

# Sx Tool Manual

rev. 5.2.3/0.2, 28/09/2015

# Index

1 INTRODUCTION	11
1.1 Requirements	11
1.1.1 Minimum hardware requirements	11
1.1.2 Software requirements	
1.1.3 How to read the software version number	
1.2 Installation	
2 USER INTERFACE	13
2.1 File Menu	13
2.2 View Menu	
2.3 Reports menu	
2.4 Add menu 2.5 Program setup menu	
3 PROJECT STRUCTURE	
3.1 Wizard	
4 LOCATIONS	
5 CONNECTION WITH THE MASTER UNIT SX2WEB24	
6 FUNCTION AND MODULES VIEW	
7 MODULES	21
7.1 Light switches	23
7.2 Motion detectors	
7.2.1 How PIRs work and how to configure them	
7.3 Temperature modules	
7.4 Decentral modules	
7.4.2 Analogue input/output modules	
7.5 Cabinet modules	
7.6 MasterGlass switches	42
7.6.1 How to configure the key as a standard push button	47
7.6.2 How to configure the key as Dimmer interface	48
7.6.3 How to set the feedback LEDs	
7.6.4 How to set the glass panel properties	
7.6.5 How to use a dimmer interface in a dimmable light function	
7.7 Masterglass temperature display	
7.7.1 How to configure the key as a standard push button	
7.7.2 How to configure the key as Temdis interface 7.7.3 How to set the feedback LEDs	
7.7.4 How to set the glass panel properties	
7.7.5 How to show the external temperature in the Masterglass temperature display	07
7.7.6 How to set the temperature range	
7.8 Wireless modules	
7.9 How to manage the analogue variables	69
7.9.1 How to manage the analogue variables using the grouping	
7.9.2 How to define when analogue values have to be sent	
7.9.3 How to manage the routing tree	
7.9.4 How to connect a module directly to the wireless base unit	
7.9.5 How to indirectly connect a module to the wireless base unit using one level of routing	
7.9.6 How to indirectly connect a module to the Wireless base using two levels of routing	
7.10 How to add an energy meter 7.11 How to add the weather station	
8 HOW TO ADD MODULES IN PROJECT	





<ul><li>8.1 How the Sx2WEB24 discovers the devices in the network</li><li>8.2 Global discovery of the network</li><li>8.3 How to add the modules manually</li></ul>	101 103
8.4 How to add the modules manually and then find them in the network	
9 HOW TO ADD WIRELESS MODULES IN THE PROJECT	108
<ul><li>9.1 Global discovery of wireless modules</li><li>9.2 How to add the wireless modules manually</li></ul>	108 109
10 FUNCTIONS	110
10.1 How to set a light function	110
10.1.1 How to switch a light ON/OFF with input commands	
10.1.2 How to select the output that will control the light	
10.1.3 How to set a signal to be a feedback of the status of the function	
10.1.4 How to manage lights automatically	
10.1.5 How to select PIR sensors to control lights	
10.1.6 How to turn on a light with PIR sensors, and turn it OFF manually	
10.1.7 How to turn a light on and off with PIR sensors	
10.1.8 How to switch the light ON manually and OFF with the PIR sensor	
10.1.9 How to switch the light ON and OFF according to the daylight	
10.1.10 How to control light with PIR sensors in combination with lux meters	
10.1.11 How to switch the light off after a predefined time period	
10.1.12 How to reload the energy-save timer	
10.1.13 How to disable the energy save timer	128
10.1.14 How to switch the light ON/OFF using the calendar	
10.1.15 How to stop the automation	
10.1.16 How to force the output ON	
10.1.17 How to force output off	
10.1.18 How to enable the function diagnostic	
10.1.19 How to change the location of a function	
10.1.20 Corridor lighting function	
10.2.1 How to dim a light with input commands	
10.2.2 How to select a dimmable output	
10.2.3 How to change settings and load type of the output	
10.2.4 How to change settings and load type of the DALI output	
10.2.5 How to modify the minimum/maximum values of the dimming range	
10.2.6 How the dimmer works	
10.2.7 How to set a signal as feedback of the status of the function	
10.2.8 How to set predefined scenarios with input signals	
10.2.9 How to manage lights automatically	
10.2.10 How to select a PIR sensor to control scenario	
10.2.11 How to turn a light ON with PIR sensors, and turn it OFF manually	
10.2.12 How to turn a light ON with PIR sensors, and change the scenario after a predefined	
10.2.13 How to turn a light ON with PIR sensors, and change the light scenario manually whe	en PIR
detects movement	
10.2.14 How to turn a light on and off with PIR sensors	
10.2.15 How to change scenario with a PIR	
10.2.16 How to switch the light on manually and off with the PIR sensor	
10.2.17 How to switch the light on and off according to the daylight	
10.2.18 How to control light with PIR sensors in combination with lux sensor	
10.2.19 How to switch the light off after a predefined period without lux meter	
10.2.20 How to switch the light off after a predefined time period with the lux meter	
10.2.21 How to switch the light on/off using the calendar	
10.2.22 How to use a MASTER GLASS dimmer interface in a dimmable light function	
10.2.23 How to stop an automation	
10.2.24 How to force the output fully ON	100





10.2.25 How to force the output OFF	
10.2.26 How to configure Sequence A	
10.2.27 How to configure Sequence B	190
10.2.28 How to manage the power supply of a ballast	191
10.2.29 Corridor lighting function	
10.3 How to set a Constant light function	
10.3.1 How to set a light with input commands	
10.3.2 How to select a dimmable output	
10.3.3 How to change settings and the load type of the output	
10.3.4 How to add the luxsensor	
10.3.5 How to set a signal as feedback of the status of the function	
10.3.6 How to set predefined scenarios with input signals	
10.3.7 How to manage lights automatically	
10.3.8 How to select a PIR sensor to control scenario	
10.3.9 How to turn a light ON with PIR sensors, and turn it OFF manually	
10.3.10 How to turn a light on and off with PIR sensors	
10.3.11 How to change scenario with a PIR	
10.3.12 How to switch the light on manually and off with the PIR sensor	
10.3.13 How to switch the light off after a predefined period	
10.3.14 How to set a predefined scenario when the energy save timer expires	212
10.3.15 How to switch the light on/off using the calendar	212
10.3.16 How to stop an automation	
10.3.17 How to force the output fully ON	
10.3.18 How to force the output OFF	
10.3.19 How to configure Sequence A	221
10.3.20 How to configure Sequence B	222
10.3.21 Corridor lighting function	
10.3.22 How to configure a Constant light zone control	
10.4 How to set a Rollerblind function	
10.4.1 How to move Up/Down blinds using a manual input	
10.4.2 How to set the reset command	
10.4.3 How to select and configure the output	
10.4.4 How to set the running time for Motor output	246
10.4.5 How to set a signal to be a feedback of the status of the function	248
10.4.6 How to manage rollerblinds with automations	
10.4.7 How to customize the push button behaviour	
10.4.8 How to use the wind sensor to control blinds	
10.4.9 How to use the rain sensor to control blinds	
10.4.10 How to control the blind according to the daylight	256
10.4.11 How to move the blinds up/down and tilt them with the calendar	
10.4.12 How to use the emergency signals	
10.4.13 How to stop the automation	
10.4.14 How to force the safety condition	
10.4.15 How to force the non-safety condition	
10.5 How to set a Rollerblind function with tilting slats	269
10.5.1 How to move blinds UP/DOWN using a manual input	
10.5.2 How to tilt blinds clockwise/anticlockwise using a manual input	
10.5.3 How to set the reset command	
10.5.4 How to select and configure the output	
10.5.5 How to set the running and tilting time	
10.5.6 How to set a feedback signal	
10.5.7 How to manage blinds with automations	
10.5.8 How to customize the push button behaviour	
10.5.9 How to use the wind sensor to control blinds	
10.5.10 How to control the blind according to the daylight	
10.5.11 How to move the blinds up/down and tilt them with the calendar	
10.5.12 How to use the emergency signals	292





10.5.13 How to stop the automations	294
10.5.14 How to force the safety condition	297
10.5.15 How to force the non-safety condition	297
10.6 How to add a smoke alarm function	298
10.6.1 How to set a simple smoke alarm system	299
10.6.2 How to add a feedback signal	301
10.6.3 How to add the reset signal to inhibit the output status	
10.6.4 How to use a siren function for the alarm output	
10.6.5 How to force the alarm status ON	
10.6.6 How to force the alarm status OFF	
10.7 How to set a Siren alarm function	
10.7.1 How to change settings for the siren output	
10.7.2 How to link an alarm function to the siren	
10.7.3 How to add the siren output	
10.7.4 How to use a manual signal to activate the siren	311
10.7.5 How to use more than one alarm with a common siren	
10.7.6 How to reset the siren	
10.8 How to add a water alarm function	
10.8.1 How to set a simple water alarm system	
10.8.2 How to add a feedback signal	
10.8.3 How to add the reset signal to inhibit the function status	
10.8.4 How to use a siren function for the alarm output	
10.8.5 How to force the alarm status ON	
10.8.6 How to force the alarm status OFF	
10.9 How to set an intruder alarm function	
10.9.1 How to add the alarm signals	
10.9.2 How to set the arming and disarming time	327
10.9.3 How to arm and disarm the intruder alarm	
10.9.4 How to manage zones using different arming/disarming signals	
10.9.5 Output status of the intruder alarm	331
10.9.6 How to set a feedback signal	
10.9.7 How to reset the alarm	
10.9.8 How to use the alarm with a siren	
10.9.9 How to set the stress lights when the alarm is active	339
10.9.10 How to arm and disarm the alarm with the calendar	340
10.9.11 How to force the alarm condition	
10.9.12 How to force the alarm into disarmed	
10.10 How to set a temperature function	
10.10.1 Heating/Cooling control system configuration	
10.10.2 How to activate/deactivate the control system function	
10.10.3 How to set the Heating/Cooling control system function always active	
10.10.4 How to add the heating output	
10.10.5 How to set a feedback signal	
10.10.6 How to switch off heating/cooling according to the outdoor temperature	
10.10.7 How to set the antifreeze temperature	
10.10.8 How to control heating/cooling with the calendar	
10.10.9 How to disable the automations	
10.10.10 How to force the control system function to the on status	
10.10.11 How to force the control system function to the off status	
10.11 Zone temperature configuration	
10.11.1 How to add the temperature signal	
10.11.2 How to use a zone temperature function without a heating/cooling control system fun	
10.11.3 How to configure the setpoints	362
10.11.4 How to use the heating and cooling dead-bands	
10.11.5 How to set the maximum and minimum values for the setpoints	
10.11.6 How to add the heating output	
10.11.7 How to set a feedback signal	
10.11.8 How to use an auxiliary temperature to monitor the temperature in the zone	360





10.11.9 How to enable the display of the external temperature in the TEMDIS display	
10.11.10 How to set the safe mode	
10.11.11 How to manage heating/cooling using the calendar automation	
10.11.12 How to change the set point using the function status	
10.11.13 How to set the ON/OFF control	
10.11.14 How to set the PID	
10.11.15 How to set the PID 1 mode	
10.11.16 How to set the PID 2 (PID advanced)	
10.11.17 How to add Analogue output signals 10.11.18 How to activate the set point with pushbuttons and functions	
10.11.19 How to set the feedback signals for the selected setpoint	
10.11.20 How to disable the automations	
10.11.21 How to force heating/cooling ON	
10.11.22 How to force heating/cooling OFF	
10.12 How to set a delay timer function	
10.13 How to add the start signal	
10.14 How to add the stop signal	
10.14.1 How to add the output signal	
10.15 How to set a recycling timer function	
10.15.1 How to add the start signal	
10.15.2 How to add the stop signal	
10.15.3 How to add the output signal	
10.16 How to set an interval timer function	
10.16.1 How to add the start signal	
10.16.2 How to add the stop signal	
10.16.3 How to add the output signal	
10.17 How to set a global calendar function	
10.17.1 How to use a global calendar in different functions	
10.17.2 How to use a global calendar in roller blind functions	
10.17.3 How to use a global calendar in Multigate functions or as a level input signal in	n any type of
	any type or
function	
function	411
function 10.17.4 Add a new activity to the calendar	411 412
function 10.17.4 Add a new activity to the calendar 10.17.5 Meaning of the actions in the different functions	411 412 414
function 10.17.4 Add a new activity to the calendar 10.17.5 Meaning of the actions in the different functions 10.17.6 Simultaneous activities	411 412 414 416
function	411 412 414 416 417
function	411 412 414 416 417 418
function	411 412 414 416 417 418 419
function 10.17.4 Add a new activity to the calendar 10.17.5 Meaning of the actions in the different functions 10.17.6 Simultaneous activities 10.17.7 How to create a calendar in-between two years 10.17.8 How to create a recurring calendar 10.18 How to configure a counter function 10.18.1 How to add the increasing input	411 412 414 416 416 417 418 419 419
function 10.17.4 Add a new activity to the calendar 10.17.5 Meaning of the actions in the different functions 10.17.6 Simultaneous activities 10.17.7 How to create a calendar in-between two years 10.17.8 How to create a recurring calendar 10.18 How to configure a counter function 10.18.1 How to add the increasing input 10.18.2 How to add the decreasing input	411 412 414 416 416 417 418 419 419 419 422
function	411 412 414 416 416 417 418 419 419 419 422 423
function	411 412 414 416 416 417 418 419 419 419 422 423 424
function	
<ul> <li>function</li> <li>10.17.4 Add a new activity to the calendar.</li> <li>10.17.5 Meaning of the actions in the different functions</li> <li>10.17.6 Simultaneous activities</li> <li>10.17.7 How to create a calendar in-between two years</li> <li>10.17.8 How to create a recurring calendar</li> <li>10.18.1 How to configure a counter function</li> <li>10.18.1 How to add the increasing input</li> <li>10.18.2 How to add the decreasing input</li> <li>10.18.3 How to sum up analogue values</li> <li>10.18.4 How to configure the counting function to count visitors to retail outlets.</li> <li>10.18.5 How to reset the counting value</li> <li>10.18.6 How to add an analogue output signal</li> </ul>	411 412 412 412 416 417 418 419 419 419 421 423 424 426 427
<ul> <li>function</li> <li>10.17.4 Add a new activity to the calendar</li> <li>10.17.5 Meaning of the actions in the different functions</li> <li>10.17.6 Simultaneous activities</li> <li>10.17.7 How to create a calendar in-between two years</li> <li>10.17.8 How to create a recurring calendar</li> <li>10.18.1 How to configure a counter function</li> <li>10.18.1 How to add the increasing input</li> <li>10.18.2 How to add the decreasing input</li> <li>10.18.3 How to sum up analogue values</li> <li>10.18.4 How to configure the counting function to count visitors to retail outlets</li> <li>10.18.5 How to reset the counting value</li> <li>10.18.6 How to add a feedback signal or a relay output</li> </ul>	411 412 412 412 414 416 417 418 419 419 419 419 421 423 424 426 427 428
function	
function	411 412 414 416 416 417 418 419 419 419 419 421 423 424 426 427 428 428 429
function	411 412 414 416 417 418 419 419 419 422 423 424 426 426 428 428 428 429 430
function	
function	
function	
function	
function	$\begin{array}{c}$
function	$\begin{array}{c}$
function         10.17.4 Add a new activity to the calendar         10.17.5 Meaning of the actions in the different functions         10.17.5 Meaning of the actions in the different functions         10.17.6 Simultaneous activities         10.17.7 How to create a calendar in-between two years         10.17.8 How to create a recurring calendar         10.17.8 How to create a recurring calendar         10.17.8 How to configure a counter function         10.18.1 How to add the increasing input         10.18.2 How to add the decreasing input         10.18.3 How to sum up analogue values         10.18.4 How to configure the counting function to count visitors to retail outlets         10.18.5 How to reset the counting value         10.18.6 How to add an analogue output signal         10.18.7 How to add a feedback signal or a relay output         10.18.8 How to set the counting options         10.18.9 How to set a predefined value using signals         10.18.10 How to set the counter function equal to another function         10.18.11 How to log the outputs of the counting function         10.19 How to set an utiligate function         10.19.1 How to add the input signal         10.19.2 How to add the input signal         10.19.3 How to add the output signal         10.19.4 How to check the status of more functions         10.19.4 How to check the s	$\begin{array}{c}$
function	$\begin{array}{c}$
function	$\begin{array}{c}$
function         10.17.4 Add a new activity to the calendar         10.17.5 Meaning of the actions in the different functions         10.17.5 Meaning of the actions in the different functions         10.17.6 Simultaneous activities         10.17.7 How to create a calendar in-between two years         10.17.8 How to create a recurring calendar         10.17.8 How to create a recurring calendar         10.17.8 How to configure a counter function         10.18.1 How to add the increasing input         10.18.2 How to add the decreasing input         10.18.3 How to sum up analogue values         10.18.4 How to configure the counting function to count visitors to retail outlets         10.18.5 How to reset the counting value         10.18.6 How to add an analogue output signal         10.18.7 How to add a feedback signal or a relay output         10.18.8 How to set the counting options         10.18.9 How to set a predefined value using signals         10.18.10 How to set the counter function equal to another function         10.18.11 How to log the outputs of the counting function         10.19 How to set an utiligate function         10.19.1 How to add the input signal         10.19.2 How to add the input signal         10.19.3 How to add the output signal         10.19.4 How to check the status of more functions         10.19.4 How to check the s	$\begin{array}{c}$





10.20.5 How to play/stop Simulated habitation using a Function	
10.20.6 How to disable the calendar automation	
10.20.7 How to force the function to play	
10.20.8 How to force the function stop	
10.21 How to set the sequence function	
10.21.1 How to set the start/stop signals	
10.21.2 How to set the start/pause signals	
10.21.3 How to add a function to the sequence	453
10.21.4 How to set the action for the functions in the sequence	455
10.21.5 How to modify the sequence	458
10.21.6 How set the delay time between the activation of two functions	459
10.21.7 How to add the feedback signals	
10.21.8 How to start/stop the sequence using a calendar	
10.21.9 How to disable the calendar automation	
10.21.10 How to use an external function to start/stop a sequence	
10.21.11 How to force the sequence active	
10.21.12 How to force the sequence stop	
10.22 How to set the dimmer sequence function	
10.22.1 How the dimmer sequence works	
10.22.2 How to set the start/stop signals	
10.22.3 How to set the start/pause signals	
10.22.4 How to add a function to the sequence	478
10.22.5 How to set the sequence steps	
10.22.6 How to modify the sequence steps	
10.22.7 How to set the delay time between the activation of two steps	
10.22.8 How to add the feedback	
10.22.9 How to start/stop the sequence using a calendar	
10.22.10 How to disable the calendar automation	
10.22.11 How to use an external function to start/stop a sequence	
10.22.12 How to force the sequence active	
10.22.13 How to force the sequence stop	
10.23 How to set the car heating function	
10.23.1 How the heating algorithm works	
10.23.2 How to set the setpoints and times	
10.23.3 How to set the manual signals	
10.23.4 How to add the feedback signal	
10.23.5 How to add the output	
10.23.6 How add the temperature sensor	
10.23.7 How to set the ready time	
10.23.8 How to disable the calendar automation	
10.23.9 How to force the output on	
10.23.10 How to force the output off	
10.24 How to set an analogue comparator function	
10.24.1 Comparator settings	
10.24.2 How to set the reference values	505
10.24.3 How to add the input signals to be compared	506
10.24.4 How to add the output signal	506
10.25 How to configure a mathematical function	508
10.25.1 How to add the input signals	509
10.25.2 How to set the curve	
10.25.3 How to generate an output according to the conversion curve	
10.25.4 How to use a Mathematical function without a conversion curve	
10.25.5 How to add an analogue output signals	
10.25.6 How to use an analogue output signal to regulate the valve position	516
10.25.7 How to use the calculated values	519
10.25.8 How to log additional function status in the Database	
10.25.9 How to change the location of a function	
10.26 How to configure an analogue output function	523





10.26.1 How to add the input signal 10.26.2 How to reset the Analogue output value	
10.26.3 How to force the Reset output	527
10.26.4 How to add an analogue output signal	
10.26.5 How to enable the function diagnostic	529
10.26.6 How to change the location of a function	
10.27 How to configure an hour counting function	
10.27.1 How to add the input signal	532
10.27.2 How to reset the Hour counting value	
10.27.3 How to set the Hour counting options	
10.27.4 How to add an Alarm status output	
10.27.5 How to log the outputs of the Hour counting function	
11.1 How BACnet is implemented in SB2WEB24	
11.1 How BAChet is implemented in SB2WEB24 11.2 BACnet objects related to modules	
11.3 BACnet objects related to functions	
11.4 Basic settings for instance numbers	538
11.5 Selection of BACnet objects to be created	539
11.6 BACnet report	
11.7 How to create an EDE-file	541
12 HOW TO CONFIGURE A DALI NETWORK	542
12.1 How to interface Dupline to DALI	
12.2 How to add the DALI master SB2DALI230	
12.3 How many SB2DALI230 can be managed	
12.4 Functions and groups	
12.5 How to manually add a DALI ballast 12.6 How to configure a dimmer function using DALI outputs	
12.7 How to automatically add a DALI ballast	
12.8 How to automatically find the ballasts connected to the SB2DALI230	550
12.8.1 How to launch a new network discovery	
12.8.2 How to change a DALI address	
12.8.3 How to add new modules	
12.8.4 How to rename modules	
12.9 Advanced setup	558
12.9.1 How to test a module	
12.9.2 How to reset a DALI ballast	
12.9.3 How to manually assign an address to a ballast	
12.9.4 How to swap the addresses of two ballasts	
12.10 How to change settings and load type of the DALI output in a function	566
12.11 How to check the DALI bus status	
12.11.1 DALI lamp failure	
12.11.2 DALI network short-circuited	
12.11.3 DALI power failure	568
13 HOW TO CONFIGURE THE WEBSERVER ACCOUNTS	569
14 HOW TO CONFIGURE THE DATABASE	-
14.1 Database files	
14.1.1 CSV file dataformat	
15 HOW TO CONFIGURE MODBUS	577
15.1.1 Modbus management	578
15.1.2 How to change the default Modbus ID	
15.1.3 How to save the Modbus map	
16 LIVE SIGNALS	
16.1 How live signals work	583
16.1.1 Checking the status of all the analogue and digital values:	





16.1.2 Tuning the parameters of the functions:	
16.1.3 Checking the Bus diagnostic:	
16.1.4 How the quality index works	
16.1.5 Checking the status of each module:	
16.2 How to enable/disable live signals	
16.2.1 How to allow Live signals to show an analogue value	
16.3 How to see values and status of the functions	
16.4 How to tune the parameters of a function	
16.5 How to change the status of a function	
16.5.1 On/off light	
16.5.2 Dimmable light	
16.5.3 Zone intruder alarm	
16.5.4 Main intruder alarm	
16.5.5 Smoke alarm	
16.5.6 Water alarm	
16.5.7 Siren function	
16.5.8 Sequence function	
16.5.9 Rollerblind function	597
16.5.10 Window function	598
16.5.11 Zone Temperature	599
16.5.12 Heating system temperature	599
16.5.13 Cooling system temperature	600
16.5.14 Delay timer	600
16.5.15 Recycling timer	600
16.5.16 Interval timer	
16.5.17 Simulated habitation	
16.5.18 Analogue comparator	
17 HOW TO SET THE EMAIL FUNCTION	602
17.1 How to configure the mail account	602
17.2 How to manage the accounts in the contacts list	602
17.2 How to manage the accounts in the contacts list	602
<ul><li>17.2 How to manage the accounts in the contacts list</li><li>17.3 How to configure an outgoing mail</li><li>17.4 How to send the report file to one or more email addresses</li></ul>	602 603 604
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604
<ul><li>17.2 How to manage the accounts in the contacts list</li><li>17.3 How to configure an outgoing mail</li><li>17.4 How to send the report file to one or more email addresses</li></ul>	602 603 604 604
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 608 611 611 612 613 614 615
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 608 611 612 613 614 615 616
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 608 611 611 612 613 614 615 616 618
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 619
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 619 620
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 619 620 621
<ul> <li>17.2 How to manage the accounts in the contacts list</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 619 620 621 622 622
<ul> <li>17.2 How to manage the accounts in the contacts list.</li> <li>17.3 How to configure an outgoing mail.</li> <li>17.4 How to send the report file to one or more email addresses.</li> <li>17.5 How to schedule the report delivery.</li> <li><b>18 HOW TO SET THE GSM FUNCTION</b>.</li> <li><b>18.1</b> GSM configuration</li></ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 616 618 618 619 620 621 622 622 622
<ul> <li>17.2 How to manage the accounts in the contacts list</li> <li>17.3 How to configure an outgoing mail</li> <li>17.4 How to send the report file to one or more email addresses</li> <li>17.5 How to schedule the report delivery</li> <li><b>18 HOW TO SET THE GSM FUNCTION</b>.</li> <li><b>18.1</b> GSM configuration</li> <li><b>18.2</b> How to set up the smart-house system to send SMS.</li> <li><b>18.3</b> How to set up the smart-house system to send SMS.</li> <li><b>19 GENERAL SETTINGS</b>.</li> <li><b>19 I</b> How to configure the general settings</li> <li><b>19.1</b> <i>I E-mail /sms setup</i>.</li> <li><b>19.1</b> <i>A How to set Modbus TCP/IP settings and configure the modem</i>.</li> <li><b>19.1</b> <i>A How to set Modbus RTU properties</i>.</li> <li><b>19.1</b> <i>A How to configure the ftp push/pull feature</i>.</li> <li><b>19.1</b> <i>A How to configure the ftp push/pull feature</i>.</li> <li><b>19.1</b> <i>A How to test an FTP connection</i>.</li> <li><b>19.2</b> <i>How to test an FTP connection</i>.</li> <li><b>19.2</b> <i>How to test E-mail and SMS</i>.</li> <li><b>19.3</b> How to configure the Project settings.</li> <li><b>19.1</b> <i>How to configure the Project settings</i>.</li> <li><b>19.1</b> <i>How to configure the Project settings</i>.</li> <li><b>19.1</b> <i>A How to test an FTP connection</i>.</li> <li><b>19.2</b> <i>How to test E-mail and SMS</i>.</li> <li><b>19.3</b> How to configure the Project settings.</li> <li><b>19.4</b> How to configure the Project settings.</li> <li><b>19.4</b> How to configure the Project settings.</li> <li><b>19.4</b> How to configure the Project settings.</li> <li><b>19.5</b> <i>Advanced setting</i>.</li> <li><b>19.6</b> How to test an FTP connection.</li> <li><b>19.7</b> How to test <i>E-mail and SMS</i>.</li> <li><b>19.8</b> How to configure the Project settings.</li> <li><b>19.4</b> How to configure the Project settings.</li> <li><b>19.4</b> How to configure the IP address of the master unit Sx2WEB24</li> </ul>	602 603 604 604 606 606 607 608 611 612 613 614 615 616 618 619 620 621 622 622 622 624 625
<ul> <li>17.2 How to manage the accounts in the contacts list</li> <li>17.3 How to configure an outgoing mail</li> <li>17.4 How to send the report file to one or more email addresses</li> <li>17.5 How to schedule the report delivery</li> <li>18 HOW TO SET THE GSM FUNCTION</li> <li>18.1 GSM configuration</li> <li>18.2 How to set up the smart-house system to send SMS</li> <li>18.3 How to set up the Sx2WEB24 to receive an SMS</li> <li>19 GENERAL SETTINGS</li> <li>19.1 How to configure the general settings</li> <li>19.1.1 <i>E-mail /sms setup</i></li> <li>19.1.3 How to set Modbus TCP/IP settings and configure the modem</li> <li>19.1.4 How to set Modbus RTU properties</li> <li>19.1.5 Advanced setting</li> <li>19.1.6 How to configure the ftp push/pull feature</li> <li>19.1.7 How to configure the ftp push/pull feature</li> <li>19.1.9 How to test an FTP connection.</li> <li>19.2 How to configure the Project settings</li> <li>19.2.1 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 I Internet date and time update.</li> </ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 620 621 622 622 625 626
<ul> <li>17.2 How to manage the accounts in the contacts list</li> <li>17.3 How to configure an outgoing mail</li> <li>17.4 How to send the report file to one or more email addresses</li> <li>17.5 How to schedule the report delivery</li> <li>18 HOW TO SET THE GSM FUNCTION</li> <li>18.1 GSM configuration</li> <li>18.2 How to set up the smart-house system to send SMS</li> <li>18.3 How to set up the Sx2WEB24 to receive an SMS</li> <li>19 GENERAL SETTINGS</li> <li>19.1 How to configure the general settings</li> <li>19.1.1 <i>E-mail /sms setup</i></li> <li>19.1.2 System information</li> <li>19.1.3 How to set Modbus TCP/IP settings and configure the modem.</li> <li>19.1.4 How to set Modbus RTU properties</li> <li>19.1.5 Advanced setting</li> <li>19.1.7 How to configure the figure.</li> <li>19.1.8 How to configure the figure.</li> <li>19.1.7 How to create customized locations.</li> <li>19.1.8 How to configure the figure.</li> <li>19.1.9 How to test an FTP connection.</li> <li>19.2 How to configure the Project settings.</li> <li>19.2.1 How to test E-mail and SMS.</li> <li>19.3 How to configure the Project settings.</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24.</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24.</li> <li>19.4 How to outpidat the firmware in the master unit Sx2WEB24.</li> </ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 620 621 622 622 622 625 626 627
<ul> <li>17.2 How to manage the accounts in the contacts list</li> <li>17.3 How to configure an outgoing mail</li> <li>17.4 How to send the report file to one or more email addresses</li> <li>17.5 How to schedule the report delivery</li> <li>18 HOW TO SET THE GSM FUNCTION</li> <li>18.1 GSM configuration</li> <li>18.2 How to set up the smart-house system to send SMS</li> <li>18.3 How to set up the Sx2WEB24 to receive an SMS</li> <li>19 GENERAL SETTINGS</li> <li>19.1 How to configure the general settings</li> <li>19.1.1 <i>E-mail /sms setup</i></li> <li>19.1.3 How to set Modbus TCP/IP settings and configure the modem</li> <li>19.1.4 How to set Modbus RTU properties</li> <li>19.1.5 Advanced setting</li> <li>19.1.6 How to configure the ftp push/pull feature</li> <li>19.1.7 How to configure the ftp push/pull feature</li> <li>19.1.9 How to test an FTP connection.</li> <li>19.2 How to configure the Project settings</li> <li>19.2.1 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 How to configure the IP address of the master unit Sx2WEB24</li> <li>19.4 I Internet date and time update.</li> </ul>	602 603 604 604 606 606 607 608 611 611 612 613 614 615 616 618 620 621 622 622 622 625 626 629





19.7.1 How to see the dynamic IP address	633
19.8 How to import/export the Sx Tool settings	
19.9 How to read/write the project in the Sx2WEB24	
19.10 Programming the wireless modules	





## 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

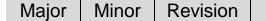
- A Microsoft Windows XP SP3, Vista-based PC, Windows Seven 32 or 64Bit
- Display with a resolution capability of minimum 1024x768 pixels
- 200MB of disk-space
- An Ethernet-port and cables or Sd-card reader or usb port

#### 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:



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. 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.

ontroller discovery					
letwork Connessione	rete wirel	ess: 192.168.2.187			Refresh
IP Address 🔺	DHCP	Name	MAC	Firmware	Family
192.168.2.219	×	SxWEB Controller	00:19:EE:10:0F:74	R85	ShWeb
.92.168.2.68					
92.168.2.76					
92.168.2.78		Training room	00:19:EE:10:04:7C	R227	ShWeb
letwork discovery comp	pleted				Cancel Connect





# 2 User interface

When the Sx tool starts, the following window appears:

Projet     Contiguration     Contiguration     Discovery     Liver signals       Contiguration     Discovery     # X       Root     # X         Root     # X         Print number     Subnet         Name     SIN         Interview         Bignals              Bignals						_ <del>f</del>
Image: Signal in the second secon				Configurator [File not saved]	- 1.1.1	
Price Controller     Price     Controller     Price     Controller     Discovery     Discovery     Discovery     Price     Controller     Price      Price						
Open Save Save Proce   Procet     Open Save Save Proce     Open Save Save Procetories Controller Controller Controller Controller Discourcy     Discourcy     Solution     Open Save Save Procetories Controller Controller Controller Discourcy     Save Save Save Save Save Save Save Save			🛉 🍹 🛉			
Project     Configuration     Data control     Use signals       ion:     Image: Second	w Open Save Save	Se		Orphans Controllers		
icon       icon         icon			ntroller controller			
Root     idez     # ×     Part number     Subnet     Name     SIN        Ind_     Find_	ations					Functions 4
des Fiber options v Fiber options v Part number Subnet Name SIN Location Find	_					Filter option:
Part number       Subnet       Name       SIN       Location       Find         ules       Signals	<b>No</b> de					
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals						
Part number       Subnet       Name       SIN       Location       Find         ules       Signals	lular				1 X	
Part number     Subnet     Name     SIN     Location						
ules Signals	Part number Subr	net Name	SIN	Location		
	Jurchamber	ict Hume	511	Location	1110	
	dules Signals					
Controller IP: 192.168.2.215 Disconnect 💾 i 💾 👶 🔬 Controller time: 15:22 PM 13/09/2013 Project name: My home		Disconnect 🔍 i 👯 🔗	Controller time: 1	15-22 PM 13/09/2013 ·		Project name: My home

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

👝 🗋 🖶 📓 🛸 🍬 👘 👘 📩 💷 🔵					s	mart House	Configurate	or * [File not sa	
	File	Views	Reports	Add Program setup	Database	Help			
New	Open	Save	Save as new configuration	Depression medules	Send to	Read from controller	Modules	Orphans modules	Controllers
		Project		Confi	guration			Discovery	r

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.

