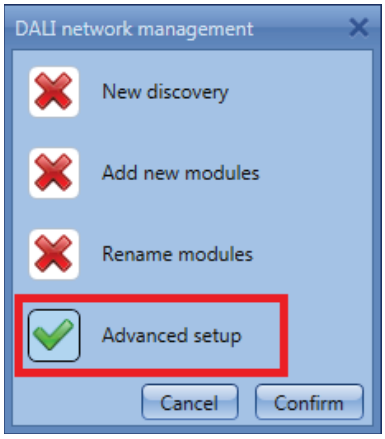
The *Start discovery* button will not perform any action as only renaming is allowed in this window.

Each ballast can be identified by means of the toggle button shown in the red rectangle and it is possible to switch them all on or all off by using the *Switch all on* or *Switch all off* buttons. Once the renaming is completed, press the *Confirm* button to save the new DALI modules configuration.

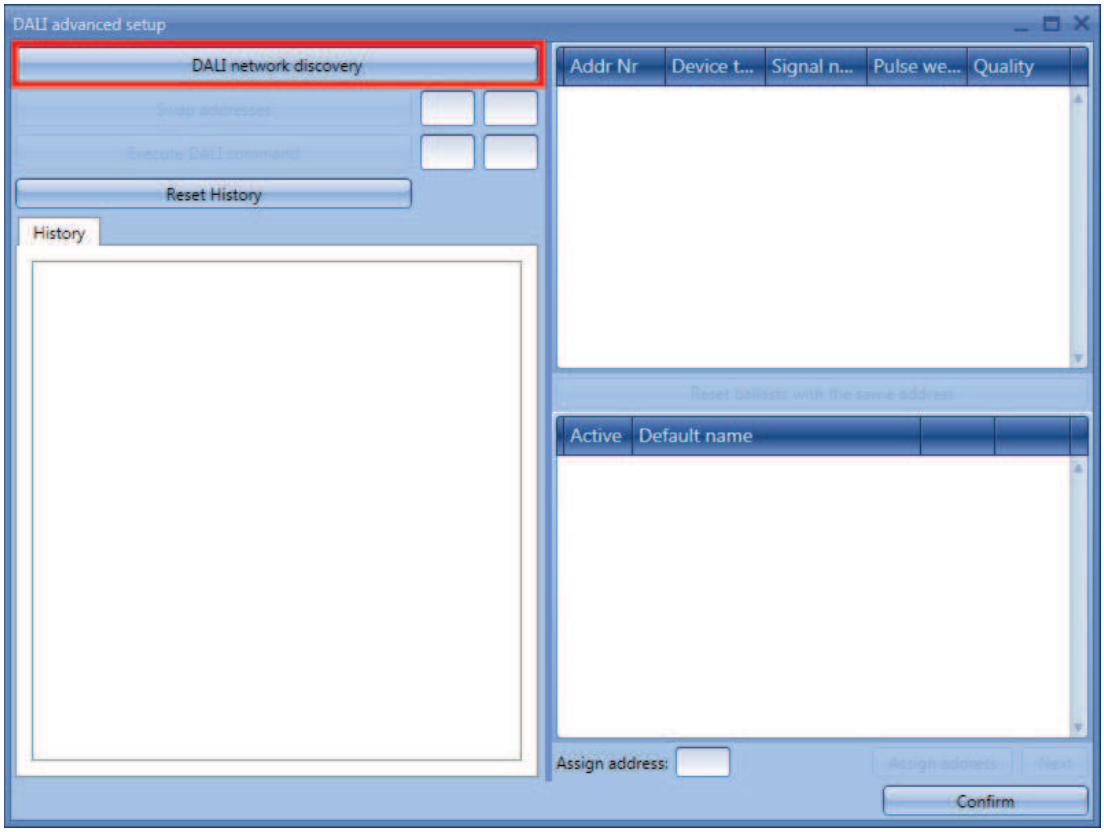
12.9 Advanced setup

By means of the *Advanced* setup, the user can access the advanced features available for the DALI bus. Should an error occur during the addressing phase, the user can easily fix it without performing a new discovery.

In the *Properties* window of the SB2DALI230, press *Find DALI ballasts* button, then select *Advanced setup.*

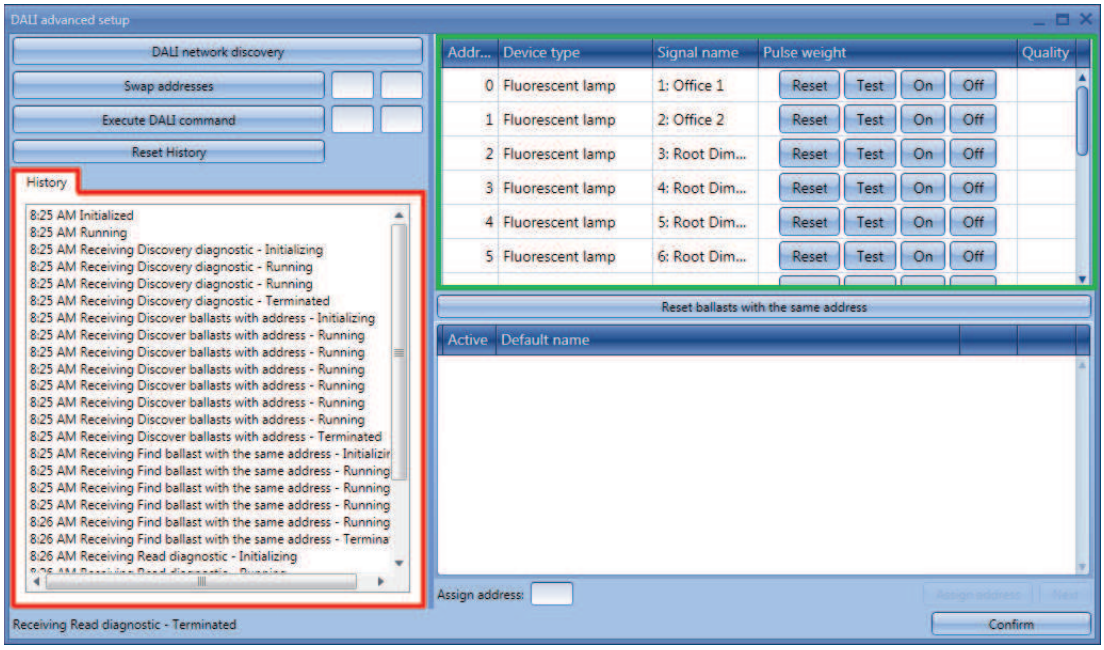


The following window will appear: to start the diagnostic, the user should first press the *DALI network discovery* button, which will start a DALI network scan.



Once the discovery has finished, the right part of the window shows the list of the connected DALI lamps (see green box). The system also shows, in the History box (red rectangle), details of the DALI bus activity.

By using the *Reset History* button it is possible to clear the history list.



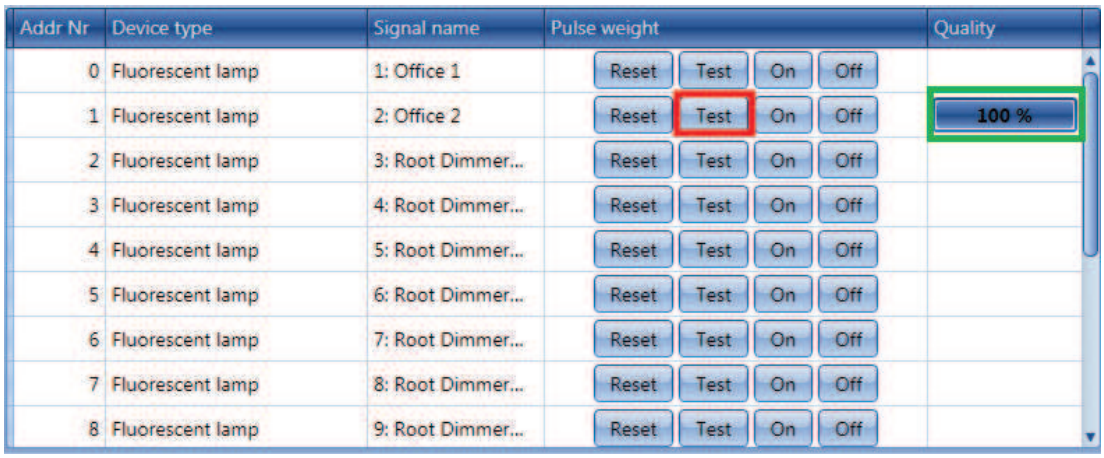
Description by column of the window marked in green:

Field name	Description
Addr. Nr.	This contains the address of the ballasts
Device Type	This contains the description of the ballast type
Signal name	This contains the name of the ballast
Pulse weight	Four actions are available: • Reset: this resets the ballast address, bringing it back to factory settings • Test: this sends an acknowledge command • On: Swith on the selected lamp • Off: Switch off the selected lamp
Quality	This gives an indication of the quality of the bus signal.

12.9.1 How to test a module

In the *Properties* window of the SB2DALI230 press the *Find DALI ballasts* button, then select *Advanced setup.*

The following window appears and the user should press the *DALI network discovery* button and wait for the bus data reading to finish. Once the discovery has finished, the right part of the window shows which DALI ballasts are connected to the bus.

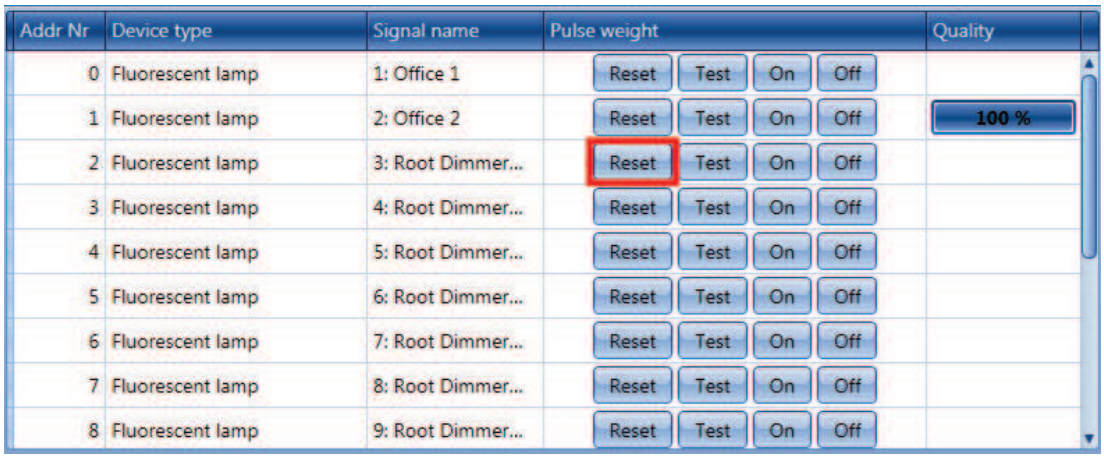


By means of the *Test* button, the system performs a full quality test of the bus signals. The result is reported in the *Quality* column.

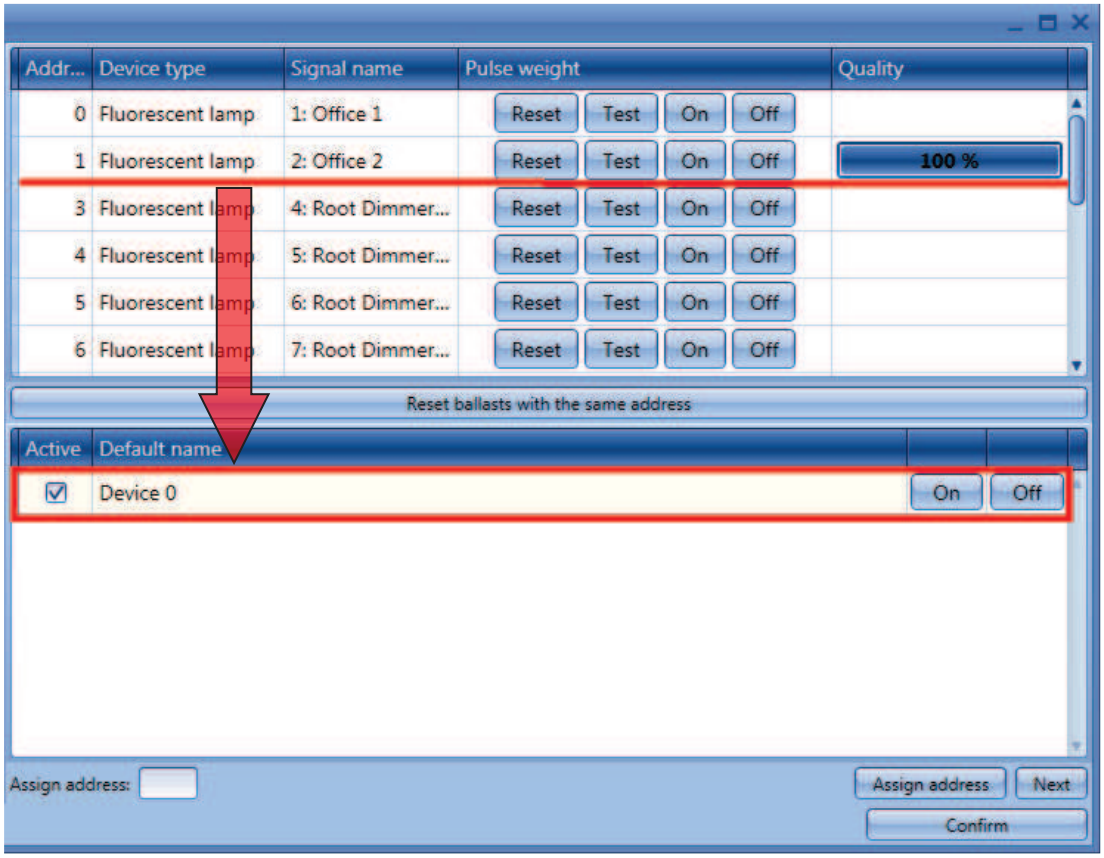
12.9.2 How to reset a DALI ballast

In the *Properties* window of the SB2DALI230 press the *Find DALI ballasts* button, then select *Advanced setup.*

The following window appears and the user should press the *DALI network discovery* button and wait for the bus data reading to finish. Once the discovery has finished, the right part of the window shows which DALI ballasts are connected to the bus.



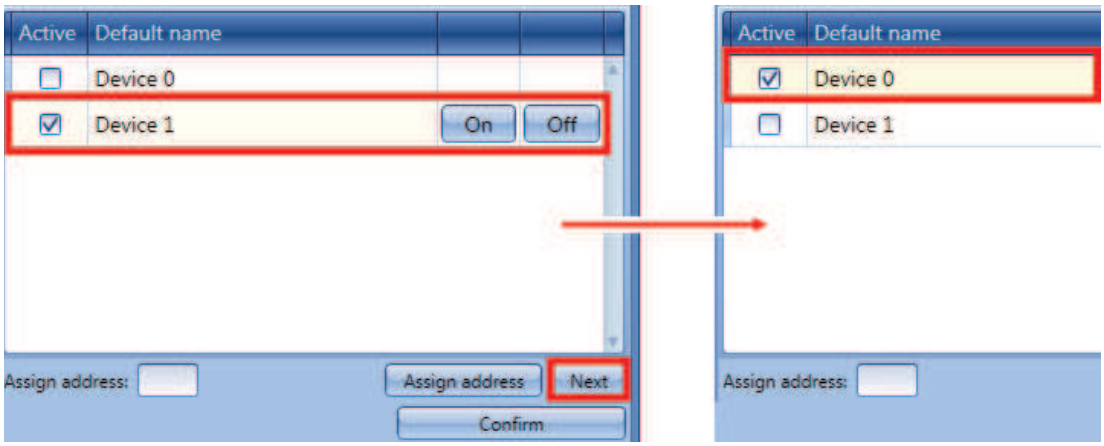
By means of the *Reset* button, the user can bring the ballast back to the factory settings. This means that should this ballast be connected to a DALI bus, it will be recognized as a new one.



All the modules can be reset and a temporary name will be assigned to each of them. As shown in the

figure above, the device with address 2 has been reset: it has been moved from the window at the top to the window at the bottom, with the temporary name *Device 0*. It can be switched on or off with the relevant push buttons on the right.

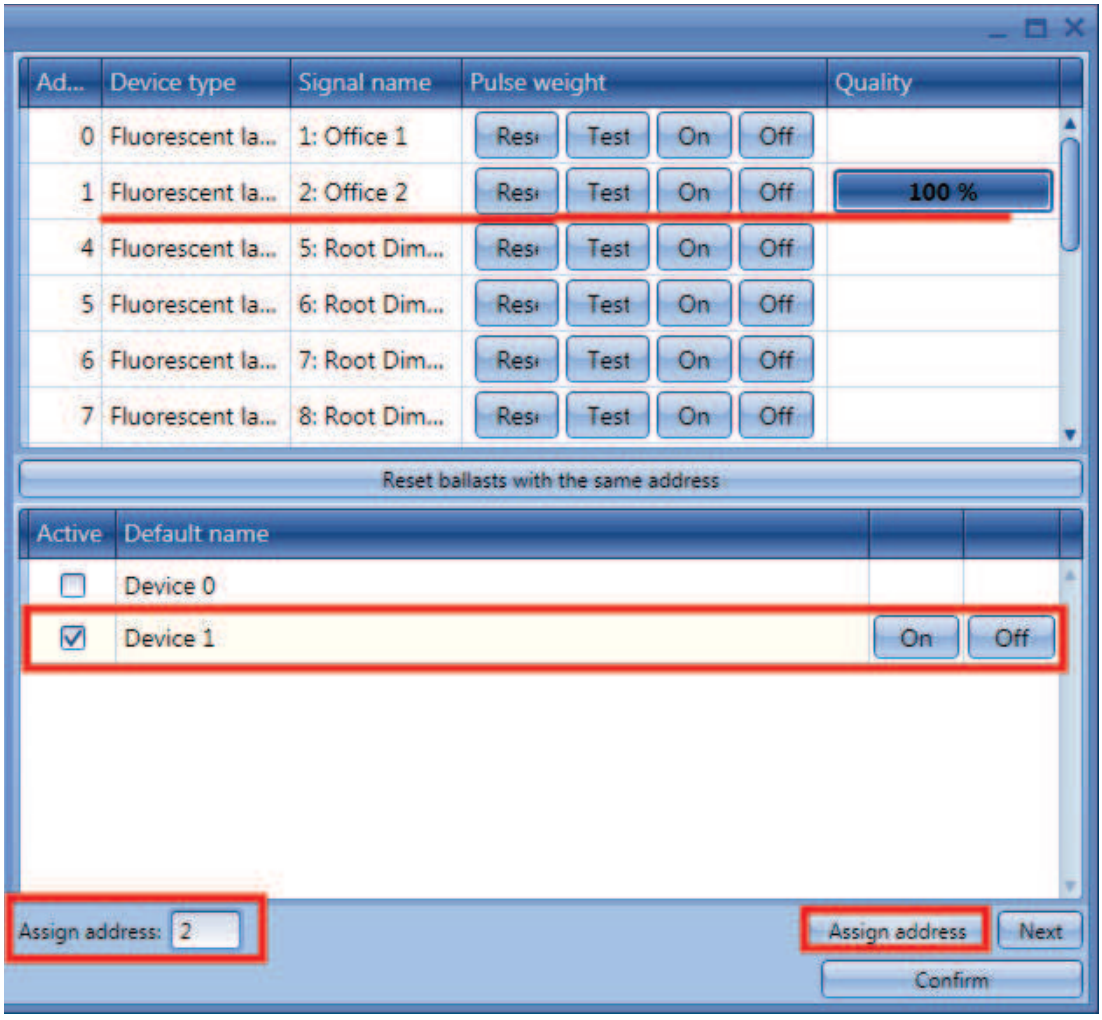
If more than one device has been reset, a list such as the one shown below will appear. According to the DALI protocol, only one device with no address can be switched on/off at any one time, so to go through the list, the *Next* button has to be used.



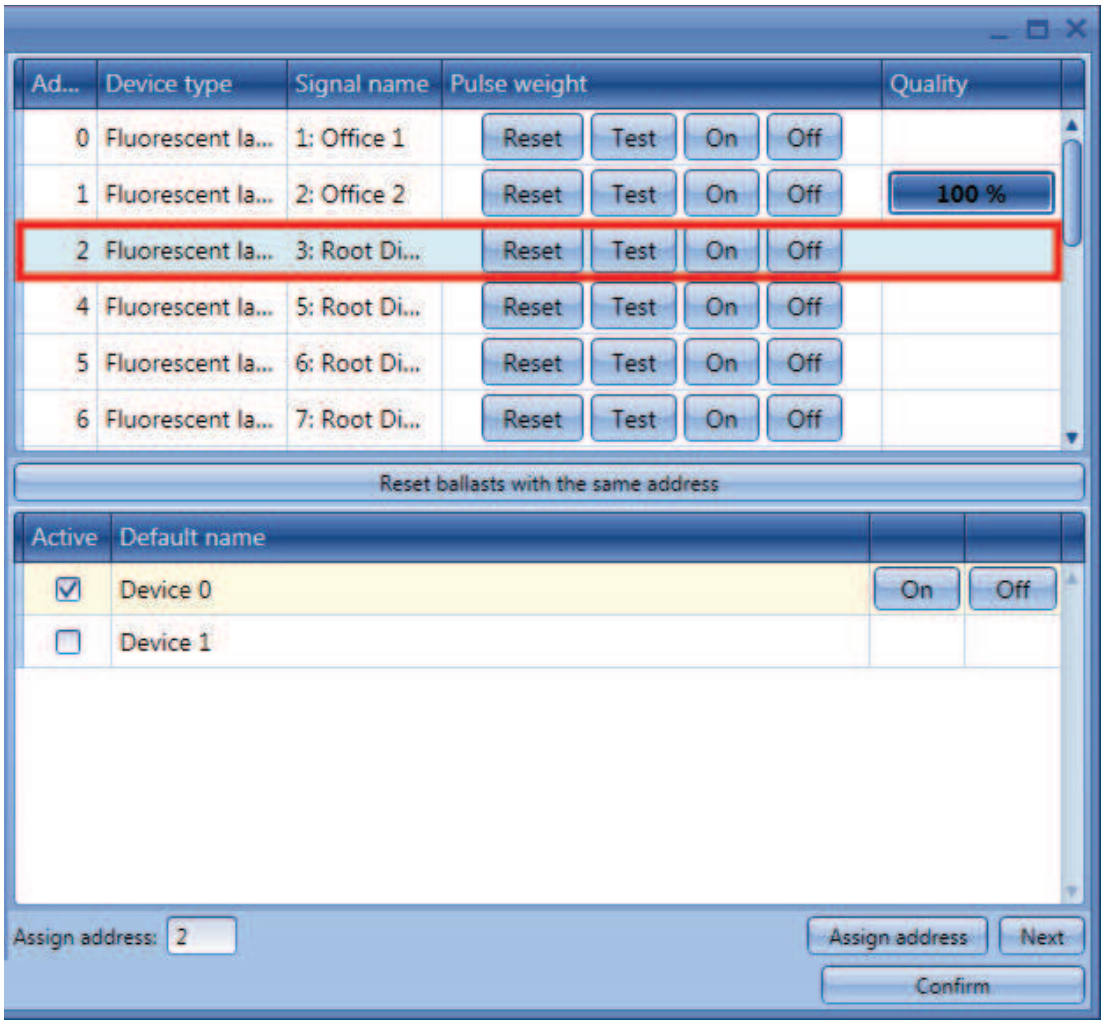
12.9.3 How to manually assign an address to a ballast

After having done what is described in the paragraph *Advanced setup,* select the device in the window at the bottom and complete *Assign address to active* box with a free address in the range of 0 to 63 (in the example below the first free address is 2). Finally, press the *Assign address* button to assign the new address.
It is best to assign the lowest free address.