		・ 🖌   寺 吉   🖳 🕘 🔵			
/	New	Recent files	4		
	Open		Enable live signals	Disable live signals	
	Save		Live	signals	
1	Save as				
	Send to controller				
-	Read from controller				
		Exit			

#### 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.

File Views Repo							0.3.12.1	(R38)		
<b>X X</b>	24		E	E				E	E	-
Restore default Restore custom interface interface	Save custom interface									Do not show highlighted objects
Restore	Save	Sh	ow		Hide	Hide				Context

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.

	😨 🗧 Smart House Configurator * [File not saved] _ 🗆 🗮
	Reports Add Project Setup Help
Restore Restore Save Sub Default Custom	et/Modules Location Module Signal Function All
Restore Save	Show Hide Hide
Locations	ot) Ot Location filter options (Root) - Functional Location filter opt
🗾 Loc - House	
	Modules         a ×           Module/Subnet filter options v           SH2MCG;         Net
Locations	v Functions
Connect 🕘 🗒 1	Project Name UWP Ip Address: 192.168.3.126



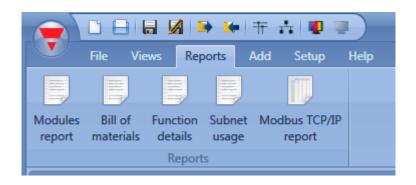


#### 2.3 Reports menu

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.

	📻 🗋 🔒 🔚 💆 🕨 📅 🥐 🚓 💵 🧶 Smart House Configurator [File not saved] - 1.1.1														
		s Report	s Add	Program setup	Database	Help									
	680				Į	<b>?</b>	14	1 <sub>2</sub> 3	123	Š			SMS	email	
Bus extension •	Module	Location	Light & scenario *	Up and down control •	Temperature	Alarm	Calendar	Sequence	Dimmer sequence	Timers	Basic	Simulated habitation	Sms setup	Mail	Car heating
Master	Modules	Locations						Functio	ns						

*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 setup 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.

	<u> </u>	8 🔏 🗈	🗯 🕂 🧌	P 🕂 🛡 🖷	🚓 📲 🦉 Smart House Configurator [File not saved] - 1.1.1									
	File Vi	ews Repor	ts Add	Program setup	Database	Help								
-	- 	ß	ß				IP	Dyn DNS	õ		٠			
Program setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Reset Modbus map	Modbus management	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings		
	General settings			Create			Network settings Controller			roller	System settings			





## **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.

Wizard		×
Add func	tion Light	
	On/O	Off Signals
Wizard Steps	Function Name: (Fx) Loc - Root - Light Function	
Controlled outputs	Signal Notes	۵.
FeedBack signals		
Luxsensors	2	3
Energy save timer		
Stop Automation		
Location		
1		
		Signal Settings Signal Properties
	~~~~ <b>&gt;&gt;&gt;</b>	Cancel Confirm

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.

# **CARLO GAVAZZI** Automation Components



Location:         General         Signals       Punctions state       Group by Owner       Group by Subnet         I: Loc - Installation (Root) Switch K3 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1         I: Loc - Install	•	Signa	al Finde				_ 🗆 3
Signals       Functions state       Group by Owner       Group by Subnet         I: Loc - Installation (Root) Switch K3 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1	Sea	rch:				Location:	
I: Loc - Installation (Root) Switch K3 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Switch K3 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1						General	
Image: Constallation (Root)       Switch K3 Push2       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Switch K3 Push3       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Switch K3 Push3       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Switch K3 Push4       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Switch K3 Push4       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push1       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push2       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push3       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push3       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push4       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push4       Loc - Installation (Root)       Net 1         Image: Constallation (Root)       Decentral units K6 Push4       Loc - Installation (Root)       Net 1	√ :	Signa	als	Functions state		Group by Owner	Group by Subnet
3: Loc - Installation (Root) Switch K3 Push3       Loc - Installation (Root)       Net 1         4: Loc - Installation (Root) Switch K3 Push4       Loc - Installation (Root)       Net 1         2: Loc - Installation (Root) Decentral units K6 Push1       Loc - Installation (Root)       Net 1         2: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         3: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         3: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         4: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         4: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1	• (		0	1: Loc - Installation (Root) Switch K3 Push1		Loc - Installation (Root)	Net 1
Image: Second	0		0	2: Loc - Installation (Root) Switch K3 Push2		Loc - Installation (Root)	Net 1
I: Loc - Installation (Root) Decentral units K6 Push1       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         I: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1	0		0	3: Loc - Installation (Root) Switch K3 Push3		Loc - Installation (Root)	Net 1
2: Loc - Installation (Root) Decentral units K6 Push2       Loc - Installation (Root)       Net 1         3: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         4: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1         Net 1       Net 1       Net 1       Net 1         Net 1       Net 1       Net 1         Net 1       Net 1       Net 1         Net 1       Net 1       Net 1         Net 1       Net 1       Net 1         Net 1       Net 1       Net 1	0		0	4: Loc - Installation (Root) Switch K3 Push4		Loc - Installation (Root)	Net 1
Image: Second state state       3: Loc - Installation (Root) Decentral units K6 Push3       Loc - Installation (Root)       Net 1         Image: Second state       4: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1	0		Q	1: Loc - Installation (Root) Decentral units K6 Push:		Loc - Installation (Root)	Net 1
4: Loc - Installation (Root) Decentral units K6 Push4       Loc - Installation (Root)       Net 1	0		Ç	2: Loc - Installation (Root) Decentral units K6 Push2	2	Loc - Installation (Root)	Net 1
	0		Ç	3: Loc - Installation (Root) Decentral units K6 Push3	3	Loc - Installation (Root)	Net 1
1: Loc - Installation (Poot) Motion detectors K5 Pir1 Loc - Installation (Poot) Net 1	0		Ç	4: Loc - Installation (Root) Decentral units K6 Push-	ŧ.	Loc - Installation (Root)	Net 1
	0			1: Loc - Installation (Root) Motion detectors K5 Pir1		Loc - Installation (Root)	Net 1
							Cancel Confirm

**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)

Wizard		×
Edit funct	tion Light	On/off signals
Wizard Steps On/off signals	Function name: (Fx) Root - Light east 3 Signals Notes	
Controlled outputs Feedback signals	3: Root Wireless K4 Push 3	Available mode Working mode

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.

			<b>1</b>   † -	4 🗶 🗶 🔪			Smart Ho	use Configura	ator * [File no	t saved] -	0.3.20.1				
Fi	le View	_	s Add	Program setup	Help										
	<b>(</b>			-	l	8	14	1 <mark>2</mark> 3	1 2 3	Š			SMS	email	
Bus extension *	Module	Location	Light & scenario *	Up and down control *	Temperatur	e Alarm	Calendar	Sequence	Dimmer	Timers	Basic	Simulated habitation	Sms setup	Mail	
Master	Modules	Locations	scenario	control				Functions	sequence			habitation	setup		
Locations														Ψ×	Functions
• - 🐺	R Wizard														×
		A	dd lo	cation	Location										
										Loc	ation				P R
	Wizar	d Steps		(											
	Locatio			Location	name Gene	ral									
				Location	family 🕻	🕖 Genera	al						-		
					6	Genera									
				Descripti	on [	Genera	31								
					t.	👌 House									
					1	Buildin									
						<b>Dullan</b>	9								
L						Floor									
Modules					<del>,</del>	🔔 Flat									
						-									
Pa	31					Rooms							•		
• 🧾 S												Cance		Confirm	
B	4 <u>X-LS4-U</u>	Net :	1	K2 B4X-LS4-	J		(	000.000.000	<u>Root</u>						



# **CARLO GAVAZZI** Automation Components

Wizard Add funct	ion Light	:
U		Location
Wizard Steps	Loc - Installation (Root)	A
Controlled outputs FeedBack signals	Init house	
Advanced Uuxsensors Motion detectors	second floor	
Energy save timer     Calendar     Stop Automation		
Function status     Location		
		v
	<b>~~~</b>	Cancel Confirm

## 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.

Controller of	Controller discovery								
Network	Connessione alla rete locale (LAN): 192.168.3.69	Refresh							
IP Addr	Connessione alla rete locale (LAN): 172.16.0.254	P014/250							
IP Addr	Connessione alla rete locale (LAN): 192.168.3.69	mware							
		A .							

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.

	Functions	щ
	Filter	options
	(Fx) Root - Light function Root	
	Add function	•
0	Show location and modules of this function	
0	Show also location and modules of this function	
-	Do not show location and modules	

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.

۱ <b>ک</b>		Program setup	Erare history data	Save history data	ss.csv 📑	Save events as .csv	1	1		ð	Ĩ		
	r (*	5	Erase event data	Save history data					IP				
	bserver Controller counts password	Database	🖉 🔗 Regenerate database				Save modbus map as .csv	Create modbus map	IP setup	Set date and time	Update firmware		
			General settings					eate	Network setting	as Cont	roller		
ons									ά×	Functions			
🐺 Root			0	)									Filter optic
🔊 my roo	m		C	)								om - Light f	unction
<b>•••</b> ••••				·						, 🕑 my	room		
les									# X				
les								F	∓ × Iter options ♥				
es Part number	Subnet	Name		SII	4	Location		F					
Part number			JV7T1P174					F	iter options 👻				
Part number			IV2T1P124		4 07.008.009			F	iter options 👻				
Part number	124 Net 1	K2 SHPIN	IV2T1P124 500WE230	c		Root		F	iter options 👻				
Part number SHPINV2T1P SH2D500WE	124 Net 1 230 Net 1	K2 SHPIN K3 SH2D5	500WE230	c	07.008.009 11.022.033	Root Root		F	iter options 👻				
SHPINV2T1P	124 Net 1	K2 SHPIN	500WE230	c	07.008.009	Root Root		F	iter options 👻				
Part number SHPINV2T1P SH2D500WE SHA4XP90L	124 Net 1 230 Net 1	K2 SHPIN K3 SH2D5	500WE230 XP90L	C C C	07.008.009 11.022.033 11.012.013	Root Root Root	_	F	iter options 👻				
Part number SHPINV2T1P SH2D500WE SHA4XP90L B4X-LS4-U	124 Net 1 230 Net 1 Net 1	K2 SHPIN K3 SH2D5 K4 SHA4>	500WE230 XP90L	C C C	07.008.009 11.022.033	Root Root Root	_	3	iter options 👻				
Part number SHPINV2T1P SH2D500WE SHA4XP90L	124 Net 1 230 Net 1 Net 1 Net 1 Net 1 Net 1	K2 SHPIN K3 SH2D5 K4 SHA4> K5 B4X-L5	500WE230 XP90L		07.008.009 11.022.033 11.012.013	Root Root Root Root	-	F	iter options 👻				
Part number SHPINV2T1P SH2D500WE SHA4XP90L B4X-LS4-U	124 Net 1 230 Net 1 Net 1 Net 1 230 Net 1 230 Net 1	K2 SHPIN K3 SH2D5 K4 SHA4> K5 B4X-L5	500WE230 XP90L S4-U E16A2E230		07.008.009 11.022.033 11.012.013 01.013.046	Root Root Root Root Root		F	iter options 👻				

When more functions must be highlighted the user can select the option *Show also location and module of this function*. By selecting the option Do *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).





	Viste File di report	t Aggiungi Cont	igurazione Database Aiu						
ensione di Mi bus *		Controllo Su enario * e Giù *		alendario Sequenza Seque Funzio	nza Timers Ba	sic casa abitata	tazioni Mail Risca	Idamento auto	
ali								4 ×	
- 🐺 Princi	ipale		0	)					Opzioni di filtrago
— 🔜 Se	ioggiorno		C	) 🔘					(Fx) Root - Light west 2 Principale
😑 👰 D	Dining room		C	) 🔘					$\odot$
	Cucina		0						(Fx) Root - Light west 3
			0						Principale
									(Fx) Stanza occupata
									Principale
									· ·
uli								т ×	<ul> <li>              ¶             3, (Fx) Spegni tutto 3, Principale</li></ul>
uli							c	후 × Ipzioni di filtraggio 🕥	<ul> <li>♥</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>(Fx) Spegni tutto</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>(Fx) Principale - Funzione email</li> </ul>
	identificativo Sot	ttorete I	lome		SIN	Locale	¢		<ul> <li>              ∫.(Fx) Spegni tutto 3 Principale      </li> </ul>
			iome L1 SH2WBU230		SIN 001.189.051			Ipzioni di filtraggio 👻	<ul> <li>♥</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>(Fx) Spegni tutto</li> <li>♥</li> <li>♥</li> <li>♥</li> <li>(Fx) Principale - Funzione email</li> </ul>
Codice	<u>BU230</u> Wir	reless 1 I			001.189.051		c	Ipzioni di filtraggio 👻	<ul> <li>♥</li> <li>Principale</li> <li>♥</li> </ul>
Codice	BU230 Wir CG24 Ret	reless 1 H	(1 SH2WBU230		001.189.051	Principale	(	Ipzioni di filtraggio 👻	(Fx) Spegni tutto     Principale     (Fx) Principale - Funzione email     Principale     (Fx) Principale - Funzione email     (Fx) Living room - Movie     Soggiorno     (Fx) Living room - Movie     (Fx) Cucina - Allarme presenza acqua
Codice SH2WI SH2MI SHA4X	BU230 Wir CG24 Ret WLS4 Wir	reless 1 i te 1 i reless 1 i	(1 SH2WBU230 (2 SH2MCG24		001.189.051 001.016.073	Principale Principale		Ipzioni di filtraggio 👻	<ul> <li>→ (Fx) Spegni tutto</li> <li>→ Principale</li> <li>→ (Fx) Principale - Funzione email</li> <li>→ Principale</li> <li>→ (Fx) Living room - Movie</li> <li>→ (Fx) Living room - Movie</li> <li>→</li> </ul>
Codice SH2WI SH2MI SHA4X	BU230 Win CG24 Ret WL54 Win RE16AE230 Win	reless 1	<b>(1 SH2WBU230</b> <b>(2 SH2MCG24</b> (4 SHA4XWLS4		001.189.051 001.016.073 001.187.244	Principale Principale Principale		Ipzioni di filtraggio 👻	<ul> <li>♥</li> <li>♥ (Fx) Spegni tutto</li> <li>♥ (Fx) Principale - Funzione email</li> <li>♥ (Fx) Iving room - Movie</li> <li>♥</li> <li>♥ (Fx) Living room - Movie</li> <li>♥</li> <li>♥ (Fx) Cucina - Allarme presenza acqua</li> <li>♥</li> </ul>
Codice SH2WI SH2MG SHA4X SHA4X	BU230 Wir CG24 Ret WLS4 Wir RE16AE230 Wir LS4TH Ret	reless 1 Free States 1 Free St	<b>X1 SH2WBU230</b> <b>X2 SH2MCG24</b> X4 SHA4XWLS4 X5 SHDWRE16AE230		001.189.051 001.016.073 001.187.244 001.207.051	Principale Principale Principale Principale Principale		Ipzioni di filtraggio 👻	(Fx) Spegni tutto     Principale     (Fx) Principale - Funzione email     Principale     (Fx) Living room - Movie     Soggiorno     (Fx) Living room - Movie     (Fx) Living room - Movie

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.

Module	5						Ф	×
						Filter	options (	<u>^</u>
			Show only highlighted modules	Group by subn	et 📃 Group by location	Find text		
	Part number	Subnet	Name	SIN	Location	F	ind	
	SH2WBU23(	Wireless 1	K1 SH2WBU230	001.189.051	Root			Â
	SH2MCG24	Net 1	K2 SH2MCG24	001.016.073	Root			U
	SHA4XWLS4	Wireless 1	K4 SHA4XWLS4	001.188.003	Root			
5	SHDWRE16A	Wireless 1	K5 SHDWRE16AE230	001.207.051	Root			
	SHE5XLS4TH	Net 1	K6 SHE5XLS4TH	001.015.053	Root			
	SHA4XLS4TH	Net 1	K7 SHA4XLS4TH	001.015.085	Root			Ŧ
	C' 1	·	·	1		·		





## 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:

		B4X-LS4-U	Net 1	K19 B4X-LS4-U	000.000.000	Root	ŤŤ	
--	--	-----------	-------	---------------	-------------	------	----	--

The configuration wizard will appear:

Wizard				×
Edit modu	ule <sub>M</sub>	odule	Inpu	t signals
Wizard Steps Input signals	Name K1 SIN:	9 B4X-LS4-U 000 🕄	000 🚍	000 🕄 Subnet Net 1 🔽
Output signals Properties	Signals	Info		Available mode
Advanced	🔶 2: F	Root Switches K19 Push 1 Root Switches K19 Push 2		
		Root Switches K19 Push 3 Root Switches K19 Push 4		Long activation (s)
				Very long activation (s)
				Apply to all
	<<<	>>>		Confirm

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.





Wizard				×
Edit mode	ule	Module		
				Output signals
Wizard Steps	Name	K19 B4X-LS4-U		
Input signals	SIN:	000 🗧	000	000 😜 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info		
Properties	Ó	5: Root Switches K19 Led 1		Available mode
Advanced		6: Root Switches K19 Led 2		
		7: Root Switches K19 Led 3		Guide light
		8: Root Switches K19 Led 4		
				Apply to all
	<	<< >>>		Confirm

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.

Wizard		×
Add m	odule <sub>Module</sub>	
		Properties
Wizard Steps	Name B4X-LS4-U	
Choose module	SIN: 000	000 😜 000 🗧 Subnet 🛛 Net 1 💽
Input signals	Properties Info	
Output signals		
Properties	Led brightness 💢 🎆	
Advanced		
		Cancel





## 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) 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:

			<u>B4X-PIR90-U</u>	Net 1	K11 B4X-PIR90-U	000.000.000	Root	ŦŦ	
--	--	--	--------------------	-------	-----------------	-------------	------	----	--

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.

	Properties
izard Steps	Name B4X-PIR90-U
hoose module	SIN: 000 🕄 000 🕄 000 🕄 Subnet Net 1 🔽
iput signals	Properties Info
utput signals	Alarm options
<u>roperties</u>	Alarm pulse number (I)
Advanced	
	Alarm time window (T)
	Alarm sensitivity (S)
	Led options
	White led 🕥 🔬 📩 🚬





Wizard Add mode	e Module	×
	Properties	
Wizard Steps	lame B4X-PIR90-U	
Choose module	IN: 000 🕃 000 🕃 000 🕃 Subnet Net 1 💽	
Input signals	Properties Info	
Output signals	Alarm sensitivity (S)	^
Properties		
Advanced	Led options	
	White led 🕅 🕅	
	Blue led	
	Led brightness	
	<<< Cancel Confirm	m

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.

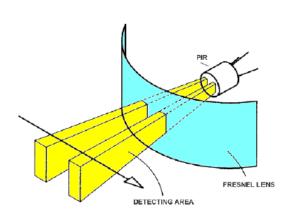




#### 7.2.1 How PIRs work and how to configure them

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.



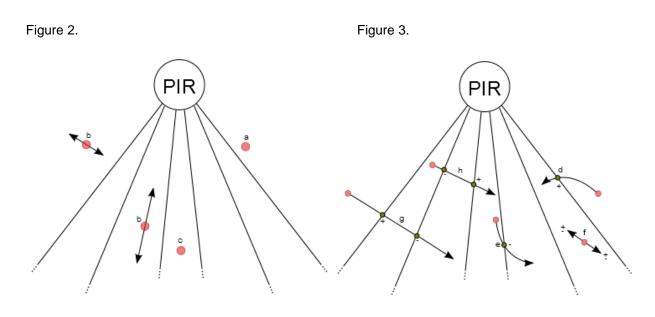
When a warm body moves into the sensor's field of vision, the sensor detects a difference in the measured temperature.

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).

## **CARLO GAVAZZI** Automation Components





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.

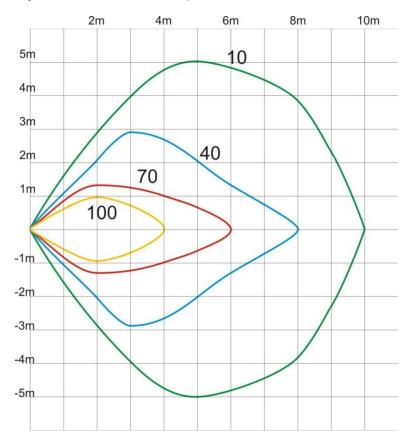
#### 4) Time window

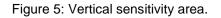
This is the time interval within which pulses are counted. The window can be set between 1 and 10 seconds.

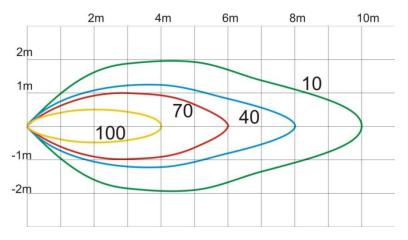




Figure 4: Horizontal sensitivity area.







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	В
Threshold level	1030	3070	50100
Number of pulses	1	1	3
Window time (sec)	10	2	10

Sx tool manual





## 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:

SHA4XLS4TH	Net 1	K9 SHA4XLS4TH	000.000.000	Root	Ŧ	

The configuration wizard will appear:

Wizard				×
Edit mod	ule	Module		Input signals
Wizard Steps Input signals	Name SIN:	K9 SHA4XLS4TH	000	000 Subnet Net 1
<u>Output signals</u> <u>Properties</u>	Sign	als Info 1: Root Switches K9 Push 1		Available mode
◆ Advanced		2: Root Switches K9 Push 1 2: Root Switches K9 Push 2 3: Root Switches K9 Push 3 4: Root Switches K9 Push 4 5: Root Switches K9 Humidity 1 6: Root Switches K9 Temperature 1		Long activation (s) Very long activation (s) Apply to all
	<	<<		Confirm

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:

SHA4XTEMDIS	Net 1	K10 SHA4XTEMDIS	000.000.000	Root	Ŧ

The configuration wizard will appear:

Wizard		×
Edit mod	ule Module	
	Properties	
Wizard Steps	Name K10 SHA4XTEMDIS	
Input signals	SIN: 000 🕄 000 🕄 000 🕄 Subne	et Net 1 🔽
Output signals	Properties Info	
Properties	Enable manual setpoint	<b>_</b>
✓ Advanced		
	Enable setpoint settings	
	Enable selectable setpoint	
	Enable escape temperature mode	
	Guide light enable	
		•
	<<< >>>>	Confirm

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	nicture once they	are added to the project:

2	p	BDB-IOCP8-U	Net 1	K30 BDB-IOCP8-U	000.000.000	Root	ŦŦ	
---	---	-------------	-------	-----------------	-------------	------	----	--

The configuration wizard will appear:

Wizard				
Add mod	ule	Module	_	Input signals
Wizard Steps	Name	K30 BDB-IOCP8-U		
Choose module	SIN:	000 😜	000 🗐	000 🕄 Subnet 🛛 Net 1 💽
Input signals	Sign	als Info		
Output signals		1: Root I/O Modules K30 Push 1		
Properties		2: Root I/O Modules K30 Push 2		Input type
<ul> <li>Advanced</li> </ul>		3: Root I/O Modules K30 Push 3		
		4: Root I/O Modules K30 Push 4		Long activation (s)
				······································
				Very long activation (s)
				4
				Apply to all
		<<		Cancel Confirm

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).

# **CARLO GAVAZZI** Automation Components



	In	put signals
Name K30 BDB-IOCP8-U		
SIN: 000 🗧	000 🕄	000 🗧 Subnet 🛛 Net 1 🔽
Signals Info		
I: Root I/O Modules K30 Push 1		Available mode
2: Root I/O Modules K30 Push 2		
3: Root I/O Modules K30 Push 3		Input type
4: Root I/O Modules K30 Push 4		
		Filter
		Apply to all





#### 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:

SHOUTV224         Net 1         K33 SHOUTV224         000.000.000         Root	Ŧ	
--------------------------------------------------------------------------------	---	--

The configuration wizard will appear:

Wizard		×
Edit module	Module	
		Output signals
Wizard Steps Nam	e K33 SHOUTV224	
Input signals SIN:	000 🗧 🛛 000 🖶	000 🗧 Subnet 🛛 Net 1 💽
Output signals Si	gnals Info	
	1: Root Environmental sensor K33 Analogue 0-10 1	^ 🔊 🔶
Advanced	1: Root Environmental sensor K33 Analogue 0-10 2	Unit of measure
		V
		Virtual range 🔳
		0 🔁 🚺 🖬
		Output range
		0 🗧 🚺 🚽
		Apply to all
	<<< >>>>	Confirm

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).



Wizard		×
Edit modu	le <sub>Module</sub>	
		Properties
Wizard Steps	Name K33 SHOUTV224	
Input signals	SIN: 000 🗧	000 🗧 000 🗧 Subnet Net 1 💽
Output signals	Properties Info	
Properties           Yes           Yes           Advanced	Fail state channel 1 (V) 8	
	<<< >>>	Confirm

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

SHPINV2T1P124 Net 1	K35 SHPINV2T1P124	000.000.000	Root	TT ,
---------------------	-------------------	-------------	------	------

The configuration wizard will appear:

Wizard Edit mod	dule <sub>Module</sub>	×
		Input signals
Input signals SIN:	Name K35 SHPINV2T1P124 SIN: 000 : Signals Info	000 🕄 000 🕄 Subnet Net 1 🔽
Properties → Advanced	<ul> <li>W 1: Root Analogue input module K35 Analog</li> <li>2: Root Analogue input module K35 Analog</li> <li>3: Root Analogue input module K35 Therm</li> <li>4: Root Analogue input module K35 Analog</li> </ul>	gue 2 istor 1 gue 1 Input range 0 1 10
		Virtual range 0  10  Virtual range Apply to all Confirm

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

**CARLO GAVAZZI** 





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:

Í	SH2PINNI2	Net 1	K39 SH2PINNI2	000.000.000	Root	<b>T</b>
---	-----------	-------	---------------	-------------	------	----------

The configuration wizard will appear:

Wizard				×
Edit mode	ule	Module		Input signals
Wizard Steps	Name	K39 SH2PINNI2		
Input signals	SIN:	000 🗧	000 🗧	000 🕄 Subnet 🛛 Net 1 🔽
Output signals	Sign	als Info		
Properties Advanced	\$ \$	1: Root Analogue input K39 Thermistor 2 2: Root Analogue input K39 Thermistor 2		Available mode
	<	<< >>>>		Confirm

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:

Wizard			
Edit modu	ule <sub>Module</sub>	Output sig	nals
Wizard Steps Input signals Output signals Properties ◆ Advanced	Name K3 SH2D10V424 SIN: 000 S Signals Info T Root Dimmer module K3 1-10V 1 T Root Dimmer module K3 1-10V 2 13: Root Dimmer module K3 1-10V 3 20: Root Dimmer module K3 1-10V 4	000 📄	Available mode         Image: Subnet         Curve @ OFF (V)         Image: Subnet         Curve @ Min-10% (V)         Image: Subnet         Curve @ 30% (V)         Image: Subnet         Curve @ 50% (V)         Image: Subnet         Curve @ 70% (V)         Image: Subnet         Curve @ 90% (V)         Image: Subnet
		v	Apply to all
	<<< >>>>		Confirm

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.





Ŧ

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

	U		•		
(F)	SH2INDI424	Net 1	K44 SH2INDI424	000.000.000	Root

The configuration wizard will appear:

Wizard				×
Edit mod	ule	Module	Input sig	nals
Wizard Steps	Name	K46 SH2INDI424		
Input signals	SIN:	000 🗧	000 🗧	000 Subnet Net 1
Output signals	Sign	als Info		
Properties Advanced		1: Root Switches K46 Switch 1 2: Root Switches K46 Switch 2 3: Root Switches K46 Switch 3 4: Root Switches K46 Switch 4		Available mode Point digit 0.1 0.01 0.001 Pulses weight 10 Unit of measure Number Apply to all
	<	<< <b>&gt;&gt;&gt;</b>		Confirm

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	ŤŤ
F	SH2SSTRI424	Net 1	K48 SH2SSTRI424	000.000.000	Root	<b>T</b>

#### The configuration wizard will appear:

Wizard			×
Add modu	ule <sub>Module</sub>		
		Properties	
Wizard Steps	Name K48 SH2SSTRI424		
Choose module	SIN: 000 😜	000 🕄 000 🗧 Subnet 🛛 Net 1 💽	
Input signals	Properties Info		
Output signals	Output status if dupline bus is faulty		
Properties .	Output status il dupline bus is laulty		
	ON time (min)	30	
	OFF time (min)	60	
			_/
	<b>~~~</b>	Cancel	1

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:

ſ	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SH2RODC224	Net 1	K49 SH2RODC224	000.000.000	Root	ŦŦ
		SH2ROAC224	Net 1	K50 SH2ROAC224	000.000.000	Root	Ŧ

#### The configuration wizard will appear:

Wizard				×
Edit modu	ıle	Module		
	_		Output signals	5
Wizard Steps	Name	K49 SH2RODC224		
Input signals	SIN:	000	000	Subnet Net 1
Output signals	Sign	als Info		
Properties	• M	1: Root Rollerblind module K49 Motor 1		Reverse motor timer (s)
✓ Advanced	-M	4: Root Rollerblind module K49 Motor 2		1
				Running motor time (s)
				50 🗧
				Motor direction
				🛞 🛞 🕌
			,	Apply to all
	<	<< >>>>		Confirm

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 MasterGlass 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	ŦŦ
SHG503WLS6	Net 1	K2 SHG503WLS6	000.000.000	Root	ŦŦ

## The configuration wizard will appear:

Edit moc	lule	Module		
				Input signals
Wizard Steps	Name	K7 SHG503BLS6		
Input signals	SIN:	000	000 🕄	000 🕃 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info		
<u>Properties</u>		1: Root Switches K7 Push 1		Available mode
<ul> <li>Advanced</li> </ul>		2: Root Switches K7 Push 2		
		3: Root Switches K7 Push 3		Long activation (s)
		4: Root Switches K7 Push 4		ų — <u>1</u>
		5: Root Switches K7 Push 5		Very long activation (s)
		6: Root Switches K7 Push 6		4
		13: Root Switches K7 Temperature 1		
				Apply to all
		<<		Confirm

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.



Wizard				×
Edit mode	ule	Module		
			Input sig	nals
Wizard Steps	Name	K7 SHG503BLS6		
Input signals	SIN:	000 🗧	000 🗐	000 🖶 Subnet Net 1 🔽
Output signals	Sign	als Info		
Properties	1223	1: Root Switches K7 Push 1	-	Available mode
Advanced		2: Root Switches K7 Push 2		
		3: Root Switches K7 Push 3		
		4: Root Switches K7 Push 4		
		5: Root Switches K7 Push 5		
	227	6: Root Switches K7 Push 6		
		13: Root Switches K7 Temperature 1		
				Apply to all
	<	>>>>		Confirm

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

Wizard		×
Edit mod	lule <sub>Module</sub>	Output signals
Wizard Steps Input signals Output signals Properties	Name K7 SHG5038LS6 SIN: 000 : Signals Info	000 🕄 000 🕃 Subnet Net 1 🔽
<ul> <li>✓ Advanced</li> </ul>	Image: A root Switches K7 Led 1         Image: A root Switches K7 Led 2         Image: A root Switches K7 Led 3         Image: A root Switches K7 Led 4         Image: A root Switches K7 Led 5         Image: A root Switches K7 Led 5         Image: A root Switches K7 Led 5         Image: A root Switches K7 Led 6	
		Apply to all Confirm

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.

**CARLO GAVAZZI** 



Wizard					n x
Edit modu	le	Module			
	_			Properties	
Wizard Steps	Name	K47 SHG503BLS6			
Input signals	SIN:	000	000 🗧	000 🗧 Subnet	Net 1 🔽
Output signals	Proper	ties Info			
Properties					
Advanced	Enabl	buzzer			
	Backli	ght, display and LEDs on time (s)	]	3	
		,,,,			
		< →>>			Confirm

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	ŤŤ
SHG060WLS4	Net 1	K40 SHG060WLS4	000.000.000	Root	-TT

The configuration wizard will appear:

**CARLO GAVAZZI** 



Wizard					×
Edit modu	ıle	Module			
				Input signa	als
Wizard Steps	Name	K5 SHG060BLS4			
Input signals	SIN:	000 🕄	000	00	00 🖶 Subnet 🛛 Net 1 🔽
Output signals	Sign	als Info			
Properties	22	1: Root Switches K5 Push 1			Available mode
✓ Advanced	<u>17</u>	2: Root Switches K5 Push 2			
		3: Root Switches K5 Push 3			Long activation (s)
		4: Root Switches K5 Push 4			1
		9: Root Switches K5 Temperature 1			Very long activation (s)
					4
				•	Apply to all
	<	<< <b>&gt;&gt;&gt;</b>			Confirm

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.

Wizard				×
Edit mod	ule	Module		
				Input signals
Wizard Steps	Name	K5 SHG060BLS4		
Input signals	SIN:	000 🗧	000 🗧	000 🕄 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info		
Properties	23	1: Root Switches K5 Push 1		Available mode
Advanced	27	2: Root Switches K5 Push 2		
	20	3: Root Switches K5 Push 3		
	28	4: Root Switches K5 Push 4		
		9: Root Switches K5 Temperature 1		
				Apply to all
		<<		Confirm

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

**CARLO GAVAZZI** 





Wizard				
Edit modu	ıle	Module		
				Output signals
Wizard Steps	Name	K5 SHG060BLS4		
Input signals	SIN:	000	000 🗧	000 🗧 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info		
Properties	• 28	5: Root Switches K5 Led 1		Available mode
Advanced	Ш	6: Root Switches K5 Led 2		
	20	7: Root Switches K5 Led 3		
	28	8: Root Switches K5 Led 4		
				Apply to all
	<	<< >>>		Confirm

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.

Wizard		<b>—</b> ×
Edit modu	Module	
	Properties	
Wizard Steps	Name K49 SHG060BLS4	
Input signals	SIN: 000 🗧 000 🗧 000 🕄 Subnet	Net 1 🔽
Output signals	Properties Info	
Properties	Enable buzzer	
Advanced		
	Backlight, display and LEDs on time (s)	
	<<< >>>>	Confirm

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	Ŧ
SHG503WSLD	Net 1	K4 SHG503WSLD	000.000.000	Root	Ŧ

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:

Wizard				×
Edit modu	ıle	Module		
			Inj	out signals
Wizard Steps	Name	K2 SHG503BSLD		
Input signals	SIN:	000 🗧	000 🗧	000 🗧 Subnet 🛛 Net 1 🔽
Output signals	Sign	als Info		
Properties	88	1: Root Switches K2 Button 1		Available mode
V Advanced	.88	2: Root Switches K2 Button 2		
	88	3: Root Switches K2 Button 3		Long activation (s)
	88	4: Root Switches K2 Button 4		ų — <u>1</u>
				Very long activation (s)
				4
				Apply to all
	<	<<		Confirm

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).

Wizard			×
Edit mod	ule	Module	
			Input signals
Wizard Steps	Name	K2 SHG503BSLD	
Input signals	SIN:	000 🕄 000 🕄	000 🕄 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info	
Properties	88	1: Root Switches K2 Dimmer interface D.1 1	Available mode
Advanced	.88	2: Root Switches K2 Button 2	
	88	3: Root Switches K2 Button 3	Dimmer interface
	88	4: Root Switches K2 Button 4	Dimmer interface 1
			Glass switch working mode
			Off
			Apply to all
	<	×××	Confirm

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.

Wizard Edit mod	ule <sub>Module</sub>	Input signals
Wizard Steps Input signals Output signals Properties	Name K40 SHG503BSLD SIN: 000 Signals Info 2: Root Switches K40 Dimmer interface D. 2: Root Switches K40 Button 2 3: Root Switches K40 Button 3 4: Root Switches K40 Button 4	000 🕄 Subnet Net 1 💌

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.

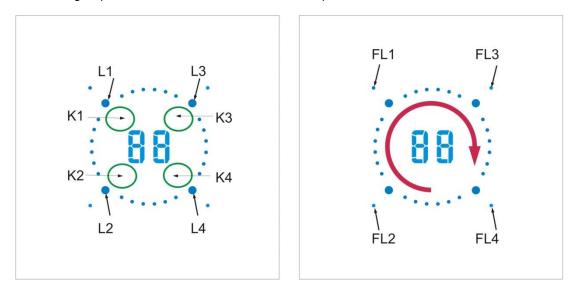




Dimmer Interface				
Dimmer interface 1				
Dimmer interface 2	It is possible to freely associate each key to a dimmer interface. Press Apply to all (green			
Dimmer interface 3	rectangle) to assign the same dimmer interface to all the keys not already used . If a key is already used in a function, the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





Signals Info		
1: Root Switches K26 Dimmer interface D.1 1	<b>^</b>	Available mode
2: Root Switches K26 Button 2		
💷 3: Root Switches K26 Button 3		Dimmer interface
e. 4: Root Switches K26 Button 4		Dimmer interface 1
		Glass switch working mode
		S1
	•	Apply to all

#### Two dimmer interfaces, two on/off keys

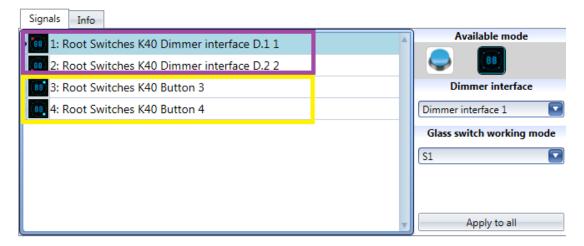
This example is shown below, where keys 1 and 2 are set as dimmer interfaces (purple box), while the other two push buttons are programmed as standard on/off keys (yellow box).

When two dimmer interfaces are programmed the display, the slider and Ln 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 selected, L4 will be on and the display and the slider 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.



\_

\_\_\_\_



Signals Info		
1: Root Switches K40 Dimmer interface D.1 1	A	Available mode
2: Root Switches K40 Dimmer interface D.2 2		S 🛄
3: Root Switches K40 Dimmer interface D.3 3		Dimmer interface
4: Root Switches K40 Dimmer interface D.4 4		Dimmer interface 1
		Glass switch working mode
		S1 🔽
	T	Apply to all

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%.
52	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)
\$3	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.

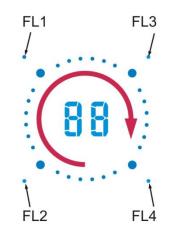




## 7.6.3 How to set the feedback LEDs

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.

Wizard				×
Edit mod	ule	Module	0	utput signals
Wizard Steps	Name	K9 SHG503BSLD		
Input signals Output signals	SIN: Sign	000 🖶	000	000 🗧 Subnet 🛛 Net 1 💽
Properties       Volume       Volume	98) (88) (88)	5: Root Switches K9 Led 1 6: Root Switches K9 Led 2 7: Root Switches K9 Led 3 8: Root Switches K9 Led 4		Available mode
		<< >>>>		Apply to all





## 7.6.4 How to set the glass panel properties

Wizard					
Edit mod	ule	Module			
				Properties	
Wizard Steps	Name	K44 SHG503BSLD			
Input signals	SIN:	000 🗧	000 🗧	000 🗧 Subnet 🛛 Net	1
Output signals	Prope	rties Info			
Properties Advanced	Enab	e slider for dimmer 1	$\checkmark$		
	Enab	e buzzer	$\checkmark$		
	Set b	acklight on/off	$\checkmark$		
	Enab	e automatic switching off of the backlight	$\checkmark$		
	Enab	e automatic switching off of the display	$\checkmark$		
	Enab	e automatic switching off of the function LED	$\checkmark$		
	Enab	e automatic switching off of the feedback LED	$\checkmark$		
	Backl	ight, display and LEDs on time (s)			
	-	<< >>>>			Confirm

In the *Properties* field, the acoustic feedback and the backlight can be set as described here.

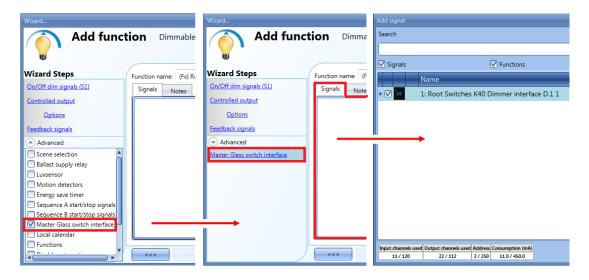
The module has a built-in buzzer that can be enabled or disabled by the user: if it is enabled, when a key is pressed or the finger is moved over the slider, an acoustic feedback will be emitted. The glass has a backlight, two 7-digit displays, four function LEDs (L1, L2, L3, L4) and four feedback LEDs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





Field name	Description
Enable slider for dimmer 1	
Enable slider for dimmer 2	By default when a key is set as dimmer interface in the <i>Inputs</i>
Enable slider for dimmer 3	Signals field, the slider for the corresponding dimmer is enabled. It can be disabled in order not to use it.
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 <i>Backlight on time</i> , expires.
Enable automatic off of the display	If this property is enabled, the display is switched off when the timer, set in <i>Backlight on time</i> , 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 <i>Backlight on time</i> , 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 <i>Backlight on time</i> , 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:

SHO	9503WSL1 9503BSLT 9060WSL1 9060BSLT	г				
	SHG503WSLT	Net 1	K29 SHG503WSLT	000.000.000	Root	ŦŦ
	SHG503BSLT	Net 1	K30 SHG503BSLT	000.000.000	Root	-T <del>T</del>
	SHG060WSLT	Net 1	K31 SHG060WSLT	000.000.000	<u>Root</u>	-TT-
	SHG060BSLT	Net 1	K32 SHG060BSLT	000.000.000	<u>Root</u>	ŦŦ

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

Wizard				×
Edit mod	ule	Module		Input signals
Wizard Steps	Name	K30 SHG503BSLT		
Input signals	SIN:	000	000 😩	000 🕄 Subnet Net 1 💽
Output signals	Sign	als Info		
<u>Properties</u>	88	1: Root Temdis display K30 Button 1		Available mode
✓ Advanced	(88)	2: Root Temdis display K30 Button 2		
	88	3: Root Temdis display K30 Button 3		Long activation (s)
		4: Root Temdis display K30 Button 4		1
		9: Root Temdis display K30 TRoom 1		Very long activation (s)
				4
				Apply to all
	<			Confirm

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).

Wizard Edit mod	ule	Module		×
			In	nput signals
Wizard Steps	Name	K30 SHG503BSLT		
Input signals Output signals	SIN: Sign	000 🗧	000 🕄	000 🔁 Subnet Net 1 🔽
Properties Advanced	88 88 88 88	1: Root Temdis display K30 Temdis inter 2: Root Temdis display K30 Button 2 3: Root Temdis display K30 Button 3 4: Root Temdis display K30 Button 4 9: Root Temdis display K30 TRoom 1	face 1	Available mode
		<< <b>&gt;&gt;&gt;&gt;</b>		Confirm

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.

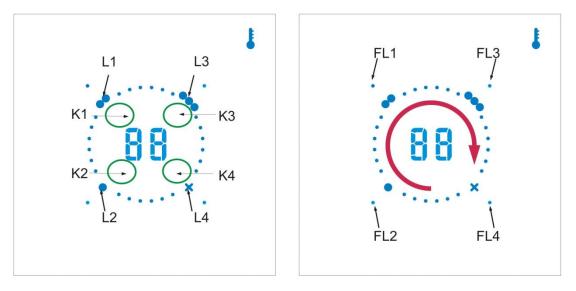
Since this panel can control up to three temperature set points, one on/off command for the temperature function and one command to visualize an external temperature, each key can be freely associated to one of these functions. More than one key can be associated to the same functionality. By means of 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
Т1	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.
Т2	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.
ТЗ	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 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

Signals Info	
1: Root Temdis display K17 Temdis interface 1	Available mode
2: Root Temdis display K17 Temdis interface 2	
3: Root Temdis display K17 Temdis interface 3	Glass switch working mode
4: Root Temdis display K17 Temdis interface 4	T1
🚦 9: Root Temdis display K17 TRoom 1	
	Apply to all

#### 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.

Signals Info	
💷 1: Root Temdis display K24 Temdis interface 1	Available mode
2: Root Temdis display K24 Temdis interface 2	
3: Root Temdis display K24 Button 3	Glass switch working mode
4: Root Temdis display K24 Button 4	T1 💽
9: Root Temdis display K24 TRoom 1	
	Apply to all

#### 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*). 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.

Signals Info		
1: Root Temdis display K17 Temdis interface 1	<b>A</b>	Available mode
2: Root Temdis display K17 Button 2		
3: Root Temdis display K17 Button 3		Glass switch working mode
4: Root Temdis display K17 Button 4		T1 🔽
9: Root Temdis display K17 TRoom 1		
	•	Apply to all

#### 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.

Signals Info	
1: Root Temdis display K5 Button 1	Available mode
2: Root Temdis display K5 Button 2	
3: Root Temdis display K5 Button 3	Long activation (s)
💓 4: Root Temdis display K5 Button 4	1
9: Root Temdis display K5 TRoom 1	Very long activation (s)
	4
	Apply to all

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



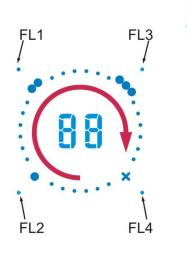


## 7.7.3 How to set the feedback LEDs

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.

E



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.

Wizard				×
Edit modu	le <sub>Mo</sub>	odule		
				Output signals
Wizard Steps	Name K30	0 SHG503BSLT		
Input signals	SIN:	000 🗧	000 🖨	000 🗧 Subnet 🛛 Net 1 💽
Output signals	Signals	Info		
Properties	5: R	oot Temdis display K30 Led 1		Available mode
Advanced	🧰 6: R	oot Temdis display K30 Led 2		N N
		oot Temdis display K30 Led 3		
	8: R	oot Temdis display K30 Led 4		
				Apply to all
				Apply to an
	<<<	>>>		Confirm





## 7.7.4 How to set the glass panel properties

Wizard Edit mod	ule	Module				×
				Proper	rties	
Wizard Steps	Name	K26 SHG503BSLT				
Input signals	SIN:	000 🕄	000 🗧		000 🗧 Subnet Net	1
Output signals	Propert	ties Info				
Properties Advanced	Enable	buzzer		$\checkmark$		
	Use th	e dot to indicate the half degree ( 20.5=20. )		$\checkmark$		
	Allow	to modify the setpoints by means of the slider		$\checkmark$		
	The bo	ottom-right led is used as indicator of the zone fu	inction status	$\checkmark$	$\approx$	
	Enable	automatic switching off of the display		$\checkmark$		•
	<<	< >>>				Confirm

Wizard					×
Edit mod	ule	Module			
				Properties	
Wizard Steps	Name	K30 SHG503BSLT			
Input signals	SIN:	000	000	000 🗧 Subnet 🛛 Net	1
Output signals	Prope	rties Info			
Properties	Enab	le automatic switching off of the function LED		8	
<ul> <li>Advanced</li> </ul>					
	Enab	le automatic switching off of the feedback LED	$\checkmark$	×	
	Enab	le automatic switching off of the backlight	$\checkmark$		
	Set b	acklight on/off	$\checkmark$		=
	Back	ight on time (s)			
		««			Confirm

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:

## **CARLO GAVAZZI** Automation Components



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 <i>Backlight on time,</i> 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 <i>Backlight on time,</i> 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 <i>Backlight on time,</i> expires.
Enable automatic switching off of the backlight	If this property is enabled, the back light is switched off when the timer, set in <i>Backlight on time,</i> 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

Wizard					×
Edit modu	ıle	Module			
				Input signa	als
Wizard Steps	Name	K26 SHG503BSLT			
Input signals	SIN:	000 🛟	000	00	0 🖶 Subnet Net 1 🔽
Output signals	Sign	als Info			
Properties Advanced		1: Root Temdis display K26 Button 1 2: Root Temdis display K26 Button 2 3: Root Temdis display K26 Button 3 4: Root Temdis display K26 Temdis interf 9: Root Temdis display K26 TRoom 1	face 4	<b>A</b>	Available mode
				•	Apply to all
	<	<<			Confirm

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*.

		Wizard		Add signal	
Edit funct	ion Zone temp	Edit function	Zone temp	Search	
	Function name: (Fx) Ro Outdoor temperature		tion name: (Fx) Ro ttdoor temperature	✓ Signals       ✓       ✓       ✓	Functions  Name  Root Switches K8 Temperature 1
Auxiliary temperature Auxiliary temperature Setpoint ranges Safe mode Calendar Functions PID parameters Heating/Cooling setpoint sele Disable automation		Outdoor temperature	~~~	Input channels u 4/120	ed Output channels used Address Consumption (mA) 4 / 112 4 / 250 5.0 / 450.0

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-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

Wizard		Wizard	
Edit funct	ion Zone temperature	Edit funct	tion Zone temperature
Wizard Steps	Function name: (Fx) Root - Zone ten	Wizard Steps	Function name: (Fx) Root - Zone temperature
Room temperature         System temperature function         Setpoint         Output signals         Feedback signals         Auxiliary temperature         Outdoor temperature         Outdoor temperature         Oster mode         Calendar         Functions         PID parameters         Heating/Cooling setpoint sele	Heating Cooling	Room temperature System temperature function Setpoint Output signals Feedback signals <ul> <li>Advanced</li> </ul>	Heating Cooling Min (°C) 10 😨 Max (°C) 30 😨
Disable automation	<b>~~~</b>		<b>~~~</b>

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 - 10.11.3 How to configure the set points - for more details.





## 7.8 Wireless modules

In the *Properties* window of the wireless base unit SH2WBU230x, the user can select the working channel of the wireless network. If more than one SH2WBU230x 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*).

If a SH2WBU230N wireless base unit is used, the user can set the transmission power of the wireless field by moving the slider in the *Transmission power* field.

Wizard					n x
Edit mod	ule	Bus generator			
				Properties	
Wizard Steps	Name	K1 SH2WBU230N			
Properties	SIN:	020 😜	107 📮	032 🗧 Subnet Wireless	1
Routing tree					
<ul> <li>Advanced</li> </ul>	_	Min	Max		
	Iran	smission power			
	Worl	king channel 21			
		<<< >>>>			Confirm

In the *Routing tree* window, an overview is shown of how the wireless modules are connected to the wireless base unit, whether directly or indirectly via a repeater. By means of drag &drop, the route of the wireless signals can be changed.

Wizard Edit mode	ule	Bus generator	F	louting tree	
Wizard Steps Properties	Name SIN:	K1 SH2WBU230N	107	032 🛋 Su	bnet Wireless 1
Routing tree  Advanced		K1 SH2WBU230N	SH2WBU230N	020.107.032	Root
	-	<ul> <li>K4 SHJWD200WEWLS230</li> <li>K3 SHJWEM16A230</li> </ul>	SHJWD200WEWLS230 SHJWEM16A230	002.246.205 002.246.196	Root
			3(SHJWRE10AE230	020.139.171	Root
		K63 SHDWWISENIN1	SHA4XWLS4 SHDWWISENIN1	001.187.127 001.203.136	Root
		~~~			Confirm





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:

#### The configuration wizard will appear:

Wizard				×
Add mod	ule <sub>Mod</sub>	dule		Input signals
Wizard Steps Choose module	Name K6 Sł SIN:	HA4XWLS4	000 🗐	000 🕄 Subnet Wireless 1 🔽
Input signals Output signals Properties	1: Ro	Info ot Switches K6 Push 1		Available mode
Advanced	🔶 3: Ro	ot Switches K6 Push 2 ot Switches K6 Push 3 ot Switches K6 Push 4		Long activation (s)
				Very long activation (s)
		<b>&gt;&gt;&gt;</b>		Apply to all Cancel Confirm

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* window, the user can choose in the *Module for routing* field, the module to use for routing if the light switch is placed in an area not covered by the SH2WBU230x: in this situation it is possible to extend the operating distance using a SHJWD200WExxxx, a SHJWEM16Axxx, a SHJWRE10AExxx and a SHDWRE16AE230 as router/repeater.



Wizard				□ ×
Edit mode	ule	Module		
				Properties
Wizard Steps	Name	K7 SHA4XWLS4		
Input signals	SIN:	001 🗧	208 🗧	145 Subnet Wireless 1
Output signals	Prope	rties Info		
Properties	Í			K3 SH2WBU230N (020.074.197)
<ul> <li>Advanced</li> </ul>	Mod	ule for routing		
				K3 SH2WBU230N (020.074.197) K41 SHDWRE16AE230 (001.208.028)
				K5 SHJWEM16A230 (002.246.196)
		<b>&lt;&lt;&lt;</b>		Confirm

The following items are part of the Wireless window sensor modules:

#### SHDWWISEN SHDWWISENIN1

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

	SHDWWISENIN1	Wireless 1	K6 SHDWWISENIN1	000.000.000	Root	<b>T</b>	)
--	--------------	------------	-----------------	-------------	------	----------	---

The configuration wizard will appear:

Wizard				• × •
Edit mode	ule	Module	Input sigi	nals
Wizard Steps	Name	K6 SHDWWISENIN1		
Input signals	SIN:	001	203 🗧 136	Subnet Wireless 1
Output signals	Sign	als Info		
Properties  Advanced	-	1: Root - Wireless K6 Switch 1 2: Root - Wireless K6 Switch 2		Available mode
		<<< >>>>		Apply to all

In the *Input signals* field, for the SHDWWISEN one input signal is shown, while for the SHDWWISENIN1 two input signals are shown because it includes a voltage free input as well.







In the *Properties* window, the user can choose the module to use for routing the signal if the wireless window sensor is placed in an area not covered by the SH2WBU230x: in this situation it is possible to extend the operating distance by using a SHJWD200WExxx, a SHJWRE10AExxx, a SHJWEM16Axxx or a SHDWRE16AE230 as router/repeater.

In the *Input sleeping time (ms)* field, the user can set the refresh time for the switch status to be sent to the Sx2WEB24: if this time is short, the sensor will send its status very often causing the battery to be discharged quickly. The right balance has to be found between the battery life time and the status update.

Wizard		= ×
Edit modu	lle <sub>Module</sub>	
		Properties
Wizard Steps	Name K6 SHDWWISENIN1	
Input signals	SIN: 001	203 🗧 136 😴 Subnet Wireless 1 💌
Output signals	Properties Info	
Properties	Module for routing	K3 SH2WBU230N (020.074.197)
V Advanced	Input sleeping time (ms)	500
		50
		100
		250
		500 1000
		2000
		5000
		/
	<b>~~~</b>	Confirm

#### Example

In the example shown above, a sleeping time of 500 ms is set by the user: the switch status of the window sensor module will be sent every 500ms to the Sx2WEB24 controller.





## 7.9 How to manage the analogue variables

#### 7.9.1 How to manage the analogue variables using the grouping

In the *Properties* window of a wireless module with readout feature, the user can select the relevant group of analogue variables that will be transmitted to the Sx2WEB24. The table below shows the analogue variables for each group.

Group of analogue variables	Type of variables
None	The analogue variables are not sent
Kwh	kWh
Kwh-V-A-W	kWh, Volt, Ampere, Watt
Kwh-V-A-W-Wdmd-PF-VA-Var	kWh, Volt, Ampere, Watt, Wdmd, Power factor, Volt*Ampere, Var

In the *Number of analogue variables* field, if the kWh icon is selected, the module will transmit only the kWh value: in the *Input signals* window a dynamic list shows the analogue variables related to the selected group, as shown in the picture below.

Wizard		Wizard	
Edit mode	u <b>le</b> Module	Edit mod	ule <sub>Module</sub>
Wizard Steps	Name K3 SHJWEM16A230	Wizard Steps	Name K3 SHJWEM16A230
Input signals	SIN: 002	Input signals	SIN: 002
Output signals	Properties Info	Output signals	Signals Info
<u>Properties</u>	Module for routing K1 SH2WBU230N	Properties	1: Root - Wireless K3
Advanced	Number of analogue variables	<ul> <li>Advanced</li> </ul>	
	Kwh		
	🔘 Kwh-V-A- 🗕	<u>→</u>	
	Kwh-V-A-W-Wc		
	Min		
	Transmission power		
	✓ Advanced settings		
	<b>~~~</b>		<<< >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>





When the kWh-V-A-W icon is selected, the module will transmit all the variables related to this group: in the *Input signals* window a dynamic list shows all the analogue variables related to the selected group, as shown in the picture below.