N.B. Even if the ballast is assigned with an address, it still remains in the window below until a new DALI scan is performed by clicking on *DALI network discovery.*



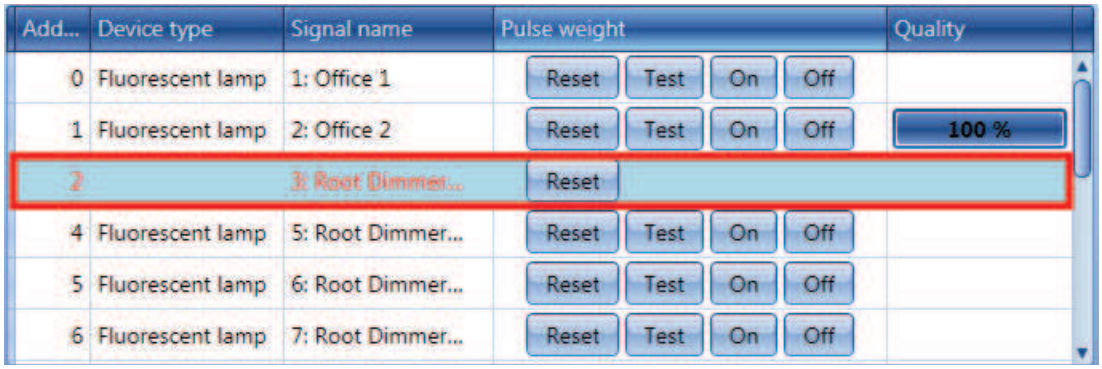
The ballast that was present in the window at the bottom (Device 1), is now present also in the window at the top with the new assigned address as shown in the picture below (2 Fluorescent lamp).



The user can then move to the next device to be addressed by clicking on *Next*.
To save the new addressing click on *Confirm*.

The next time the user performs a new *DALI network discovery,* only the ballasts without address will be listed in the window at the bottom.

Should the user assign the same address to two or more ballasts, in the window at the top the row relevant to this duplicated address will be marked in red: the user must click on *Reset* to remove this error condition and must correctly re-address these ballasts.

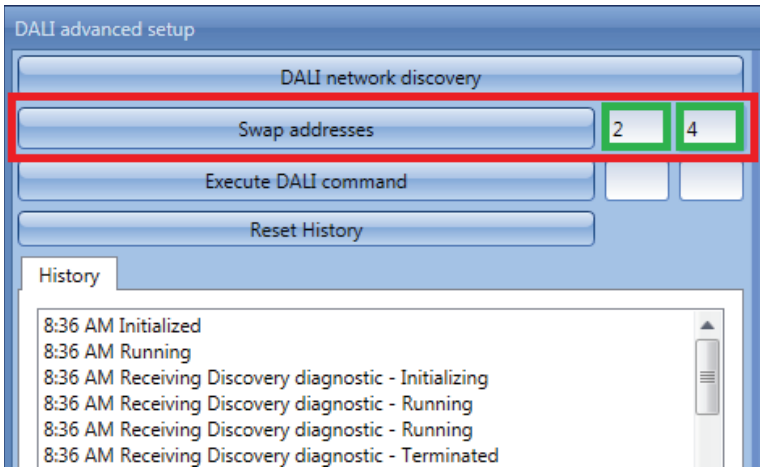


12.9.4 How to swap the addresses of two ballasts

In the *Properties* window of the SB2DALI230 press the *Find DALI ballasts* button, then select *Advanced setup.*

The following window appears and the user should press the *DALI network discovery* button and wait for the bus data reading to finish.

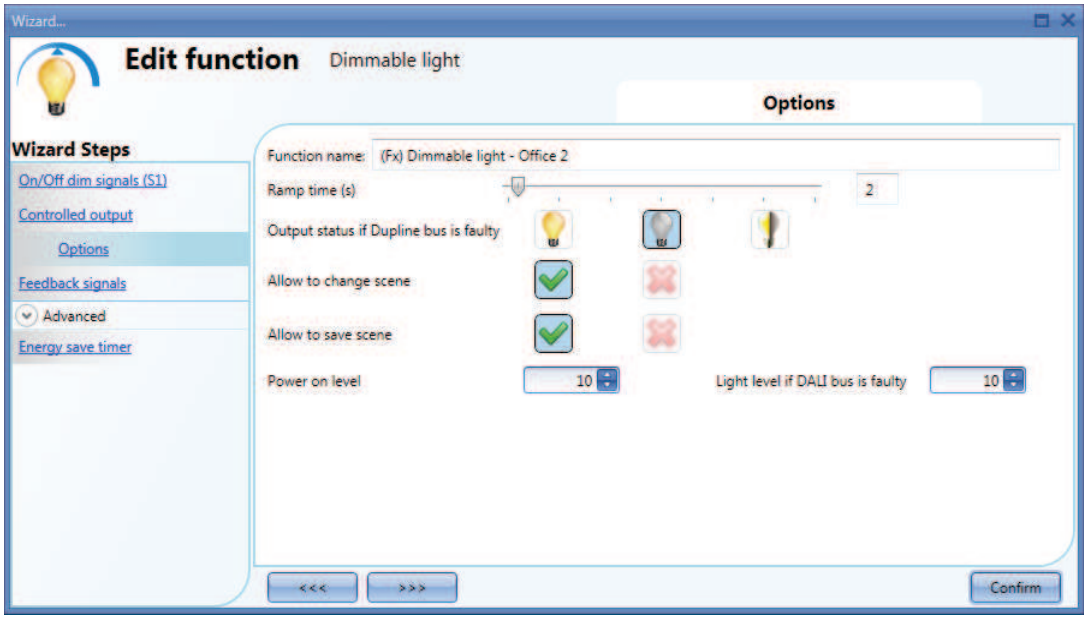
Swap addresses allows two ballast addresses to be exchanged. To swap two devices, enter the two addresses in the boxes (green rectangles), and press the *Swap addresses* button. It is mandatory to fill in both boxes.



12.10 How to change settings and load type of the DALI output in a function

To configure the output options in a Dimmable or Constant light function, the user has to click on O*ptions* in the wizard function: the following window will appear (see picture below).

If more outputs are present in the function, the settings are applied to all of them.



Ramp Time (s):
This is the required time to go from 0% to 100% when at least one input is active.
For example, if 10 seconds is set, once the light is on, this is the time the light will take to go from 0% to 100% and from 100% to 0% when the push button is kept pressed.
The ramp time is the same for all the dimmer outputs belonging to the same function.

Output status if the Dupline bus is faulty:
In this field the user can select the status of the output if the bus is faulty. The possible actions are: force the output into the 'on' status, force the output into the 'off' status and memory: when the user selects memory, the output remains in the status it had before the loss of connection with the Dupline Bus. Each selected fail -state action will be kept active until the Dupline bus signal returns.

Allow scene to be changed:
When this option is enabled (the green "V" is selected), the light level in all the scenarios will be modifiable when the input signal is activated. Otherwise (when the red "cross" is chosen), the user will not be able to change it (with the exception of scenario S1).

Allow scene to be saved:
When this option is enabled (the green "V" is selected), each time the dimmer is powered OFF, the current light level value is saved in the memory before the switching off of the module. Otherwise (when the red "cross" is chosen), the scenario is not saved and the power is switched OFF.

Power on Level:
In this field the user can select the value of the output when the lamp is turned on before receiving the first DALI command.

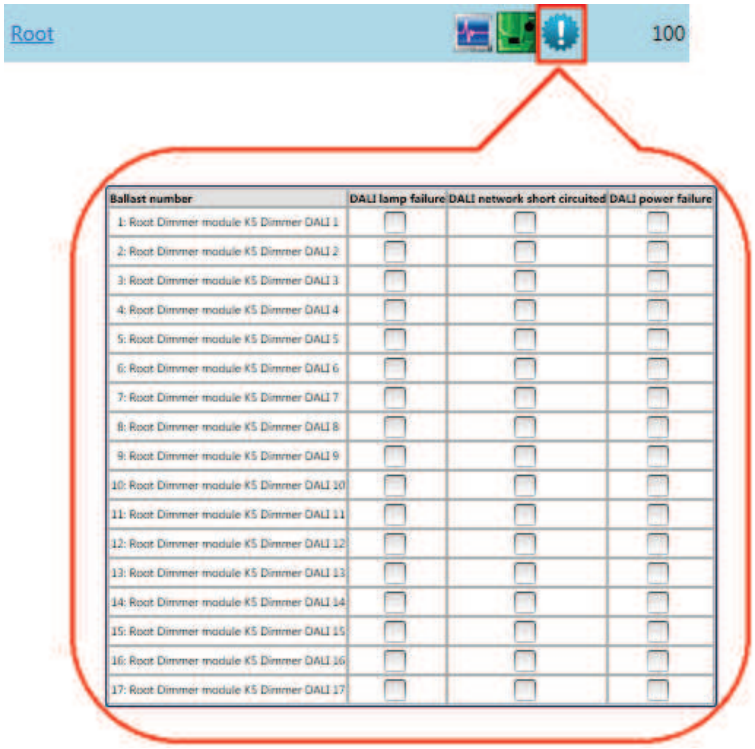
Light level if DALI bus is faulty:
In this field the user can select the value of the output if the DALI bus is faulty. The output will be kept at the value set until the DALI bus signal returns.

12.11 How to check the DALI bus status

Each SB2DALI230 has a dedicated diagnostic menu, accessible automatically when the *live signals* are enabled.

When *Live signals* are active, referring to the picture below, the icons on the right appear and the one marked in red indicates the DALI bus status.

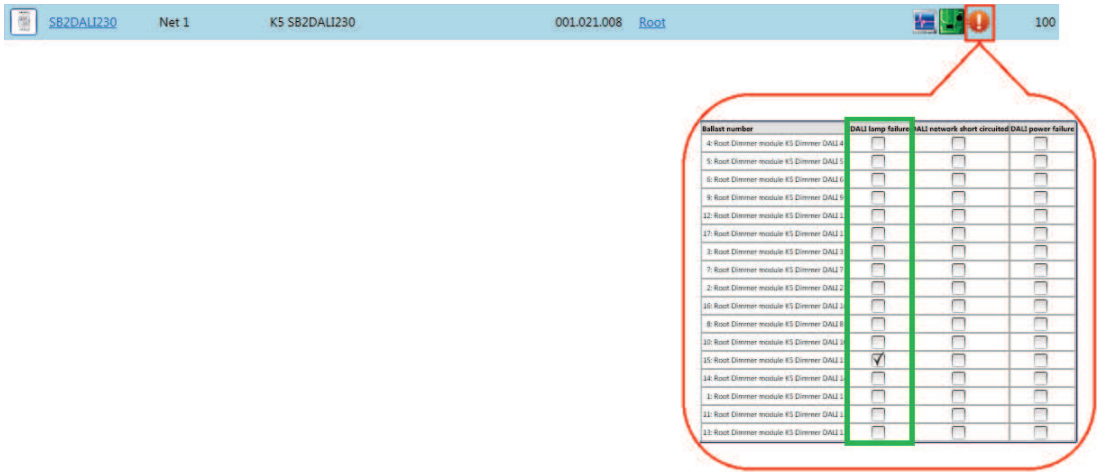
By means of this, the user can have a real time monitor of the health status of the DALI bus.
If everything is working properly, the icon is blue and when the mouse hovers over it a tool tip appears, flagging no errors.



If a failure is present on the DALI bus, it will be shown by the icon turning orange and when the mouse hovers over the icon, a tool tip appears, flagging the relevant error. There is one line for each ballast.

12.11.1 DALI lamp failure

If a lamp is damaged or missing, the icon relevant to the DALI bus status will turn orange and the relevant flag will be ticked (see the green box).



12.11.2 DALI network short-circuited

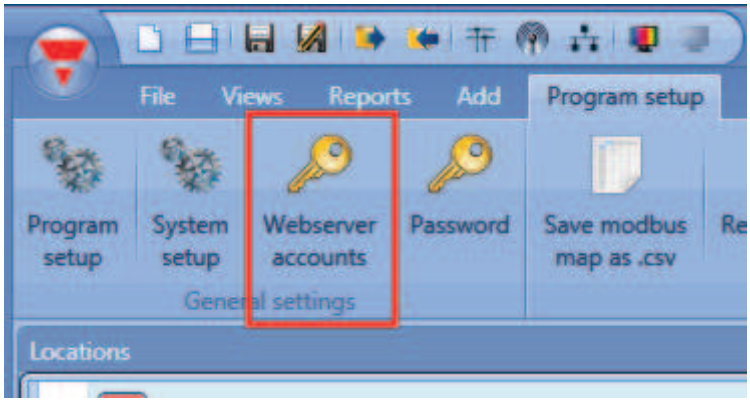
If a DALI network short-circuit is present, the icon relevant to the DALI bus status will turn orange and the relevant flag will be ticked (see the green box).

12.11.3 DALI power failure

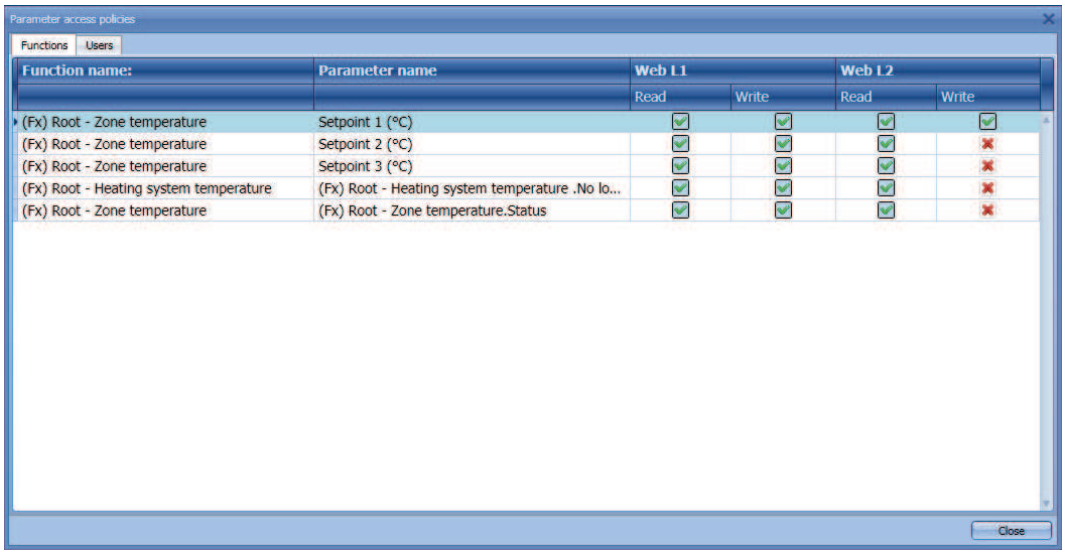
If a DALI ballast has a power failure, the icon relevant to the DALI bus status will turn orange and the relevant flag will be ticked.

13 How to configure the webserver accounts

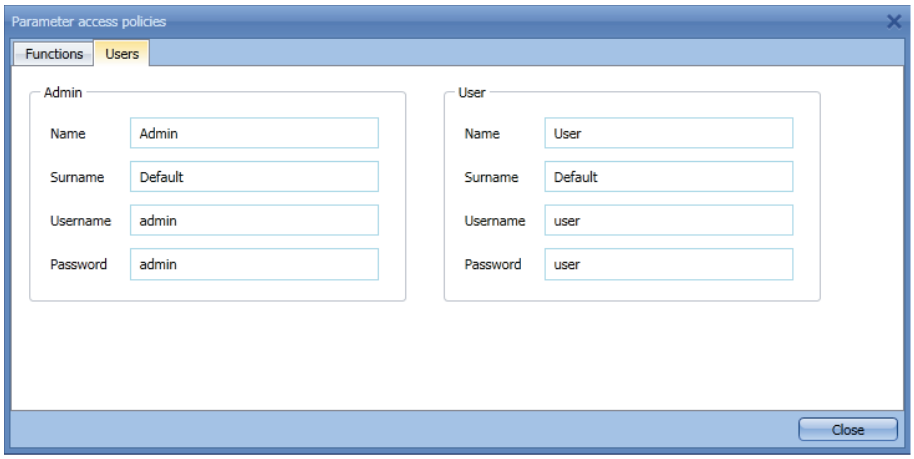
To set up the webserver, the user should select *Webserver accounts* from the *Setup* menu.
The relevant window of the webserver accounts settings can also be opened by typing Alt+S+W.



In the webserver window, the user can set read/write permission for two different accounts:



The WebL1 column is the admin account (by default read and write permissions are all ticked, indicating full access to all the functions). WEB L2 is the column of the user account; here it is necessary to select the green "V" in order to allow the user account to modify (write) the function status using the webserver: in the picture above the WEBL2 (user account) can change the Setpoint 1 value; other settings are not editable; however, the admin account has full access to all the parameters.
The access data for the two accounts can be configured by entering the *Users* window. The admin account (WEB L1) has a higher priority for the management of all the functions added: it has full access to all functions (all permissions ticked).
The user account (WEB L2) has a lower priority: it has access to and control of only the ticked functions.

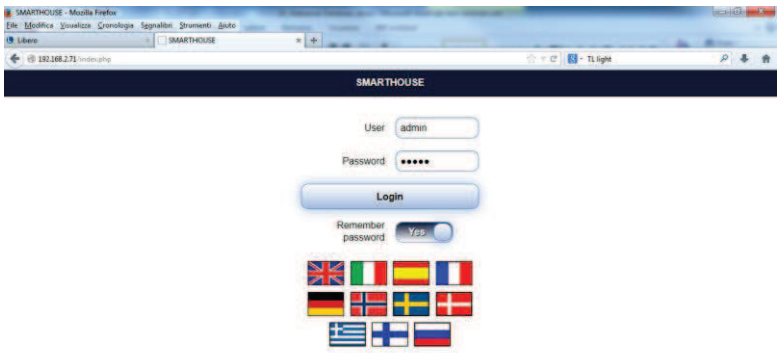


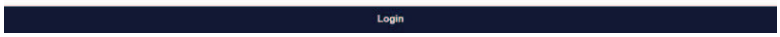
The username and password for the *Admin* account can only be changed by using the Tool, while those for the *User* account can be changed by means of the Sx tool and the webserver.

N.B. If the webserver is accessed with an Internet Explorer release earlier than 10, the settings pages may not be visualised properly.

All values are shown in the graphs with the resolution of 0.1.

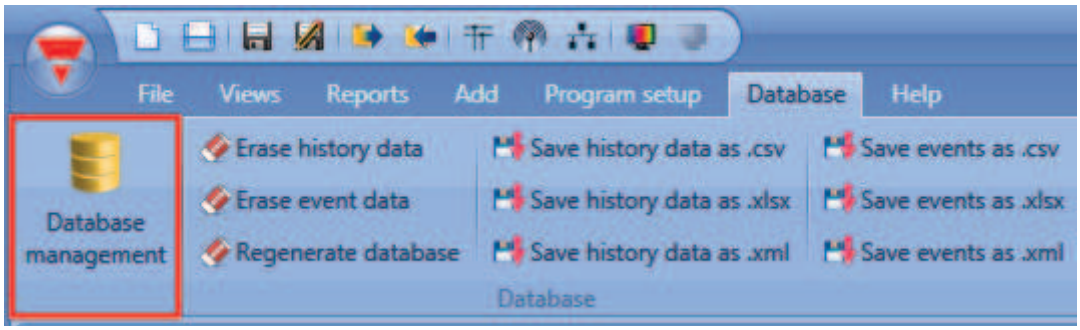
When the Web server account is created and the configuration downloaded into the Sx2WEB24, the user can access it by typing the controller IP address as URL in a browser: the login page of the webserver is shown.





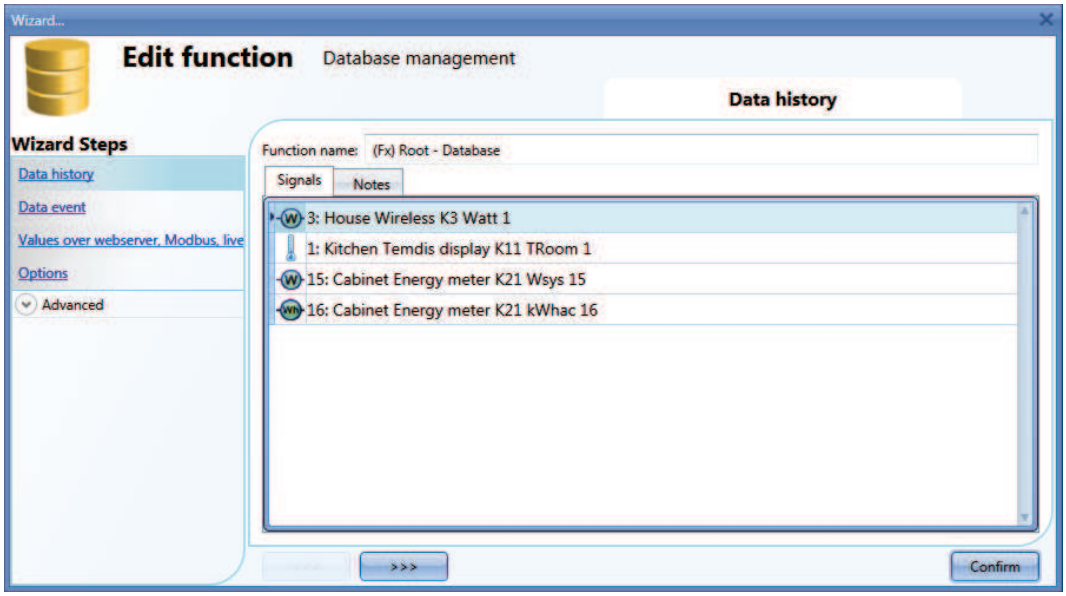
14 How to configure the database

The user can access the database by selecting *Database* and then *Database* management

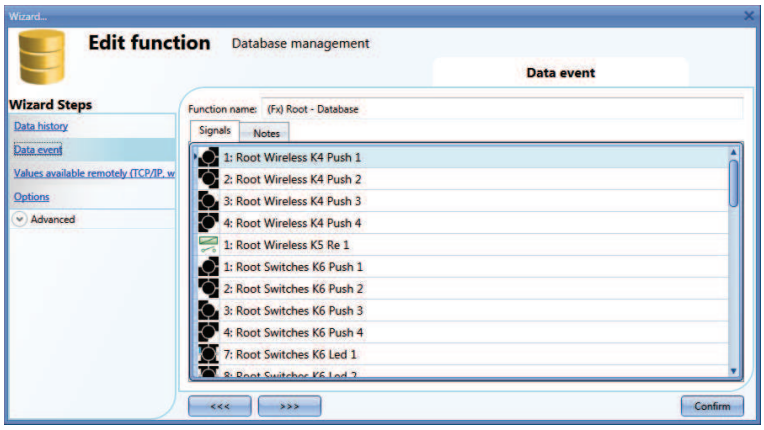


The following window will appear with four different options:

- *Data history*: in this section the user can add all the analogue values that have to be logged by the Sx2WEB24. All logged values can then be shown in the webserver graphs or can be exported into a report file (see also *Database files*).