	Wizard
le <sub>Module</sub> Pr	Edit module Module
Name         K3 SHJWEM16A230           SIN:         002         246         2	Wizard Steps         Name         K3 SHJWEM16A230           Input signals         SIN:         002
Properties Info Module for routing K1 SH2WBU230N (020.107.032)	Output signals         Signals         Info           Properties         I: Root - Wireless K3 kWh 1           (*) Advanced         I: Root - Wireless K3 kWh 1
Number of analogue variables Kwh Kwh-V-A-W	Advanced     Vireless K3 Volt 1     Vireless K3 Volt 1     Vireless K3 Ampere 1     Vireless K3 Watt 1
Min Max Transmission power	
< Advanced settings	

If the kWh-V-A-W-Wdmd-PF-VA-var icon is selected by the user, the module will transmit all the variables related to this group: in the *Input signals* window a dynamic list shows all the analogue variables related to the group selected, as shown in the picture below.

			Wizard			
le <sub>Module</sub>		Pre	1000 H	Edit mod	ule	Module
Name K3 SHJWEM16A230			Wizard Step	s	Name	K3 SHJWEM16A230
SIN: 002	246		Input signals		SIN:	002 🗧
Properties Info			Output signals		Sign	als Info
Module for routing	K1 SH2WBU230N (020.107.032)		Properties		·	1: Root - Wireless K3 kWh 1
Number of analogue variable	5		Advanced		-00	2: Root - Wireless K3 Volt 1
	🔘 Kwh				-@	3: Root - Wireless K3 Ampere 1
	C Kwh-V-A-W					4: Root - Wireless K3 Watt 1
	Kwh-V-A-W-Wdmd-PF-VA-Var					5: Root - Wireless K3 Wdmd 1
	Min	Max				6: Root - Wireless K3 PF 1
Transmission power					<b>W</b>	7: Root - Wireless K3 VA 1
· ·		-			-Var	8: Root - Wireless K3 var 1
<ul> <li>Advanced settings</li> </ul>						
<<< >>>>>						<<< <b>&gt;&gt;&gt;</b>





Apart from the SHJWEM16Axxx module, in all the other wireless modules with energy readout feature, the user can disable the analogue data transmission.

In the *Number of analogue variables* field, when the None is selected, the wireless modules will not transmit any read data to the Sx2WEB24.

		Wizard				
le Module			Edit modu	ıle	Module	
	Properties			_		
Name K2 SHJWRE10AE230		Wizard Ste	ps	Name	K2 SHJWRE:	L0AE230
SIN: 020 🗧 139 🗧	171 🗧	Input signals		SIN:		020
Properties Info		Output signals		Sign	als Info	
Module for routing K1 SH2WBU230N (020.107.032)		Properties				
Number of analogue variables		<ul> <li>Advanced</li> </ul>				
None						
C Kwh						
C Kwh-V-A-W		<b>→</b>				
Kwh-V-A-W-Wdmd-PF-VA-Var						
Min	Max					
Transmission power						
<b>~~~</b>					<<<	>>>





#### 7.9.2 How to define when analogue values have to be sent

In order to limit the traffic of data between the wireless base unit and the slave modules, the user can set the value of the change that result in new analogue values being sent.

In the *Trigger window* fields, the user can set the range of variation: if the value read differs from the last value sent by a number bigger than the one defined in these fields, the new value is sent.

In the *Properties* window of a wireless module (SHDWWISENxxx, SHJWD200WExxx, SHJWRE10AExxx, SHJWEM16Axxx, SHDWRE16AE230) the *Advanced settings* fields are available, where the user can set the difference between two readings to send the energy value for KWh, Watt, Volt and Ampere, as shown in the red rectangle in the picture below:

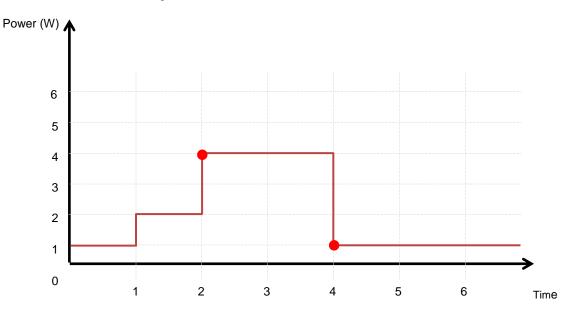
#### Advanced settings

Difference between two readings to send the energy value (Kwh)	0.1
Difference between two readings to send the power value (W)	1
Difference between two readings to send the voltage value (V)	0.1
Difference between two readings to send the current value (A)	0.001 📮

#### Example

In the example shown below, the *Difference between two readings to send the energy value* (W) field is set to 2 W: every time the analogue value (power) has a variation bigger than 2W from the last sent value, it is sent to the Sx2WEB24. In the example below, a new sample is sent at point 2, because the power value goes from 2 W to 4 W (the variation equals 2 W), then another sample is sent at point 4 when the power value goes down from 4 W to 1 W (the variation equals 3 W).

• Points where the analogue values are sent to the Sx2WEB24 controller.







The following items belong to the wireless relay modules:

SHJWRE10AE230 SHJWRE10AE115 SHJWRE10AEWLS230 (with two push buttons) SHJWRE10AEBLS230 (with two push buttons) SHDWRE16AE230

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

	SHJWRE10AEWLS230	Wireless 1	K70 SHJWRE10AEWLS230	000.000.000	Root	ŦŦ	
--	------------------	------------	----------------------	-------------	------	----	--

The configuration wizard will appear:

In the Input Signals window, all the analogue variables added in the Properties window will be shown.

Wizard				n x
Edit modu	ule	Module		
			Input si	gnals
Wizard Steps	Name	K12 SHJWRE10AEWLS230		
Input signals	SIN:	000 🕄	000 🗧 000	00 🛢 Subnet 🛛 Wireless 1 🔽
Output signals	Sign	als Info		
<u>Properties</u>	, =	1: Root - Wireless K12 Push 1		Available mode
Advanced		2: Root - Wireless K12 Push 2		
	-00-	3: Root - Wireless K12 kWh 1		Long activation (s)
		4: Root - Wireless K12 Volt 1		· · · · · · · · · · · · · · · · · · ·
	-A	5: Root - Wireless K12 Ampere 1		Very long activation (s)
		6: Root - Wireless K12 Watt 1		4
	<b>~</b>	7: Root - Wireless K12 Wdmd 1		
		8: Root - Wireless K12 PF 1		U
	(VA)	9: Root - Wireless K12 VA 1		Apply to all
		<<<		Confirm

The SHJWRE10AExLS230 module integrates two programmable capacitive push-buttons and can be used in all the Sx tool functions, as shown in the red rectangle in the picture above.

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; it is always set 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 he 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.





In the Output Signals window, the relay output is shown.

Wizard				□ ×
Edit mod	ule	Module		
Ψ.			Outpu	t signals
Wizard Steps	Name	K12 SHJWRE10AEWLS230		
Input signals	SIN:	000 🗧	000 🗧	000 🗧 Subnet Wireless 1 🔽
Output signals	Sigr	als Info		
Properties	, c	13: Root - Wireless K70 Re 1		Available mode
✓ Advanced	000			
				Apply to all
		<<< >>>>		Confirm

In the *Properties* window, the user can choose the module to be used for routing if the wireless relay module is placed in an area not covered by the wireless base unit. In the *Module for routing* field, the user can select the way the modules connect to the SH2WBU230x: either directly or via a router, as shown in the red rectangle in the picture below.

Wizard				n x
Edit modu	le <sub>Module</sub>			
			Properties	
Wizard Steps	Name K12 SHJWRE10AEWL	.\$230		
Input signals	SIN: 00	000	000 🕄 Subnet Wireless	1
Output signals	Properties Info			
Properties	Module for routing	K1 SH2WBU230N (020.107.032)		<b>A</b>
Advanced	Number of analogue variable			
		None		
		C Kwh		=
		Kwh-V-A-W		
		Kwh-V-A-W-Wdmd-PF-VA-V	/ar	
		Min	Max	
	Transmission power			
				•
	<b>~~~</b>	>		Confirm





In the *Number of analogue variables* field, the user can select the relevant group of analogue variables, as shown in the picture below.

Wizard Edit mode	ule <sub>Module</sub>				■ ×
			Properti	es	
Wizard Steps	Name K12 SHJWRE10AEWLS	230			
Input signals	SIN: 000	000	000	Subnet Wireless 1	3
Output signals	Properties Info				
Properties	Module for routing	K1 SH2WBU230N (020.107.0	)32)		
🕑 Advanced	Number of analogue variables				
		None			
		C Kwh			=
		Kwh-V-A-W			
		Kwh-V-A-W-Wdmd-PF-V	'A-Var		
		Min	Max		
	Transmission power		1		
					•
	<b>~~~</b>			Co	nfirm

In the *Transmission power* field, the user can also manage also the transmission power of the module by moving the slider. This field is not available for the SHDWRE16AE230 module. If there are metallic parts shielding the wireless field or if a longer distance is needed, the strength of the wireless field can be increased.

Wizard		
Edit modu	Jle Module	
	Properties	
Wizard Steps	Name K12 SHJWRE10AEWLS230	
Input signals	SIN: 000 🕄 000 🕄 Subnet 🕅	Vireless 1 🔽
Output signals	Properties Info	
Properties	Module for routing K1 SH2WBU230N (020.107.032)	
👻 Advanced	Number of analogue variables	
	None	
	🔘 Kwh	=
	C Kwh-V-A-W	
	Kwh-V-A-W-Wdmd-PF-VA-Var	
	Min Max	
	Transmission power	
		•
	<<< >>>>	Confirm





In the *Advanced settings* fields, the user can set the range of variation: if the value read differs from the last value sent by a number bigger than the one defined in these fields, the new value is sent otherwise it will not be.

Wizard			— — ×
Edit modul	e Module		
		Properties	
Wizard Steps	Name K12 SHJWRE10AEWLS230		
Input signals S	SIN: 000	000 🗘 000 🗘 Subnet Wireless 1	•
Output signals	Properties Info		
Properties	Min	Max	۸
Advanced		Max	
	Transmission power		
	<ul> <li>Advanced settings</li> </ul>		=
	Difference between two readings to send the energy	value (Kwh) 0.2	
	Difference between two readings to send the power v	value (W) 10 😜	
	Difference between two readings to send the voltage	value (V) 0.8	
	Difference between two readings to send the current	value (A) 0.05 🕄	- J
	<<< >>>>		onfirm

In the *Output status if Dupline bus is faulty* field, the user has to select the fail-safe working mode if the connection with the wireless base unit is faulty.

Wizard									
Edit mod	ule	Module						1	
					Prop	perties			
Wizard Steps	Name	K12 SHJWRE10AEWLS230							
Input signals	SIN:	000 🗧		000		000 🗧 Subne	t Wireless 1		
Output signals	Proper	rties Info							
Properties	Transr	nission power							•
Advanced									
	~ A	dvanced settings							
	Outpu	t status if Dupline bus is faulty							
	ON tin	ne (min)						10	=
	OFF tir	ne (min)						10	
	Fail sta	te T out	1			1 1 1	. <u>.</u>	15	•
	-	<b>~~~</b>					Cor	nfirm	

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 T out:* 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 1 to 15 minutes).





The following items belong to the *wireless dimmer modules* with push buttons:

SHJWD200WE230 SHJWD200WE115 SHJWD200WEWLS230 SHJWD200WEBLS230

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

	SHJWD200WEWLS230	Wireless 1	K4 SHJWD200WEWLS230	000.000.000	Root	ŦŦ	J
--	------------------	------------	---------------------	-------------	------	----	---

The configuration wizard will appear:

In the Input Signals window, all the analogue variables added in the Properties window will be shown.

Wizard					
Edit mod	ule	Module			
				Input sign	als
Wizard Steps	Name	K4 SHJWD200WEWLS230			
Input signals	SIN:	002 🗧	246 🗧	205	Subnet Wireless 1
Output signals	Sign	als Info			
<u>Properties</u>		1: Root - Wireless K4 Push 1		A	Available mode
<ul> <li>Advanced</li> </ul>		2: Root - Wireless K4 Push 2			
	-00	3: Root - Wireless K4 kWh 1			Long activation (s)
	-00	4: Root - Wireless K4 Volt 1			V
	-A	5: Root - Wireless K4 Ampere 1			Very long activation (s)
	-00	6: Root - Wireless K4 Watt 1			4
	<b>~</b>	7: Root - Wireless K4 Wdmd 1			
				v	Apply to all
		<<< <b>&gt;&gt;&gt;</b>			Confirm

The SHJWD200WExLS230 module integrates two programmable capacitive push-buttons and can be used in all the Sx tool functions, as shown in the red rectangle in the picture above.

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.





In the Output Signals window, the relay output is shown.

Wizard				
Edit modu	ule	Module		
			Output si	ignals
Wizard Steps	Name	K4 SHJWD200WEWLS230		
Input signals	SIN:	002 🗧	246 🗧 20	5 🗧 Subnet Wireless 1 🔽
Output signals	Sign	als Info		
Properties Advanced		8: Root - Wireless K4 Dimmer 1		Available mode
				Apply to all
		<<< >>>>		Confirm

In the *Properties* window, the user can choose the module to be used for routing if the wireless dimmer module is placed in an area not covered by the wireless base unit. In the *Module for routing* field, the user can select the way the modules connect to the SH2WBU230x: either directly or via a router, as shown in the red rectangle in the picture below.

Wizard			
Edit modu	le <sub>Module</sub>		
		Properties	
Wizard Steps	Name K4 SHJWD200WEWLS230		
Input signals	SIN: 002	246 🗧 205 🗘 Subnet Wireless 1	
Output signals	Properties Info		
Properties	Module for routing K2 SHJWRE10	DAE230 (020.139.171)	<b></b>
Advanced	Number of analogue variables		
	None		
	🔘 Kwh		
	Kwh-V-A-W		=
	Kwh-V-A-W-	Wdmd	
	Min	Max	
	Transmission power		
			•
	<b>«««</b>		Confirm





In the *Number of analogue variables* field, the user can select the relevant group of analogue variables, as shown in the red rectangle in the picture below.

Wizard			
Edit modul	e Module		
		Properties	
Wizard Steps	lame K4 SHJWD200WEWLS230		
Input signals	IN: 002	246 😜 205 🕃 Subnet Win	eless 1 🔽
Output signals	Properties Info		
Properties	Module for routing K2 SHJWRE10	DAE230 (020.139.171)	<b></b>
Advanced	Number of analogue variables		
	None		
	C Kwh		
	Kwh-V-A-W		_
	Kwh-V-A-W-	Wdmd	=
	Min	Max	
	Transmission power		
			Ŧ
	<<< >>>>		Confirm

N.B. If the fourth option is selected in the field *Number of analogue variables*, the module will transmit the *kWh*, *V*, *A*, *W*, *Wdmd* values.

In the *Transmission power* field, the user can also manage also the transmission power of the module by moving the slider.

If there are metallic parts shielding the wireless field or if a longer distance is needed, the strength of the wireless field can be increased.

Wizard		
Edit modu	JIE Module	1
	Properties	
Wizard Steps	Name K4 SHJWD200WEWLS230	
Input signals	SIN: 002 🕄 246 🕄 205 🕃 Subnet Wireless 1 💽	
Output signals	Properties Info	
Properties	Module for routing K2 SHJWRE10AE230 (020.139.171)	<b>A</b>
Advanced	Number of analogue variables	
	None	
	C Kwh	
	Kwh-V-A-W	_
	Wwh-V-A-W-Wdmd	
	Min Max	
	Transmission power	
		•
	Confirm	m





In the *Advanced settings* fields, the user can set the range of variation: if the value read differs from the last value sent by a number bigger than the one defined in these fields, the new value is sent otherwise it will not be.

Wizard		
Edit modu	le Module	
	Properties	
Wizard Steps	Name K4 SHJWD200WEWLS230	
Input signals	SIN: 002 C 246 C 205 Subnet Wireless 1	
Output signals	Properties Info	
Properties  Advanced	Min Max	^
<u> </u>	Transmission power	
	Advanced settings Difference between two readings to send the energy value (Kwh) 0.1	
	Difference between two readings to send the energy value (Wi)	=
	Difference between two readings to send the voltage value (V)	
	Difference between two readings to send the current value (A) 0.001	•
	<<< >>>	onfirm





The following items belong to the wireless energy meter modules:

### SHJWEM16A230 SHJWEM16A115

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

	SHJWEM16A230	Wireless 1	K3 SHJWEM16A230	000.000.000	Root	ŦŦ	
--	--------------	------------	-----------------	-------------	------	----	--

The configuration wizard will appear:

In the Input Signals window, all the analogue variables added in the Properties window will be shown.

Wizard			□ ×
Edit module	Module		
		Input signa	als
Wizard Steps	e K3 SHJWEM16A230		
Input signals SIN:	002 🛟	246 🕄 196	Subnet Wireless 1
Output signals Signals	gnals Info		
Properties	1: Root - Wireless K3 kWh 1	A	Available mode
	2: Root - Wireless K3 Volt 1		
-	3: Root - Wireless K3 Ampere 1		
-0	4: Root - Wireless K3 Watt 1		
	5: Root - Wireless K3 Wdmd 1		
	6: Root - Wireless K3 PF 1		
	7: Root - Wireless K3 VA 1		
	8: Root - Wireless K3 var 1		
		v	Apply to all
	~~~		Confirm

The wireless energy meter has no output signals, so the Output signals window is blank.

Wizard			
Edit mod	ule	Module	
4	_		Output signals
Wizard Steps	Name	K3 SHJWEM16A230	
Input signals	SIN:	002 🗧	246 🕄 196 🕄 Subnet Wireless 1 🔽
Output signals	Sign	als Info	
Properties			A
<ul> <li>✓ Advanced</li> </ul>			×
		<<<	Confirm





In the *Properties* window, the user can choose the module to be used for routing if the wireless meter module is placed in an area not covered by the wireless base unit. In the *Module for routing* field, the user can select the way the modules connect to the SH2WBU230x: either directly or via a router, as shown in the red rectangle in the picture below.

Wizard Edit modu	ıle	Module					×
					Properties		
Wizard Steps	Name	K3 SHJWEM16A230					
Input signals	SIN:	002	÷	246	196 🗧 S	ubnet Wireless 1	-
Output signals	Prope	rties Info					
Properties	Modu	le for routing	K2 SHJWRE10AE2	30 (020.139.171)	-		<b>^</b>
Advanced	Numb	er of analogue variables	;				
			C Kwh				
			Kwh-V-A-W				
			Kwh-V-A-W-Wdm	d-PF-VA-Var			=
			Min		Max		
	Trans	nission power					
	~ A	dvanced settings					•
		<b>&lt;&lt;&lt;</b>				C	onfirm

In the *Number of analogue variables* field, the user can select the relevant group of analogue variables, as shown in the red rectangle in the picture below.

Wizard				
Edit modu	ule <sub>Module</sub>			
			Properties	
Wizard Steps	Name K3 SHJWEM16A23	0		
Input signals	SIN:	002 🗧 246 🗧	196 🗘 Subne	et Wireless 1
Output signals	Properties Info			
Properties	Module for routing	K2 SHJWRE10AE230 (020.139.171)		<b>^</b>
Advanced	Number of analogue varia	ables		
		C Kwh		
		Kwh-V-A-W		
		Kwh-V-A-W-Wdmd-PF-VA-Var		=
		Min	Max	
	Transmission power			
	<ul> <li>Advanced settings</li> </ul>			•
	<<<	>>>		Confirm





In the *Transmission power* field, the user can also manage the transmission power of the module by moving the slider.

If there are metallic parts shielding the wireless field or if a longer distance is needed, the strength of the wireless field can be increased.

Wizard			
Edit mod	lle <sub>Module</sub>		
		Properties	
Wizard Steps	Name K3 SHJWEM16A230		
Input signals	SIN: 002	246 😜 196 🗘 Subnet Wirele:	ss 1 🔽
Output signals	Properties Info		
Properties	Module for routing K2 SHJWR	E10AE230 (020.139.171)	<b></b>
Advanced	Number of analogue variables		
	🔘 Kwh		
	Kwh-V-A-	W	
		W-Wdmd-PF-VA-Var	=
	Min	Max	
	Transmission power		
	<ul> <li>Advanced settings</li> </ul>		•
	<b>~~~</b>	(	Confirm

In the *Advanced settings* fields, the user can set the range of variation: if the value read differs from the last value sent by a number bigger than the one defined in these fields, the new value is sent otherwise it will not be.

Wizard		□ ×
Edit modu	lle <sub>Module</sub>	
		Properties
Wizard Steps	Name K3 SHJWEM16A230	
Input signals	SIN: 002 🗧	246 🗧 196 🕃 Subnet 🛛 Wireless 1 💽
Output signals	Properties Info	
Properties	Min	Max
Advanced	Transmission power	
	<ul> <li>Advanced settings</li> </ul>	
	Difference between two readings to send the	energy value (Kwh) 0.1
	Difference between two readings to send the	power value (W)
	Difference between two readings to send the	voltage value (V) 0.1 🗧
	Difference between two readings to send the	current value (A) 0.001 😜
	<<< >>>	Confirm





#### 7.9.3 How to manage the routing tree

The wireless modules can be assigned directly to the wireless base unit, or a module with routing capability can be used as router/repeater between the base unit and the module to be reached, if this is placed in an area not covered by the SH2WBU230x: in this situation it is possible to extend the operating distance by using up to two modules as routers/repeaters. A wireless module with routing capability must be used, such as SHJWRE10AExxx, SHJWD200WExxx, SHJWEM16Axxx or SHDWRE16AE230.

# The new generation SH2WBU230N can manage up to two levels of routing, whereas the SH2WBU230 and SHDWRE16AE230 can manage only one level of routing.

There are two ways to generate the Routing tree.

#### 7.9.3.1 In the Properties window of the module

In the *Properties* window, in the *Module for routing* field, the user can select the way the wireless module connects to the SH2WBU230x: either directly or via a router.

Wizard		
Edit mod	ule <sub>Module</sub>	
		Properties
Wizard Steps	Name K3 SHJWEM16A230	
Input signals	SIN: 002	246 🕄 196 🕄 Subnet Wireless 1 🔽
Output signals	Properties Info	
Properties	Module for routing K1 SH2WBU230N (0.	20.107.032)
Advanced	Number of analogue variables	
	◯ Kwh	
Wizard		= ×
Edit mod	ule <sub>Module</sub>	
		Properties
Wizard Steps	Name K41 SHA4XWLS4	
Input signals	SIN: 001 😜	187 🗧 127 🗧 Subnet Wireless 1 💽
Output signals	Properties Info	
Properties	Module for routing K1 SH2WBU230N (020.107.032	
<ul> <li>Advanced</li> </ul>		





### 7.9.3.2 In the Routing tree window of the wireless base unit

In the *Routing tree* window, an overview of the wireless connection tree is shown. The user can change the associations of the modules by means of drag-and-drop actions.

In the example shown below, the window sensor (K63 SHDWWISENIN1) is connected indirectly to the SH2WBU230N and it uses a wireless energy meter and a wireless relay (K3 SHJWEM16A230 and K2 SHJWRE16AE230) as routers to communicate to the wireless base unit. The wireless dimmer (K4 SHJWD200WEWLS230) has only one router to communicate to the wireless base unit (K2 SHJWRE16AE230). The positioning of the modules in the right locations has to be done using *drag & drop*, according to the following steps:

1. Move the mouse pointer until it is directly over the module you want to move.

Wizard						
Edit modu	ıle	Bus gen	erator			
	_				Routing tree	
Wizard Steps	Name	K1 SH2WB	3U230N			
Properties	SIN:		020	107 🕄	032 🗜	Subnet Wireless 1
Routing tree		🔓 кі sh	12WBU230N	SH2WBU230N	020.107.032	Root
<u> </u>		🖃 🎼 ка	2 SHJWRE10AE230	SHJWRE10AE230	020.139.171	Root
	_	- 1	K4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205	Root
		-	K3 SHJWEM16A230	SHJWEM16A230	002.246.196	Root
	Þ		K63 SHDWWISENIN1	SHDWWISENIN1	001.203.136	Root
			K41 SHA4XWLS4	SHA4XWLS4	001.187.127	Root
						)
		<<<	>>>			Confirm

2. Press and hold down the left mouse button. When you start moving the module, a tool tip will appear (see the yellow box in the picture below): in the *Module* field the name of the module to be moved is shown, while in the *Repeater* field there is the name of the module with routing capability which the source module is associated to.



Wizard Edit moo	dule	Bus generator			• •
				Routing tree	
Wizard Steps	Name	K1 SH2WBU230N			
<u>Properties</u>	SIN:	020	107 🔁	032 🗧 Si	ubnet Wireless 1
Routing tree  Advanced	-	K1 SH2WBU230N SH	2WBU230N	020.107.032	Root
Advanced		🖃 👔 K2 SHJWRE10AE230 SH	JWRE10AE230	020.139.171	Root
		- 🎁 K4 SHJWD200WEWLS230 SH	JWD200WEWLS230	002.246.205	Root
		E 👔 K3 SHJWEM16A230 SH	JWEM16A230	002.246.196	Root
	•	K63 SHDWWISENIN1 SH	DWWISENIN1	001.203.136	Root
		K41 SH Drag and d	rop	001.187.127	Root
		Module: K63 SHDV	WISENIN1		
		Repeater: K3 SHJW	/EM16A230		
		***			Confirm

3. With the left mouse button held down, drag the object to the desired location (over the K4 SHJWD200WEWLS230 module as shown in the example below).

Wizard								
Edit mode	ule	Bus generator						
	_				Routing tree			
Wizard Steps	Name	K1 SH2WBU230N						1
Properties	SIN:	020	•	107 🛟	032 🗘	Subnet	Wireless 1	Ī
Routing tree	-	K1 SH2WBU230N	SH2V	WBU230N	020.107.032	Root		
Advanced	-	K2 SHJWRE10A	4F230 SHIW	VRE10AE230	020.139.171	Root		
	-					Root		
		B (4 SHJWD	200WEWLS230 SHJW	VD200WEWLS2	230 002.246.205	Root		
		🖃 👔 кз SHJWE	Drag and dr	rop	002.246.196	Root		
	Þ	- 🗍 (63 SI	Module: K63 SHDW	WISENIN1	001.203.136	Root		
	-	K41 SI	Repeater: K4 SHJWD20	00WEWLS230	001.187.127	Root		
		<<< >>>					Con	ıfirm

CARLO GAVAZZI





4. Drop the module by releasing the left mouse button: the window sensor (K63 SHDWWISEN1) module is now assigned to the wireless dimmer (K4 SHJWD200WEWLS230), as shown in the picture below.

Wizard							□ ×				
Edit modu	ıle	Bus g	generator								
	_				Routing tree						
Wizard Steps	Name	K1 SH2	2WBU230N								
Properties	SIN:		020 😜	107 📮	032 🗧	Subnet W	ireless 1 🔽				
Routing tree  Advanced	-	6 к1	SH2WBU230N	SH2WBU230N	020.107.032	Root					
Advanced					K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171	Root			
		-	K4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205	Root					
	-	•	•	-	•		K63 SHDWWISENIN1	SHDWWISENIN1	001.203.136	Root	
								K3 SHJWEM16A230	SHJWEM16A230	002.246.196	Root
			K41 SHA4XWLS4	SHA4XWLS4	001.187.127	Root					
		<<<	>>>				Confirm				





**N.B.** The *Repeater* module must be a wireless base unit or a wireless module with routing capability: when a *drag & drop* action is performed on a not-allowed *repeater* module, the *Repeater* field shown by the tool tip is highlighted in red: in the example below, the module SHA4XWLS4 can't be used as a router module for the SHDWWISENIN1, since it does not have routing capabilities.

Wizard								
Edit modul	le	Bus g	generator					
	_				Routing tree			
Wizard Steps	Name	K1 SH2	2WBU230N					
	SIN:		020 😜	107 🕄	032 🕃 Su	ubnet Wireless 1		
Routing tree	-	🔓 к1	L SH2WBU230N	SH2WBU230N	020.107.032 R	loot		
		- <b>p</b>	K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171 R	Root		
		-	K4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205 R	Root		
	Þ		63 SHDWWISENIN1	SHDWWISENIN1	001.203.136 R	Root		
				K3 SHJWE 116A230	SHJWEM16A230	002.246.196 R	Root	
			K41 SHA4XWLS4	SHA4XWLS4	001.187.127 R	Root		
			Drag an	d drop				
			Module: K63 SH	DWWISENIN1				
		~~~	Repeater: K41	SHA4XWLS4		C	Confirm	

The following are some examples of routing trees.

Example 1: all the wireless modules are directly connected to the wireless base unit (please see the green rectangle).

Wizard Edit modu	le	Bus generator			× =									
				Routing tre	ee									
Wizard Steps	Name	K1 SH2WBU230N												
Properties	SIN:	020 😜	107 🗧	032	Subnet Wireless 1									
Routing tree	-	K1 SH2WBU230N	SH2WBU230N	020.107.032	Root									
- / distances		K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171	Root									
		-									👘 КЗ ЅНЈШЕМ16А230	SHJWEM16A230	002.246.196	Root
						— 🍺 к4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205	Root					
			K6 SHDWWISENIN1	SHDWWISENIN1	000.000.000	Root								
				K7 SHE5XWLS4	SHE5XWLS4	000.000.000	Root							
	-	<<< >>>>			Confirm									





Example 2: SHDWWISENIN1 and SHE5XWLS4 modules are connected indirectly and they use the SHJWD200WEWLS230 module as a router to communicate with the wireless base unit (see the green rectangle in the picture below). The SHJWRE10AE230 and the SHJWEM16AE230 are directly connected to the wireless base unit.

Wizard					
Edit modu	ule	Bus generator			
				Routing tree	
Wizard Steps	Name	K1 SH2WBU230N			
<u>Properties</u>	SIN:	020 🗧	107 🗧	032 🗧	Subnet Wireless 1
Routing tree	8-	K1 SH2WBU230N	SH2WBU230N	020.107.032	Root
		- 🎼 K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171	Root
		— 🎼 КЗ ЅНЈѠЕМ16А230	SHJWEM16A230	002.246.196	Root
		😑 🇊 K4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205	Root
		- 📔 K6 SHDWWISENIN1	SHDWWISENIN1	000.000.000	Root
	_	K7 SHE5XWLS4	SHE5XWLS4	000.000.000	Root
					)
		<<< >>>>			Confirm

In the picture below the SHDWWISENIN1 and the SHE5XWLS4 modules are indirectly connected to the wireless base unit through two routers: the first router is the SHJWEM16AE230 module and it is directly connected to the wireless base unit; the second one is the SHJWD200WEWLS230 and it is between the first router and the other two slave modules (SHDWWISENIN1 and the SHE5XWLS4), as shown in the green rectangle in the picture below.

Wizard Edit modu	ıle	Bu	ıs ger	nerator					× =
							Routing tree		
Wizard Steps	Name	K1	L SH2W	/BU230N					
Properties	SIN:			020 🕄		107 🚦	032 🚦	Subnet (	Wireless 1
Routing tree	• =-	5	K1 S	H2WBU230N	SH2V	VBU230N	020.107.032	Root	
Advanced			k	K2 SHJWRE10AE230	SHJW	/RE10AE230	020.139.171	Root	
		-	New K	K3 SHJWEM16A230	SHJW	/EM16A230	002.246.196	Root	
		- [	<u> </u>	K4 SHJWD200WEWLS230	SHJW	D200WEWLS230	002.246.205	Root	
				K6 SHDWWISENIN1	SHDV	WWISENIN1	000.000.000	Root	
				K7 SHE5XWLS4	SHE5	XWLS4	000.000.000	Root	
		1							
		<<<	<	>>>					Confirm





In the example shown below the two levels of routing have been exceeded and since this is not possible, the modules are marked in red.

Wizard					□ ×
Edit modu	ıle	Bus generator	Pa	outing tree	
	_		KU	uting tree	
Wizard Steps	Name	K1 SH2WBU230N			
Properties	SIN:	020 🗧	107 🗧	032 🗧 Subr	et Wireless 1
Routing tree	) =-	K1 SH2WBU230N S	H2WBU230N	020.107.032	Root
		E K2 SHJWRE10AE230 S	HJWRE10AE230	020.139.171	Root
		E 🕼 K3 SHJWEM16A230 S	HJWEM16A230	002.246.196	Root
	_	K4 SHJWD200WEWLS S	HJWD200WEWLS230	002.246.205	Root
	_	- 🦷 K6 SHDWWISENII S	HDWWISENIN1	001.203.136	Root
		K7 SHA4XWLS4	HA4XWLS4	001.187.127	Root
		<<< >>>>			Confirm

The table below shows the routing capability and the maximum operating distance in the open air for each wireless module when it is connected to the wireless base unit SH2WBU230N:

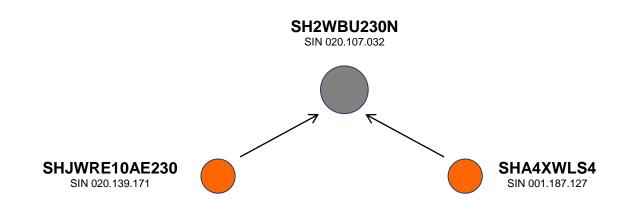
WiDup module	Routing capability	Operating distance
SHJWRE10Axxx	YES, 2 levels	700 mt. open air
SHJWRE10AExLS230	YES, 2 levels	700 mt. open air
SHJWD200WExxx	YES, 2 levels	700 mt. open air
SHJWD200WExLS230	YES, 2 levels	700 mt. open air
SHJWEM16Axxx	YES, 2 levels	700 mt. open air
SHDWRE16AE230	YES, 1 level	100 mt. open air
SHA4XWLS4	NO	100 mt. open air
SHE5XWLS4	NO	100 mt. open air
SHDWWISENxxx	NO	100 mt. open air





### 7.9.4 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 SH2WBU230x.



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).

Wizard		□ ×
Edit mod	ule <sub>Module</sub>	
Ψ.		Properties
Wizard Steps	Name K2 SHJWRE10AE230	
Input signals	SIN: 020	139 🕄 171 🕃 Subnet Wireless 1 🔽
Output signals	Properties Info	
Properties .	Module for routing K1 SH2WBU2	30N (020.107.032)
<ul> <li>Advanced</li> </ul>	Number of analogue variable	
	None	
Wizard		
Edit mod	ule <sub>Module</sub>	
		Properties
Wizard Steps	Name K41 SHA4XWLS4	
Input signals		187 🗧 127 🗧 Subnet 🛛 Wireless 1 💽
	SIN: 001	10/
Output signals	SIN: 001 -	10/ • 12/ • Subnet Wireless 1





The picture below shows an example of a direct connection of two modules to the wireless base unit SH2WBU230x.

Wizard					□ ×
Edit modu	ıle	Bus generator		P. dia ta	
	_			Routing tree	
Wizard Steps	Name	K1 SH2WBU230N			
Properties	SIN:	020 🗧	107 🛟	032 🗧 Subnet 🛛 Wi	reless 1 🔽
Routing tree		K1 SH2WBU230N	SH2WBU230N	020.107.032 Root	
		— 👔 K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171 Root	
		K41 SHA4XWLS4	SHA4XWLS4	001.187.127 Root	
		~~~ >>>			Confirm

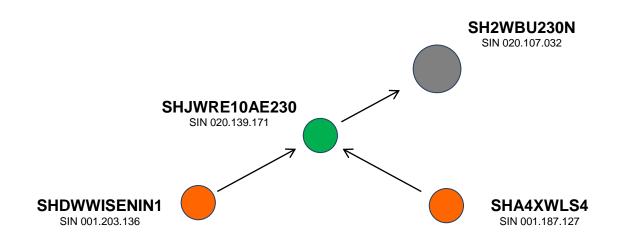




### 7.9.5 How to indirectly connect a module to the wireless base unit using one level of routing

The picture below shows a simple example of an indirect connection of two modules to the wireless base unit SH2WBU230x. One relay module (green dot, SHJWRE16AE230) is used as router and it is directly connected to the wireless base unit. The pushbutton (SHA4XWLS4) and the window sensor (SHDWWISENIN1) are connected indirectly and they use the relay to communicate to the wireless base unit.

NOTE: The modules that use a router might not be seen by the SH2WBU230 so they will not appear in the orphan network discovery. In this situation they have to be added manually.







The picture below 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.

Wizard		
Edit mod	ule <sub>Module</sub>	Properties
Wizard Steps	Name K2 SHJWRE10AE230	
Input signals	SIN: 020	139 🕄 171 🕄 Subnet Wireless 1 🔍
Output signals	Properties Info	137 • 171 • Sublict Wildless 1
Properties		0.107.032)
Advanced	Module for routing K1 SH2WBU230N (02) Number of analogue variables	<b>D</b>
	None	
Wizard		
Edit mod	ule <sub>Module</sub>	Properties
Wizard Steps		· · · · · · · · · · · · · · · · · · ·
Input signals	Name K63 SHDWWISENIN1	
Output signals	SIN: 001	203 🗧 136 🗧 Subnet Wireless 1 🔽
	Properties Info	
Properties	Module for routing K2 SHJWRE10AE230 (020	0.139.171)
Advanced	Input sleeping time (ms) 250	
Wizard		
Edit mod	ule Module	
		Properties
Wizard Steps	Name K41 SHA4XWLS4	
Input signals	SIN: 001	187 🛟 127 🗧 Subnet Wireless 1 🔽
Output signals	Properties Info	
Properties		9.171)
Advanced	Module for routing K2 SHJWRE10AE230 (020.13	5-1 ( 1 ) · · · · · · · · · · · · · · · · · ·

The picture below shows an example of an indirect connection where a wireless relay module is used as router.

Edit modu	ıle	Bus generator			× =
	_			Routing tree	•
Wizard Steps	Name	K1 SH2WBU230N			
Properties	SIN:	020 🗧	107 🗧	032 🗧	Subnet Wireless 1
Routing tree  Advanced		K1 SH2WBU230N SH2	VBU230N	020.107.032	Root
Advanced		🖃 🍿 K2 SHJWRE10AE230 👘 SHJV	/RE10AE230	020.139.171	Root
		— 📕 K63 SHDWWISENIN1 SHD	WWISENIN1	001.203.136	Root
		- K41 SHA4XWLS4 SHA	XWLS4	001.187.127	Root
		~~~			Confirm



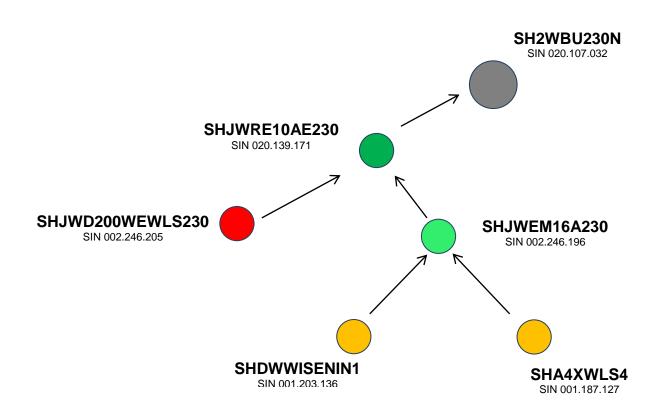


#### 7.9.6 How to indirectly connect a module to the Wireless base using two levels of routing

The picture below shows a simple example of an indirect connection of two modules to the wireless base unit SH2WBU230N.

One relay module (green circle, SHJWRE10AE230) is used as a router and it is directly connected to the wireless base unit (grey circle, SH2WBU230N). The wireless dimmer module (red circle, SHJWD200WEWLS230) and the wireless energy meter (light green circle, SHJWEM16A230) are connected indirectly and they use the relay to communicate to the wireless base unit. The wireless energy meter is used as a second router and it is directly connected to the first router. The window sensor module and the pushbutton (orange circles, SHDWWISENIN1 and SHA4XWLS4) are connected indirectly and they use the wireless energy meter as a second router to communicate to the wireless base unit.

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







The picture below shows how to set the *Properties* of the modules in order to perform the indirect connection of the above example, where two levels of routing are used.







The picture below shows an example of an indirect connection where two levels of routing are used.

Wizard Edit mod	lule	Bus generator			× =
				Routing tree	
Wizard Steps	Name	K1 SH2WBU230N			
Properties	SIN:	020 🛟	107 🗧	032 🛟	Subnet Wireless 1
Routing tree	-	K1 SH2WBU230N	SH2WBU230N	020.107.032	Root
Advanced		🖻 👔 K2 SHJWRE10AE230	SHJWRE10AE230	020.139.171	Root
		K4 SHJWD200WEWLS230	SHJWD200WEWLS230	002.246.205	Root
		🖃 🎼 K3 SHJWEM16A230	SHJWEM16A230	002.246.196	Root
		K41 SHA4XWLS4	SHA4XWLS4	001.187.127	Root
		K63 SHDWWISENIN1	SHDWWISENIN1	001.203.136	Root
	Ĩ				
		<b>***</b>			Confirm





# 7.10 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.

Modules					
	Part number	Subnet	Name	SIN	Location
· 📎	RS485COM2M	COM 2	K4 RS485COM2MASTER		Root

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



# **CARLO GAVAZZI** Automation Components

File Views Reports	Add Program setup Database	Help						
i (* (* (* (* (* (* (* (* (* (* (* (* (*	💡 📃 📜	7 14	1 <sub>2</sub> 3	123	Š			SMS
	ght & Up and down Temperature	e Alarm Calendar	Sequence	Dimmer sequence	Timers	Basic	Simulated habitation	Sms setup
aster Medules Locations	Control		Functio				nubitation	secup
ations								
Wizard								
	a duda							
Add me	oaule <sub>Module</sub>							
				Selec	t modu	ıle		
du				-				
Wizard Steps	Groups	Modules	-			Descript	ion	
Select module	Light switches	EM2172DAV53XOSPI	AD					
Input signals	Motion detectors	EM2172DAV53XOSPI	AP 🗏					
	Temperature	EM2172DAV53XOSPI	BD					
Output signals	Temperature Sensors	EM2172DAV53XOSPI EM2172DAV53XOSPI						
Output signals Properties	Sensors	EM2172DAV53XOSPI	BP					
Output signals	Sensors Alarm products	EM2172DAV53XOSP EM2172DAV53XOSX	BP					
Output signals Properties	Sensors Alarm products Decentral units	EM2172DAV53XOSP EM2172DAV53XOSX EM2172DAV63XOSP	AD AP					
Output signals Properties	Sensors Alarm products Decentral units Cabinet	EM2172DAV53XOSPI EM2172DAV53XOSX EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI	AD AP BD					
Output signals Properties	Sensors Alarm products Decentral units Cabinet MasterGlass switches	EM2172DAV53XOSPI EM2172DAV53XOSX EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI	AD AP BD					
Output signals Properties	Sensors Alarm products Decentral units Cabinet MasterGlass switches MasterGlass temp. display	EM2172DAV53XOSPI EM2172DAV53XOSX EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI	BP FAD FAP FBD FBP					
Output signals Properties	Sensors Alarm products Decentral units Cabinet MasterGlass switches MasterGlass temp. display Energy management	EM2172DAV53XOSPI EM2172DAV53XOSXI EM2172DAV63XOSXI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI	BP AD BD BP					
Output signals Properties	Sensors Alarm products Decentral units Cabinet MasterGlass switches MasterGlass temp. display Energy management Weather station	EM2172DAV53XOSPI EM2172DAV53XOSX EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSX EM2172DAV63XOSX	BP AD BD BP					
Output signals Properties	Sensors Alarm products Decentral units Cabinet MasterGlass switches MasterGlass temp. display Energy management Weather station	EM2172DAV53XOSPI EM2172DAV53XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSPI EM2172DAV63XOSX EM2172VMV53XOSX EM2172VMV53XOSX	BP AD BD BP					

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:

-	EnergyGrpem COM 2	K7 EnergyGrpem24-av0	Root

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





Wizard		×
Edit mod	ule <sub>Module</sub>	1
	Properties	
Wizard Steps	Name K120 EnergyGrpem24-av0	
Input signals	Properties Info	
Output signals	Modbus ID 0	
Properties		
Advanced	Data length 8	
	Baud rate 19200	
	Parity 0 2 1	
	Stop bit 1 2	
		_)
	<<< >>>> Cor	nfirm

# 7.11 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.

Input signals Motio Temp Output signals Senso Properties Alarm	Module Groups switches an detectors erature	Modules SHOWEAGPS	Choose module Description	
Choose module Light Input signals Dutput signals Senso Properties Alarm (*) Advanced Cabin Wirele Energy	switches on detectors			
Choose module Light Input signals Dutput signals Senso Properties Alarm (*) Advanced Cabin Wirele Energy	switches on detectors		Description	
Input signals Motio Temp Output signals Senso Properties Alarm Advanced Cabin Wirele Energy	n detectors	SHOWEAGPS		
Input signals Temp Output signals Senso Properties Alarm Advanced Cabin Wirele Energy				
Properties Alarm Alarm Advanced Decer Cabin Wirele Energy				
Advanced     Decer     Cabin     Wirele     Energy				
Cabin Wirek Energ	products			
Show	all		Cancel	Confirm





# 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).

	DE		<b>X</b>   🕞	🗯 🕂 (	🦗 📩 🖳 🥥			Sm	art House C	onfigurator	[File not saved	d] - 1.1.1	
	File	Views	Repor	ts Add	Program setup	Da	tabase He	elp					
New	Open	Save	Save as	Wired dow Wireless do Force prog		▼ ▼	Send to controller	Read from controller	Hodules	Orphans modules	Controllers	Enable live signals	Disable live signals
Project					Configuration			Discovery			Live signals		
Location													

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.

Network and module discovery
<ul> <li>Searching submasters         <ol> <li>Networks synchronized</li> <li>Searching modules</li> <li>Found 6 Modules: [6]</li> <li>Automatic modules merging</li></ol></li></ul>





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.

an ne	etworks Add missing m	odules Modu	ile report 0	9%	J
		Network	Name	SIN	Location
	SH2WBU230 [8]	Wireless 1	K1 SH2WBU230	001.189.051	Root
	SH2MCG24 [15]	Net 1	K2 SH2MCG24	001.016.073	Root
-	SHE5XLS4TH	Net 1	K6 SHE5XLS4TH	001.015.053	Root
-	SHA4XLS4TH	Net 1	K7 SHA4XLS4TH	001.015.085	Root
+	SHA4XTEMDIS	Net 1	K8 SHA4XTEMDIS	001.015.020	Root
-	SH2D500WE230	Net 1	K9 SH2D500WE230	001.015.160	Root
+	😑 BSG-SMO-U	Net 1	K10 BSG-SMO-U	001.011.110	Root
+	BSF-WAT-U	Net 1	K11 BSF-WAT-U	001.009.125	Root
+	SHE5XP90L	Net 1	K12 SHE5XP90L	001.014.037	Root
+	SH2RODC224	Net 1	K13 SH2RODC224	001.014.054	Root
-	SH2RE16A2E230	Net 1	K14 SH2RE16A2E230	001.010.074	Root
-	SHE5XTEMDIS	Net 1	K15 SHE5XTEMDIS	001.020.221	Root

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)

an networks Add missing modules Module report 0%							
	Network	Name	SIN	Location			
SH2WBU230 [8]	Wireless 1	K2 SH2WBU230	001.189.051	Root			
SH2MCG24 [15]	Net 1	K1 SH2MCG24	001.016.073	Root			
SHE5XLS4TH	Net 1		001.015.053				
SHA4XLS4TH	Net 1		001.015.085				
SHA4XTEMDIS	Net 1		001.015.020				
SH2D500WE230	Net 1		001.015.160				
😑 BSG-SMO-U	Net 1		001.011.110				
BSF-WAT-U	Net 1		001.009.125				
SHE5XP90L	Net 1		001.014.037				
SH2RODC224	Net 1		001.014.054				
SH2RE16A2E230	Net 1		001.010.074				
SHE5XTEMDIS	Net 1		001.020.221				

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





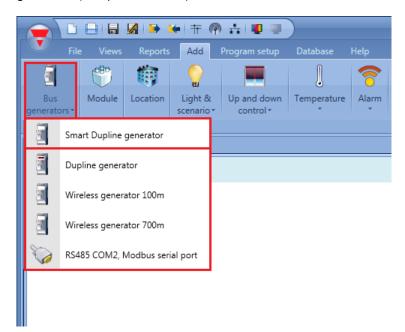
# 8.3 How to add the modules manually

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.

	<b>X</b>   🖦	<b>₩</b>  ∓ -	4					
Ela Viaur	Repo	rts Add	Setup Help					
<b>i</b> (***	1			Į	7	14	1 <mark>2</mark> 3	Ć
Bus Module extension *	Location	Light & scenario *	Up and down control •	Temperature	Alarm	Calendar	Sequence	Tim
Maste Modules	Locations					1	Functions	
Locations								
🕨 — 🐺 Root 💾								-
	Add a bu						×	
	Net 1							
	SH2DUG24					Dup 1		
		SH2WBU23	30		Wirele	ss 1		
		SH2WBU23	30N		Wirele	eless 1		
		RS485 CON	/12, Modbus se	rial port	COM 2	2		
							v	
					Cance		Confirm	Ц
Modules								

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).

Sx tool manual



Wizard				×
Add modu	ule	Bus generator		
	_		Properties	_
Wizard Steps	Name	K5 SH2MCG24		
Properties .	SIN:	000	000 🕃 000 🕃 Subnet Net 2 💽	
			Properties	
<ul> <li>Advanced</li> </ul>	Pro	perties Info		
	ĺ			
				/
			Cancel Confirm	

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.

Wizard Add mod	dule <sub>Module</sub>		×
			Choose module
Wizard Steps	Groups	Modules	Description
Choose module	Light switches Motion detectors	B4X-LS4-U B5X-LS4-U	
Input signals Output signals	Temperature	BEW-LS1-U	
Properties	Sensors Alarm products	BEW-LS2-U BEW-LS3-U	
Advanced	Decentral units Cabinet	BEW-LS4-U SH-8158	ir.
	Glass switches	SHA4XLS4P90L	
	Glass temperature display Show all	SHE5XLS4P90L	Light switch with programmable white and blue LEDs, and with integrated PIR and lux sensor.
			Number of elements
			1
	<<< >>>>		Cancel

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.

**CARLO GAVAZZI** 







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.

	Network	Name	SIN	Location	
SH2WBU230 [2]	Networks undefined		001.190.117		
SHA4XWLS4	Networks undefined		001.208.145		
SHDWRE16AE230	Networks undefined		001.207.179		
SH2MCG24 [10]	Networks undefined		001.047.203		
SH2RE16A2E230	Networks undefined		001.023.236		
SH2RE16A4	Networks undefined		001.205.086		
SH2D500WE230	Networks undefined		001.229.051		
SH2ROAC224	Networks undefined		001.030.156		
B4X-PIR90-U	Networks undefined		001.014.125		
SHA4XTEMDIS	Networks undefined		001.018.117		
SHA4XLS4TH	Networks undefined		001.226.068		
SHA4XP150L	Networks undefined		001.172.047		
B4X-LS4-U	Networks undefined		001.020.175		
SH2INDI424	Networks undefined		001.024.014		

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.

м	Iodules							<b>4 х</b>
							Filter optio	ns 👻
		Part number	Subnet	Name	SIN	Location Fi	d SIN	
Þ		SH2MCG24	Net 1	K3 SH2MCG24	000.000.000	Root	Ŧ	
		<u>B4X-LS4-U</u>	Net 1	K4 B4X-LS4-U	000.000.000	<u>Root</u>	ŤŤ	
		SHA4XP90L	Net 1	K5 SHA4XP90L	000.000.000	Root	ŦŦ	
		SH2RE16A2E230	Net 1	K6 SH2RE16A2E230	000.000.000	<u>Root</u>	ŦŦ	
		SHA4XTEMDIS	Net 1	K7 SHA4XTEMDIS	000.000.000	<u>Root</u>	Ŧ	
		<u>B5X-LS4-U</u>	Net 1	K8 B5X-LS4-U	000.000.000	<u>Root</u>	ŤŤ	•





-1-

If the association is carried out from the *Module* window, when clicking on **LUD**, 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.

Matching Discoverd		_ = ×
🕨 📑 B4X-LS4-U	Net 1	001.013.046
B4X-LS4-U	Net 1	001.020.175

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).

Information		×
	No modules of this type found	
	ОК	3





# 9 How to add wireless modules in the project

### 9.1 Global discovery of wireless modules

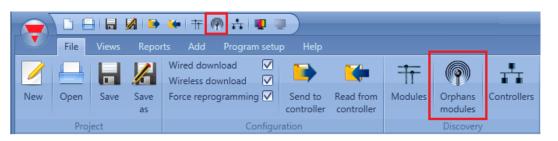
The global discovery finds all the wireless modules present in the wireless field covered by a SH2WBU230 base unit: it automatically shows only the "orphan" modules (an "orphan" module is a module that has never been programmed before as it is only just out of the factory).

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.

		Network	Name	SIN	Location	
SH2WBU23	80 [8]	Wireless 1	K1 SH2WBU230	001.189.051	Root	
SHDWR	E16AE230	Wireless 1		001.207.088		
SHA4XV	VLS4	Wireless 1		001.188.003		
SHDWR	E16AE230	Wireless 1		001.206.173		
SHDWR	E16AE230	Wireless 1		001.206.153		
SHDWR	E16AE230	Wireless 1		001.207.001		
SHDWR	E16AE230	Wireless 1		001.206.161		
SHDWR	E16AE230	Wireless 1		001.207.051		
SHDWR	E16AE230	Wireless 1		001.207.182		





Orphans modules

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*.

an networks Add missing modules Module report 100 %					
	Network	Name	SIN	Location	
SH2WBU230 [8]	Wireless 1	K1 SH2WBU230	001.189.051	Root	
SHDWRE16AE230	Wireless 1	K3 SHDWRE16AE230	001.207.088	Root	
SHA4XWLS4	Wireless 1	K4 SHA4XWLS4	001.188.003	Root	
SHDWRE16AE230	Wireless 1	K5 SHDWRE16AE230	001.206.173	Root	
SHDWRE16AE230	Wireless 1	K6 SHDWRE16AE230	001.206.153	Root	
SHDWRE16AE230	Wireless 1	K7 SHDWRE16AE230	001.207.001	Root	
SHDWRE16AE230	Wireless 1	K8 SHDWRE16AE230	001.206.161	Root	
SHDWRE16AE230	Wireless 1	K9 SHDWRE16AE230	001.207.051	Root	
SHDWRE16AE230	Wireless 1	K10 SHDWRE16AE230	001.207.182	Root	
SH2MCG24 [15]	Net 1	K2 SH2MCG24	001.016.073	Root	
SHE5XLS4TH	Net 1	K11 SHE5XLS4TH	001.015.053	Root	
SHA4XLS4TH	Net 1	K12 SHA4XLS4TH	001.015.085	Root	

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.

# **CARLO GAVAZZI** Automation Components



# **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.





Wizard Add Func	tion Light	\$
E .		On/Off Signals
Wizard Steps	Function Name: (Fx) Root - Light Function	
On/Off Signals	Signals Notes	
Controlled Outputs Feedback Signals Advanced Userstor Hotion detectors Calendar Cale		Signal Settings Signal Properties

#### 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.

🖌 Signals Fin	der			-	. <b>D</b> >
Search		Location			
		General			
Signals	✓ Functions	Group By Owner		Group By Subnet	
• 🖸 💽 🥖	1: Kitchen Switch K2 Push1	Kitchen	Net 1	001.013.126	
	2: Kitchen Switch K2 Push2	Kitchen	Net 1	001.013.126	
$\Box \diamond$	3: Kitchen Switch K2 Push3	Kitchen	Net 1	001.013.126	
$\Box \diamond$	4: Kitchen Switch K2 Push4	Kitchen	Net 1	001.013.126	
	(Fx) Root - Light Function.Fx Status (On/Off) Light	Root	Fx state		
	1: Bathroom Motion detectors K4 Pir1	Bathroom	Net 1	001.020.169	
				Cancel Con	firm

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  $\rightarrow$  not used in any function
- blue signal  $\rightarrow$  the signal is already used in another function
- blue signal + warning signal (yellow triangle)  $\rightarrow$  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  $\stackrel{1 \to 0}{\longrightarrow}$ , toggle mode  $\stackrel{1 \to 0}{\longrightarrow}$  (every pulse toggles the function), level mode  $\stackrel{1 \to 0}{\longrightarrow}$  (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 [15] (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.

Wizard		*
Add func	tion Light	Or / / fi simula
U		On/off signals
Wizard Steps	Function name: (Fx) Root - Light function	
On/off signals Controlled outputs	Signals Notes	Working mode
Feedback signals		0→1 1→0
Energy save timer		₽3 📘 💽 =
		Event type
		Long press reloads Signal settings Signal properties
	<	Cancel Confirm





Here are some examples:

	Event type				
Working mode					
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 switc signal goes OFF.	hed on when the signa	al goes ON, and it is sv	vitched off when the	

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.

Wizard		
Edit Fund	ction Light	
		On/Off Signals
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	
On/Off Signals	Signals Notes	,
Controlled Outputs	1: Kitchen Switch K2 Push1	Event type
Feedback Signals	_	
Motion detectors Energy Save Timer		
		Energy Save Reload
		Disable Energy Save Timer
		Signal Settings Signal Properties
	>>>>	Confirm





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.

Wizard		×
Edit fund	c <b>tion</b> Light	On/off signals
U		Onyon signals
Wizard Steps	Function name: (Fx) Root - Light east 3	
On/off signals	Signals Notes	
Controlled outputs	3: Root Wireless K4 Push 3	Source details
Feedback signals		K4 SHA4XWLS4
<ul> <li>Advanced</li> </ul>		Available mode
Energy save timer		
		Long activation (s)
		Very long activation (s)
		4
		Apply to all
		Signal settings Signal properties
		Confirm

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

Wizard			×
Edit Fund	ction Light	On/Off Signals	
Wizard Steps	Function Name: (Fx) Kitchen - Light Function		
Controlled Outputs	Signals Notes 1: Kitchen Switch K2 Push1	<b>○→1</b> 1→0	•
Feedback Signals	-	0→1	
Motion detectors		Event type	
Energy Save Timer			
		Inverted	•
		Signal Settings Signal Properties	s
	<b>&gt;&gt;&gt;</b>	Confirm	





## Switch and Function:

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

	Event type				
Working	Signal activated	Signal deactivated			
mode					
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:

		Event type			
Working Signal activated		Signal activated	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.

arch			Loca	tion		
			Ger	neral		
) Signals		✓ Functions	🗌 Grou	up By Owner	Group By Subnet	
🗐 Subr	net: Net 1					
	$\mathbb{N}^{\circ}$	10: Cabinet Relay Module K3 Re2		Cabinet	001.001.005	
	<b></b>	9: Cabinet Relay Module K3 Re1		Cabinet	001.001.005	
	<b>¢</b>	6: Kitchen Switch K2 Led2		Kitchen	001.013.126	
	$\diamond$	7: Kitchen Switch K2 Led3		Kitchen	001.013.126	
	<b>\</b>	8: Kitchen Switch K2 Led4		Kitchen	001.013.126	
	۲	5: Bathroom Motion detectors K4 Led1		Bathroom	001.020.169	

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).

Wizard		×
💫 Edit Func	tion Light	
U		Controlled Outputs
Wizard Steps	Function Name: (Fx) Kitchen - Light Function Signals Notes	
Controlled Outputs	9: Cabinet Relay Module K3 Re1	Available Mode
Advanced      Motion detectors		Inverted
Energy Save Timer		
		Signal Settings Signal Properties
	<	Confirm

## 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.

Search						ocation		
7) Sic	gnals			✓ Functions	J _ (	General Group By Owner	Group By Subnet	6
_		net: N	et 1	Turcuons		aroup by owner	Gloup by Subject	
		Ø		6: Kitchen Switch K2 Led2		Kitchen	001.013.126	
		Ó		7: Kitchen Switch K2 Led3		Kitchen	001.013.126	
		()		8: Kitchen Switch K2 Led4		Kitchen	001.013.126	
		۲		5: Bathroom Motion detectors K4 Led1		Bathroom	001.020.169	
		<b>\$</b>		5: Root I/O Modules K10 Led1		Root	000.000.000	
				6: Root I/O Modules K10 Led2		Root	000.000.000	
				7: Root I/O Modules K10 Led3		Root	000.000.000	
		<b>R</b>		8: Root I/O Modules K10 Led4		Root	000.000.000	
		<b>O</b>		5: Kitchen Switch K2 Led1		Kitchen	001.013.126	
		$\sim$		10: Cabinet Relay Module K3 Re2		Cabinet	001.001.005	

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).