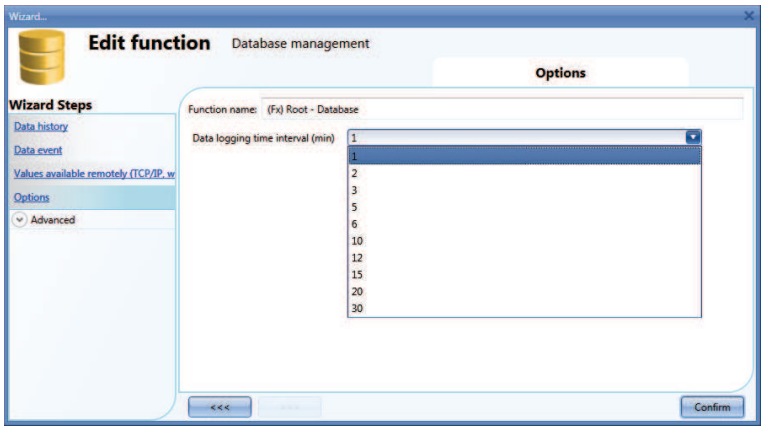


- *Data event*: in this section the user can add all the digital signals (such as pushbuttons or relays) and function statuses. Each time an added signal changes its status, the change is logged in the Database. For example, the user can record a relay output and count the times it is switched On/Off. All logged values can be exported into a report file (see also *Save events* data).
-



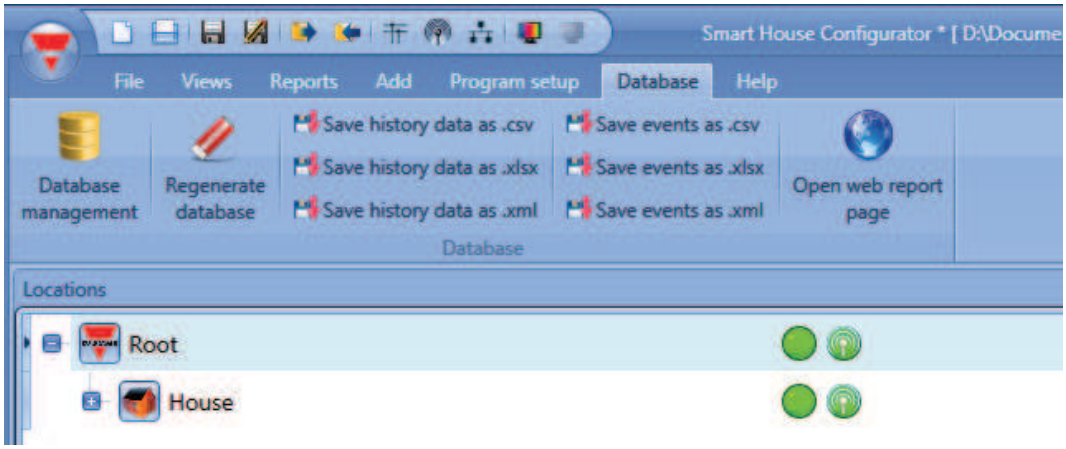
- *Values over webserver, Modbus, live signals*: All the values added here are mapped in the Modbus TCP/IP map and Modbus report file. They are also available in the webserver in the menu *Instant values* and in *Live signals,* even if they are not used in the functions.
  If the user wants to log analogue values and show them in the webserver, he must add the value in the database, then once the variable is added it is possible to select the signal from the webserver and create the graph.

- *Options*: All logged variables are stored in the Database according to the time set in the Option tab-window.



14.1 Database files

From the Database menu it is possible to erase the database or to save it in different formats: as a .csv file, as a .xlsx file or .xml file.

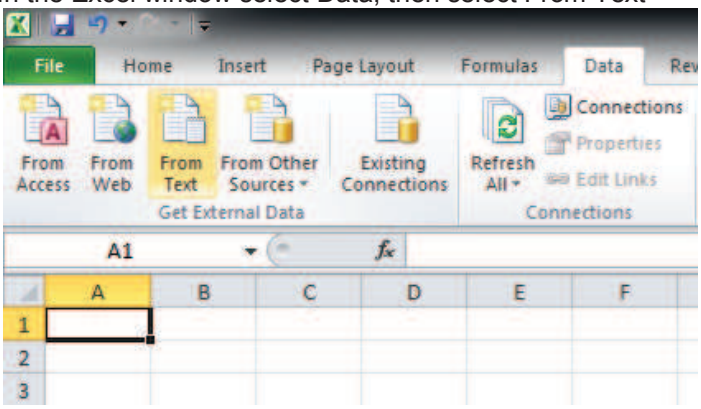


Rigenerate database: If an error occurs in the database, it can be solved regenerating it.

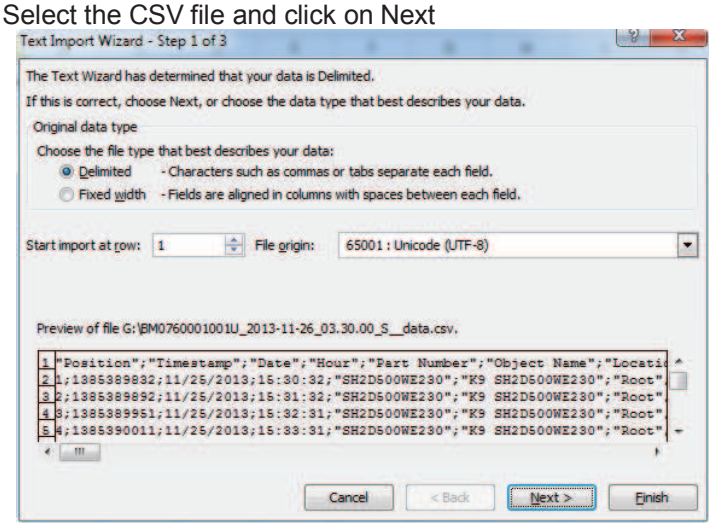
14.1.1 CSV file dataformat

To open a CSV file in EXCEL, please follow the steps below:

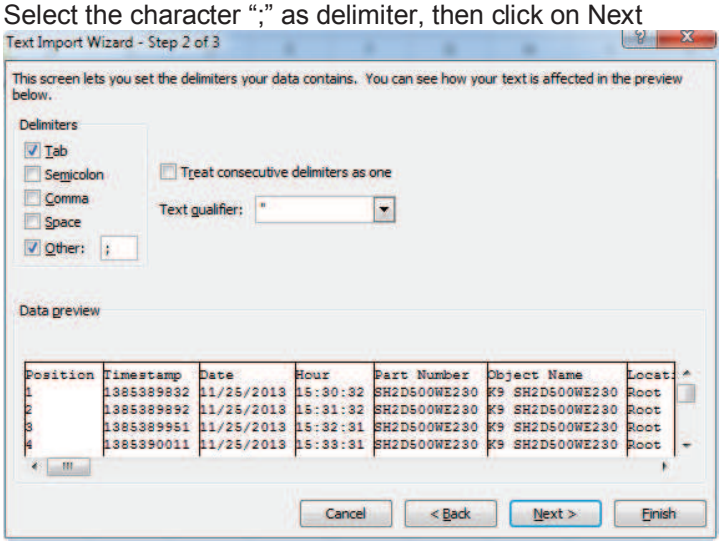
1. In the Excel window select Data, then select From Text



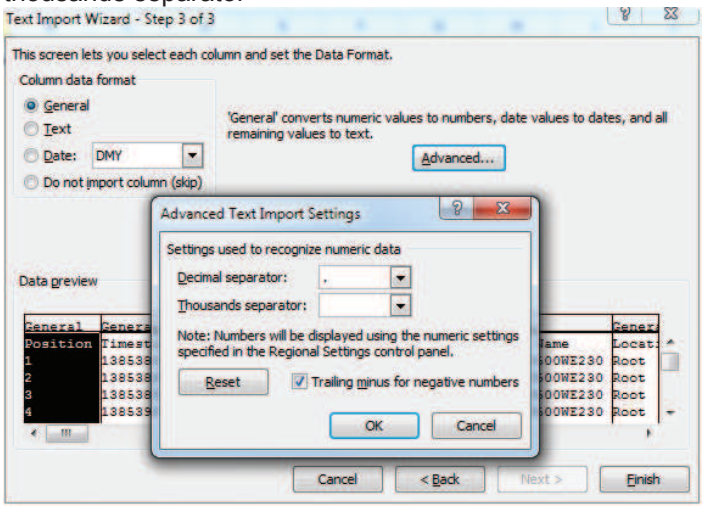
2. Select the CSV file and click on Next



3. Select the character ";" as delimiter, then click on Next



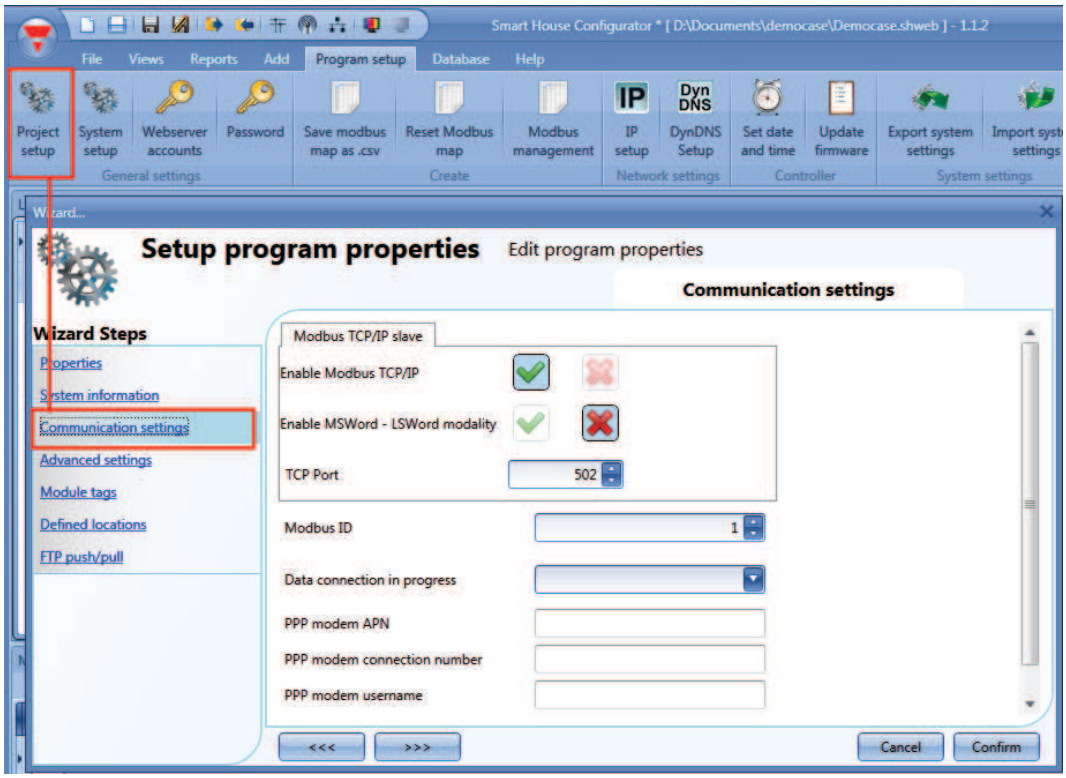
4. In the data click on Advanced and select dot "." as decimal separator, leaving empty the thousands separator



5. Click on OK and then on Finish

15 How to configure Modbus TCP/IP

First, the Modbus protocol should be enabled in the P*roject setup* menu in the field *Communication settings*.

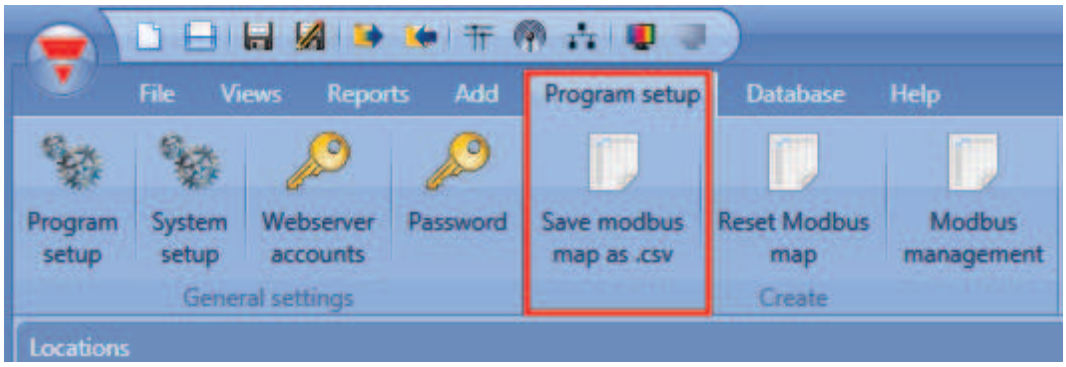


Enable Modbus TCP/IP
When the green V is selected, the option is enabled and the system will answer the Modbus TCP/IP requests received on the selected TCP port.

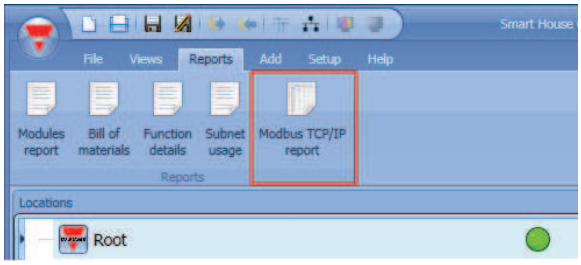
Enable MSWord-LSWord modality
If this option is enabled, in the double word values, the most and least significant words are swapped. By default, the least significant word is sent.

TCP port
The user can select the communication port for Ethernet connection (by default 502).

Each time a function is added to the project, the tool automatically adds the command descriptions and the corresponding tables to the Modbus map.
If the user needs to control/check a value that is not used in any function (the analogue values are not automatically mapped in the Modbus Map if they are not used), he has to add those required in *Database management, Values available remotely (TCP/IP, webserver, live signals)*.
The modbus map can be saved as a .csv file that can be parsed very easily by clicking on the icon *Save modbus map as .csv.*
The Modbus map file can be directly read by the configuration software of the BTM display.



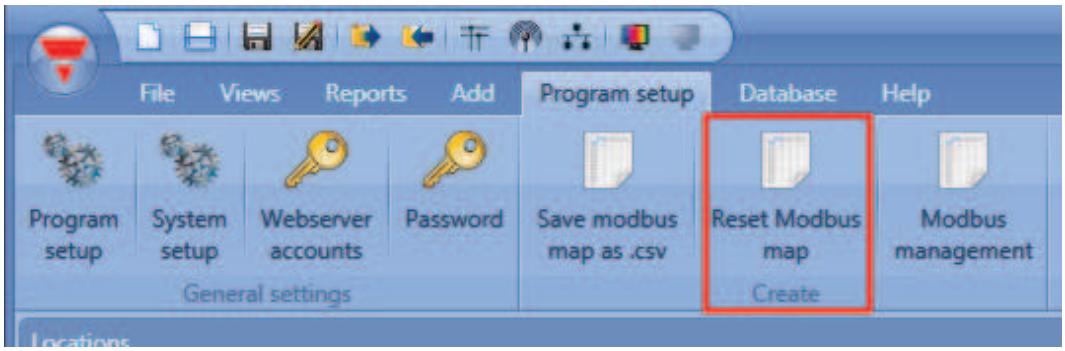
All the Modbus addresses are also reported in *Modbus TCP/IP report* in the *Reports* menu (it shows the same info as the Modbus map file but in pdf format).



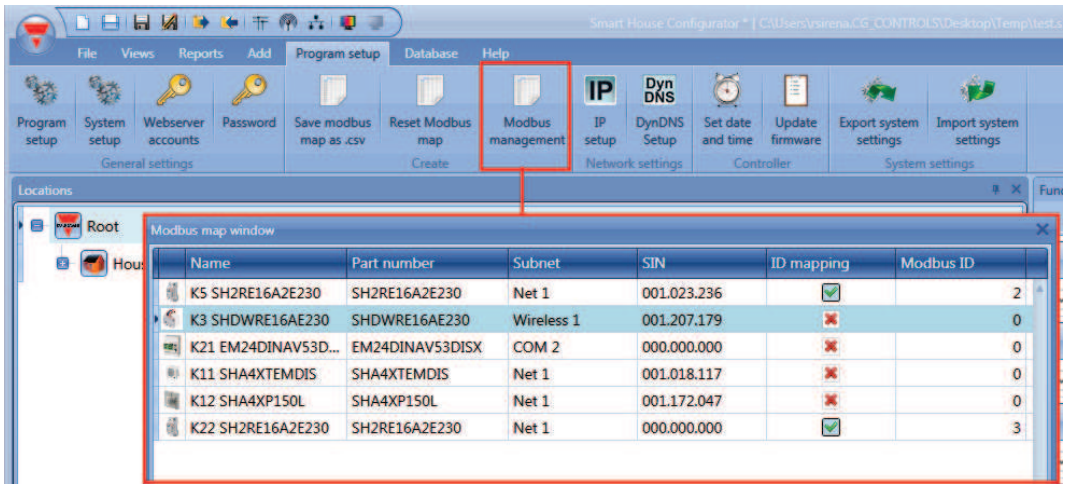
By clicking on the icon *Modbus TCP/IP report*, the Modbus table with all the mapped values is shown (see picture below).

Type	Function name		Id	Address	Address (hex)	Type	Mult.	System name	Unit of measure
Light function	(Fx) Kitchen - Oven	IR	1	8	H0008	UInt16	1	Diagnostic flag	--
Light function	(Fx) Kitchen - Oven	HR	1	12	H000C	UInt16	1	Function status	--
Light function	(Fx) Kitchen - Cooker light	IR	1	16	H0010	UInt16	1	Diagnostic flag	--
Light function	(Fx) Kitchen - Cooker light	HR	1	24	H0018	UInt16	1	Function status	--
Light function	(Fx) Bedroom - Bedside light	IR	1	24	H0018	UInt16	1	Diagnostic flag	--
Light function	(Fx) Bedroom - Bedside light	HR	1	36	H0024	UInt16	1	Function status	--
Light function	(Fx) Living room - Wall light	IR	1	40	H0028	UInt16	1	Diagnostic flag	--
Light function	(Fx) Living room - Wall light	HR	1	70	H0046	UInt16	1	Function status	--
Light function	(Fx) Living room - Corridor	IR	1	48	H0030	UInt16	1	Diagnostic flag	--
Light function	(Fx) Living room - Corridor	IR	1	51	H0033	UInt16	1	Lux interval name	Number
Light function	(Fx) Living room - Corridor	IR	1	52	H0034	UInt32	1	Energy save timer	s
Light function	(Fx) Living room - Corridor	IR	1	54	H0036	UInt32	1	Lux value	Lux
Light function	(Fx) Living room - Corridor	HR	1	82	H0052	UInt16	1	Function status	--
Light function	(Fx) Living room - Corridor	HR	1	84	H0054	UInt32	1	Energy save timeout (s)	s
Light function	(Fx) Living room - Corridor	HR	1	86	H0056	UInt16	1	Light threshold (Lux)	Lux
Light function	(Fx) Living room - Corridor	HR	1	87	H0057	UInt16	1	Cloud filter (s)	s

If all the addresses have to be reset and a new map is needed, click on *Reset modbus map*.



If the user needs to have the values read from one type of module always at the same addresses, and he needs to change only the Modbus ID, the Modbus management menu has to be used.



With the settings shown in the window above, the values read from the module SH2RE16A2E230 are always at the same addresses, and the user just needs to change the modbus ID when he wants to read, for example, the power of the two modules.

The abstract of the modbus map is shown below: the power is always at the address H0004, while the current can be read at the address H000A. The K5 module is addressed using modbus ID 2, while the module K22 is addressed using modbus ID 3.

Type	Function name		Id	Address	Address (hex)	Type	Mult.	System name	Unit of measure
Module signal	3: Quadro elettrico Relay module K5 Watt 1	IR	2	4	H0004	Int32	0.1	Watt	W
Module signal	6: Quadro elettrico Relay module K5 Ampere 1	IR	2	10	H000A	Int32	0.001	Ampere	A
Module signal	3: Root Relay module K22 Watt 1	IR	3	4	H0004	Int32	0.1	Watt	W
Module signal	6: Root Relay module K22 Ampere 1	IR	3	10	H000A	Int32	0.001	Ampere	A

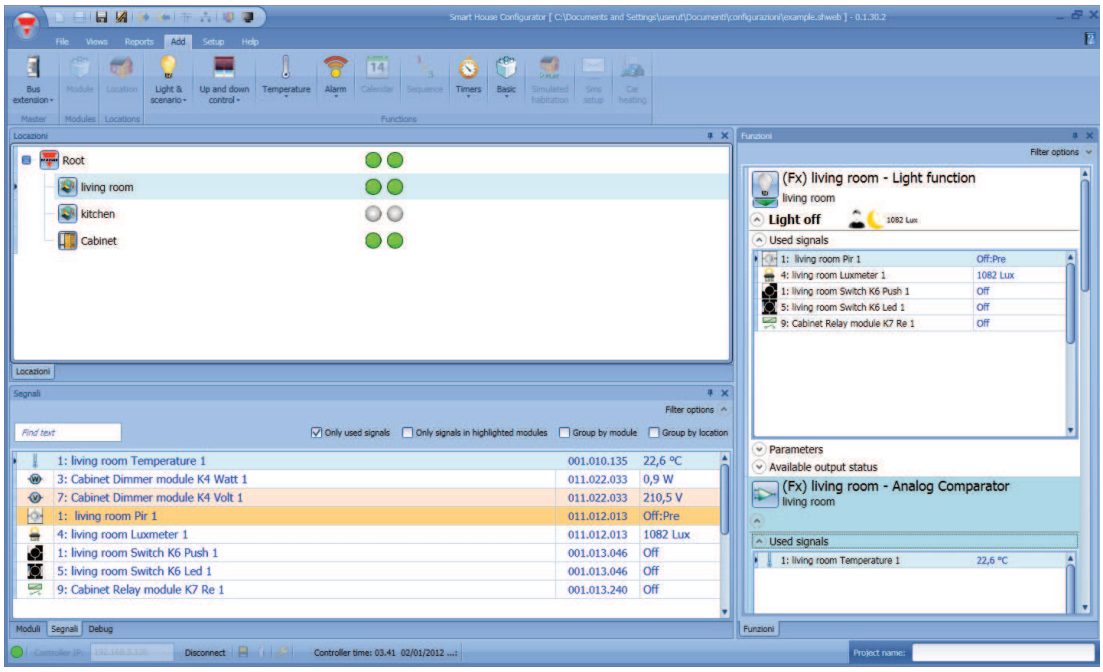
16 Live signals

16.1 How live signals work

The smart house system provides information about its working status and makes it available by using a feature called *Live signals* in the Sx Tool.
The main functionalities of the live signals are described below.

16.1.1 Checking the status of all the analogue and digital values:

The user can check at any time the status of all analogue values coming from all the sensors in the installation, such as temperature, light level, wind speed, voltage, current and so on.
The status of all the digital signals is presented to the user, so he can check if a PIR sensor is detecting movement or presence, if the output relay of the heating system is working properly or if a generic input contact is on or off.

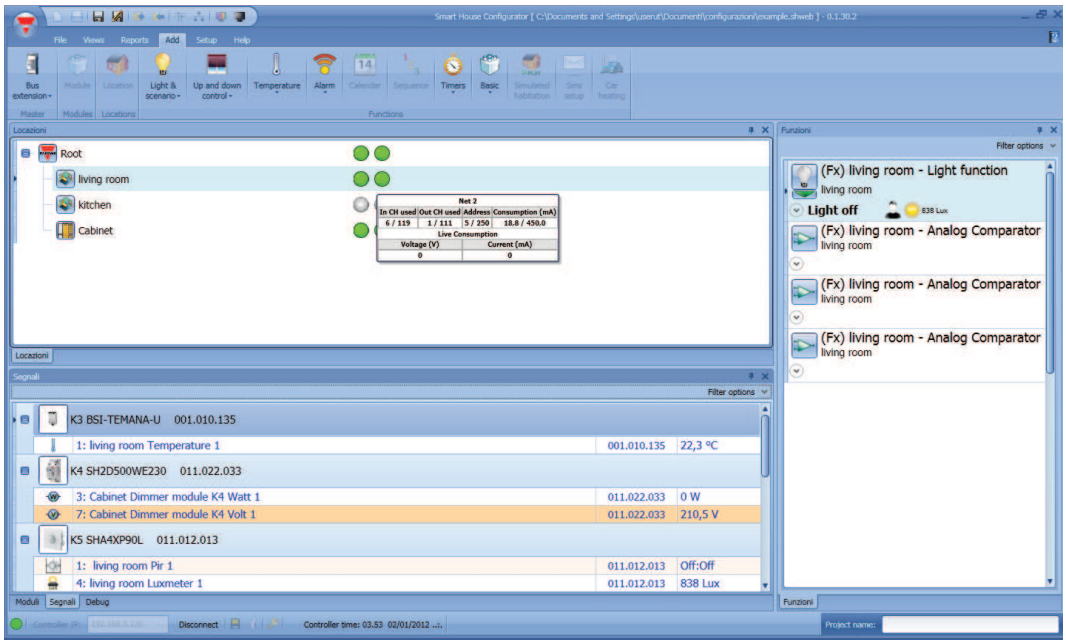


16.1.2 Tuning the parameters of the functions:

During commissioning the installer can change the parameters of the functions, for example the lux level value for the activation/deactivation of a light function, or the settings for the PIR actions in a dimmable light when movement is detected, also many other configuration parameters.