Wizard		×
Edit Func	tion Light	Feedback Signals
		l coublek signals
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	
On/Off Signals	Signals Notes	
Controlled Outputs	5: Kitchen Switch K2 Led1	Available Mode
Feedback Signals		
Advanced		Inverted
Motion detectors		
Energy Save Timer		
	L	Signal Settings Signal Properties
	<<< >>>>	Confirm

#### 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.

Wizard		Wizard		y Signals Finder		
Edit Func	tion Light			Search		
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	Wizard Steps	Function Name: (Fx) Kitchen - Light Function	Signals	Functions	Grou
On/Off Signals	Signals Notes	On/Off Signals	Signals Notes		(Fx) Root - Light Function.Fx Status (C	On/Off) Light
Controlled Outputs	1: Kitchen Switch K2 Push1	Controlled Outputs		Subnet: Net	11	
Feedback Signals		Feedback Signals			1: Bathroom Motion detectors K4 Pirl	L
Advanced     Luxsensor		Advanced			1: Root Motion detectors K11 Pir1	
Motion detectors		Motion detectors			1: Root Motion detectors K12 Pir1	
Energy Save Timer					1: Root Switch K8 Switch1	
Calendar					2: Root Switch K8 Switch2	
Function Status					3: Root Switch K8 Switch2	
Location					4: Root Switch K8 Switch2	
Motion detectors					1: Kitchen Switch K2 Push1	
			Allow PIR to switch ON 🧹 🞇		2: Kitchen Switch K2 Push2	
	<<< >>>>		<			

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.





Wizard		>
Edit fun	ction Light	Motion detectors
U		Motion detectors
Wizard Steps	Function name: (Fx) Living room - Corridor	
On/off signals	Signals Notes	
Controlled outputs	1: Living room Motion detectors SHA4X	Available mode
Feedback signals	,	
<ul> <li>Advanced</li> </ul>		Working mode
Luxsensor		
Luxsensor settings		
Motion detectors		Inverted signal
Energy save timer		
		Signal settings Signal properties
	Allow pir to switch on	
		Confirm
		Comirm

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.

Wizard Edit Fu	unction Light	Ward_ Edit Function Ligh	Edit Function Light		
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	Wizard Steps On/Off Signals	(Fx) Kitchen - Light Function		
Controlled Outputs Feedback Signals	1: Kitchen Switch K2 Push1	Controlled Outputs Feedback Signals			
Advanced     Lossesses		Advanced  Motion detectors	0 HH 0 MM 1 SS		
Motion detectors Energy Save Timer Calendar		Energy Save Timer			
Disable Automation Function Status					
Location Notion detectors					
Energy Save Timer		Disable	24 Hr		
	~~~ >>>	~~~	Confirm		

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.



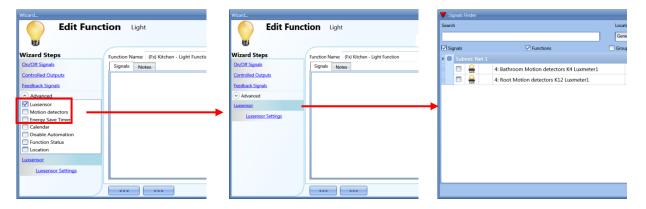
To allow the PIR to switch the light off, the energy-save timer has to be enabled.

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.



# **CARLO GAVAZZI** Automation Components

Wizard Edit funct	tion Light
U	Luxsensor settings
Wizard Steps	Function name: (Fx) Root - Light function
<u>On/off signals</u>	Light threshold (Lux) 600 🗧
Controlled outputs Feedback signals	Hysteresis for light threshold (%) 5
<ul> <li>Advanced</li> </ul>	Cloud filter (s) 60
Luxsensor Luxsensor settings	Disable Pir modules during daytime
Local calendar	Action when the light gets below the threshold 1 🕃 Light on
	Action when the light gets above the threshold 0 🔂 Light off
	Confirm

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.

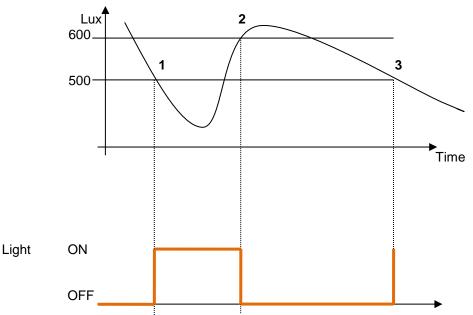
In the field *Hysteresis for light threshold (%)*, the hysteresis you need to have the light level OFF threshold must be entered, that is the threshold above which the light has to be switched OFF. This field is a percentage of the *Light level ON* threshold. A value between 5 and 50 % can be set.

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.





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.

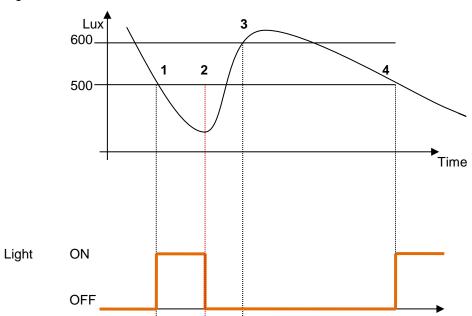


Fig.2





## 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.

Wizard		Wizard	Wizard		Vignals Finder		
Edit Fur	iction Light			Search		Locati Gene	
Wizard Steps OnVOIT Signals Controlled Cutputs Eeedback Signals Mostion detectors Mostion detectors Greeg Save Timer Disable Automation	Function Name: (Fig Root - Light Function	Wizard Steps On:Off Signals Controlled Outputs Eeeblack Signals ○ Advanced Lussensor Lussensor Settings	Signalt Notes	Signals	I     A: Bathroom Motion detectors K4 Luxmeter1     A: Root Motion detectors K12 Luxmeter1	Grou	
Function Status     Location     Location     Luxsensor     Luxsensor Settings     Motion detectors     Energy Save Timer							

2. Set the required light threshold as described above.

Wizard	×							
💫 🛛 🗛 🗛								
W	Luxsensor settings							
Wizard Steps	Function name: (Fx) Root - Light function							
<u>On/off signals</u>	Light threshold (Lux) 600 😜							
Controlled outputs Feedback signals	Hysteresis for light threshold (%) 5							
<ul> <li>Advanced</li> </ul>	Cloud filter (s) 60 🗧							
Luxsensor	Disable Pir modules during daytime							
Luxsensor settings								
Local calendar	Action when the light gets below the threshold 1 🔒 Light on							
	Action when the light gets above the threshold ight off							
	Cancel Confirm							

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

Wizard		🔻 Signals I	Finder			
			Search			
-		Signals	V Functions	Gro		
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	🕨 🗐 Sub				
On/Off Signals	Signals Notes		(Fx) Root - Light Function.Fx S	status (On/Off) Light		
Controlled Outputs			onet: Net 1			
Feedback Signals			1: Bathroom Motion detector	s K4 Pir1		
Advanced			1: Root Motion detectors K11	Pir1		
Motion detectors			1: Root Motion detectors K12	Pir1		
			1: Root Switch K8 Switch1			
			2: Root Switch K8 Switch2			
			3: Root Switch K8 Switch2			
			4: Root Switch K8 Switch2			
			1: Kitchen Switch K2 Push1			
	Allow PIR to switch ON 🧹 🞇		2: Kitchen Switch K2 Push2			

4. Enable it to switch the light ON



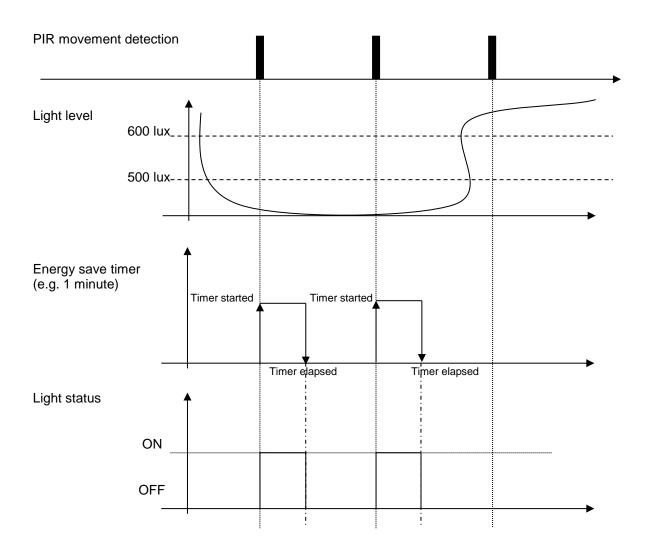
5. Set the time after which you want the light to turn off if no more presence is detected. Click on energy-save timer.

Wizard Edit Fun	ction Light	1
W		Energy Save Timer
Wizard Steps	Function Name: (Fx) Kitchen - Light Function	
On/Off Signals		
Controlled Outputs		
Feedback Signals		
Advanced	0 <b>:</b> HH	0 MM 1 SS
Motion detectors		0. MM 1. 33
Energy Save Timer		
	Disable	24 Hr
	Ÿ	
	<<< >>>	Confirm





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.

Wizard	×
💫 🔥 Add Func	tion Light
W	Energy Save Timer
Wizard Steps	Function Name: (Fx) Root - Light Function
On/Off Signals	
Controlled Outputs Feedback Signals	
Advanced	
Energy Save Timer	0 HH 5 MM 30 SS
	Disable 24 Hr
	Cancel Confirm





## 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).

Wizard		×
Add Func	tion Light	
U		On/Off Signals
Wizard Steps	Function Name: (Fx) Root - Light Function	
On/Off Signals	Signals Notes	
Controlled Outputs Feedback Signals Controlled Advanced Energy Save Timer	▶ ▶ 1: Root Switch K2 Push1	Event Type
		Long press reloads the energy save timers
		Signal Settings Signal Properties
	<<< >>>>>	Cancel Confirm





### 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).

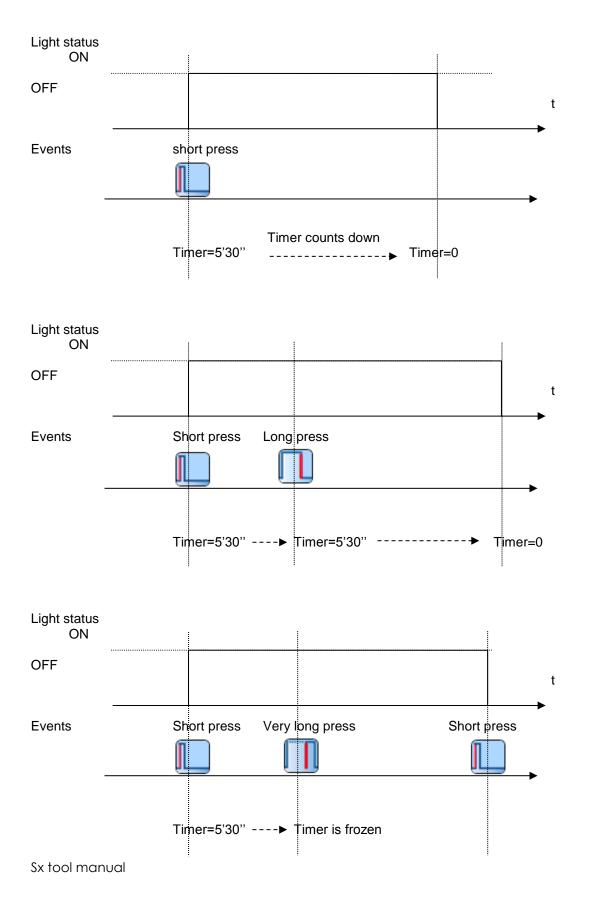
In this situation, with a very long press the timer will be disabled and the only way to switch the light off is manually, with a short press on the push button. The timer will be activated at the next switching on.

Wizard		×
Add Func	r <b>tion</b> Light	On/Off Signals
Wizard Steps On/Off Signals Controlled Outputs Feedback Signals (•) Advanced	Function Name: (Fx) Root - Light Function Signals Notes 1: Root Switch K2 Push1	
Energy Save Timer		Long press reloads the energy save timers
		Very long press stops the energy save timer
	<<<>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	Cancel Confirm





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:





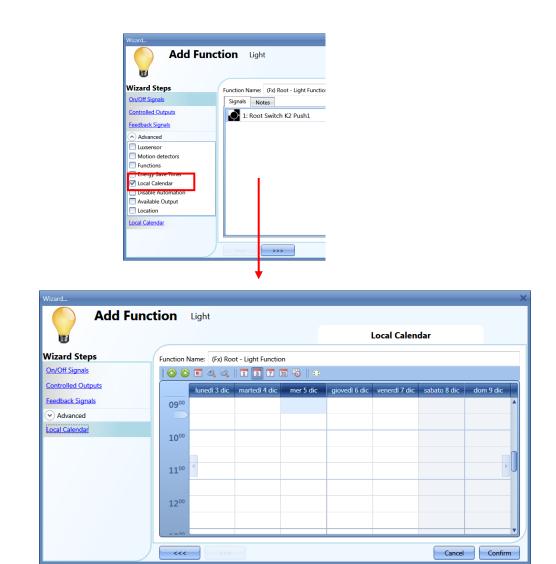


## 10.1.14 How to switch the light ON/OFF using the calendar

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.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally
-0	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:

New activity					×
Activity name					
From	12/9/2013		To 12/31/	2013	
Start	09:30	s	top 10:00		
	✓ Saturday ✓ Wednesday	✓ Sunday ✓ Thursday	✓ Monday ✓ Friday	🗸 🔽 Tueso	day
		uring time perio			
		No action			
@ Start time					nd time -1 😜
No action				N	o action
		Confirm	Cance	- Del	





*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.

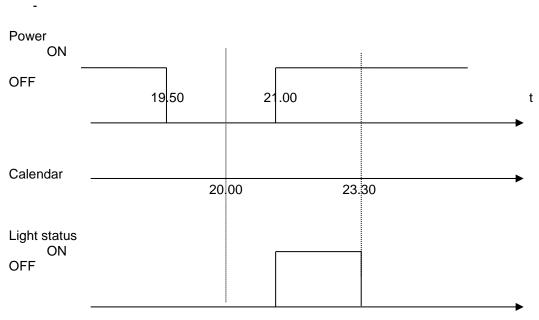
New activity	×
Activity name	example 1
From	1/1/2013 To 12/31/2013
Start	20:00 Stop 23:30
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>
	During time period -1 No action
@ Start time 1 💼 Light on	© End time 0 😜 Light off
	Confirm Cancel Delete

Since this action is to be performed every day of the year, the dates  $1^{st}$  January and  $31^{st}$  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.

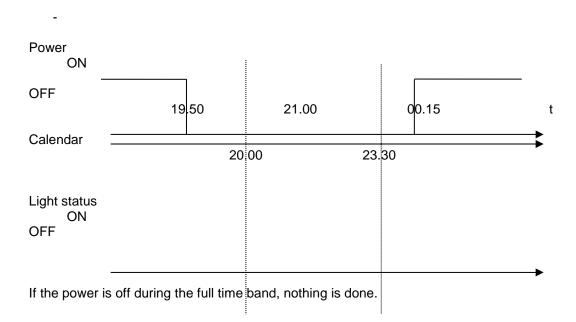
If a power-down occurs at the start time or at the end time, the system will behave according to the diagram below.

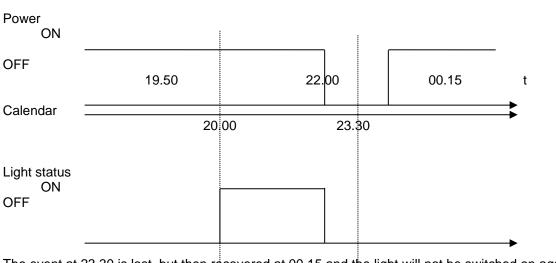






The event at 20.00 is lost but then recovered at 21.00. In general, if power is off during a period where the light is switched on by the calendar, if power returns before the activity has expired, the light is switched on again.





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.

New activity	New activity
Activity name example 1	Activity name example 1
From 9/1/2013 To 12/31/2013	From 1/1/2013 To 6/30/2013
Start 08:00 Stop 08:30	Start 08:00 Stop 08:30
<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>✓ During time period</li> <li>1</li> <li>No action</li> </ul>	✓ Saturday ✓ Sunday ✓ Monday ✓ Tuesday ✓ Wednesday ✓ Thursday ✓ Friday During time period -1 No action
© Start time 1 Light on Confirm Cancel Delte	© Start time 1 Light on Confirm Cancel Delete

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**).

Wizard		;
Add funct	tion Calendar	
14		Calendar options
Wizard Steps	Function name: (Fx) Root - Calendar	
Calendar Calendar options	Use this calendar only with "Tilting blinds" functions	$\checkmark$
Advanced	Use this calendar for level signals	
	Use this calendar for command and disable signals	
	<<< >>>>	Cancel Confirm

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.

Wizard		Wizard				
Edit Func	tion Light	Edit Fund	ction Light			
Wizard Steps	Function Name: (Fx) Roo	Wizard Steps	Function Name: (Fx) Root	-		
On/Off Signals	Signals Notes	On/Off Signals	Signals Notes	😽 Add Signal		
Controlled Outputs		Controlled Outputs		Search		Location
Feedback Signals		Feedback Signals				General
Advanced		Advanced		Signals	V Functions	Group By O
Luxsensor		Functions		□ 💡	(Fx) Root - Light Function.Light status (Fx) Root - Scheduler.Scheduler	Root
<ul> <li>Motion detectors</li> <li>Functions</li> </ul>		Local Calendar			(ix) NOOL - Scheduler.Scheduler	ROOL
Energy Save Timer		Disable Automation				
V Local Calendar		Force Output On			<b>_</b>	
Disable Automation						
Available Output		Force Output Off				
Location						
Functions						
Local Calendar						
Disable Automation	<<< >>>>		<<< >>>>	Input channels us	ed Output channets used Address Consumption (mA)	

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

Varart Edit Function Light								
U					I	Local Calen	dar	
Wizard Steps	Function N	Name: (Fx) Roo	ot - Light Functio	in				
On/Off Signals		) 🗖 🍳 Q	1 5 7 (	31 👸    🎞				
Controlled Outputs		lunedì 3 dic	martedì 4 dic	mer 5 dic	giovedì 6 dic	venerdì 7 dic	sabato 8 dic	dom 9 dic
Feedback Signals	<b>09</b> 00							
Functions								
Local Calendar	<b>10</b> 00							
	1100	4						
	12 <sup>00</sup>							
								Confirm

#### Global calendar

Wizard		:
Edit Fu	nction Light	Functions
Wizard Steps On/Off Signals Controlled Outputs Feedback Signals	Function Name: (7x) Root - Light Function Signals Notes 14 (Fx) Root - Scheduler.Scheduler	Available Mode
Advanced      Eunctions      Local Calendar		Inverted Signal
		<ul> <li>Signal Settings Signal Properties</li> </ul>
		Confirm

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





New activity	×
Activity name	disable automations
From	1/1/2013 To 6/30/2013
Start	08:00 Stop 22:00
	☐ Saturday ☐ Sunday ✔ Monday ✔ Tuesday ✔ Wednesday ✔ Thursday ✔ Friday
	During time period
	Disable automation
@ Start time -1 🖨	@ End time
No action	No action
	Confirm Cancel Delete

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.

Wizard		Wizard	
Edit Funct	tion Light	Edit Fu	nction Light
Wizard Steps	Function Name: (Fx) Root - Light Function	Wizard Steps	Function Name: (Fx) Root - Light Function
On/Off Signals	Signals Notes	On/Off Signals	Signals Notes
Controlled Outputs		Controlled Outputs	
Feedback Signals		Feedback Signals	
Advanced		Advanced	
Luxsensor		Disable Automation	
<ul> <li>Motion detectors</li> <li>Functions</li> </ul>		Force Output On	
Energy Save Timer		Force Output Off	
Local Calendar			
Disable Automation		<b>&gt;</b>	
Available Output			
Location			
Local Calendar	Disable Timeout (min) 0 🗧		Disable Timeout (min) 0 🗧
Disable Automation			
Force Output On	< >>>		<

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



# **CARLO GAVAZZI** Automation Components

Wizard		×
Edit funct	tion Light	Disable automation
Wizard Steps	Function name: (Fx) Kitchen - Cooker light	
On/off signals	Signals Notes	
Controlled outputs	2: Kitchen Oven K4 Push 2	
Feedback signals		0→1 1→0
<ul> <li>Advanced</li> </ul>		
Disable automation		ĭ→0
Force output on		Event type
Force output off		
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Confirm

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

	Event type			
Working mode				
0→1	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.
1→0	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.
0→1 1→0	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.

Disable Timeout (min) 10 🗧
<<< >>>>

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.

Wizard		×
Edit func	ction Light	Force output on
Wizard Steps On/off signals	Function name: (Fx) Root - Light function Signals Notes	
Controlled outputs Feedback signals	• 💽 1: force light on	Available mode
Advanced Disable automation Force output off Force output off		Inverted signal
		Signal settings Signal properties
	<	Confirm

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.

Wizard		×
Edit func	tion Light	
U		Force output off
Wizard Steps	Function name: (Fx) Root - Light function	
<u>On/off signals</u>	Signals Notes	
Controlled outputs	2: force light off	Available mode
Feedback signals		
Advanced		Inverted signal
Disable automation		
Force output on		
Force output off		
	L	Signal settings Signal properties
	<b>~~~</b>	Confirm

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.

Wizard		×
💫 Edit funct	ion Light	
U	Available output status	
Wizard Steps	FX Functions	
Controlled outputs	(Fx) Root - Light function.Status	
Feedback signals	E Dg Diagnostic	
Advanced      Available output status	(Fx) Root - Light function.Automation disabled	
	- 🐹 (Fx) Root - Light function.Output forced on	
	(Fx) Root - Light function.Output forced off	
	Confirm	

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.

Wizard			×
Add funct	ion Light		
U		Location	
Wizard Steps On/Off Signals	■ ↓ Loc - Installation (Root)		
Controlled outputs	■- 🚮 my house		
FeedBack signals	First floor		
Advanced Luxsensors Motion detectors Energy save timer Calendar Stop Automation Function status Location Location	second floor		•
	<b>~~~</b>	Cancel	Confirm

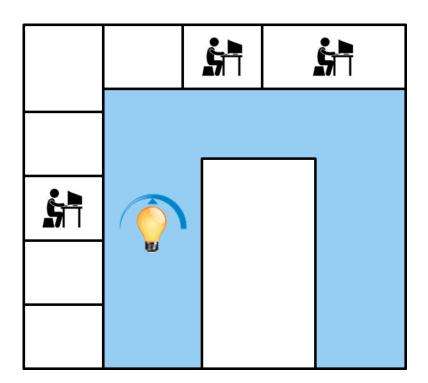




## **10.1.20** Corridor lighting function

This function is also an enhancement (additional option) to the Light functions.

As shown in the picture below, the main aim of the Corridor lighting function is to control the lighting in the corridor, based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF.







# 10.1.20.1 How to set the Corridor lighting function

To set up a *Corridor lighting* function the user should select one of the existing *Light Functions* present in the project.

Since this is an Advanced functionality, the *Corridor light* field has to be enabled in the Advanced section.

Wizard		Wizard		Add signal	
Edit funct	tion Light	Edit func	tion Light	Search	
NT.		U			
e		-		Hide use	d output signals 🛛 🗹 Signals
Wizard Steps	Function name: (Fx) Living room	Wizard Steps	Function name: (Fx) Liv		Name
<u>On/off signals</u>	Signals Notes	On/off signals	Signals Notes		(Fx) Bathroom - Light function.Status
Controlled outputs		Controlled outputs			(Fx) Kitchen - Oven.Status
Feedback signals		Feedback signals			(Fx) Kitchen - Light function.Status
Advanced		Advanced			(Fx) Bedroom - Light function.Status
Luxsensor		Corridor light			
Motion detectors     Energy save timer					(Fx) Bathroom - Mirror light.Status
Local calendar				▶ 🗹 💡	(Fx) Garden - Light function.Status
Functions					
Corridor light					
Disable automation					
Available output status					
Location					
A					
U	<		~~~	Input channels	used Output channels used Address Consumption (mA)

The Corridor light menu will appear. After selecting it, by double clicking on the Signals window the list of available signals will appear.

As shown in the picture above, the user may choose which offices he wants to include in the function, by selecting the relative signals: they can be function status or physical signals. 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 system does the logical OR).

The control of lighting in the corridor is based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF.



# **CARLO GAVAZZI** Automation Components

Wizard		□ ×
Edit fur	nction Light	Corridor light
Wizard Steps	Function name: (Fx) Living room - Corridor	
Controlled outputs Feedback signals Advanced Motion detectors	Signals       Notes         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the system         Image: Construction of the system       Image: Construction of the syst	Available mode
Energy save timer Corridor light		
		Signal settings Signal properties
		Confirm

### 10.1.20.2 How to turn a light ON with PIR sensors combined with Corridor light function

If the *Corridor light* option is selected, the user must select at least one signals which he wants to include in the function in the Advanced section.

This will be used by the *corridor light* function to detect if there is "people presence" in the adjacent offices. The signals added in this field are used to keep the light ON but they are not used to switch the light ON.

Anyway as usual, a PIR signal can be used to switch the light ON in the *Motion detector* field and 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.

Wizard		
Edit funct	tion Light	Motion detectors
Wizard Steps On/off signals Controlled outputs Feedback signals ✓ Advanced Motion detectors Energy save timer Corridor light	Function name: (Fx) Living room - Corridor Signals Notes 1: Root - House - Living room - Motion d	detectors K58 Pir 1 Available mode Working mode Morking mode Morking mode Morking mode Signal settings Signal properties
		Confirm





If the office lighting is not PIR-based, the user should use "*light function output*", as shown in the previous paragraph.

#### 10.1.20.3 How the Corridor light function works

There are different possible scenarios, depending on the presence conditions in the offices adjacent to the corridor.

#### 10.1.20.3.1 Presence of people in offices is TRUE

In this situation, one or more of the selected *PIRs* are ON or one or more of the selected *light functions* are ON

As long as "people presence" is TRUE, the corridor light function still ON.

### 10.1.20.3.2 Presence of people in offices is FALSE

If an energy save timer is used to switch the light OFF it starts counting down when all the signals in the field *Motion detector* and *Corridor light* are OFF: this means people presence neither in the corridor nor in the adjacent offices.

In the example shown below, while the user is in the corridor the light stays ON and the energy-save timer is continuously reloaded; when no more people are detected in the corridor and in the adjacent offices, the energy-save timer starts counting and the light is switched OFF. In the example shown below an energy save timer of 5 minutes is set by the user.

Wizard						
Edit funct	tion Light	t		Energ	ly save timer	
Wizard Steps On/off signals Controlled outputs Feedback signals Controlled outputs Feedback signals Advanced Motion detectors Energy save timer Corridor light	Function name:	(Fx) Living room - Corri 0	idor	5 <mark>.</mark> M	М	0 : SS
	Disable					24 hr
	<<<	>>>				Confirm

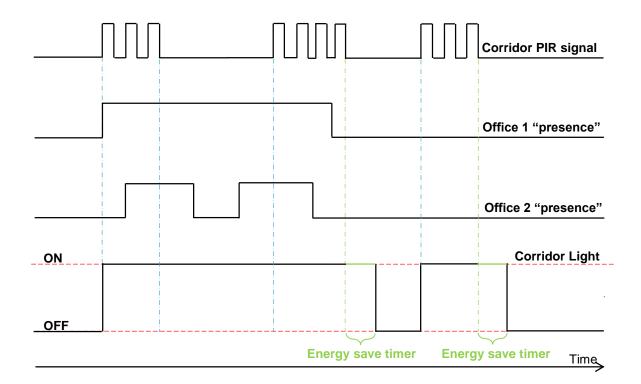




In the example shown below, a PIR is present in the corridor: when it detects any movement, the corridor light switches ON and remains until the PIR detects any movement in the corridor.

If the PIR doesn't detect any movement and the light statuses of all adjacent offices are OFF, the corridor light goes OFF as set by the user in the *Energy saver timer* field.

When the PIR in the corridor detects any movement, the corridor light switches ON and the "people present" operation resumes.







# 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.





Wizard		
Add func	tion Dimmable light	
U	On/Off dim signals (S1)	
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	On/Off - Up/Down On - Up/Down On - Up Off - Down	
Controlled output		
<u>Options</u>		
Feedback signals		
Advanced		
Scene selection		
Ballast supply relay		
Luxsensor		
Motion detectors		
Energy save timer		
Sequence A start/stop signals		
Sequence B start/stop signals		
Master Glass switch interface		
Local calendar	Signal settings Signal propert	les
Functions	Soft scene start (s) Soft scene stop (s)	
Disable automation		4
Available output status		$\leq$
Location	Cancel Confir	m

### 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.

Wizard	😽 Add Signal		
Contemporal Contem	Search		Location
			General
	V Signals	V Functions	Group by fund
Wizard Steps Function Name: (Fx) Root - Di	• 🗆 🔶	1: Bathroom Switch K6 Push1	Bathroom
On/Off Dim Signals (S1) ON/OFF - UP/DOWN ON- Controlled Output		2: Bathroom Switch K6 Push2	Bathroom
Options		3: Bathroom Switch K6 Push3	Bathroom
Feedback Signals		4: Bathroom Switch K6 Push4	Bathroom
Advanced Energy Save Timer			
<b>&gt;&gt;&gt;</b>	Input channels u 0 / 119	Output channels used         Address         Consumption (mA)           0 / 111         0 / 250         11,1 / 450,0	

### 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).





Wizard	tion Dimmable Light
	On/Off Dim Signals (S1)
Wizard Steps On/Off Dim Signals (S1)	Function Name:         (Fx) Root - Dimmable light           ON/OFF - UP/DOWN         ON - UP         OFF - DOWN
Controlled Output Options Feedback Signals Carlot Advanced Energy Save Timer	1: Bathroom Switch K6 Push1       Available mode         Inverted Signal       Inverted Signal         Image: Source       Image: Source
	Soft scene start Soft scene stop 4 -
	Confirm

#### 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)

Wizard	
Edit Fund	ction Dimmable Light
U	On/Off Dim Signals (S1)
Wizard Steps	Function Name: (Fx) Root - Dimmable light
On/Off Dim Signals (S1)	ON/OFF - UP/DOWN ON - UP OFF - DOWN
Controlled Output	2: Bathroom Switch K6 Push2
Options	3: Bathroom Switch K6 Push3
Feedback Signals	Inverted Signal
✓ Advanced	
Energy Save Timer	Consumed Source
	Soft scene start Soft scene stop
	4 -
	Confirm

#### 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).





Wizard	>
Edit Func	tion Dimmable Light
	On/Off Dim Signals (S1)
Wizard Steps	Function Name: (Fx) Root - Dimmable light
Controlled Output	ON/OFF - UP/DOWN ON - UP/DOWN ON - UP OFF - DOWN  4: Bathroom Switch K6 Push4  Available mode
Feedback Signals	Inverted Signal
Energy Save Timer	
	Soft scene start Soft scene stop
	4 4
	Confirm

#### 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)

Wizard		×
Edit Fund	ction Dimmable Light	
U	(	Dn/Off Dim Signals (S1)
Wizard Steps	Function Name:         (Fx) Root - Dimmable light           ON/OFF - UP/DOWN         ON - UP/DOWN         ON - UP         OFF - DOWN	
Controlled Output Options Feedback Signals	ON/OFF - UP/DOWN ON - UP/DOWN ON - UP OFF - DOWN	Available mode
Energy Save Timer		Consumed Source
	Soft scene s	tart Soft scene stop 4
	<	Confirm

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.

Wizard	😽 Add Signal		
Contemporal Contem	Search		Location
			General
	V Signals	V Functions	Group by fun
Wizard Steps         Function Name:         (Fx) Root - Dimm           On/Off Dim Signals (S1)         Finanda         Finanda	• 🗸 🥎	9: Root Dimmer Module K3 Dimmer1	Root
Signais Notes	V 📀	9: My room Dimmer Module K7 Dimmer1	My room
Controlled Output Options		9: My room Dimmer Module K8 Dimmer1	My room
Feedback Signals			
→ Advanced			
Energy Save Timer	<b>→</b>		
	Input channels u 0 / 119	output channels used         Address         Consumption (mA)           0 / 111         0 / 250         11,1 / 450,0	
	0,119	0, 11 0, 250 11,1, 450,0	

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.

\mid Edit Fui	nction Dimmable Light	
	Controlled	l Output
/izard Steps	Function Name: (Fx) My room - Dimmable light	
Controlled Output	Signals Notes 9: Root Dimmer Module K3 Dimmer1	Available mode
Options Teedback Signals	9: My room Dimmer Module K7 Dimmer1	
Advanced		
nergy Save Timer		
		Signal Settings Signal Properties

# 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.



# **CARLO GAVAZZI** Automation Components

Wizard	
Add fun	ction Dimmable light Options
Wizard Steps	Function name: (Fx) Root - Dimmable light
On/Off dim signals (S1)	Ramp time (s)
Controlled output Options	Load type
Feedback signals	Output status if Dupline bus is faulty
Advanced	Enable hardware short circuit protection
Energy save timer	Allow scene to be changed
	Allow scene to be saved
	Minimum dimming level (%) 10 : Maximum dimming level (%) 100 :
	Cancel Confirm

### 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):

Wizard			
Edit modu	Ile <sub>Module</sub>	Output sign	nals
Wizard Steps Input signals Output signals Properties	Name K3 SH2D10V424 SIN: 000 Signals Info Signals Info 7: Root Dimmer module K3 1-10V 1 7: Root Dimmer module K3 1-10V 2 13: Root Dimmer module K3 1-10V 3 20: Root Dimmer module K3 1-10V 4		Available mode  Available mode  Curve @ OFF (V)  Curve @ Min-10% (V)  Curve @ 30% (V)  Curve @ 50% (V)  S Curve @ 50% (V)  S Curve @ 70% (V)  S Reset
		v	Apply to all

# 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:





C Edit fui	-	
<b>U</b>	Options	
Vizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Ramp time (s)	
Controlled output	Output status if Dupline bus is faulty	
Options		
Feedback signals	Allow scene to be changed	
<ul> <li>Advanced</li> </ul>		
Energy save timer	Allow scene to be saved	
	Power on level 10 🕃 Light level if DALI bus is faulty	10 ≑

#### 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:

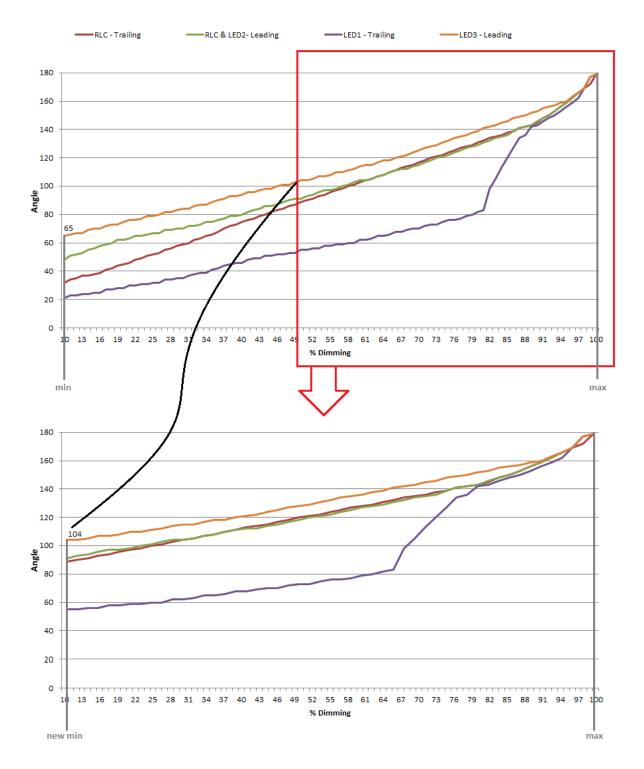
In this field the user can select the value of the output if the DALI bus is faulty. The output will be kept at the value set until the DALI bus signal returns.





# **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%).

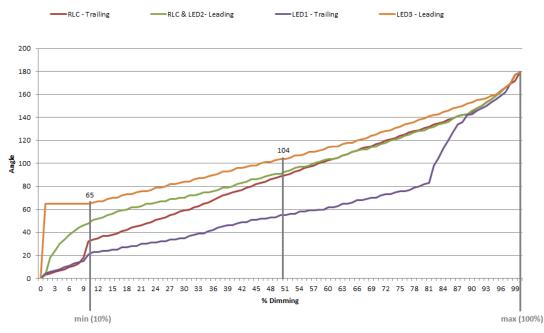






# 10.2.6 How the dimmer works

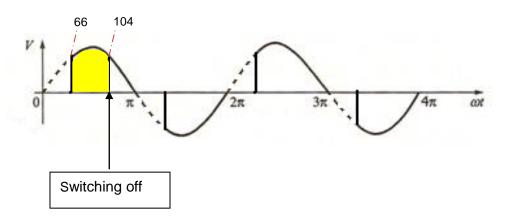
The technology used by SH2D500Wx230 is called phase cutting technology, which works by cutting off part of the mains voltage to modify the RMS voltage fed to the lamp. The brightness of the lamp can thus be controlled by increasing or decreasing the RMS voltage and thereby the power supplied to the lamp.



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.

Wizard	😽 Add Signal		
Contemporary Edit Function Dimmable	Search		Location
/ 💟 🎽			General
	Signals	V Functions	Group by functions
Wizard Steps         Function Name:         (Fx) Roo           On/Off Dim Signals (S1)         Signals         Signals         Signals		5: My room Motion detectors K4 Led1	My room
Controlled Output	• 🗹 🚺	5: Bathroom Switch K6 Led1	Bathroom
Options		6: Bathroom Switch K6 Led2	Bathroom
Feedback Signals		7: Bathroom Switch K6 Led3	Bathroom
→ Advanced		8: Bathroom Switch K6 Led4	Bathroom
Energy Save Timer		9: Root Relay module K5 Re1	Root
		10: Root Relay module K5 Re2	Root
		used Output channels used Address Consumption (mA)	
	0 / 119	0 / 111 0 / 250 11,1 / 450,0	

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).

Wizard		:
Add Fund	tion Dimmable Light	
		Feedback Signals
Wizard Steps	Function Name: (Fx) Root - Dimmable light	
On/Off Dim Signals (S1)	Signals Notes	
Controlled Output	9: Root Relay module K5 Re1	Available mode
Options	5: Bathroom Switch K6 Led1	
Feedback Signals		Inverted Signal
Advanced		
		Signal Settings Signal Properties
	<b>~~~</b>	Cancel Confirm





# 10.2.8 How to set predefined scenarios with input signals

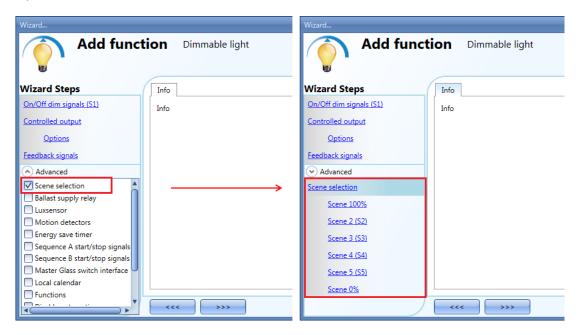
In this section, the user can customize different scenarios and select different input signals to activate them. There are two scenarios that are not editable (Scene 100% and scene 0%). Here the user can only set the signals that activate them.

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.

Wizard		×			
Add Function Dimmable Light					
		Scene 100%			
Wizard Steps	Function Name: (Fx) Root - Dimmable light				
On/Off Dim Signals (S1)	On				
Controlled Output	1: Bathroom Switch K6 Push1	Available mode			
Options					
Feedback Signals		Inverted Signal			
Advanced					
Scene Selection					
Scene 100%					
Scene 2 (S2)					
Scene 3 (S3)					
Scene 4 (S4)					
Scene 5 (S5)					
Scene 0%		Signal Settings Signal Properties			
Energy Save Timer	<	Cancel Confirm			

# 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.

Wizard		×				
Add Function Dimmable Light						
U		Scene 2 (S2)				
Wizard Steps	Function Name: (Fx) Root - Dimmable light					
On/Off Dim Signals (S1)	ON - UP/DOWN ON - UP OFF - DOWN					
Controlled Output	1: Bathroom Switch K6 Push1					
Options						
Feedback Signals						
Advanced						
Scene Selection						
Scene 100%						
Scene 2 (S2)						
Scene 3 (S3)						
Scene 4 (S4)	Dimming percentage so	soft start/stop timing				
Scene 5 (S5)		Soft scene start Soft scene stop				
Scene 0%	20	4				
	< >>>>	Cancel Confirm				

# 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 (%)

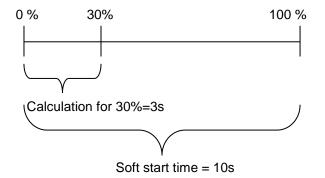
The user can set the dimming percentage value when scenario 2 is activated.

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.

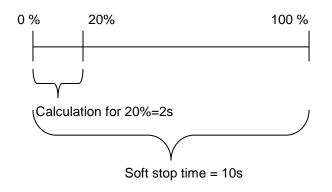
For example, if the soft start time of scene 2 is set to 10s and the percentage is set to 30%, the light will be switched on at 30% after 3s (calculation 100:10=30:x).



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.

Wizard	
Edit Fund	Scene 2 (S2)
Wizard Steps On/Off Dim Signals (S1)	Function Name:         (Fx) Root - Dimmable light           ON - UP/DOWN         ON - UP         OFF - DOWN
Controlled Output	Available mode
Options Feedback Signals	2: Bathroom Switch K6 Push2
Advanced     Scene Selection	
Scene 100%	
Scene 2 (S2) Scene 3 (S3)	
<u>Scene 4 (S4)</u>	Signal Settings Signal Properties
Scene 5 (S5) Scene 0%	Dim percentage (%)         Soft scene start         Soft scene stop
Energy Save Timer	Confirm

#### 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.

Wizard			×			
Add Function Dimmable Light						
<b>U</b>		Scene	3 (53)			
Wizard Steps	Function Name: (Fx) Root - Dimmable light					
On/Off Dim Signals (S1)	ON - UP/DOWN					
Controlled Output			A			
Options						
Feedback Signals						
Advanced						
Scene Selection						
Scene 100%						
Scene 2 (S2)						
Scene 3 (S3)						
Scene 4 (S4)	Dimming percentage	Soft start/stop timing	Signal Settings Signal Properties			
Scene 5 (S5)	Dim percentage (%)	Soft scene start	Soft scene stop			
Scene 0%		4	4			
	<		Cancel Confirm			

#### 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.





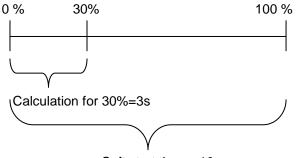
Dim percentage (%)

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.

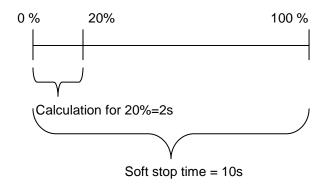
For example, if the soft start time of Scene 3 is set to 10s and the percentage is set to 30%, the light will be switched on at 30% after 3s (calculation 100:10=30:x).



Soft start time = 10s

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.



# **CARLO GAVAZZI** Automation Components

Wizard	
Add Fund	tion Dimmable Light
	Scene 3 (S3)
Wizard Steps	Function Name: (Fx) Root - Dimmable light
On/Off Dim Signals (S1)	ON - UP/DOWN
Controlled Output	1: Bathroom Switch K6 Push1
Options	
Feedback Signals	Inverted Signal
✓ Advanced	
Scene Selection	
Scene 100%	
Scene 2 (S2)	
Scene 3 (S3)	
Scene 4 (S4)	V Signal Settings Signal Properties
Scene 5 (S5)	Dim percentage (%) Soft scene start Soft scene stop
Scene 0%	40 <u>20</u>
	Cancel Confirm

# 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.

Wizard		×
Add Fund	ction Dimmable Light	Scene 0%
Wizard Steps On/Off Dim Signals (51) Controlled Output Options Feedback Signals ♥ Advanced Scene Selection Scene 100% Scene 2 (52) Scene 3 (53) Scene 4 (54) Scene 5 (55)	Function Name: (Fx) Root - Dimmable light Off 4: Bathroom Switch K6 Push4	Available mode         Inverted Signal         Image: Signal Settings
Scene 0%	<	Cancel Confirm





# 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.

Wizard		Wizard		😽 Add Signal	
Add Function Dimmable Light		Add Function Dimmable Light		Search	
		, v		Signals	Functions
Wizard Steps	Function Name: (Fx) Root - Dimmable light	Wizard Steps	Function Name: (Fx) Root - Dimmable light	• 🖂 💮	1: My room Motion detectors K4 Pir1
On/Off Dim Signals (S1) Controlled Output	Signals Notes	On/Off Dim Signals (S1) Controlled Output	Signals Notes		1: Bathroom Switch K6 Push1
Options		Options			2: Bathroom Switch K6 Push2
Feedback Signals		Feedback Signals			3: Bathroom Switch K6 Push3
Advanced		Advanced			4: Bathroom Switch K6 Push4
Scene selection		Motion detectors			
Ballast supply relay		Linnellandoand			
Luxsensor					
Motion detectors					
Energy save timer Sequence A start/stop signals					
Sequence B start/stop signals					
Master Glass switch interface					
Local calendar	Allow pir to switch on 💚 🔀		Allow pir to switch on 🤎 💢		
Functions				Input channels u	sed Output channels used Address Consumption (mA)
Motion detectors	<<< >>>		<<< >>>>	0 / 119	0 / 111 0 / 250 11,1 / 450,0

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.

		×
Edit func	tion Dimmable light	Motion detectors
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	1: Root Motion detectors K4 B5X-PIR90-U	Pir 1 Available mode
<u>Options</u>		
Feedback signals		Working mode
Advanced Motion detectors		
		Inverted signal
	Allow pir to switch on	
	The PIR changes the light level value only if the dimmer is off	Scenario (%) -1 💽 No action
	<<< >>>>	Confirm





# 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 energysave 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%.

Edit funct	tion Dimmable light	×
		Motion detectors
Wizard Steps On/Off dim signals (S1)	Function name: (Fx) Root - Dimmable light Signals Notes	
Controlled output Options Feedback signals C Advanced Motion detectors	Allow pir to switch on	Pir 1 Available mode Working mode Working mode Nucreted signal Signal settings Signal properties Scenario (%) Sol Set 50%
	The PIR changes the light level  only if the dimmer is off	Confirm





# 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.

Wizard	·	×
Edit fun		Motion detectors
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output Options Feedback signals C Advanced Motion detectors	1: Root Motion detectors K4 B5X-PIR90-U Pir 1	Available mode
	Allow pir to switch on       The PIR changes the light level only if the dimmer is off	Scenario (%) 50 😧 Set 50%

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.

Wizard	×
Edit func	tion Dimmable light Energy save timer
e	Energy surve differ
Wizard Steps	Function name: (Fx) Root - Dimmable light
Controlled output	
Options	
Feedback signals	0 HH 2 MM 0 SS
Advanced	
Energy save timer	
	Disable 24 Hr
	Scenario Set (%) Percentage 20 Set 20%
	Confirm





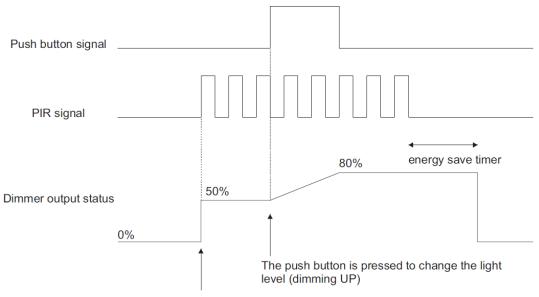
# 10.2.13 How to turn a light ON with PIR sensors, and change the light scenario manually when PIR detects movement

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.

Wizard		×
Edit fun	ction Dimmable light	Motion detectors
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output Options Feedback signals C Advanced Motion detectors	▶	Available mode  Available mode  Working mode  Norking mode  Signal settings  Signal properties
	Allow pir to switch on The PIR changes the light level	Scenario (%) 50 💽 Set 50%

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.



The PIR detects movement and sets 50%





# 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.

Wizard		×
👔 Edit Fund	ction Dimmable Light	
	Energy Save Timer	
Wizard Steps On/Off Dim Signals (S1) Controlled Output Options Feedback Signals	Function Name: (Fx) My room - Dimmable light example	
Advanced Motion detectors Energy Save Timer	O HH O MM 10 SS	
	Disable 24 Scenario Event off Confirm	4 Hr





### 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.

Wizard Edit fune	ction Dimmable light
	Motion detectors
Wizard Steps On/Off dim signals (S1)	Function name: (Fx) Root - Dimmable light
Controlled output Options Feedback signals Controlled output Options Feedback signals Controlled output Options Feedback signals Controlled output Options Feedback signals	Signals Notes
	Allow pir to switch on The PIR changes the light level only if the dimmer is off Confirm Confirm

#### 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.



# **CARLO GAVAZZI** Automation Components

Wizard		×
Edit func	tion Dimmable light	
w later		Motion detectors
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	1: Root Motion detectors K4 B5X-PIR90-U Pir 1	Available mode
Options		III.
Feedback signals		Working mode
Advanced		
Motion detectors		Inverted signal
		Signal settings Signal properties
	Allow pir to switch on	
	The PIR changes the light level	Scenario (%) 🔄 -1 💽 No action
	only if the dimmer is off	
	<	Confirm

# 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.

Wizard		Wizard		😽 Add Signal		
Contemporal Contem		Contemporation Dimmable Light		Search		
		l' 💙 🎽				
		e e		Signals	V Functions	
Wizard Steps	Function Name: (Fx) My room - Dimmable lig	Wizard Steps	Function Name: (Fx) My room - Dimmabl	• 🗆 🔒	4: My room Motion detectors K4 Luxmeter1	
On/Off Dim Signals (S1)	Signals Notes	On/Off Dim Signals (S1)	Signals Notes	- COX	,	
Controlled Output		Controlled Output				
Options		Options				
Feedback Signals		Feedback Signals				
Advanced		Advanced				
Scene selection		Luxsensor				
Ballast supply relay	→	Luxsensor Settings	<b>→</b>			
Luxsensor Motion detectors						
Energy save timer						
Sequence A start/stop signals						
Sequence B start/stop signals						
Master Glass switch interface						
Local calendar						
Functions				Input channels	used Output channels used Address Consumption (mA)	
Luxsensor	<<< >>>>		<<< >>>>	2/119	0 / 111 1 / 250 11,1 / 450,0	

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:





izard Steps	Function name: (Fx) Root - Dimmable light
n/Off dim signals (S1)	Light threshold (Lux) 100 :
ontrolled output Options	Hysteresis for light threshold (%)
eedback signals	Cloud filter (s) 60 🕃
Advanced	Disable Pir modules during daytime
Luxsensor settings	Action when the light gets below the threshold No action
cursensor sectings	Action when the light gets above the threshold -1 💽 No action

#### 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.





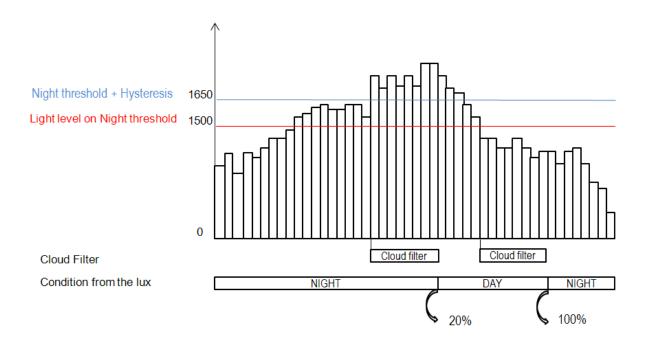
The ON and OFF switching is done in the event of the thresholds being surpassed, so if the light status is changed manually by means of a light switch or automatically e.g. by a scheduler, the automation of the lux sensors will not change it unless thresholds are surpassed another time.

Wizard Edit func	<b>tion</b> Dimmable light
	Luxsensor settings
Wizard Steps	Function name: (Fx) Root - Dimmable light
On/Off dim signals (S1)	Light threshold (Lux) 100
Controlled output	Hysteresis for light threshold (%)
Options Feedback signals	Cloud filter (s) 60 😫
✓ Advanced	Disable Pir modules during daytime
Luxsensor	Action when the light gets below the threshold 100 🕄 Set 100%
Luxsensor settings	Action when the light gets above the threshold 0 🚼 Light off
	Confirm

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

Wizard						
Add funct	tion Dim	mable light		-		
<b>U</b>				Energy sa	ve timer	
Wizard Steps	Function name:	(Fx) Root - Dimmable lig	ht			
On/Off dim signals (S1)						
Controlled output						
Options						
Feedback signals		0 🗧 нн		0 🖬 MM		ss 🗧
Advanced						
Scene selection						
Ballast supply relay						
Luxsensor						
Motion detectors						
Energy save timer						
Sequence A start/stop signals	Disable					24 hr
Sequence B start/stop signals						
Master Glass switch interface	Scenario Ever	nt off				
Local calendar	Scenario Lvei					
Functions						
	<<<	>>>			Cancel	Confirm





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

Wizard		😽 Add Signal		Wizard		
Edit Fund	ction Dim	Search		Edit Fun	ction Dimmable Light	
						Luxsensor Set
Ū		Signals	Functions	-		
Wizard Steps	Function Name:	• 🖂 🔒	4: My room Motion detectors K4 Luxmeter1	Wizard Steps	Function Name: (Fx) Stairs - Dimmable light	
On/Off Dim Signals (S1)	Signals Note			On/Off Dim Signals (S1)	Light level ON - night threshold (Lux)	1500 💼
Controlled Output				Controlled Output	Hysteresys value for night and day thresholds. Set in %	10
Options				Options Feedback Signals	Cloud filter (sec)	60 💼
Feedback Signals						
Advanced				Advanced	Enable Pir during day time	✓ X
Luxsensor		<u> </u>		Luxsensor	Light level at the beginning of the night time	-1 🚼 No action
Luxsensor Settings		L.		Luxsensor Settings	Light level at the end of the night time	-1 🚼 No action
Motion detectors				Motion detectors		
Energy Save Timer				Energy Save Timer		
		Input channels u 0 / 119	used         Output channels used         Address         Consumption (mA)           0 / 111         0 / 250         11,1 / 450,0		<<< >>>>	

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).

Wizard							×
Add funct	tion Light	t					
					Luxsensor se	ettings	
Wizard Steps	Function name:	(Fx) Root - Light function					
On/off signals	Light threshold (	(Lux)		100 📮			
Controlled outputs							
Feedback signals	Hysteresis for lig	ht threshold (%)		10 🗘			
<ul> <li>Advanced</li> </ul>	Cloud filter (s)			60 📮			
Luxsensor	Disable Pir modu	ules during daytime					
Luxsensor settings							
Motion detectors	Action when the	light gets below the thresh	bld	-1 🗧 N	lo action		

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

Wizard	V Add Signal	Wizard	
Edit Function	Search	Edit Function Dimmable Light	
W	Signals	W	Motion detectors
Wizard Steps Funct	Y → 1: My room Motion detectors K4 Pir1	Wizard Steps Function Name: (Fx) Stairs - Dimmable light	
On/Off Dim Signals (S1) Controlled Output		On/Off Dim Signals (S1) Controlled Output	*
Options		Options 1: My room Motion detectors K4 Pir1	
Feedback Signals		Feedback Signals	
Advanced  Luxsensor		Advanced  Lussensor	
Luxsensor Settings	·	Luxeensor Settings	
Motion detectors		Motion detectors	
Energy Save Timer		Energy Save Timer	Signal Settings Sign
			Scenario at night time (%) -1 📰 No action
Allov		Allow pir to switch on	Scenario at day time (%) -1 💽 No action
	Input channels used         Output channels used         Address         Consumption (mA)           1 / 119         0 / 111         1 / 250         11.1 / 450.0	~~~ >>>	

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.





	Signal Settings Signal Properties
Allow pir to switch on	Scenario at night time (%)
	Scenario at day time (%) 20 💽 Set 20%
	Confirm

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.

Wizard			>
👔 Edit Fund	ction Dimmable Light		
U		Energy S	Save Timer
Wizard Steps	Function Name: (Fx) Stairs - Dimmable light	nt	
On/Off Dim Signals (S1)			
Controlled Output			
Options			
Feedback Signals	0 🛔 HH	5 🛉 MM	0 <sup>-</sup> SS
<ul> <li>Advanced</li> </ul>			
Luxsensor			
Luxsensor Settings			
Motion detectors			
Energy Save Timer			
	Disable		24 Hr
	Scenario at night time	Event off	
	Scenario at day time	No action	
	·	Event off	
	<b>~~~</b>	Start sequence A Start sequence B	Confirm

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).

Wizard		×
Edit Fund	On/Off Dim Signals (S1)	
Wizard Steps On/Off Dim Signals (S1) Controlled Output Options Feedback Signals ↔ Advanced Energy Save Timer	Function Name:       (Fx) Stairs - Dimmable light         ON/OFF - UP/DOWN       ON - UP OFF - DOWN         I: Bathroom Switch K6 Push1       Available mode         Inverted Signal       Inverted Signal         Image: Signal Settings       Signal Settings         Soft scene start       Soft scene stop	4
		Confirm

Wizard						×
Edit Fund	ction Di	mmable Light		Energy S	Save Timer	
Wizard Steps On/Off Dim Signals (S1) Controlled Output Options	Function Name:	(Fx) Stairs - Dimmable ligh	ht			
Feedback Signals  Carlot Advanced  Energy Save Timer		2 HH		30 📜 MM		0 : SS
	Disable Scenario		Event off			24 Hr
		>>>				Confirm





# 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.

Wizard		×
Edit Fund	tion Dimmable Light	
		Energy Save Timer
Wizard Steps	Function Name: (Fx) Stairs - Dimmable light	
On/Off Dim Signals (S1)		
Controlled Output		
Options		
Feedback Signals	1 <b>H</b> H	ol 🗧 MM 0 🗧 SS
<ul> <li>Advanced</li> </ul>		
Luxsensor		
Luxsensor Settings		
Energy Save Timer		
	Disable	24 Hr
	Scenario at night time Event	
	Scenario at day time No act	on 💽
	~~~ >>>	Confirm

# 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

Wizard Add function Dimmab	e Add function Dimma	Add signal Search
Wizard Steps On/Off dim signals (S1) Controlled output Options Feedback signals Advanced Scene selection Ballast supply relay Luxeensor Motion detectors Energy save timer Sequence A start/stop signals Sequence B start/stop signals Mester Class switch interface Local calendar Functions Controlled output Controlled out	Wizard Steps On/Off dim signals (S1) Controlled output Options Feedback signals Advanced Master Glass switch interface	✓ Signals       ✓ Functions         Name       I: Root Switches K40 Dimmer interface D.1 1         ✓       ✓         Input channels used Output channels used Address Consumption (mA)         11/120       22/112         3/250       11.0/450.0

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.