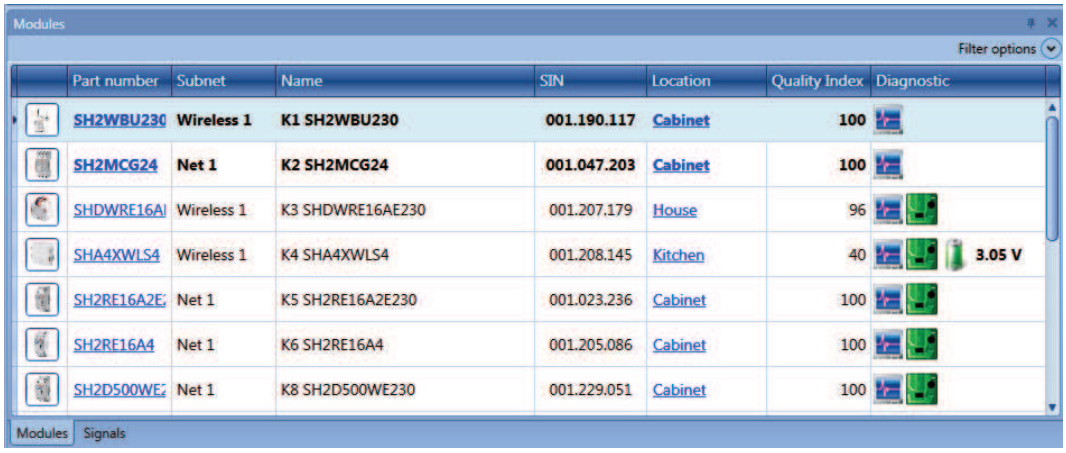
16.1.3 Checking the Bus diagnostic:

During commissioning, if any trouble should occur, the system provides a powerful diagnostic function in order to make the fault-finding much easier: the bus is always monitored, giving information about short circuits, bus voltage and bus load, noise level and the quality of the bus signals (QI quality index).
Thanks to this, if any fault should occur, the installer will be informed without going all around the installation looking for it.



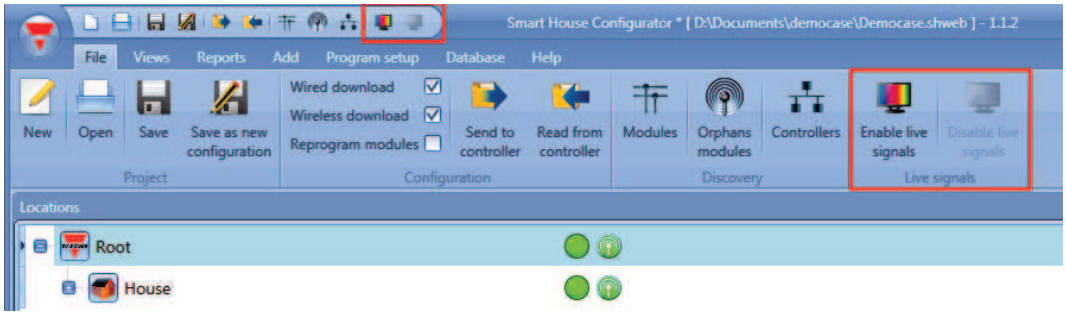
16.1.4 Checking the status of each module:

The presence of the programmed devices is always monitored in order to give an immediate message if any fault should occur. At all times each module is monitored to check if it is alive, working well and without any alarm/warning message such as overcurrent or over-temperature. The system can also advise the user when a lamp, or in general a load, is broken or not working anymore, reminding the user to change or repair it.

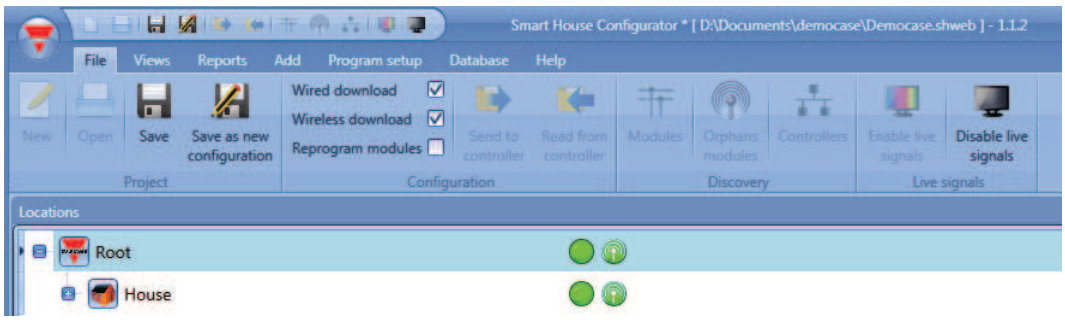


16.2 How to enable/disable *live signals*

Live signals can be enabled/disabled at any time by selecting the relevant icon filed in the main menu or by using the icon at the top of the tool. Live signals is available only when the tool is connected to the Sx2WEB24.



When *Live signals* is activated, all the other actions are disabled (only saving the project is allowed). The user must disable *Live signals* to start again, using all the functions.

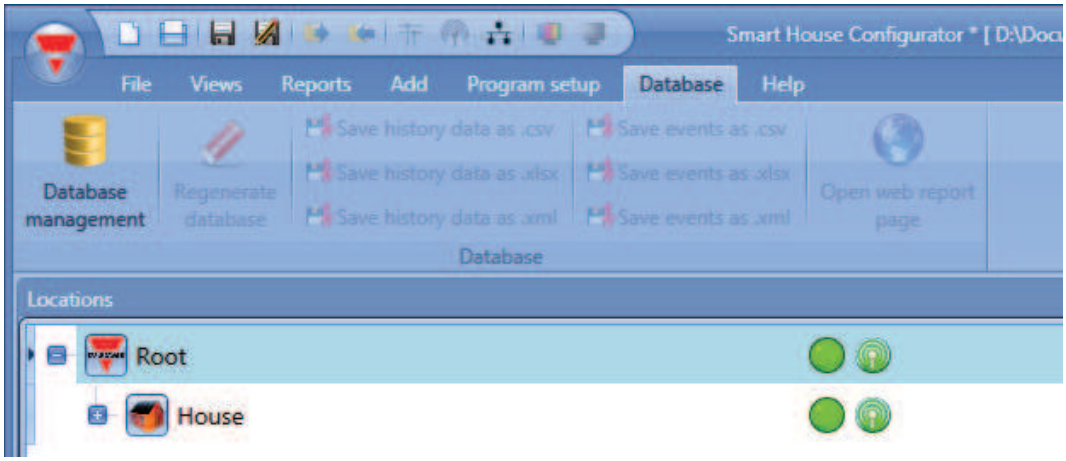


16.2.1 How to allow *Live signals* to show an analogue value

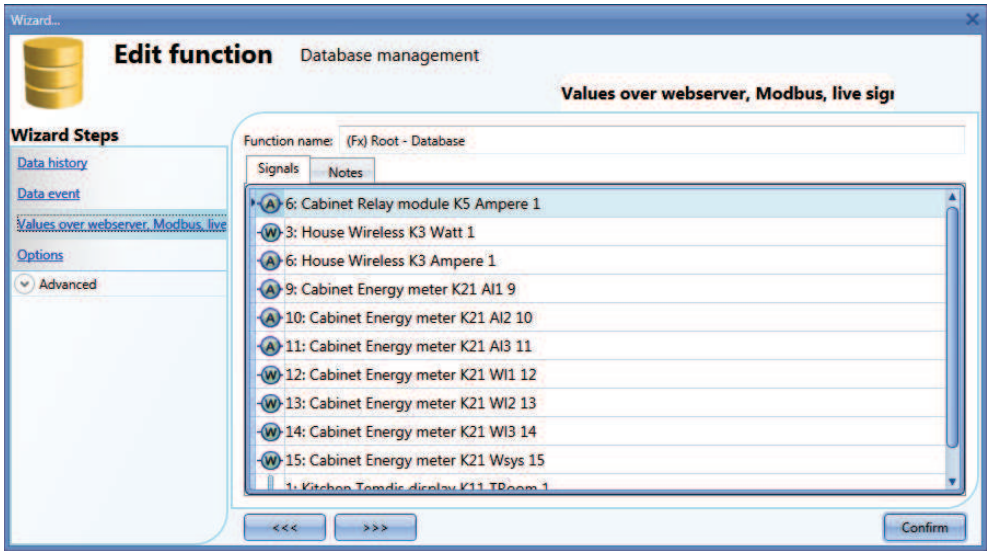
The Sx Tool automatically shows in *Live signals* all the values that are used in the functions of the project. If a signal is not used in a function, it must be added in *Database management* to see it in *Live signals.*

The steps to add a variable to the database are:

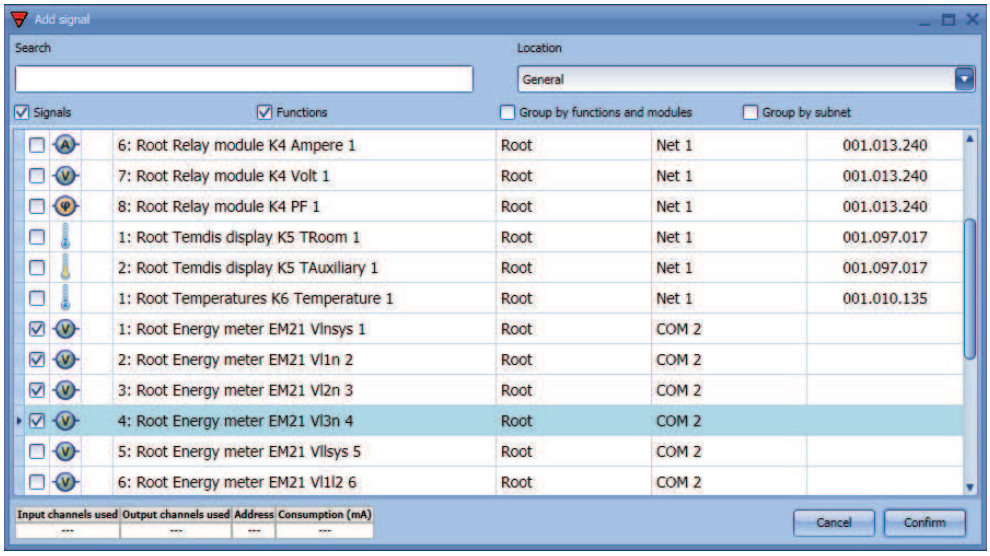
1) Click on *Database* and select *Database management*



2) Select *Values on TCP/IP and live signals* and double click anywhere in the window to enter the list of available signals



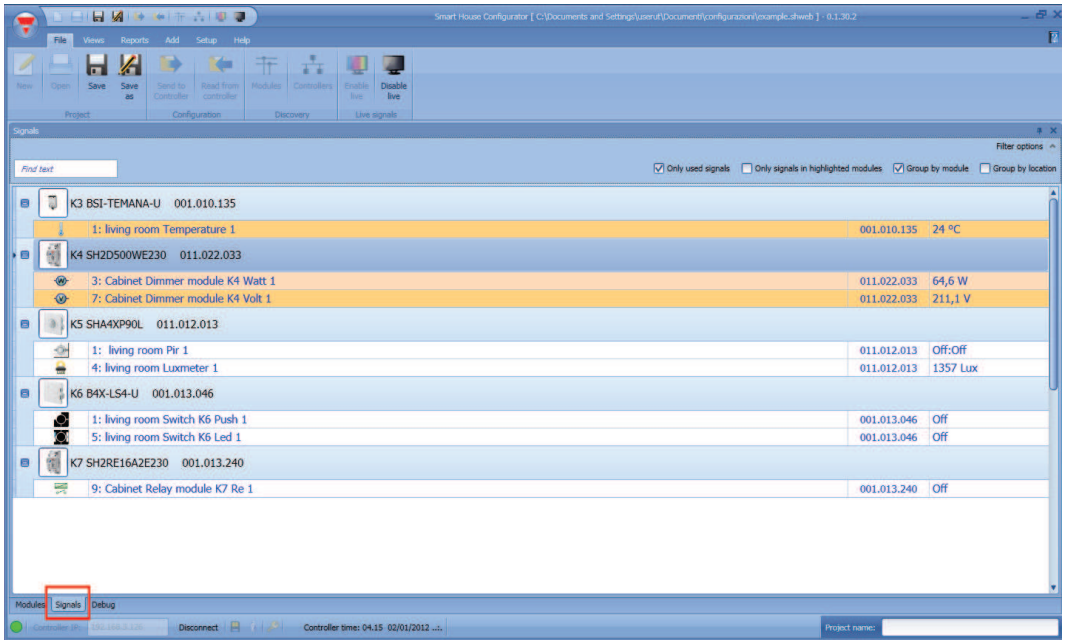
3) Select the signals to add and press *Confirm*



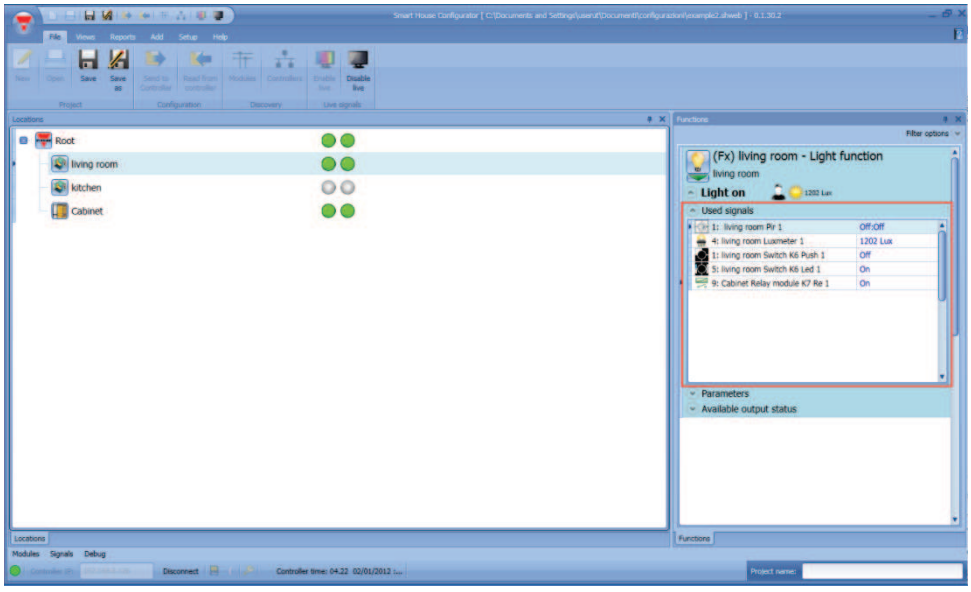
4) *Confirm* and write the configuration to the Sx2WEB24

16.3 How to see values and status of the functions

There are two ways to check the status of a signal: the first is to select the *Signals* window at the bottom of the Sx Ttool and find the required signal in the list. The user can apply the filter to search for the signal by name, by module type or according to the location where it is placed.
Each time a value changes, the Sx tool shows the change, marking the relevant row in light orange in order to easily recognize the update.

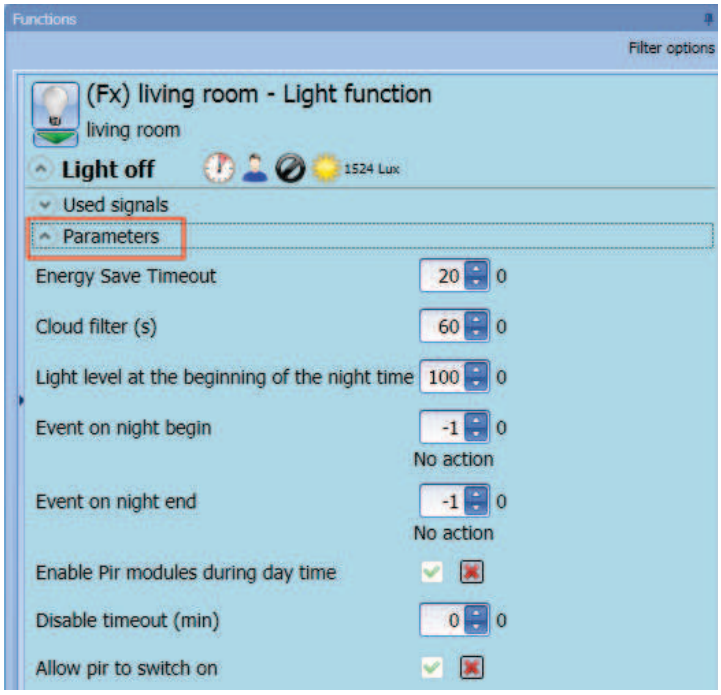


The second way is to click on the function where the signal is used and select *Used signals* in order to have a global view of all the signals used in the function.



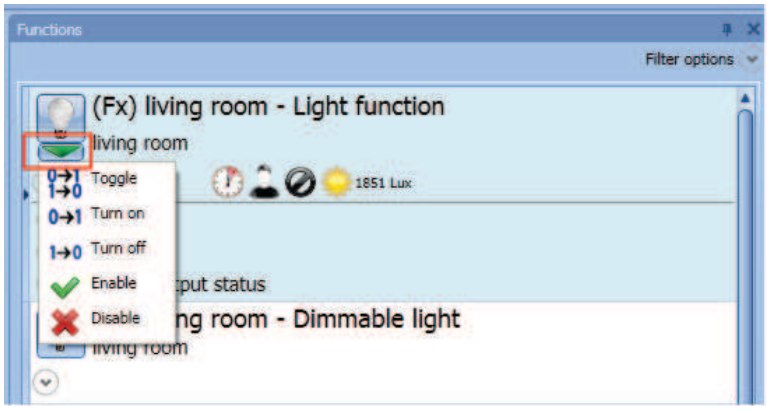
16.4 How to tune the parameters of a function

The user can change the parameters of each function by using the relevant file *Parameters* below the function icon: all the modified values are automatically changed, also in the configuration file.



16.5 How to change the status of a function

The user can access a list of commands in order to perform different actions when *Live signals* is active.
The menu of available actions can be shown by clicking on the green arrow under each function icon.



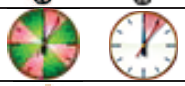
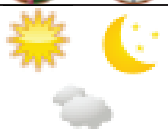
When the menu is open, the user can select the action to be performed.

16.5.1 On/off light

The available actions with *Live signals* are listed in the table below:

Icons	Action
	By clicking on the icon next to the name of the function, the light is turned on/off in toggle mode.
	Turn the light on/off in toggle mode
	Turn the light on
	Turn the light off
	Enable automations
	Disable automations

In the table below, the list of available icons for the light function is shown:

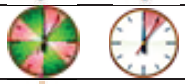
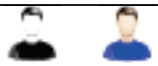
Object	Icons	Icon description
Fx status		The grey icon indicates that the light is off, the yellow icon indicates that the light is on.
Energy save timer		The icons change according to the value of the energy-save timer.
Luxmeter		The sun icon indicates that the daytime condition is active, the moon icon indicates that the night-time condition is active, the cloud indicates that the cloud filter is in progress. Next to the icon the value of the measured light level is also shown.
Pir		The blue icon is active when the PIR detects presence, otherwise the black icon is shown.
Disable automation		The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled.
Force signal on		The padlock is closed when the light is forced on, otherwise it is open.
Force signal off		The padlock is closed when the light is forced off, otherwise it is open.

16.5.2 Dimmable light

The actions that the user can carry out using the live signal are explained in the table below:

Icons	Action
	By clicking on the icon next to the name of the function, the light is turned on/off in toggle mode.
S1	Switch the light on at scenario 1 (S1)
1→0	Turn the light off
S2	Switch the light on at scenario 2 (S2)
S3	Switch the light on at scenario 3 (S3)
S4	Switch the light on at scenario 4 (S4)
S5	Switch the light on at scenario 5 (S5)
%	Set the light percentage using the slider
A	Start sequence A
B	Start sequence B
	Enable automations
	Disable automations

In the table below the list of available icons for the dimmable light function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the light is off, the yellow icon indicates that the light is on.
Energy save timer		The icons change according to the value of the energy-save timer.
Luxmeter		The sun icon indicates that the daytime condition is active, the moon icon indicates that the night-time condition is active, the cloud indicates that the cloud filter is in progress. Next to the icon the value of the measured light level is also shown.
Pir		The blue icon is active when the PIR detects presence, otherwise the black icon is shown.
Disable automation		The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled.
Force signal on		The padlock is closed when the light is forced on, otherwise it is open.
Force signal off		The padlock is closed when the light is forced off, otherwise it is open.

16.5.3 Zone intruder alarm

The actions that the user can carry out using *Live signals* are shown in the table below:

Icons	Action
0→1	Remove override reset
1→0	override reset

In the table below, the list of available icons for the zone alarm function is shown:

Object	Icons	Icon description
Fx status	 	The grey icon indicates when the zone alarm is disarmed, the coloured icon indicates that the zone is armed.

16.5.4 Main intruder alarm

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Arm the intruder alarm
1→0	Disarm the intruder alarm
	Enable reset
	Disable reset

In the table below, the list of available icons for the main alarm function is shown:

Object	Icons	Icon description
Fx status	 	The grey icon indicates when the alarm is disarmed, the coloured icon indicates when the alarm is armed.

16.5.5 Smoke alarm

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
	Activate/deactivate the reset condition
	Enable reset
	Disable reset

In the table below, the list of available icons for the smoke alarm function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that no alarm is detected, the coloured icon indicates that an alarm is detected.
Disable automation		The black icon is shown when the reset condition is not activated, the red icon is shown when the reset condition is activated.
Force signal on		The padlock is closed when the smoke alarm is forced on, otherwise it is open.
Force signal off		The padlock is closed when the smoke alarm is forced off, otherwise it is open.

16.5.6 Water alarm

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
	Activate/deactivate the reset condition
	Enable reset
	Disable reset

In the table below, the list of available icons for the water alarm function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that no alarm is detected, the coloured icon indicates that an alarm is detected.
Disable automation		The black icon is shown when the reset condition is deactivated, the red icon is shown when the reset condition is activated.
Force signal on		The padlock is closed when the water alarm is forced on, otherwise it is open.
Force signal off		The padlock is closed when the water alarm is forced off (the function stays off even if water is detected), otherwise it is open.

16.5.7 Siren function

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Reset the siren

In the table below, the list of available icons for the siren function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the siren is off, the blue icon indicates that the siren is on.

16.5.8 Sequence function

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Start sequence
1→0	Stop sequence
	Enable automations
	Disable automations

In the table below, the list of available icons for the sequence function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the sequence is not running, the coloured icon indicates that the sequence is running.

16.5.9 Rollerblind function

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Fully up
1→0	Fully down
	Stop movement
%	Set the movement/tilting position
	Enable automations
	Disable automations

In the table below, the list of available icons for the roller blind function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the blind is halted, the coloured icon indicates that the blind is moving.
Luxmeter		The sun icon indicates that the blinds are managed according to the light level, the cloud indicates that the cloud filter is in operation. Next to the icon the value of the measured light level is also shown.
Wind sensor		According to the wind speed the icon changes, indicating weak, average and strong wind.
Disable automation		The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled
Force signal on		The padlock is closed when the blind is forced to the safe position, otherwise it is opened.
Force signal off		The padlock is closed when the blind is forced to the non-safe position, otherwise it is opened.

16.5.10 Window function

The actions that the user can carry out using the live signals are explained in the table below:

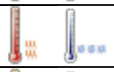
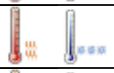
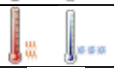
Icons	Action
0→1	Fully open
1→0	Fully closed
	Stop movement
%	Set the movement/tilting position value
	Enable automations
	Disable automations

In the table below, the list of available icons for the window function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the window is halted, the coloured icon indicates that the window is moving.
Wind sensor		The sun icon indicates that the window is managed according to the light level, the cloud indicates that the cloud filter is in operation. Next to the icon the value of the measured light level is also shown.
Disable automation		According to the wind speed the icon changes, indicating weak, average and strong wind.
Force signal on		The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled
Force signal off		The padlock is closed when the blind is forced to the safe position, otherwise it is opened.

16.5.11 Zone Temperature

The actions that the user can carry out using the live signal are explained in the table below:

Icons	Action
	Switch heating off Switch cooling off
	Select heating set point1 Select cooling set point1
	Select heating set point2 Select cooling set point2
	Select heating set point3 Select cooling set point3
	Enable automations
	Disable automations

In the table below, the list of available icons for the zone temperature function is shown:

Object	Icons	Icon description
Fx status		The grey icon is shown when the timer is off, the coloured icon is shown when the timer is on.

16.5.12 Heating system temperature

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
	Turn the heating system on/off in toggle mode
	Turn the heating system on
	Turn the heating system off
	Enable automations
	Disable automations

16.5.13 Cooling system temperature

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1 1→0	Turn the cooling system on/off in toggle mode
0→1	Turn the cooling system on
1→0	Turn the cooling system off
	Enable automations
	Disable automations

16.5.14 Delay timer

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	The trigger signal is simulated as active (pushbutton kept pressed)
1→0	The trigger signal is simulated as non-active (pushbutton released)

In the table below, the list of available icons for the delay timer function is shown:

Object	Icons	Icon description
Fx status	 	The grey icon indicates that the timer is not running, the coloured icon indicates that the timer is on.

16.5.15 Recycling timer

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Start the timer
1→0	Stop the timer

In the table below, the list of available icons for the recycling timer function is shown:

Object	Icons	Icon description
Fx status	 	The grey icon indicates that the timer is not running, the coloured icon indicates that the timer is on.

16.5.16 Interval timer

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Start the interval timer
1→0	Stop the interval timer

In the table below, the list of available icons for the interval timer function is shown:

Object	Icons	Icon description
Fx status		The grey icon indicates that the timer is not running, the coloured icon indicates that the timer is on.

16.5.17 Simulated habitation

The actions that the user can carry out using *Live signals* are explained in the table below:

Icons	Action
0→1	Start the simulated habitation
1→0	Stop the simulated habitation

In the table below, the list of available icons for the simulated habitation function is shown:

Object	Icons	Icon description
Fx status		The grey icon is shown when the simulated habitation is not active, the coloured icon is shown when the simulated habitation is active.

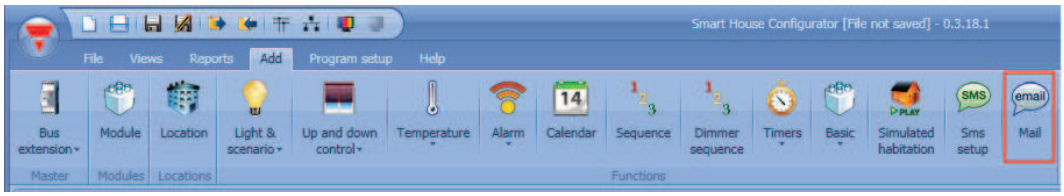
16.5.18 Analogue comparator

In the table below, the list of available icons for the analogue comparator function is shown:

Object	Icons	Icon description
Fx status		The grey icon is shown when the comparator is not active, the coloured icon is shown when the comparator is active.

17 How to set the Email function

The *Mail* function can be used to advise that a function has changed its status or to send a report file after a predefined period.
To add the *Mail* function the user should select *Mail* from the *Add* menu (see picture below). The new function will be added into the selected location.

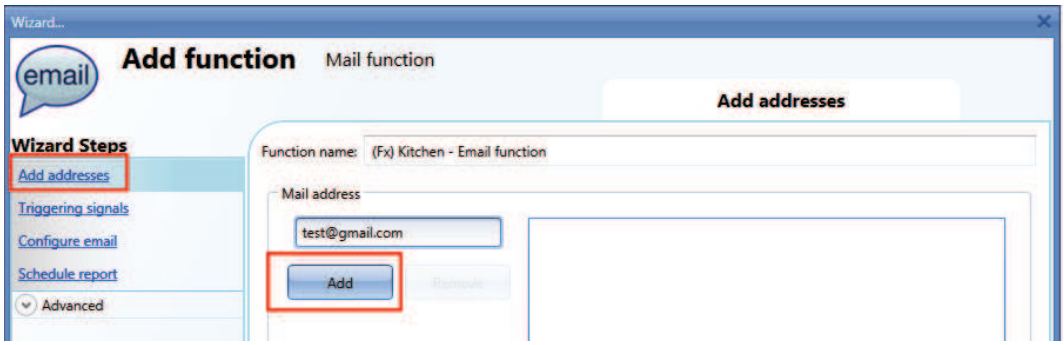


17.1 How to configure the mail account

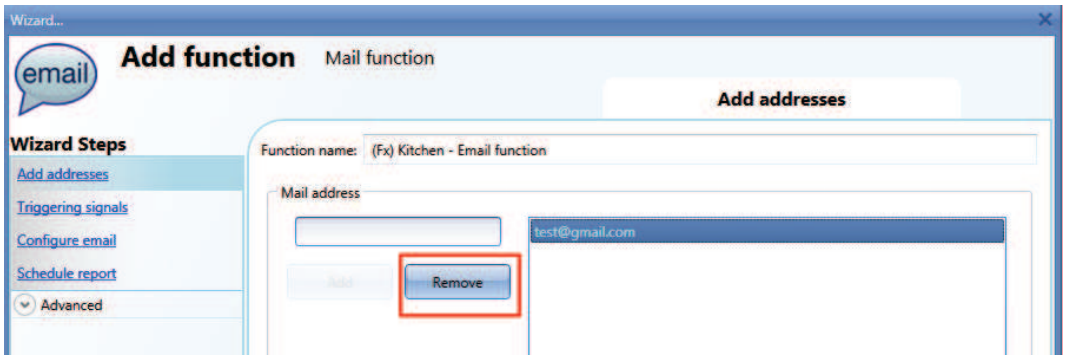
The user has to configure the mail settings in the *Program setup* menu, (see also the paragraph *General settings* for more info).

17.2 How to manage the accounts in the contacts list

The *Mail* function can send emails to different accounts according to different purposes: for example, one address could be configured to receive the statuses of some functions, while a second one could receive the report files.
To add a new receiver address, the user has to click on *Add addresses*, type the address and then click on *Add*: all the added addresses will be displayed in the mail configuration list (see picture below).

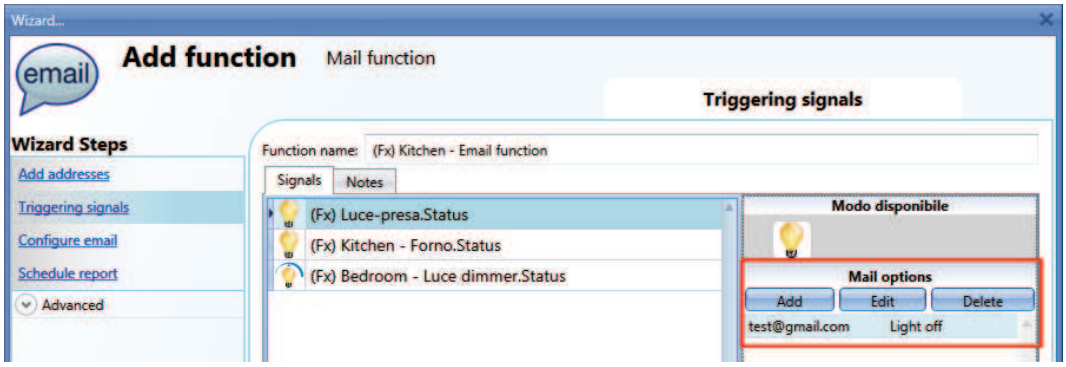


To delete an address, select it in the addresses list and then click on the *Remove* button as shown below.



17.3 How to configure an outgoing mail

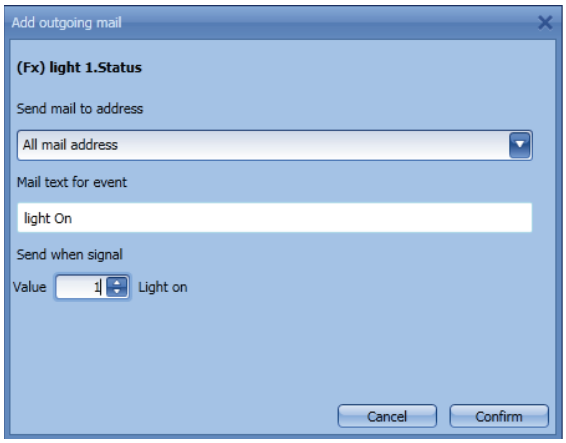
In the *Triggering signals* field, the user has to add all the functions that result in the emails being sent. Once a function is added, the user can access *Mail options* by clicking on it.



The available options are:

- Add a new action according to the status of the function
- Edit an already added action
- Delete an action

When the Add icon is selected, the following setup-window is shown :



Fill in the boxes with the necessary information:

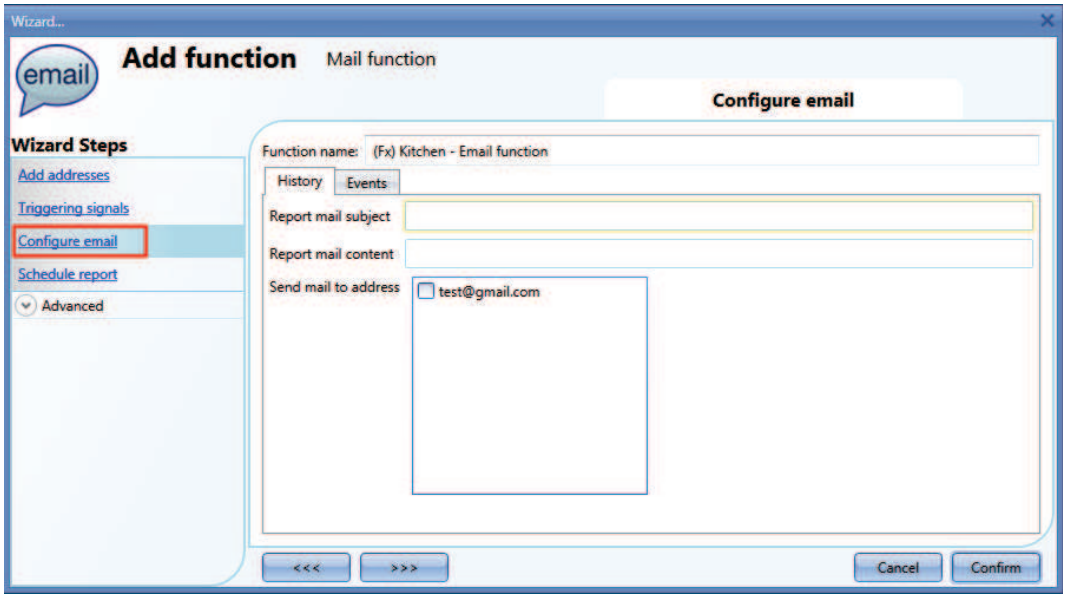
1: Send mail to address: This contains the address the email is sent to. The list of addresses added in the Mail configuration will be prompted. If all of them are selected, the email will be sent to all.

2: Mail text: in this field the user can type a text which informs the receiver about what is happening.

3: Send when signal: in this field the user selects the event that will cause the email to be sent. In the example on the left, an email with the text “light on” will be sent when the status of that light changes from off to on.

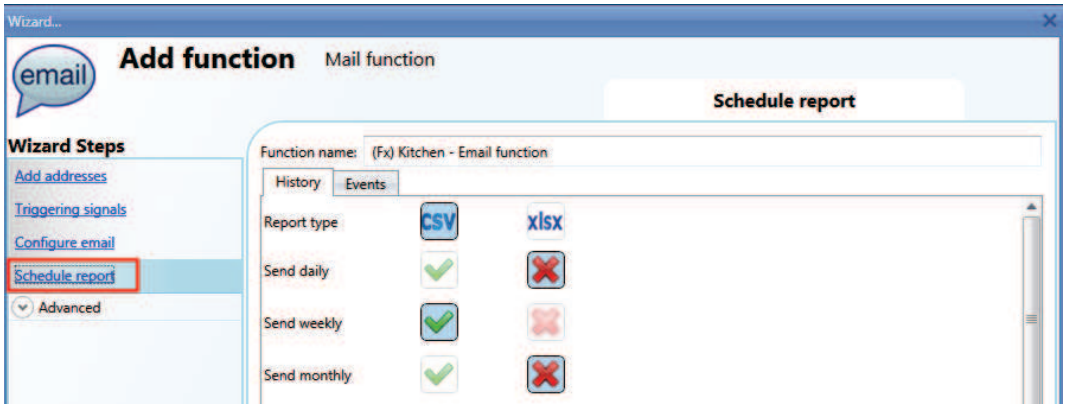
17.4 How to send the report file to one or more email addresses

In the *Configure email* field, the user can set the email Subject and Content that the Sx2WEB24 will use to send the database files, also the addresses to which they can be sent. These settings have to be made both for the *history* database (the file that collects the analog values) and for the *events* database (the file that collects events).

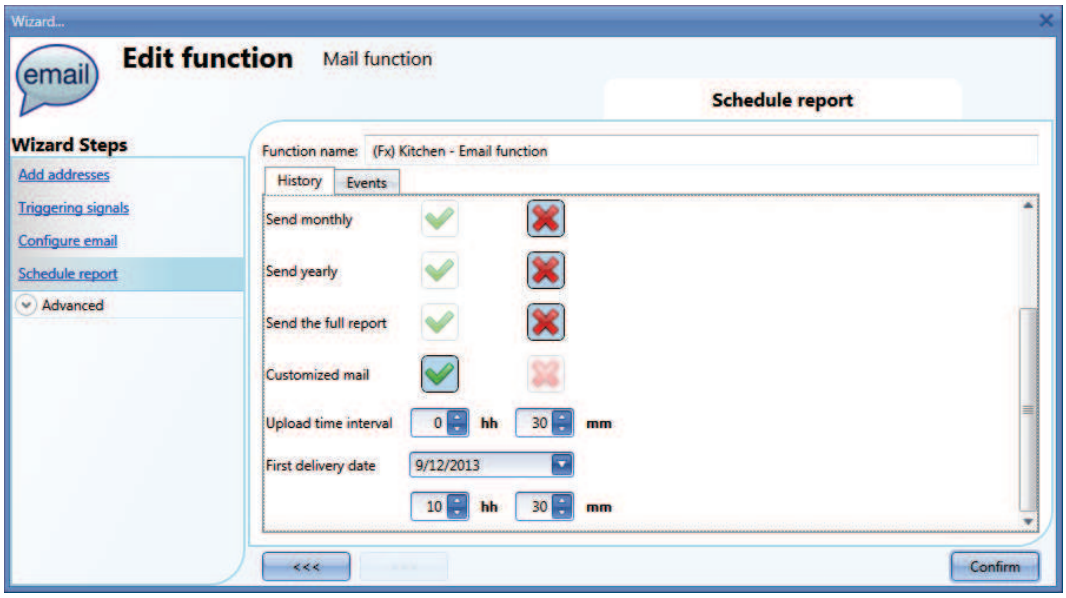


17.5 How to schedule the report delivery

In the *Schedule report* menu, the user defines when and how often the system has to send the emails containing reports.



First, the type of report has to be selected (CSV or XLSX).



Then select when the email has to be sent:

Send daily: the email is sent every day at 12:00 with the updated report file

Send weekly: the email is sent every Monday at 12:00 with the updated report file

Send monthly: the email is sent on the first day of each month at 12:00 with the updated report file

Send yearly: the email is sent on 1st January at 12:00 every year with the updated report file

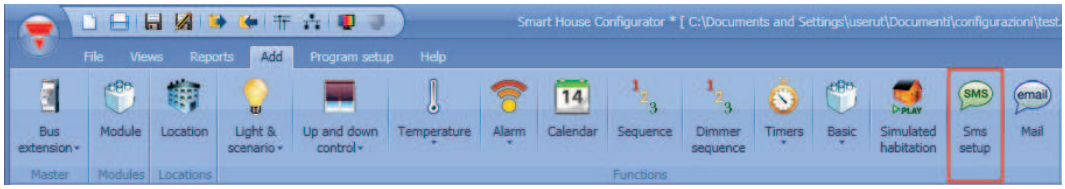
Customized mailing: the user can define how often he wants to receive an email, setting the hours and minutes in the *Upload time interval* field, and when emails have to start in the *First delivery date* field.

If *Send the full report* is enabled, the complete report is sent, otherwise only the data logged after the previous email is sent.

18 How to set the GSM function

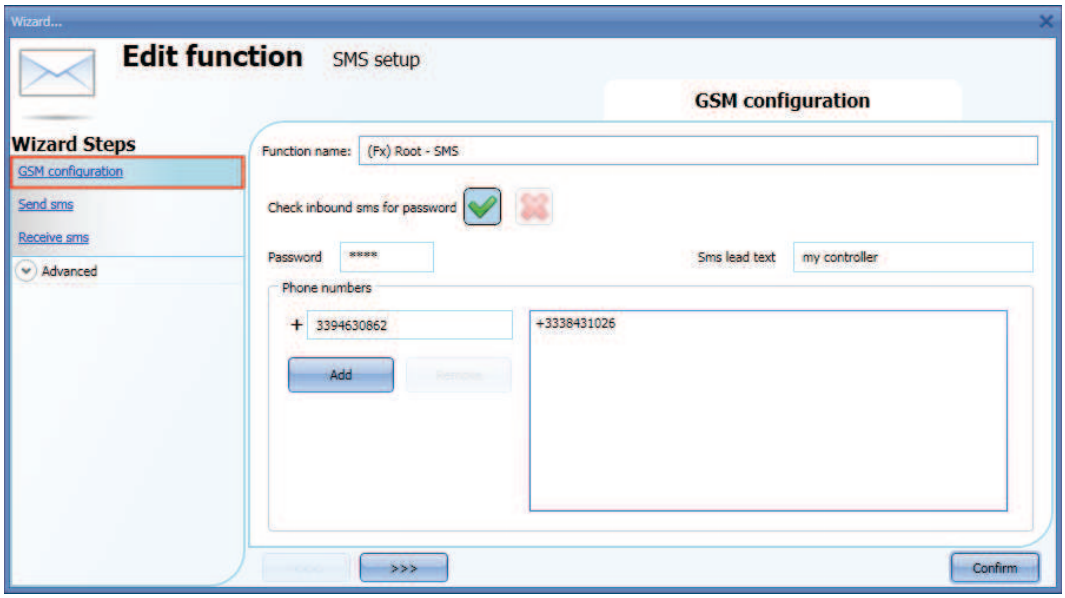
To use the GSM function, the SH2UMMF124 module has to be connected to the Sx2WEB24.
This has to be configured as described in *General settings*.
The SMS function can be used to check the status of a function or an analogue variable, to activate a function or to be advised about the change of the status of a function.

To add the *SMS function,* the user has to select *SMS setup* from the *Add* menu (see picture below). The new function will be added into the selected location.



18.1 GSM configuration

In the first step of the function, the user has to set up the GSM configuration.



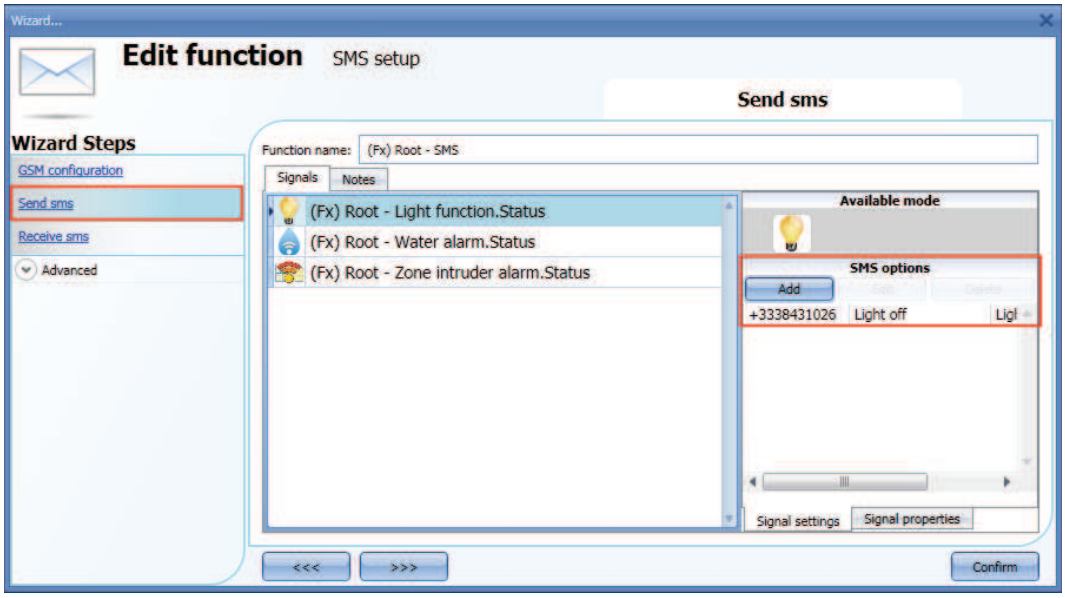
Check inbound sms for password
When enabled (green V selected), the sms that is received by the system must contain the password written in the *Password* box. The password can contain numbers and letters, which are not case sensitive.

SMS lead text
Here the user can type the header of the message sent by the smart-house system and displayed on the phone.
Example: according to the picture above, each SMS sent by the Sx2WEB24 will start with “my controller”.

Phone numbers
All the telephone numbers which the SMS have to be sent to and received by, must be added in this box. Each added number must start with the country code of the receiver (e.g. +39 for Italy).

18.2 How to set up the smart-house system to send SMS

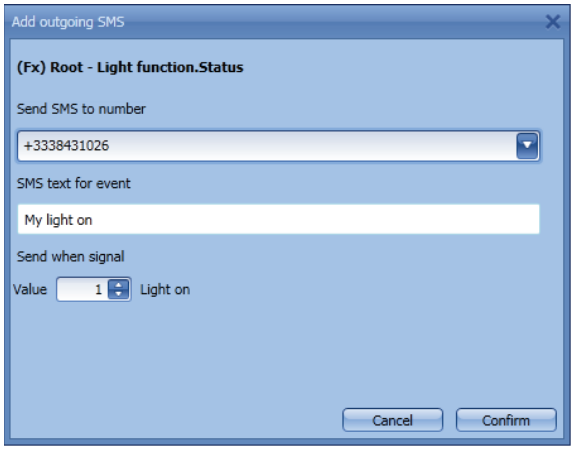
In the *Send SMS* field, the user has to add all the functions that result in the SMS being sent. Once a function is added, the user can access the *SMS options* by clicking on it (see below).



When the function is added, the possible options are:

- Add a new action according to the status of the function
- Edit an already added action
- Delete an action

When the Add icon is selected, the following setup-window is shown :



Fill in the boxes with the necessary information:

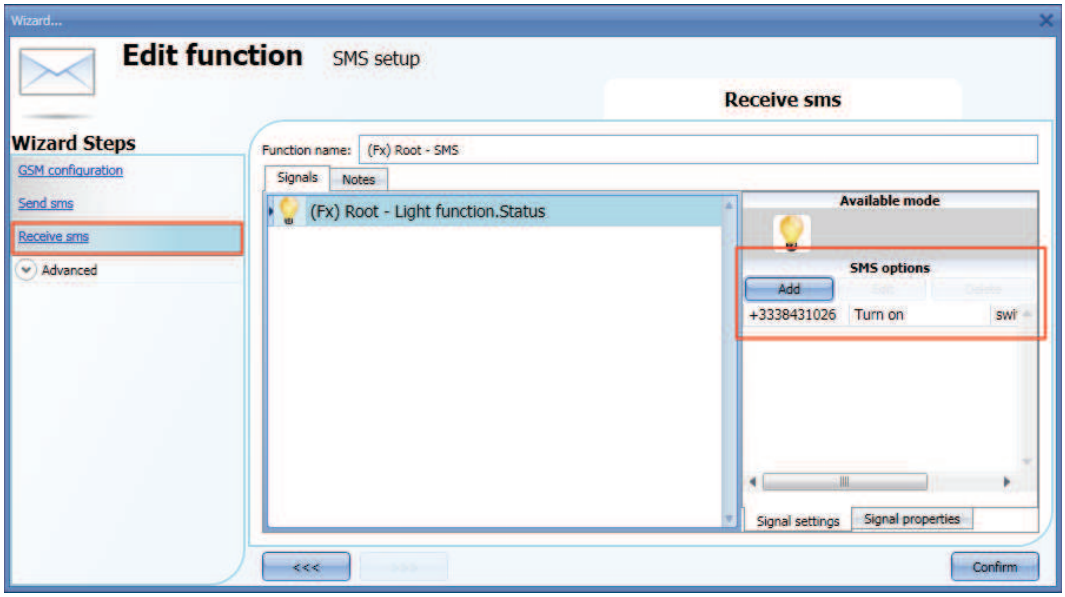
1: Send SMS to number: This contains the number the SMS is sent to. The list of the numbers added in the SMS configuration will be prompted. If all of them are selected, the SMS will be sent to all.

2: SMS text: in this field the user can type a text that informs the receiver about what is happening.

3: Send when signal: in this field the user selects the event that will cause the SMS to be sent. In the example on the left, an SMS with the text “My light on” will be sent when the status of that light changes from off to on.

18.3 How to set up the Sx2WEB24 to receive an SMS

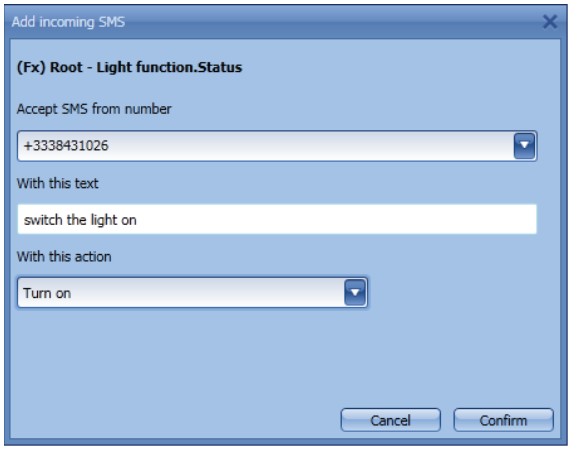
In the *Receive SMS* field, the user has to add all the functions that can be controlled by an SMS. Once a function is added, by a single click on the function the user can access the SMS options (see picture below).



When the function is added, the possible options are:

- Add a new action according to the status of the function
- Edit an already added action
- Delete an action

When the *Add* icon is selected, the following setup-window is shown :



Fill in the boxes with the necessary information:

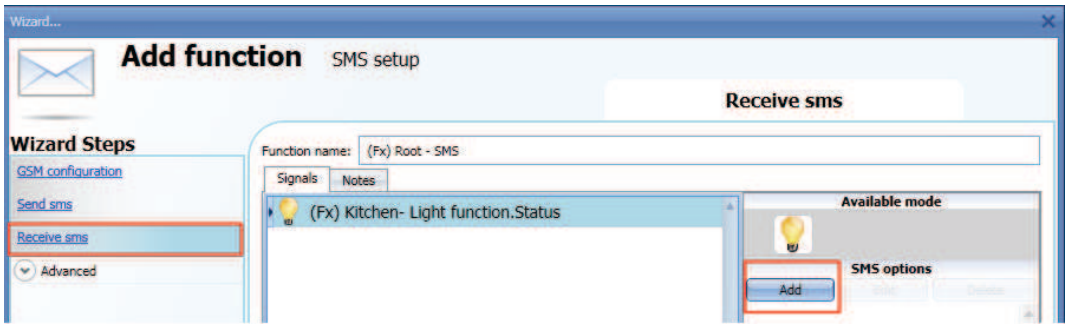
1: Accept sms from number: This contains the number the SMS comes from. The list of the numbers added in the SMS configuration will be prompted. If all of them are selected, the SMS will be received by all.

2: With this text: in this field the user types the text that is to be received: if the received text doesn't match the one written here, the SMS will not be processed.

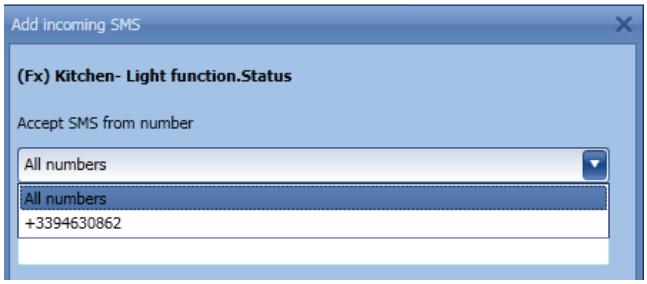
3: With this action in this field the user selects the event the system will carry out after receiving this SMS. In the example on the left, an SMS received with the text "switch the light on", will turn the light on.

Example 1
In the kitchen a function called *Light-kitchen* is to be controlled by using the SMS.

This function has to be added in Receive sms (see below).

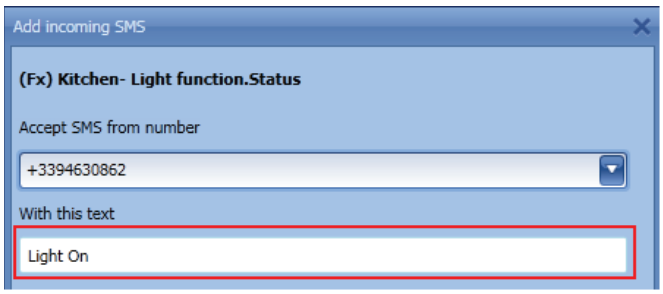


By selecting the function and by clicking on the *Add* pushbutton, the following window will appear.

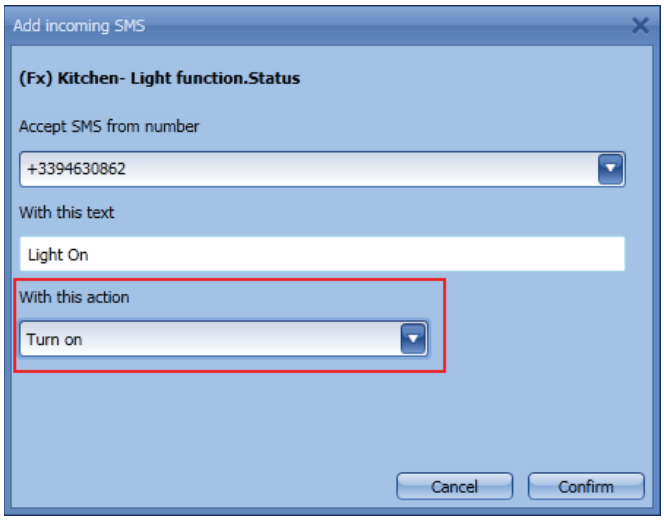


Select the phone number from which you want to control the function.

Then, fill in the text to be used to activate the function.

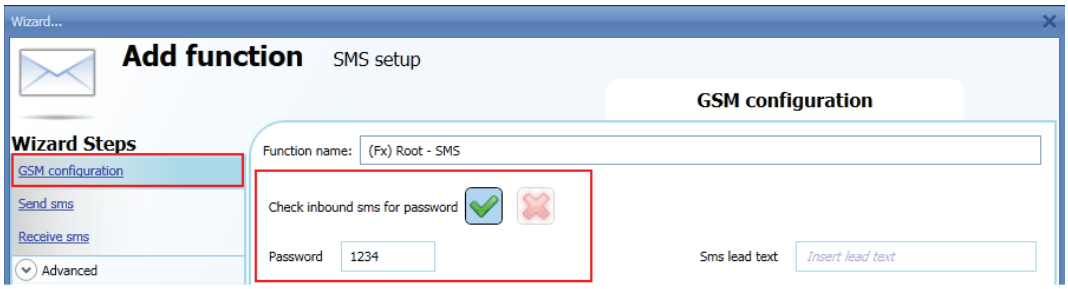


Select the required action of the SMS, e.g. “Turn on”.



The sms to be sent to the smart-house system is: (assuming that the phone number of the SIM card in the GSM module SH2UMMF124 is +393338431022, country code +39).

Prepare the sms with the text “Light on”
Send this sms to the phone number “+393338431022”.
When the GSM unit receives this message, the function Kitchen-light will be switched on.



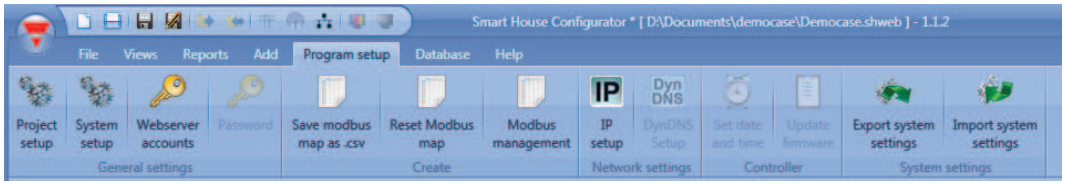
If a password is selected in the GSM configuration (e.g PSW 1234), the text to be sent should look like this : “1234,Light on”
Please note that a comma is used to separate the password and the command text, and no space is allowed before or after the comma.

NB. All received texts are automatically converted into lowercase letters

To complete the settings of the modem, see also paragraph General settings.

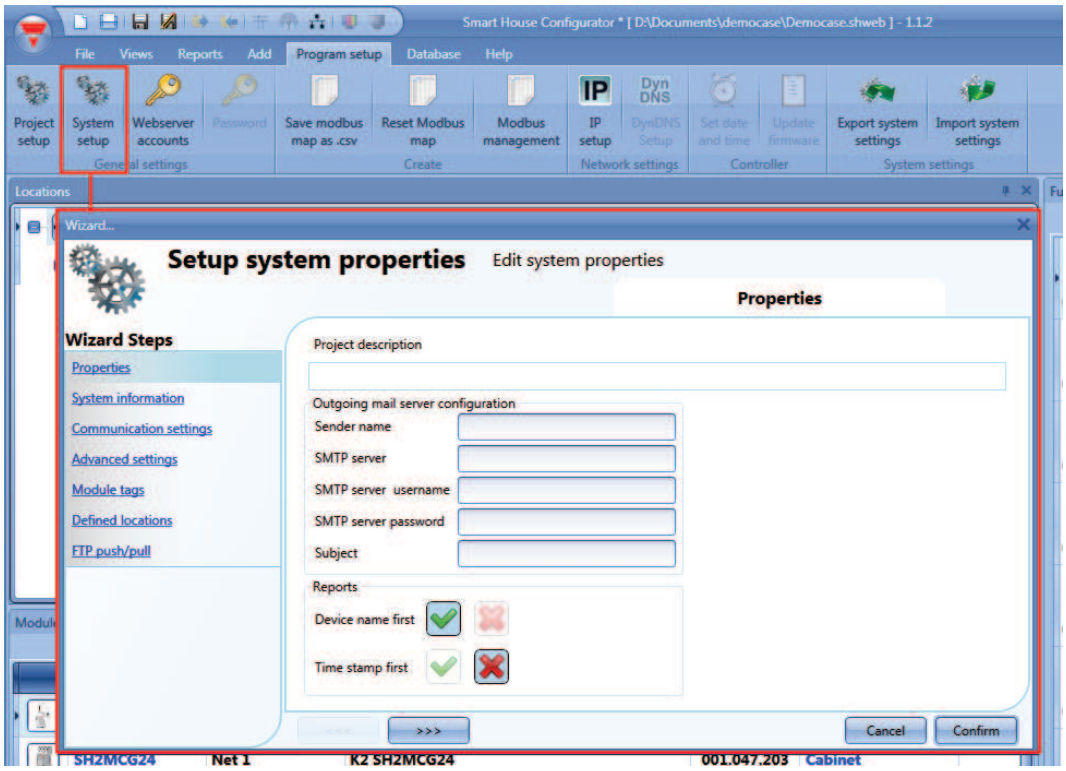
19 General settings

In the *Program setup* menu, the user can configure the settings relevant to a specific project, the general settings of the installer, the webserver accounts, the password settings, the IP address of the Sx2WEB24, date and time of the Sx2WEB24 and the DynDNS parameters when the modem is used. He can also update the firmware, generate the file with the Modbus TCP/IP map and import and/or export the *System* settings.



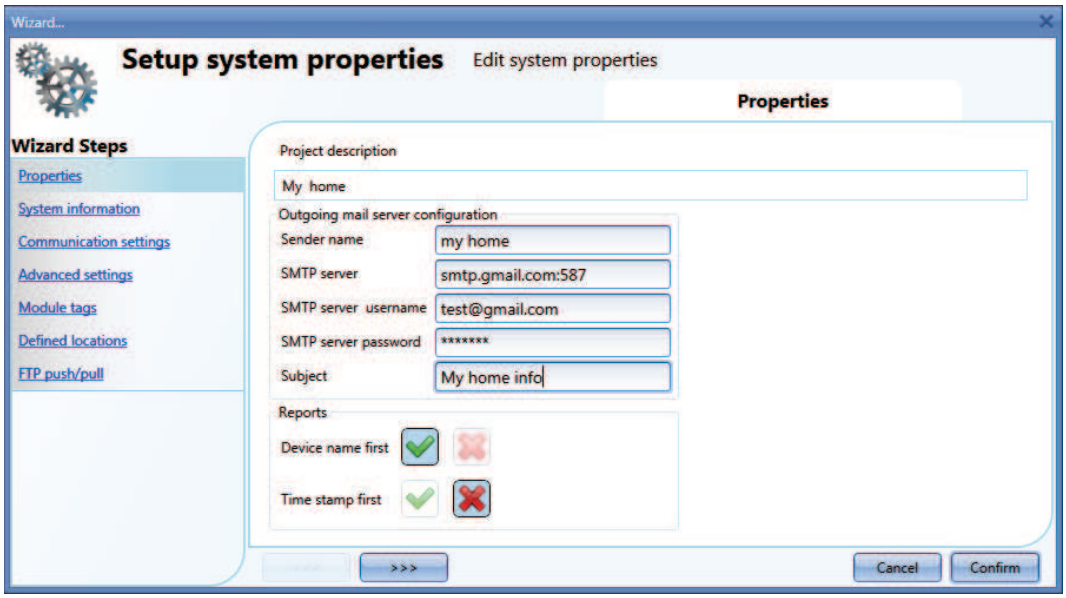
19.1 How to configure the general settings

By clicking on the *System setup*, the following window will appear: all the settings configured here will be available in all the new projects created, without needing to repeat the operations every time.



19.1.1 Properties

In *Properties,* the user should configure the parameters of the email account so that the system can send emails.



The user must enter the *Sender name by* typing the name used for the sender (e.g My home).
The user must complete *SMTP server* with the address of the server used for sending the email.
The user must complete *SMTP server username* with the email address used for sending the email.
The user must complete *Server SMTP password* with the password for the email account.
The user must complete *Subject* with the name used as the subject for outgoing emails.

Note: usually the mail service uses port 25, although some providers have changed this port with another one in order to limit SPAM: for example the GMAIL account uses port 587.
To set a different port, the SMTP server must be followed by "**:587**": for example, smtp.gmail.com:587.
Please check the provider requirements when configuring your mail settings.

Reports: In this section the user can select if the name of the file has to start with the name of the Sx2WEB24 or with the time at which the file has last been updated.
For example, if *Device first* is selected, the name of the file will be the following: **Sx2WEB Serialnumber_2013-09-12_15.28.01_S_data.zip**
If *Timestamp first* is selected, the file will be named **2013-09-12_15.39.16_Sx2WEB Serialnumber_S_data.zip**

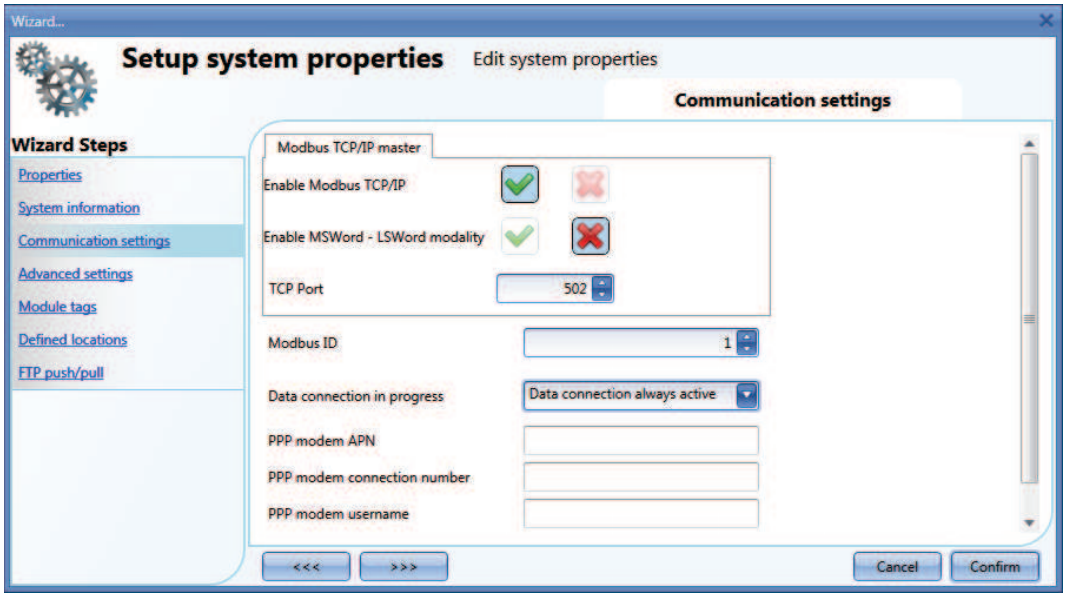
The settings relevant to the name of the file will be also used by the FTP push service when sending files.

19.1.2 System information

In *System information* the installer has to fill in his personal data.

19.1.3 How to set Modbus TCP/IP settings and configure the modem

In the *Communication settings* the user can define the communication parameter relevant to Modbus TCP/IP and the modem.



Enable Modbus TCP/IP
When the green V is selected, the option is enabled and the system will answer the Modbus TCP/IP requests received on the selected TCP port.

Enable MSWord-LSWord modality
If this option is enabled, in the double word values, the most and least significant words are swapped. By default the least significant word is sent.

TCP port
The user can select the communication port for Ethernet connection (by default 502).

Modbus ID
The user can select the Modbus ID of the controller. The ID can be from 0 to 250.

Modem data activation
The user can set three types of action when the SH2UMMF124 modem is connected to the SxWEB24

- Data connection always active: the system uses the data connection to access the Internet.
- Data connection if LAN not available: usually the system works using the LAN connection. If the LAN connection is not available, the system uses the modem data connection and it will continue using it until a new configuration is written or the system is reset.
- Only LAN: the internet connection is not managed by the modem; the modem is only used to send and receive SMS.

PPP modem APN (***mandatory***)
The user must add the NTP server of the Mobile Service Provider used by the modem.
Note: some providers do not need to add other info, such as modem connection number, username and password, so please check the provider requirements when you configure the modem settings.

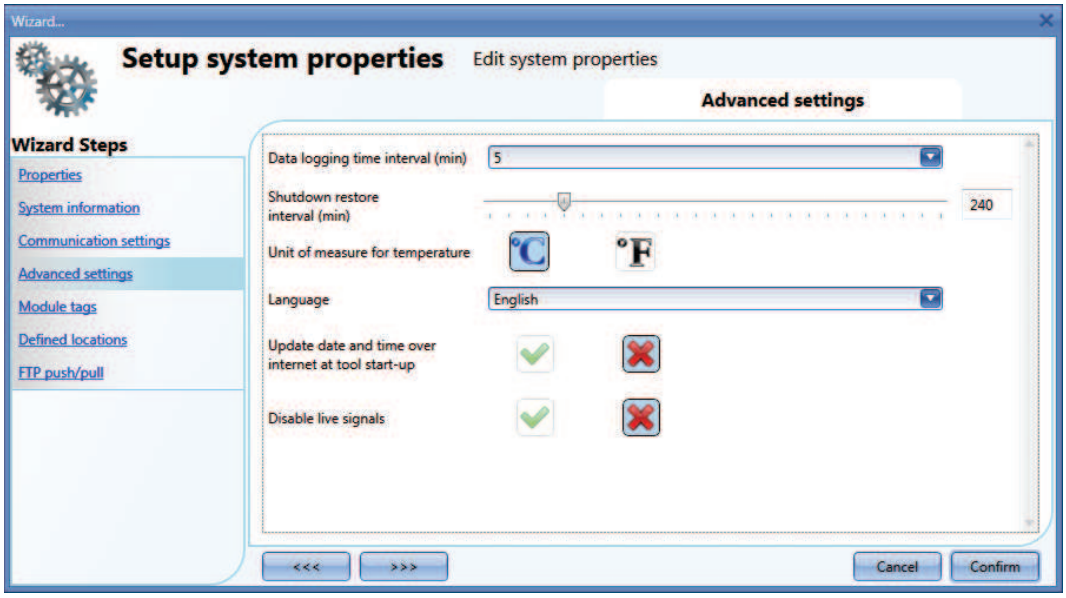
PPP modem connection number
(*) fill in only if specified by the Service Provider

PPP modem username
*(*)*fill in only if specified by the Service Provider

PPP modem password
*(*)*fill in only if specified by the Service Provider
*(*)*not mandatory: it depends on the Mobile Service Provider

19.1.4 Advanced settings

In *Advanced settings* the user can set:



Datalogging time interval (min):
All logged variables are sampled and stored in the Database according to the time set.

Shutdown restore interval (min):
It is possible to set a timer for the auto-restart of some functions after a power-down of the master unit SxWEB24.
The timer starts counting when the supply goes off. If the supply comes back on within this time, the system will go back to the on status it had before the power-off. Otherwise, it will start in an off status.
The status of each function is stored in the memory every minute.

The functions with “back-up” capability are the following:

- On/off light : at power on the function set at the status it had before the power off.
- Dimmable light: if the function is configured with an energy-save timer, at power on the function is always switched at the last saved scenario and the energy-save timer is retriggered.
- Temperature system: at power on the function set at the status it had before the power off.
- Zone temperature: at power on the function is switched on with the previous heating/cooling setpoint
- Main alarm: the at power on the function set at the status it had before the power off.
- Playback: at power on the function set at the status it had before the power off.
- Sequence: at power on the function set at the status it had before the power off.
- Car heating: at power on the function set at the status it had before the power off.
-

The functions that do not have back-up capability are:

- Rollerblinds
- Window control
- Timer
- Smoke alarm
- Water alarm
- Siren
- All basic functions

Unit of measurement for temperature:
The user can select Celsius or Fahrenheit.

Language
Here the user can select the language of the Sx Tool. Once selected, the software has to be closed and then opened again to have the new language.

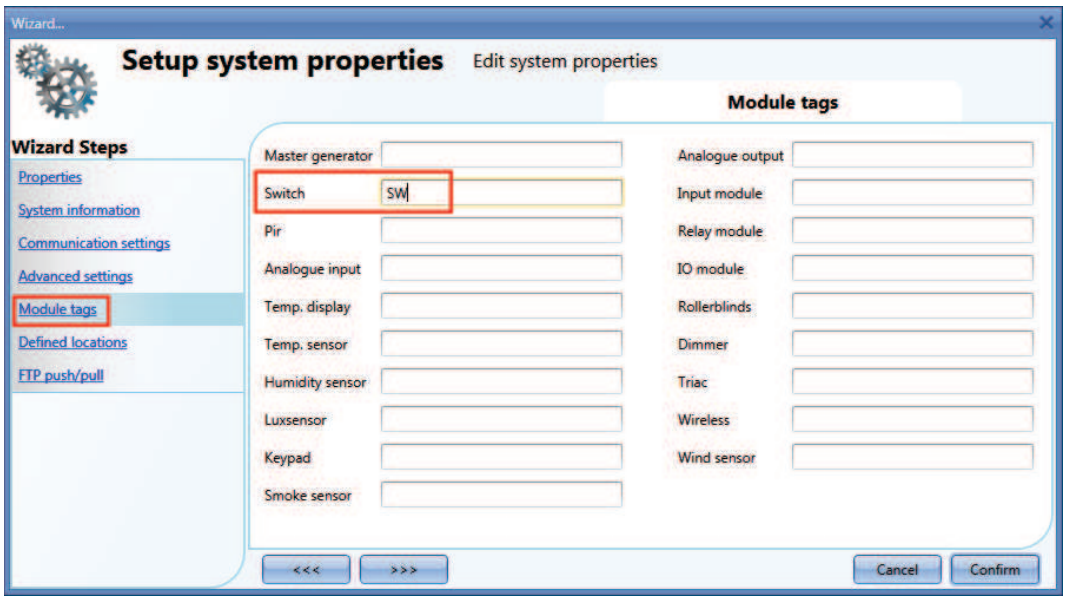
Update date and time via internet at tool start up:
When this option is enabled (green V selected), the tool synchronizes the date and time via internet.

Disable live signals:
When this option is enabled (green V selected), the tool does not show graphical animation when the Live signal is active.

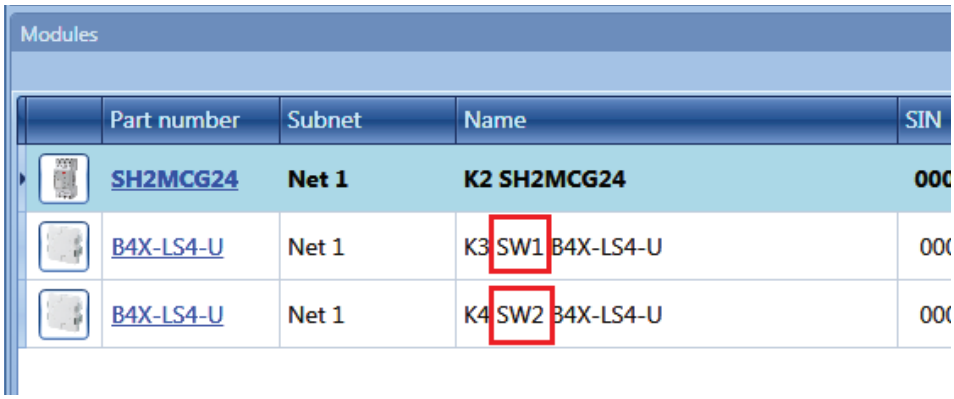
19.1.5 How to add module tags

In this window the user can define the name for each group of modules. This name will be used when a new module is added to the project and then it will also be reported in the module list report file.

Example: in the figure below, the module tag SW is added to the light switch family.



When a new light switch module is added, the name tag will be linked to a number that is increased each time a module of that group is added: for example, the first light switch module will be preceded by *SW1*, the second one by *SW2* and so on so forth (see picture below).

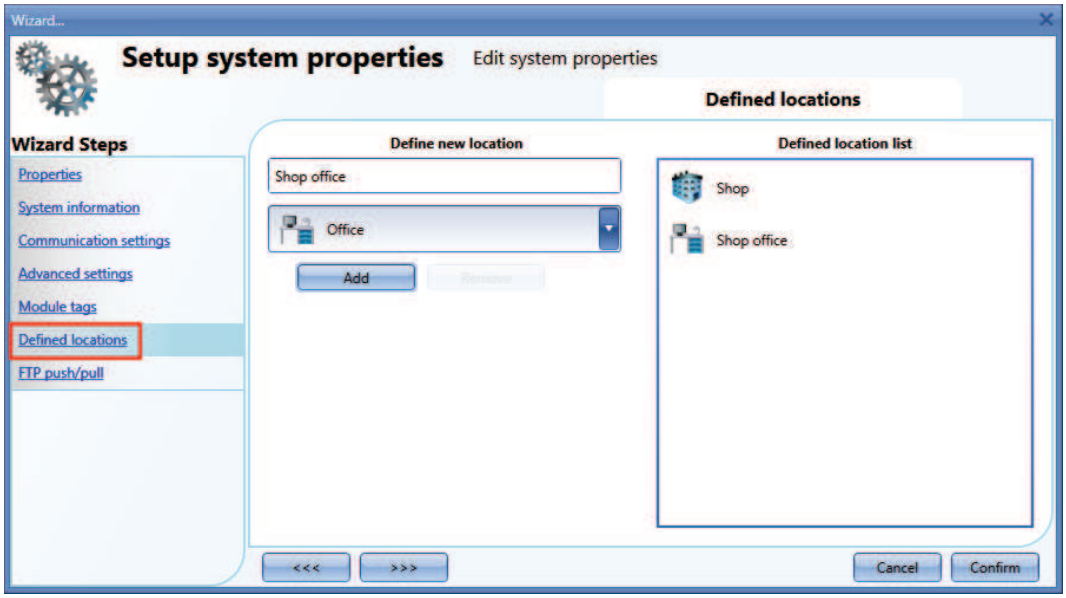


The same name tag will also be used in the module li*st* report file, as shown in the example below.

N.	Family	Part number	Name	S
1	Master Generator	SH2MCG24	K2 SH2MCG24	0
2	Switches	B4X-LS4-U	K3 SW1 B4X-LS4-U	0
3	Switches	B4X-LS4-U	K4 SW2 B4X-LS4-U	0

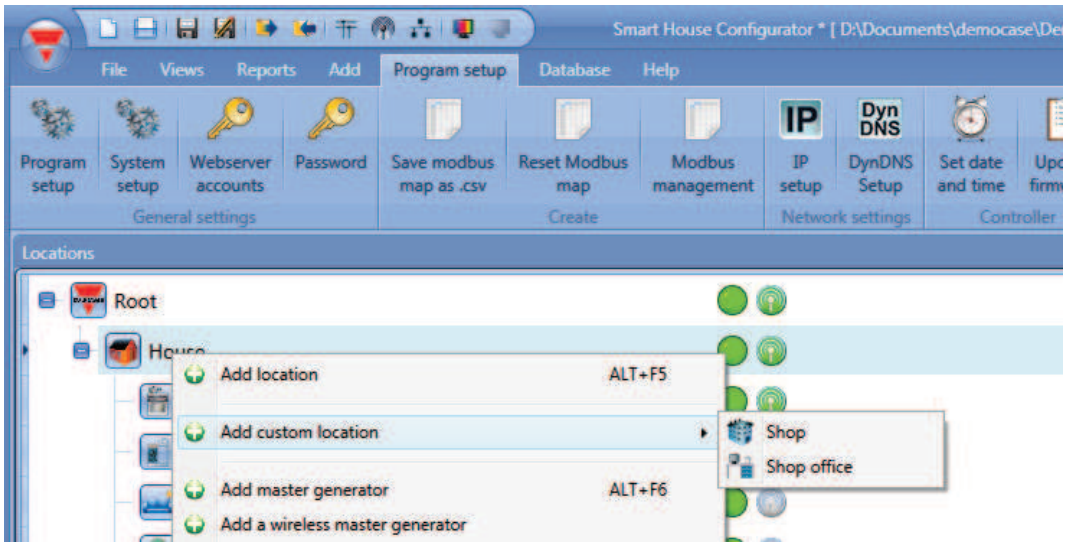
19.1.6 How to create customized locations

In the menu *Defined locations,* the user can define his customised locations.



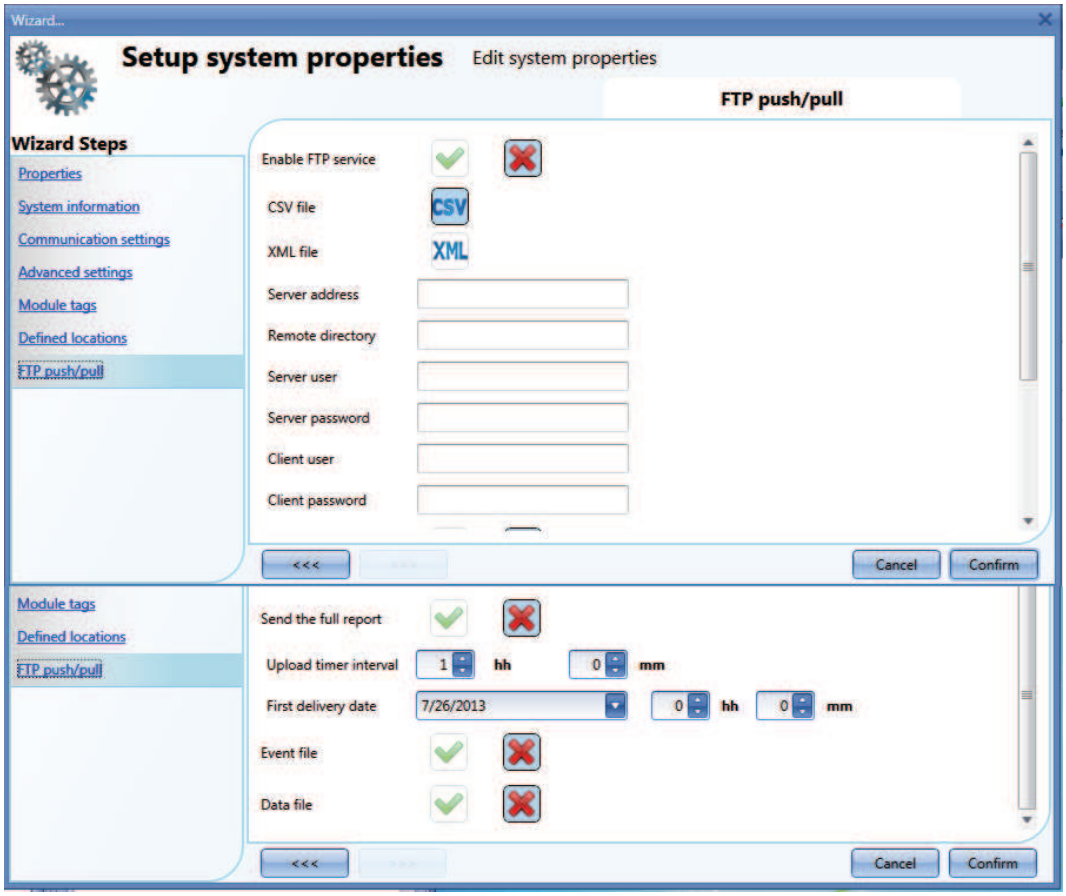
The name and the icon of the location have to be selected, then by clicking on *Add* the new location is added to the list on the right.

To use these, right click on the Location area and select *Add custom location*: the new ones will be available.



19.1.7 How to configure the ftp push/pull feature

The ftp push/pull has to be configured from the menu *FTP push/pull*:

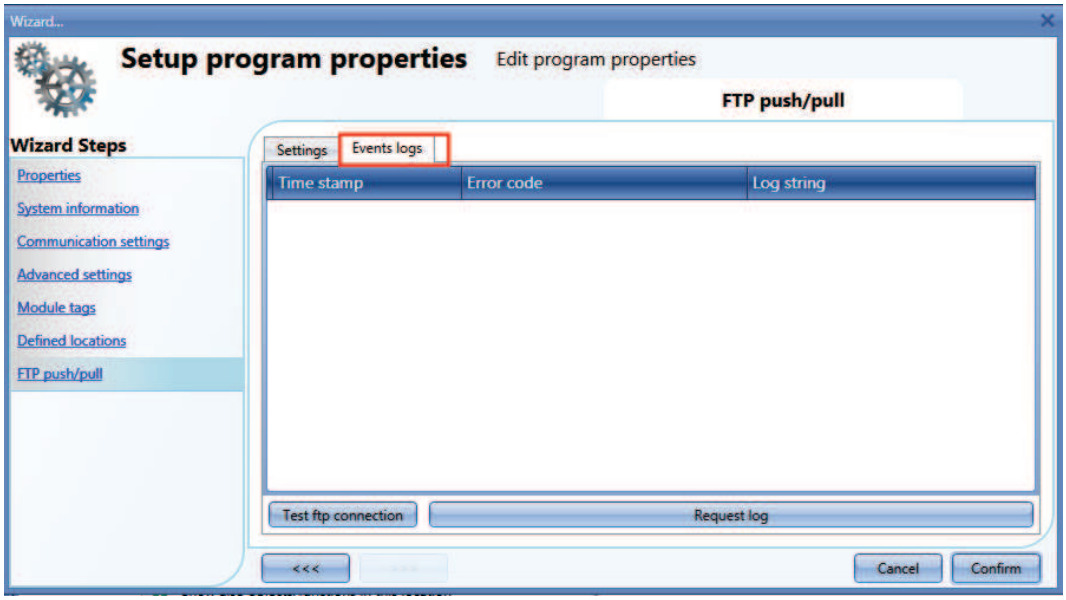


Firstly, the FTP push/pull has to be enabled by selecting the green V: by default it is not enabled.
Once enabled, the following settings have to be defined:

1) The type of file the user wants to receive when the push service is used, CSV or XLSX
2) *Server address*: this field has to be filled in with the address of the ftp server to which the system has to send the file
3) *Remote directory*: this field should contain the directory of the ftp server where the file has to be stored
4) *Server user and password*: valid credentials to access the remote FTP directory
5) *Client user and password*: valid credentials to remotely submit queries to the Sx2WEB24
6) *Send the full*: if this option is enabled, every time the full report logged is sent, otherwise only the data logged after the last connection is sent.
7) *Upload timer interval*: how often the file has to be sent
8) *First delivery date*: date and time at which the ftp push service has to be activated
9) *Event file/Data file*: the user has to select what kind of logged file has to be sent

19.1.8 How to test an FTP connection

In the FTP settings, once the fields have been compiled as described above, to test the ftp communication click on *Events logs* and the following window will appear.



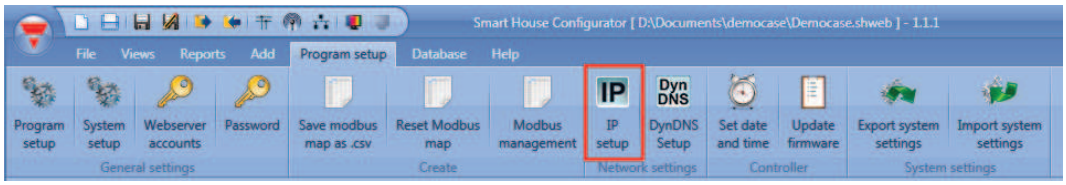
To test the communication click on Test ftp connection:
To see the log of the last 50 connections click on *Request log*: the last 50 events will be shown with the indication of whether or not they were successful.

19.2 How to configure the Project settings

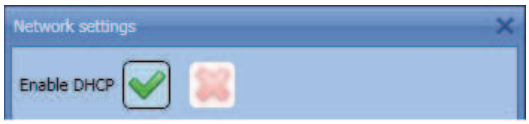
By clicking on *Project settings,* a window identical to the *System settings* will appear: each menu is the same as the one seen above, the only difference being that all the configurations and settings are relevant to the specific project that is under development at this moment, and will not be copied into new projects.

19.3 How to configure the IP address of the master unit Sx2WEB24

In the program setup, by clicking on the IP setup icon the user can enter the controller IP settings.

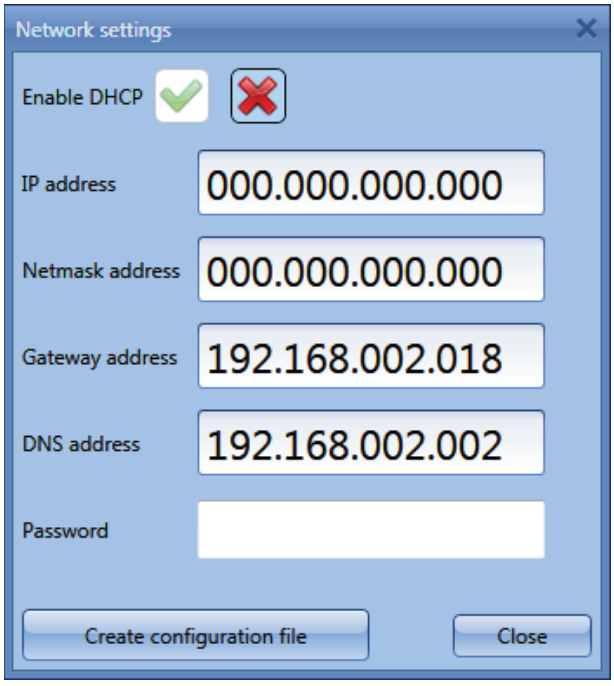


The user can enable the controller DHCP client by selecting the green V icon *Enable DHCP*:



Or set a static IP address, Netmask, Gateway and DNS address by clicking on the red cross icon.

NB: When you set up a fixed IP, the Gateway address and DNS address are mandatory, and the Sx Tool automatically adds the Gateway and DNS address by obtaining the missing information from the PC settings.

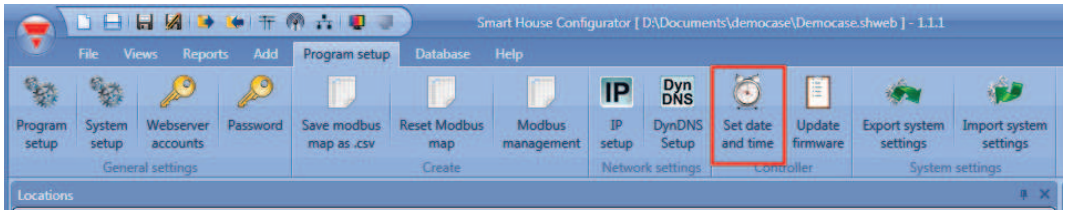


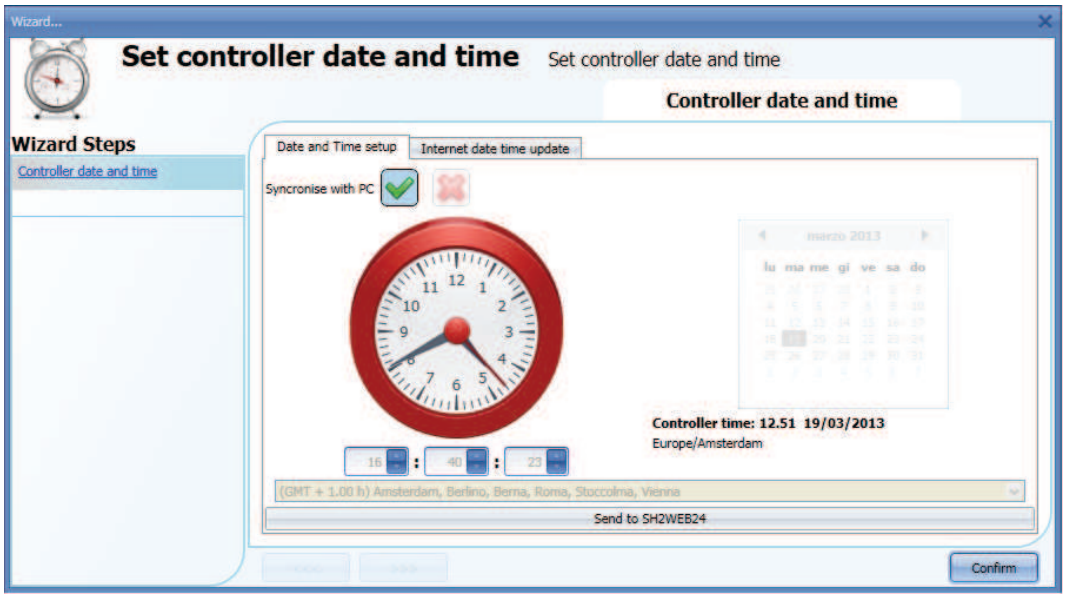
Once you have entered the required field, click on *Create Configuration File:* the Sx Tool will create the file *controller_settings.shcfg* that you must copy into a USB stick or a micro SD.

When you insert the USB stick into the Sx2WEB24, it will automatically read the file. The time necessary for the operation is about 5 seconds: when the blue USB LED is lit, remove the USB card. Now the new IP settings are stored into the master unit.

19.4 How to configure the date and time of the master unit Sx2WEB24

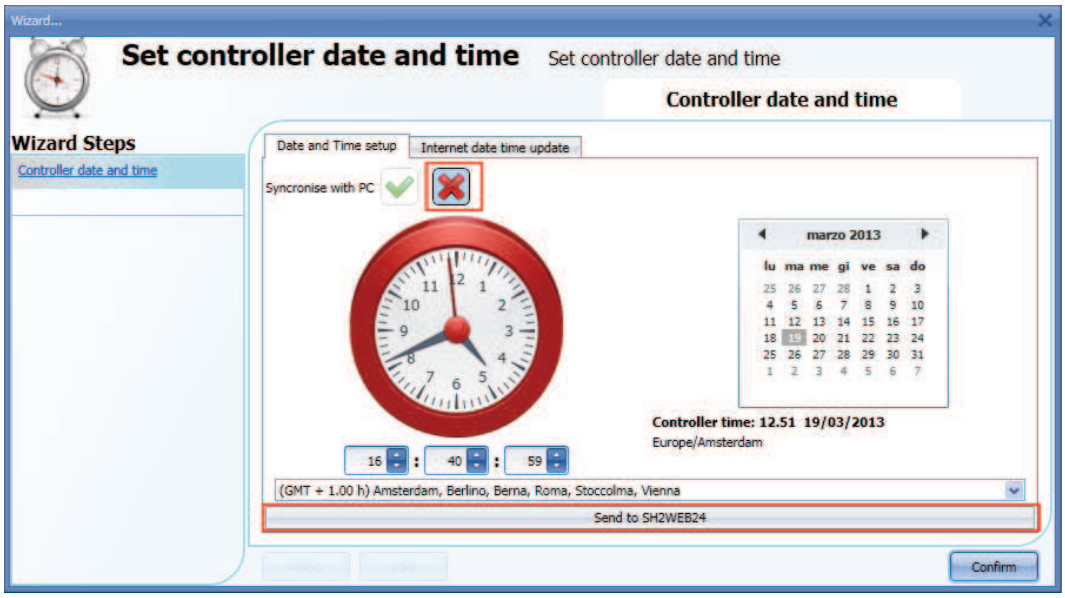
In the program setup, by clicking on the *Set date and time* icon the user can enter the controller date and time settings window.





By clicking on the green V, *Synchronise with PC* and by clicking on *Send to Sx2WEB24*, the Tool synchronizes the Sx2WEB24's clock with your PC clock. If your PC clock is not correct, this time error will be transferred to the controller.
The current time and date of the Sx2WEB24 can be seen at the bottom of the Sx tool (see picture below).

If the user wants to manually set the clock, the red cross icon *Synchronise with PC* must be selected, then it will be possible to manually change the date and time and send the new data to the Sx2WEB24 by clicking on *Send to SxWEB24* (see picture below).

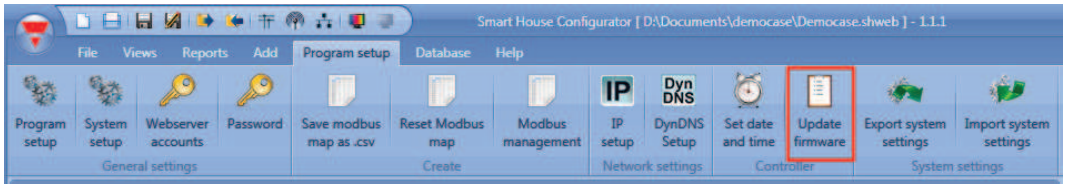


19.4.1 Internet date and time update

The user can also select to constantly synchronize the DATE and TIME data to an NTP server; this service also allows the Sx2WEB24 to know in which geographic area it has been installed.
To allow the Sx2WEB24 to connect to the selected servers, port 22 has to be NAT-forwarded in the router.

19.5 How to update the firmware in the master unit Sx2WEB24

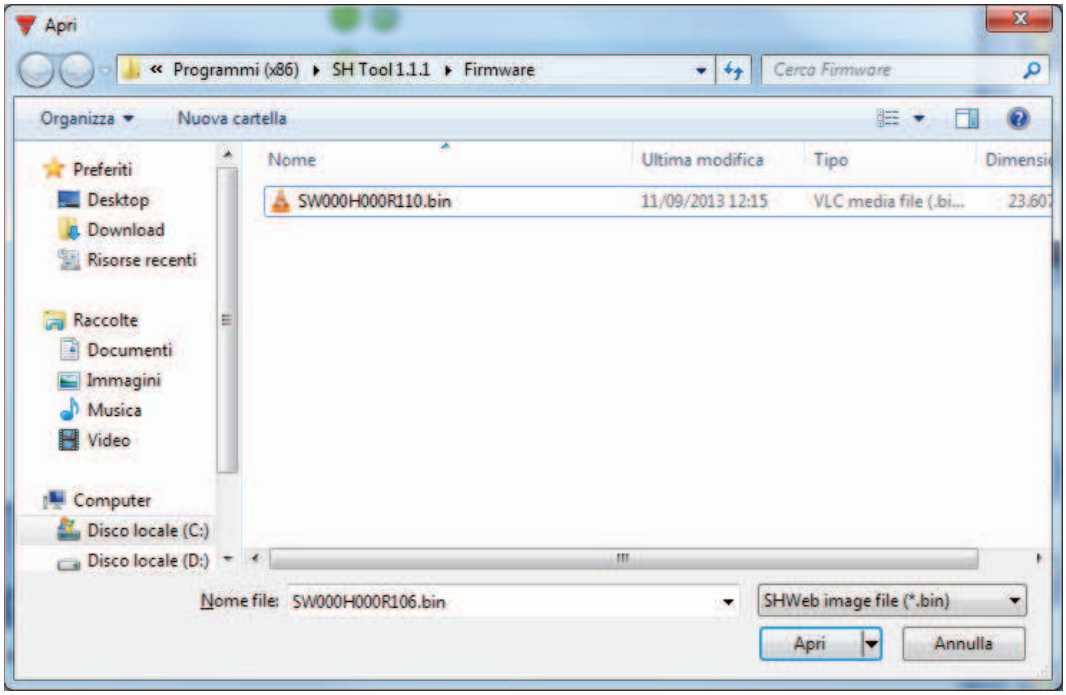
In the program setup, by clicking on the *Update firmware* button, the user opens a 'find' dialogue window that allows him to choose the required firmware file.



N.B. Before updating the firmware, this procedure must be followed in order to update old configurations:

1. read the actual configuration stored in the Sx2WEB24 and save it with the new Sx Tool into your PC
2. update the firmware following the procedure described below
3. write again the configuration into the Sx2WEB24

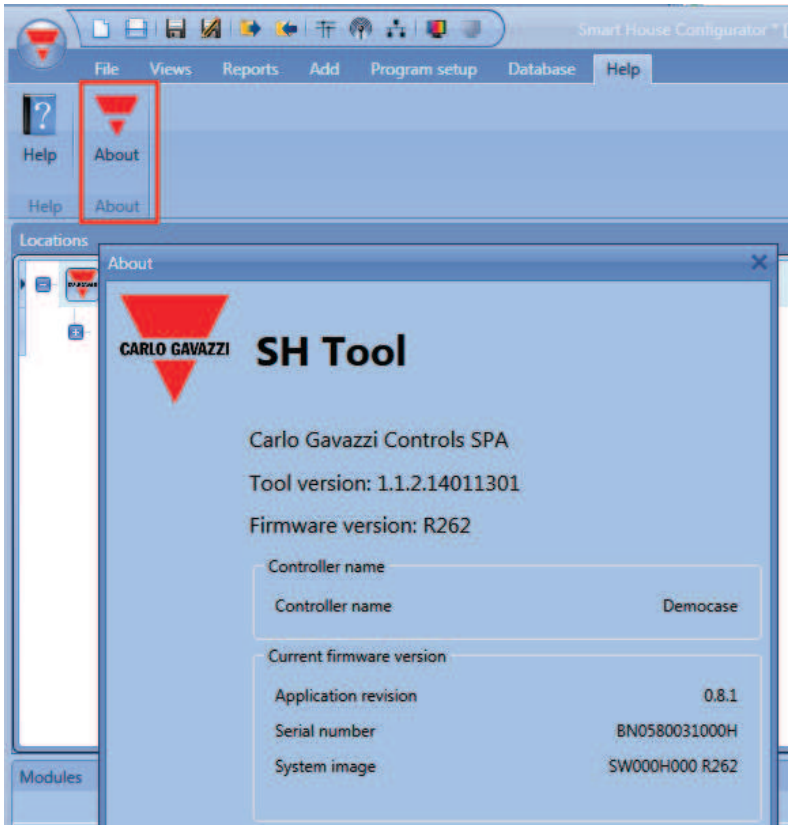
The user can find the firmware in the relevant folder in the installation directory of the Sx Tool.



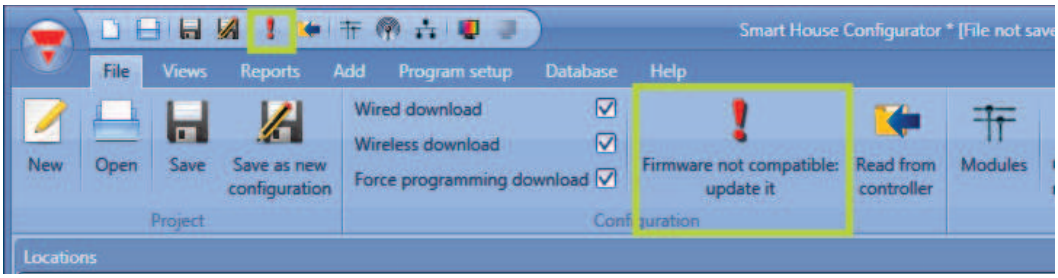
After having selected the correct file, the Sx Tool automatically starts updating the Sx2WEB24: once this operation is finished, the Sx2WEB24 is automatically rebooted.

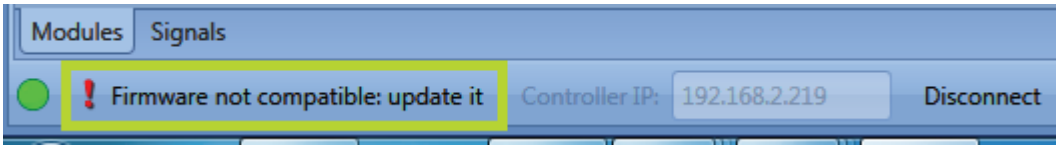
The current firmware version in the controller can be seen in the *Help* menu (see picture below).

N.B.: the clock is reset every time the firmware is upgraded so please be careful to set it.



If a new firmware release is available for the Sx2WEB24, an icon showing a red exclamation mark is shown. By clicking on this icon, a window for the update immediately opens.

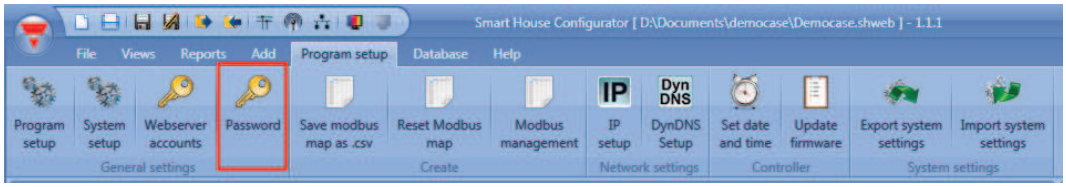




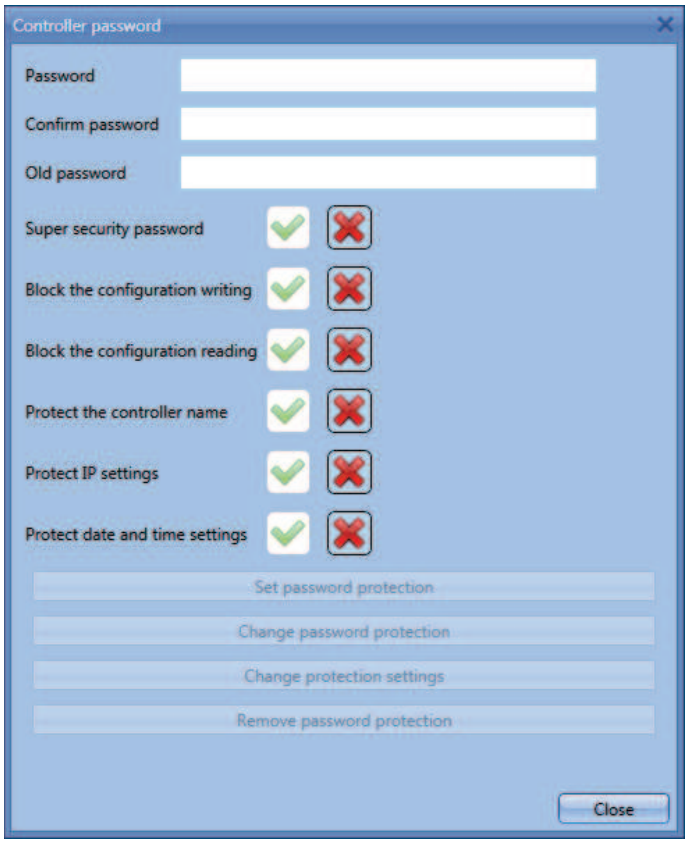
N.B: We strongly recommend updating the Sx2WEB24 when new firmware is available.

19.6 How to set the password protection in the Controller

In the program setup, by clicking on the *Password* button, the user opens a window that allows him to manage the protection of the Sx2WEB24.



By clicking on the *Password* icon, the Sx Tool opens the settings window (see picture below):



Password: in this field the user fills in the new password for the Sx2WEB24 protection.

Password confirm: the new password must be repeated.

Old password: if the Sx2WEB24 has a password and the user needs to change it for a new one, the old password must be entered in this field.

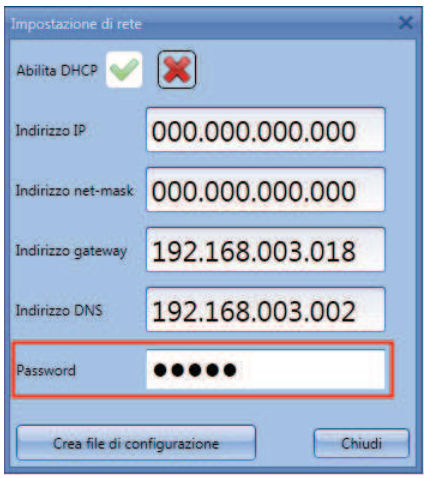
Super security password: when the green V is selected, if the user forgets the password, the only way to unlock the Sx2WEB24 is to send it back to the factory.

Block the configuration writing: when the green V is selected, nobody connected to the Sx2WEB24 can write the configuration until the password is entered and the Sx2WEB24 is unlocked.

Block the configuration reading: when the green V is selected, nobody connected to the Sx2WEB24 can read the configuration until the password is entered and the Sx2WEB24 is unlocked.

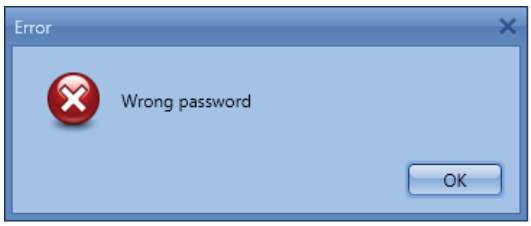
Protect the controller name: when the green V is selected, it is not possible to change the controller name.

Protect IP settings: when the green V is selected, the user has to type the password in the IP settings window. If the password is wrong the IP settings file is created, but when the USB is connected to the Sx2WEB24, the IP settings are not changed (see picture below).



Protect date and time settings: when the green V is selected, it is not possible to change the date and time of the controller until the password is entered and the controller is unlocked.

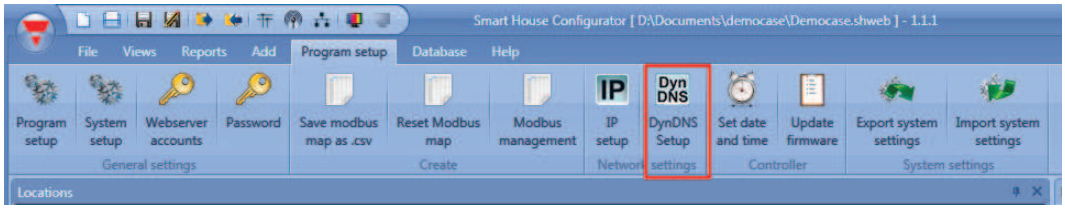
When the controller is protected by a password, the user can connect to the Sx2WEB24 and then type the password in the bottom of the Sx Tool, then press on the lock icon (shown in red in the picture below).



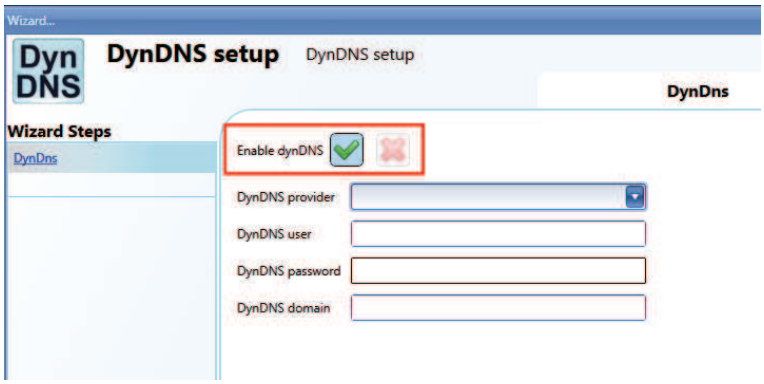
If the typed password is wrong, the tool will show an error message, while if it is correct ,the icon status will be changed to unlocked.

19.7 How to set the dynDNS parameter when using the SH2UMMF124 modem

To enable the management of the dynamic public IP address, the user needs to click on the icon *DynDNS* in the *Program setup* menu: the icon is active only when the Sx Tool is connected to a Sx2WEB24. These settings will allow the user to access the Sx2WEB24 by using the dynamic IP delivered by the Internet Service Provider from which the SIM card has been bought.

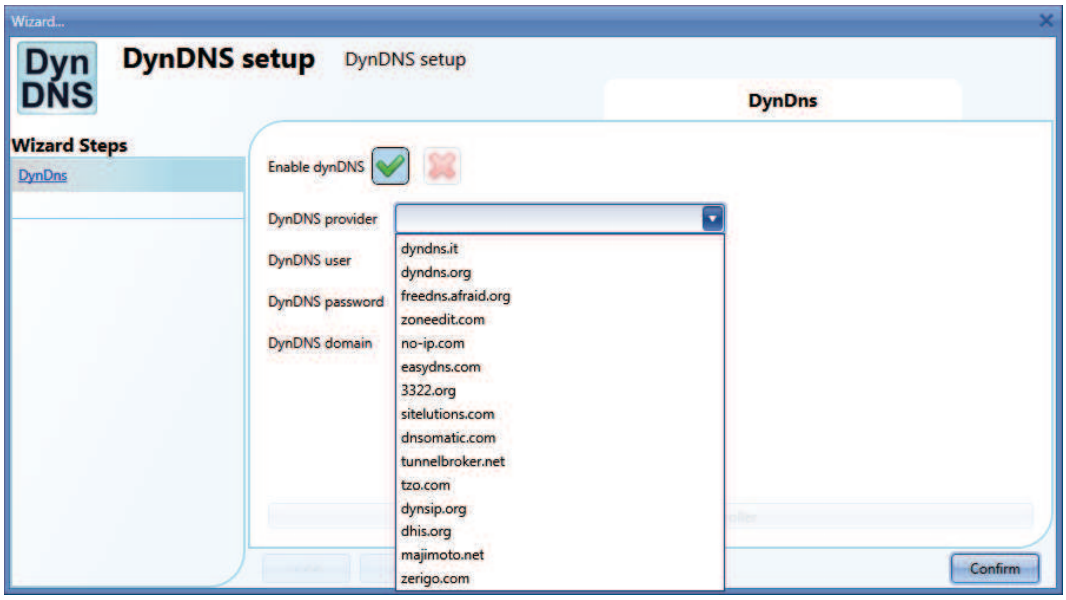


The following window has to be compiled to enable the service in the Sx2WEB24:



First the dynDNS service has to be enabled by selecting the green V.

DynDNS provider: in this field the user has to select the host used. Many are available, as shown in the picture below.

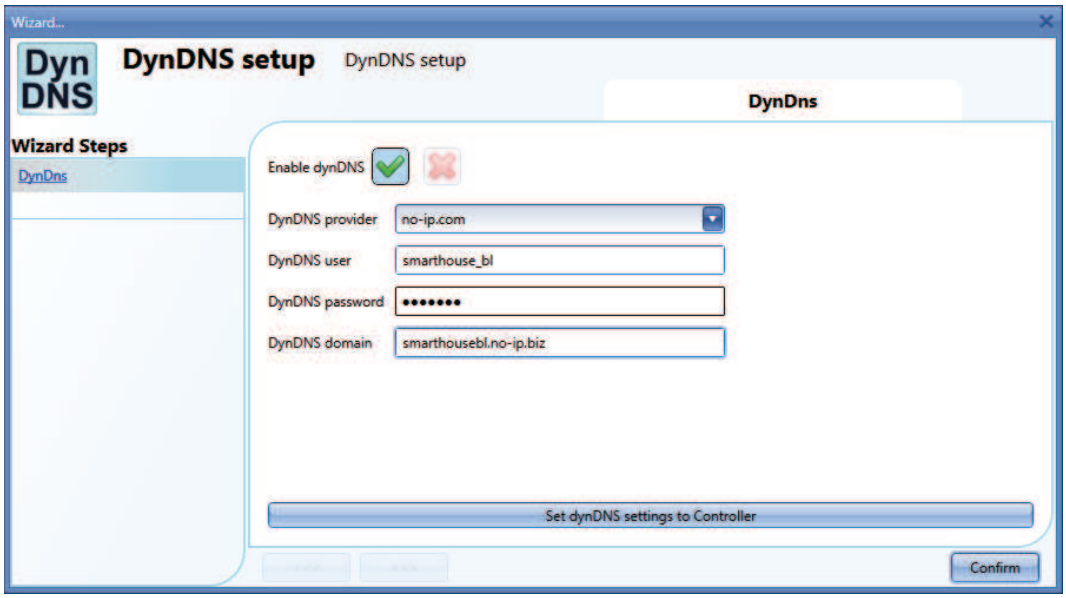


DynDNS user
Type the user name provided during account registration.

DynDNS password
Type the password provided during account registration.

DynDNS domain
Type the domain defined during account registration

In the picture below an example is shown where the account has been created with the free host no-ip.com.

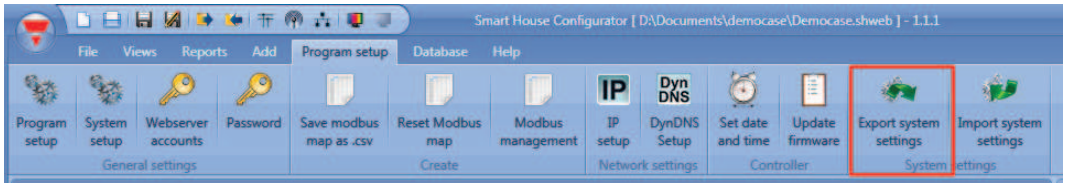


Once the setup is completed, to make it active the user has to send it to the connected Sx2WEB24.

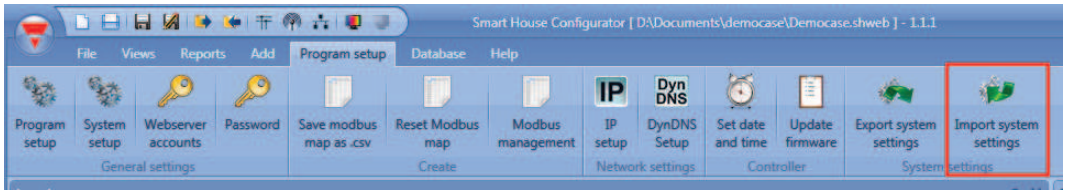
N.B.: the DynDNS service works when a modem SH2UMMF124 is connected, so carefully follow the modem setup in the *Communication settings* menu.

19.8 How to import/export the Sx Tool settings

To save the settings defined in the menu *System settings,* a file can be created by clicking on the icon *Export system settings* as shown in the picture below.



To import the settings, click on the icon *Import system settings* and select the file saved during the "export" operation.



19.9 How to read/write the project in the Sx2WEB24

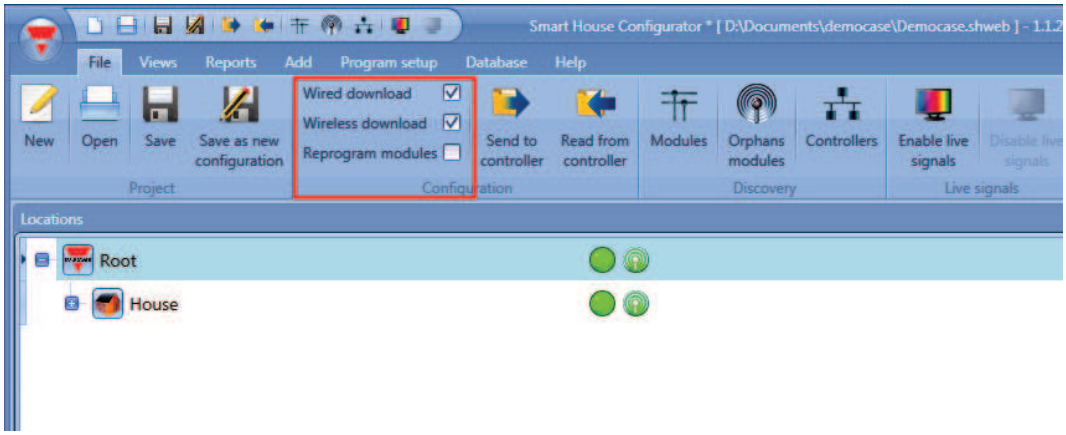
When the Sx Tool is connected to the Sx2WEB24, the user can write and read projects.
By clicking on the icon *Send to Controller*, the software starts uploading the project into the Sx2WEB24.

There are three different writing options that can be selected:

Wired download: when this is selected, the software will program all the wired modules present in the configuration file. If the option is not selected, the modules are not reprogrammed and they will continue to keep the last configuration stored.

Wireless download: when this is selected, the software will program all the wireless modules present in the configuration file. If the option is not selected, the modules are not reprogrammed and they will continue to keep the last configuration stored.

Force reprogramming: when this option is selected, the software will configure all the modules present in the configuration, otherwise if this option is not selected, the software will program only the changes and new modules added to the project.



By clicking on the icon *Write to controller*, the software starts downloading the actual running project in the Sx2WEB24. When the upload is finished, the project is automatically opened.

19.10 Programming the wireless modules

When the user starts writing a project with wireless modules into a Sx2WEB24, the programming may take some minutes: this time is due to background actions of the wireless modules.
The modules stay in a sleeping mode and they wake up every few minutes to communicate their status to the wireless base unit: only when they wake up, the software can program them. The sleeping time of the relay module is one minute, the time for the pushbutton is three minutes.
It is possible to wake up a pushbutton without waiting by pressing it