		Wizard									×
Add function		Edit Fun	ction	Dimmable	Light		l	Local calen	dar		
Wizard Steps	Function nam	Wizard Steps	Function Na	me: (Fx) Stain	- Dimmable light	:					
On/Off dim signals (S1)	Signals	On/Off Dim Signals (S1)	0	<b>.</b> Q Q	1 5 7	31 👸 🛛 🔀					
Controlled output		Controlled Output		lunedi 17 dic	martedi 18 dic	mer 19 dic	giovedì 20 dic	venerdi 21 dic	sabato 22 dic	dom 23 dic	ā I
<u>Options</u>		Options	900								•
Feedback signals		Feedback Signals									
Advanced		Advanced	1000								
Scene selection		Local calendar									
Ballast supply relay			1100	4						Þ	
Motion detectors											
Energy save timer Sequence A start/stop signals		<u>→</u>	. = 00								-
Sequence B start/stop signals			1200								
Master Glass switch interface											
Local calendar     Functions			1300								
										Confirm	





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

0 0 🗉 🔍 🔍 | 1 5 7 3 🖏 | 🖂

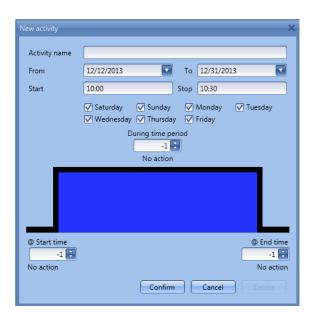
Tool bar icons:

1001 001 10	
	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
1	The calendar visualizes one day horizontally
5	The calendar visualizes 5 days horizontally
7	The calendar visualizes 7 days horizontally
31	The calendar visualizes 31 days horizontally
6	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 (
  - Switch the light off (0)
  - Set the light to Scenario 1 (1)
    Set the light to Scenario 2 (2)
  - Set the light to Scenario 2 (2) - Set the light to Scenario 3 (3)
  - Set the light to Scenario 3 (3)
  - 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)

New activity	×
Activity name	example
From	1/1/2013 To 12/31/2013
Start	10:00 Stop 10:30
	☐ Saturday ☐ Sunday ☑ Monday ☑ Tuesday ☑ Wednesday ☑ Thursday ☑ Friday
	During time period -1 😨 No action
@ Start time 100 📢 Set 100%	@ End time 10 😨 Set 10%
	Confirm Cancel Delete

In the first example, the calendar is set to work all the year round (from 1<sup>st</sup> January to 31<sup>st</sup> 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.

Sx tool manual





New activity	×
Activity name	example
From	1/1/2013 To 12/31/2013
Start	10:00 Stop 10:30
	✓ Saturday ✓ Sunday ✓ Monday ✓ Tuesday ✓ Wednesday ✓ Thursday ✓ Friday
	During time period -1 No action
@ Start time 1 Set S1	@ End time 0 💼 Light off
	Confirm Cancel Delete

In the second example, the calendar is set to work all the year round (from 1<sup>st</sup> January to 31<sup>st</sup> 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.





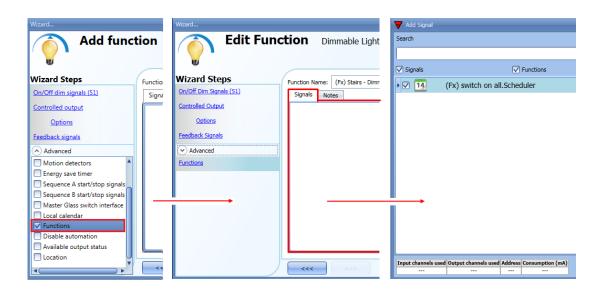
## 10.2.22.2 The global calendar function

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.

New activity		×
Activity name	exemple disable	
From	1/1/2014 To 12/31/2014	
Start	09:00 Stop 09:30	
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>	
	During time period	
@ Start time -1 😜 No action	@ End t -1 No ac	÷
	Confirm Cancel Delete	

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.

Wizard Add functi	on	Wizerd Edit Fund	ction Dimmable	Wizard Edit Fur	nction Dimmable Light	Disable Auto
Wizard Steps On/Off dim signals (51) Controlled output Options Fetsback signals Advanced Motion detectors Energy save timer Sequence B start/stop signals Equence B start/stop signals Equence B start/stop signals Coal calendar Functions Disable automation Available output status Location	Function Signal Disable	Wizard Steps On Off Um Senak (5) Controlled Output Octoors Feetback Samals ♥ Advanced Dables Automation Force Output Full On Force Output Full Off	Function Name: (PA) Stairs Signals Notes Disable Timeout (min)	Wizard Steps On Off Dem Sanaks (51) Controlled Output Options Petitick Stands	Function Name: (Fx) Statirs - Dimmable light Signals Notes Compared Notes Compare	





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

Wizard		
C Edit func	tion Dimmable light	
<b>U</b>		Disable automation
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	3: Bathroom Switches K6 Push 3	Available mode
Options		
Feedback signals		Working mode
<ul> <li>Advanced</li> </ul>		0→1 1→0
Disable automation		
Force output fully on Force output fully off		
		Event type
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Confirm

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							
0→1	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.			
1→0	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.			
0→1 1→0	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.

Disable Timeout (min)
<<< >>>>

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.

Wizard Add funct	ion	Wizard	ction Dimmable	Wizard Edit Fun	ction Dimmable Light	
			Diminuble			Disable Autor
Wizard Steps         On/Off dim signals (S1)         Controlled output         Options         Feedback signals         Advanced         Dotion detectors         Energy save timer         Sequence A start/stop signals         Mater Gass witch interface	Functii	Wizard Steps On/Off Dim Signals (51) Controlled Output Options Feesbark Signals (*) Advanced Disable Automation Force Output Full Off	Function Name: (Fx) Stairs Signals Notes	Wizard Steps On/Off Dim Stands (51) Controlled Output Options Feedback Stionals Advanced Disable Automation Force Output Full On Force Output Full Off	Function Name: (Fx) Stairs - Dimmable light Signals Notes F 3: Bathroom Switch K6 Push3	
Local calendar Functions Disable automation Available output status Location	Disab		Disable Timeout (min)		Disable Timeout (min) 0:	v

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.

Wizard	Wizard	Wizard
Add function	Edit Function Dimmable	Edit Function Dimmable Light
Wizard Steps Function	Wizard Steps Function Name: (Fx) Stairs	Wizard Steps Function Name: (Fx) Stairs - Dimmable light
On/Off dim signals (S1) Sign	On/Off Dim Signals (S1) Signals Notes	On/Off Dim Signals (S1) Signals Notes
Controlled output	Controlled Output	Controlled Output
Options	Options	Options
Feedback signals	Feedback Signals	Feedback Signals
Advanced	Advanced	Advanced
Motion detectors	Disable Automation	Disable Automation
Energy save timer	Force Output Full On	Force Output Full On
Sequence A start/stop signals Sequence B start/stop signals	Force Output Full Off	Force Output Full Off
Master Glass switch interface		
Local calendar		
Functions		
Disable automation		
Available output status	Disable Timeout (min)	

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).

Wizard		×
Edit func	tion Dimmable light	Sequence A start/stop signals
Wizard Steps On/Off dim signals (51) Controlled output Options Feedback signals	Function name: (Fx) Root - Dimmable light Signals Notes  1: Push 1 start sequence	Available mode         Event type         Image: Signal settings
	~~~ >>>	Confirm

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

Wizard						n x n
Edit funct	tion Dim	mable light				
				Sequence	A actions	
Wizard Steps	Function name:	(Fx) Root - Dimmable lig	ht			
On/Off dim signals (S1)	N. ^	Pulse weight		Delay before action (m)	Delay before action (s	s) 🚽 🌍
Controlled output	-					
Options Feedback signals						+
Advanced						
Sequence A start/stop signals						
Sequence A actions						<b>X</b>
	Enable smart s	equence 🧹 🔛				
	<<<	>>>				Confirm

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.

Wizard Edit funct	<b>tion</b> Dimr	nable light			□ ×
			Sequence	A actions	
Wizard Steps	Function name:	(Fx) Root - Dimmable light			
<u>On/Off dim signals (S1)</u>	N. ^	Pulse weight	Delay before action (m)	Delay before action (s)	
Controlled output	1	100 🗧 Set 100%	0	30	
<u>Options</u>	2	60 🗧 Set 60%	0	30	
Feedback signals	3	80 🗧 Set 80%	0	30	
Sequence A start/stop signals	• 4	20 🗧 Set 20%	0	30	
Sequence A actions					
Sequence B start/stop signals					
Sequence B actions					
	Enable smart se	equence 💙 🐹			
	<<<	>>>		Co	nfirm

#### 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

Delay before action: 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.





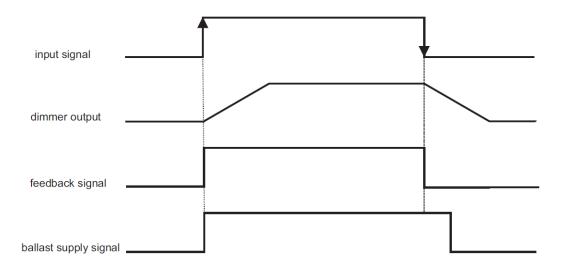
## 10.2.28 How to manage the power supply of a ballast

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.

Wizard		×
Add func	tion Dimmable light	
w		Ballast supply relay
Wizard Steps	Function name: (Fx) Root - Dimmable light	
On/Off dim signals (S1)	Signals Notes	
Controlled output		
<u>Options</u>		
Feedback signals		
(  Advanced  Bellest suggested		
Ballast supply relay Energy save timer		
<u>chergy save unier</u>		
		Signal settings Signal properties
	<<< >>>>	Cancel Confirm

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



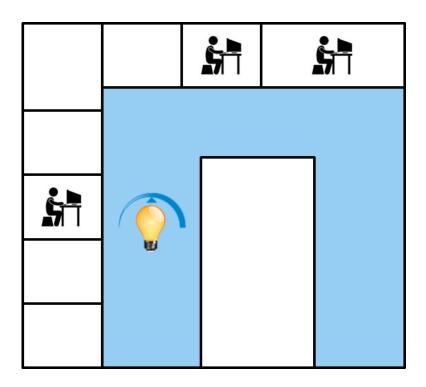




# **10.2.29 Corridor lighting function**

This function is also an enhancement (additional option) to the dimming functions (*Dimmable light, Constant light, Light ON/OFF*).

As shown in the picture below, the main aim of the Corridor lighting function is to control the lighting in the corridor, based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF but has to be at a certain level.







## 10.2.29.1 How to set the Corridor lighting function

To set up a *Corridor lighting* function the user should select one of the existing *Light Functions* present in the project.

Since this is an Advanced functionality, the *Corridor light* field has to be enabled in the Advanced section.

Wizard		Wizard		Add signal	
Edit funct	ion Dimmable light	Edit func	tion Dimmable light	Search	
Wizard Steps On/Off dim signals (S1) Controlled output Qptions Feedback signals Advanced Energy save timer Sequence A start/stop signals Sequence B start/stop signals Local calendar	Function name: (Fx) Floor - Corridor light Signals Notes	Wizard Steps On/Off dim signals (S1) Controlled output Options Feedback signals (▼) Advanced Corridor light	Function name: (Fx) Floor - Corridor Signals Notes	_	output signals
Functions     Corridor light     Disable automation     Available output status     Location	Light level (%)		Light level (%) 0 E Light off	Input channels u	Utiput channels used Address Consumption (mA)

The Corridor light menu will appear. After selecting it, by double clicking on the Signals window the list of available signals will appear.

As shown in the picture above, the user may choose which offices he wants to include in the function, by selecting the relative signals: they can be function status or physical signals. 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 system does the logical OR).

The control of lighting in the corridor is based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF: it has to be at a certain level (e.g. 20%), in this case S3 scenario. See the green rectangle in the picture below.



# **CARLO GAVAZZI** Automation Components

Wizard				= ×
Edit func	tion Dimmable light	Corrido		
		Corrido	riight	
Wizard Steps	Function name: (Fx) Floor - Corridor light			
On/Off dim signals (S1)	Signals Notes			
Controlled output	Fx) Bathroom - Light function.Status		Availa	ble mode
Options	(Fx) Kitchen - Light function.Status			
Feedback signals	💡 (Fx) Garden - Light function.Status			
Advanced				
Motion detectors				
Energy save timer				
Corridor light				
			Signal settings	Signal properties
	Light level (%) 3 😜 Set S3	Ð	oignai settings	orginal properties
	Light level (%) Set 53			
	~~~~ >>>			Confirm

## 10.2.29.2 How to turn a light ON with PIR sensors combined with Corridor light function

If the *Corridor light* option is selected, the user must select at least one signals which he wants to include in the function in the Advanced section.

This will be used by the *corridor light* function to detect if there is "people presence" in the adjacent offices. The signals added in this field are used to keep the light ON at the level defined in the field *Scenario (%)* (green rectangle, picture above, S2 scenario), but they are not used to switch the light ON.

Anyway as usual, a PIR signal can be used to switch the light ON in the *Motion detector* field and 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 to a certain Scenario. In the green rectangle in the example shown below, the S2 scenario has been selected.

Wizard		= ×
Edit funct	tion Dimmable light	
U	Motion detectors	
Wizard Steps	Function name: (Fx) Floor - Corridor light	
On/Off dim signals (S1)	Signals Notes	_
Controlled output	Available mode	
Options		
Feedback signals	Working mode	
Advanced		
Luxsensor	Inverted signal	
Luxsensor settings Motion detectors		
Energy save timer	Signal settings Signal propertie	:s
Corridor light	Pir switches on	
	The PIR changes the light level	
	Confirm	

When the PIR does not detect any movement in the corridor, the light returns to the light level set in the





Corridor light options (S3 scenario).

If the office lighting is not PIR-based, the user should use "*light function output*", as shown in the previous paragraph.

#### 10.2.29.3 How the Corridor light function works

There are different possible scenarios, depending on the presence conditions in the offices adjacent to the corridor.

# 10.2.29.3.1 Presence of people in offices is TRUE

In this situation, one or more of the selected *PIRs* are ON or one or more of the selected *light functions* are ON

As long as "people presence" is TRUE, the corridor light function works as a PIR-based scenario control, where the light switches between, for example, S2 scenario and S3 scenario depending on whether the PIR is ON or OFF.

# 10.2.29.3.2 Presence of people in offices is FALSE

If an energy save timer is used to switch the light OFF or to set the light at a lower level, it starts counting down when all the signals in the field *Motion detector* and *Corridor light* are OFF: this means people presence neither in the corridor nor in the adjacent offices.

In the example shown below, while the user is in the corridor the light stays on S2 scenario and the energy-save timer is continuously reloaded; when no more people are detected in the corridor and in the adjacent offices, the energy-save timer starts counting and the light is switched to a lower level, e.g. 10%. In the example shown below an energy save timer of 5 minutes is set by the user.

Wizard		
Add func	ion Dimmable light	Energy save timer
Wizard Steps <u>On/Off dim signals (S1)</u> <u>Controlled output</u> <u>Options</u> <u>Feedback signals</u>	Function name: (Fx) Root - Dimmable light	5 MM 0 SS
	Disable Scenario Set (%) Percentage 10 Set	24 hr et 10% Cancel Confirm



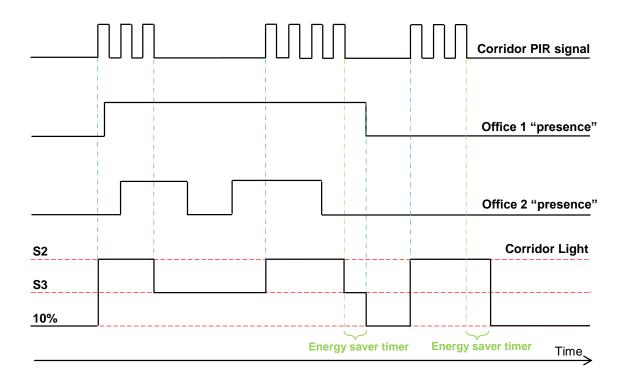


In the example shown below, a PIR is present in the corridor: when it detects any movement, the corridor light switches ON to S2 scenario and remains at this level until the PIR detects any movement in the corridor.

As long as at least one or more adjacent offices are occupied, and the PIR doesn't detect any movement in the corridor, the corridor is set to the S3 scenario.

When the PIR redetects any movement in the corridor, the corridor light returns ON to S2 scenario. If the PIR doesn't detect any movement and there is no people presence in the adjacent offices, the corridor light goes to energy saver light level, e.g. 10%, as set by the user in the *Energy saver timer* field.

When the PIR in the corridor detects any movement, the corridor light switches ON to S2scenario and the "people present" operation resumes.



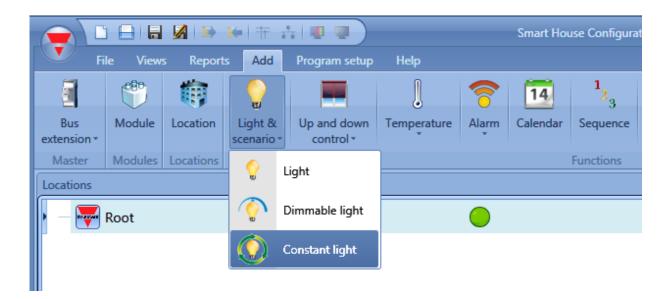




# 10.3 How to set a Constant light function

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.

Wizard	×
Edit funct	ion Constant Light
	On/Off dim signals (S1)
Wizard Steps	Function name: (Fx) Root - Constant light
On/Off dim signals (S1)	Signals Notes
Controlled output	A
Options	
Luxsensor	
Luxsensor settings	
Feedback signals	
Advanced	
Scene selection	
Motion detectors	
Energy save timer           Sequence A start/stop signals	Signal settings Signal properties
Sequence B start/stop signals	Soft scene start (s) Soft scene stop (s)
Local calendar	4 4
Functions	
Disable automation	Confirm





# 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.

Wizard	V Add signal		
Constant Light	Search		
Winned Steve	Signals Functions		
Wizard Steps         Function name:         (Fx) Root - Const           On/Off dim signals (S1)         Signals         Number 1	C      1: Root Switches K3 SW1 Push 1		
Controlled output	2: Root Switches K3 SW1 Push 2		
Options	3: Root Switches K3 SW1 Push 3		
	4: Root Switches K3 SW1 Push 4		
Luxsensor settings	1: Root Switches K4 SW2 Push 1		
Feedback signals	2: Root Switches K4 SW2 Push 2		
Advanced	3: Root Switches K4 SW2 Push 3		
<u> </u>	4: Root Switches K4 SW2 Push 4		
	(Fx) Root - Dimmable light.Status		
	Input channels used         Output channels used         Address         Consumption (mA)           0 / 119         0 / 111         0 / 250         4.8 / 450,0		

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).

Wizard		×
Edit funct	tion Constant Light	On/Off dim signals (S1)
Wizard Steps On/Off dim signals (S1) Controlled output Options Luxsensor Luxsensor settings Feedback signals (•) Advanced	Function name: (Fx) Root - Constant light          Signals       Notes         I: Root Switches K3 SW1 Push 1	Available mode         Inverted signal         Inverted signal         Image: Signal settings
	Soft scene star	





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.

Wizard		▼ Add signal	
Edit funct	ion Constant Light	Search	
Wizard Steps         On/Off dim signals (S1)         Controlled output         Options         Luxsensor         Luxsensor settings         Feedback signals         ♥ Advanced	Function name: (Fx) Root - Cons Signals Notes	✓ Signals ✓ Ŷ	<ul> <li>✓ Functions</li> <li>9: Root Dimmer module K5 Dimmer 1</li> <li>9: Root Dimmer module K6 Dimmer 1</li> <li>9: Root Dimmer module K7 Dimmer 1</li> </ul>
	<	Input channels used 0 / 119	d Output channels used Address Consumption (mA) 0/111 0/250 7,8/450,0

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.

Wizard			×
Add funct	tion Constant Light	Options	
Wizard Steps On/Off dim signals (S1) Controlled output Options Luxsensor Luxsensor settings Feedback signals ♥ Advanced Energy save timer	Function name: (Fx) Root - Constant light Load type Qutput status if Dupline bus is faulty Full scale light level(lux) 5000 Enable hardware short circuit protection		
	<<< >>>>	Cancel	onfirm

#### 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 add the luxsensor

Since in the constant light function the light level has to be measured, the user must add a luxmeter in the relevant field Luxsensor.

Wizard		V Add signal	
Edit funct	constant Light	Search	
		🗸 Signals	✓ Functions
Wizard Steps	Function name: (Fx) Root - Co	۰ 🗆 🔒	4: Root Motion detectors K8 Luxmeter 1
On/Off dim signals (S1)	Signals Notes		4: Root Motion detectors K9 Luxmeter 1
Controlled output			1: Root Lux sensor K10 Luxmeter 1
Options			
Luxsensor			
Luxsensor settings			
Feedback signals			
Advanced	-		
Scene selection			
Scene 100%			
Scene 2 (S2)			
Scene 3 (S3)			
Scene 4 (S4)		Input channels used	d Output channels used Address Consumption (mA)
Scene 5 (S5)	<<< >>>>	0/119	0/111 0/250 25,3/450,0

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:

Wizard	×	
Constant Light		
	Luxsensor settings	
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Thresold (lux) 6000 🕃	
Controlled output	Hysteresis for light level off (%) 10 🕃	
Options Luxsensor	Cloud filter (s) 60 🕄	
Luxsensor settings	Output status if dupline bus is faulty (%) 100 🕃	
Feedback signals		
Advanced		
Scene selection		
Scene 100%		
Scene 2 (S2)		
Scene 3 (S3)		
Scene 4 (S4)		
Scene 5 (S5)	Confirm	





# 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 for light level off %

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.





# 10.3.5 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.

Wizard		😽 Add signal	
Edit funct	ion Constant Light	Search	
		✓ Signals	✓ Functions
Wizard Steps On/Off dim signals (S1)	Function name: (Fx) Root - Cor	• 🗆 🔆	5: Root Switches K3 SW1 Led 1
Controlled output	Signals Notes		6: Root Switches K3 SW1 Led 2
			7: Root Switches K3 SW1 Led 3
<u>Options</u>			8: Root Switches K3 SW1 Led 4
Luxsensor			5: Root Switches K4 SW2 Led 1
Luxsensor settings Feedback signals			6: Root Switches K4 SW2 Led 2
Advanced			7: Root Switches K4 SW2 Led 3
			8: Root Switches K4 SW2 Led 4

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).

Wizard Edit fur	ction Constant Light	×
		Feedback signals
Wizard Steps On/Off dim signals (S1)	Function name: (Fx) Root - Constant light Signals Notes	
Controlled output Options Luxsensor Luxsensor settings Feedback signals C Advanced	5: Root Switches K3 SW1 Led 1	Available mode
		Signal settings Signal properties





# 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.

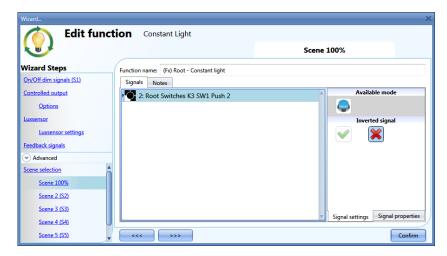
The user should go to the advanced steps of the function and then check *Scene selection*. The user can select the scenario from the list, then with a double click in the signals field can add one or more inputs to activate the scenario.

Wizard		Wizard	
Edit funct	tion Constant	Edit funct	<b>tion</b> Constant I
Wizard Steps	Function name: (Fx) F	Wizard Steps	Function name: (Fx) R
On/Off dim signals (S1)	Signals Notes	On/Off dim signals (S1)	Signals Notes
Controlled output		Controlled output	
Options		Options	
Luxsensor		Luxsensor	
Luxsensor settings		Luxsensor settings	
Feedback signals		Feedback signals	
Advanced		Advanced	
Scene selection		Scene selection	
Motion detectors     Energy save timer		Scene 100%	
Sequence A start/stop signals		Scene 2 (S2)	
Sequence B start/stop signals		Scene 3 (S3)	
Local calendar Functions		Scene 4 (S4)	
Disable automation	<<< >>	<u>Scene 5 (S5)</u>	<<< >>>

#### 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.

Wizard		×
Edit funct	Constant Light	Scene 2 (S2)
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	3: Root Switches K3 SW1 Push 3	Available mode
Options		
Luxsensor		Inverted signal
Luxsensor settings		
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Scene selection		
Scene 100%		
Scene 2 (S2)		Signal settings Signal properties
Scene 3 (S3)	Dimmer (Lux)	oft scene start (s) Soft scene stop (s)
Scene 4 (S4)	200	4
Scene 5 (S5)	<	Confirm

# 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

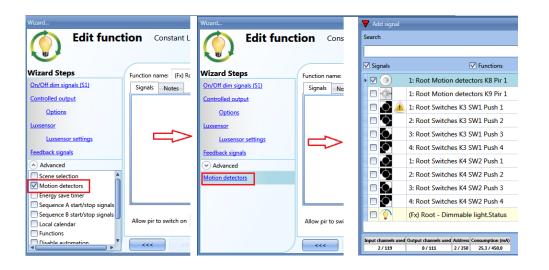
The motion detector sensor can be used to perform different functions:

- 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.



# **CARLO GAVAZZI** Automation Components

Wizard		×
Add funct	tion Constant Light	
		Motion detectors
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output		
<u>Options</u>		
Luxsensor		
Luxsensor settings		
Feedback signals		
Advanced		
Scene 2 (S2)		Signal settings Signal properties
Scene 3 (S3)		Signal settings Signal Properties
Scene 4 (S4)	Allow pir to switch on	
Scene 5 (S5)	The PIR changes the light level 🕡 🙀	Action on pir movement1 🕄 No action
Scene 0%	only if the dimmer is off	
Motion detectors	<<< >>>>	Cancel Confirm

# 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.

Wizard	×
Edit funct	tion Constant Light
	Energy save timer
Wizard Steps	Function name: (Fx) Root - Constant light
On/Off dim signals (S1)	
Controlled output	
Options	
Luxsensor	0 HH 0 HM 10 SS
Luxsensor settings	
Feedback signals	
<ul> <li>Advanced</li> </ul>	
Motion detectors	
Energy save timer	
	Disable 24 Hr
	Scenario Event off
	Confirm





# 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.

Wizard		×
Add funct	ion Constant Light	
		Motion detectors
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	· · · · · · · · · · · · · · · · · · ·	
Options		
Luxsensor		
Luxsensor settings		
Feedback signals		
✓ Advanced		
Scene 2 (S2)		Signal settings Signal properties
Scene 3 (S3)		Signal settings Signal properties
Scene 4 (S4)	Allow pir to switch on	
Scene 5 (S5)	The PIR changes the light level 🕡 候	Action on pir movement -1 🗊 No action
Scene 0%	only if the dimmer is off	
Motion detectors	<<< >>>>	Cancel Confirm





# 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.

Wizard		×
Add func	tion Constant Light	
		Motion detectors
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output		
Options		
Luxsensor		
Luxsensor settings		
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Scene 2 (S2)		Signal settings Signal properties
Scene 3 (S3)		
Scene 4 (S4)	Allow pir to switch on	Action on pir movement -1 😜 No action
Scene 5 (S5)	The PIR changes the light level 📈 🙀	
Scene 0%	only if the dimmer is off	
Motion detectors	<<< >>>>	Cancel





# 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).

Wizard		×
Edit funct	ion Constant Light	
		Feedback signals
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	5: Root Switches K3 SW1 Led 1	A Available mode
<u>Options</u>		
Luxsensor		Inverted signal
Luxsensor settings		
Feedback signals		
Advanced		
Energy save timer		
	L	Signal settings Signal properties
	<<< >>>>	Confirm

Wizard	×
Edit funct	tion Constant Light
	Energy save timer
Wizard Steps	Function name: (Fx) Root - Constant light
On/Off dim signals (S1)	
Controlled output	
<u>Options</u>	
Luxsensor	2 HH 30 MM 0 SS
Luxsensor settings	
Feedback signals	
<ul> <li>Advanced</li> </ul>	
Energy save timer	
	Disable 24 Hr
	Scenario Event off
	Confirm





## 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.

	Disable Scenario Set lux Value 600 Set 600 lux
$\mathcal{I}$	<<< >>>>

## 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.

Wizard		Wizard		
C Edit Fund	tion	Edit Fun	nction Constant Light	
Wizard Steps	Function Nar	Wizard Steps	Function Name: (Fx) Stairs - Dimmable light	
On/Off Dim Signals (S1)	ON/OFF -	On/Off Dim Signals (S1)	6 6 1 2 2 1 5 7 3 5	
Controlled Output		Controlled Output	lunedì 17 dic martedì 18 dic mer 19 dic	giovedì
Options		Options	900	
Feedback Signals		Feedback Signals		
Advanced		✓ Advanced	1000	
Scene Selection		Local calendar	10	
Energy Save Timer				
☐ Eunctions ✓ Local calendar			1100	
Sequence A start/stop signals				
Sequence B start/stop signals Disable Automation			1200	
Available output status				
Location			1300	





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

| 📀 🕑 🗉 🔍 🔍 | 🗉 🗾 7 🖻 😽 | 😆 |

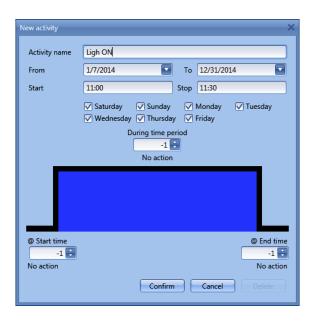
#### Tool bar icons:

	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
$\bigcirc$	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
1	The calendar visualizes one day horizontally
5	The calendar visualizes 5 days horizontally
7	The calendar visualizes 7 days horizontally
31	The calendar visualizes 31 days horizontally
- <u>6</u> -	The calendar visualizes 7 days vertically
H	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)

New activity	×
Activity name	example 1
From	1/1/2014 To 12/31/2014
Start	10:00 Stop 10:30
	<ul> <li>Saturday □ Sunday ☑ Monday ☑ Tuesday</li> <li>Wednesday ☑ Thursday ☑ Friday</li> <li>During time period</li> </ul>
	-1 Revenue of the second secon
@ Start time 100 💭 Set 100 lux	@ End time 10 = Set 10 lux
	Confirm Cancel Delete

In the first example, the calendar is set to work all the year round (from 1<sup>st</sup> January to 31<sup>st</sup> 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.





New activity	>
Activity name	example 2
From	1/1/2014 To 12/31/2014
Start	10:00 Stop 10:30
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>
	During time period -1
@ Start time 1 Set S1	@ End time d :: Light off
	Confirm Cancel Delete

In the second example, the calendar is set to work all the year round (from 1<sup>st</sup> January to 31<sup>st</sup> 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.

Wizard	Wizard	Add Signal	
Edit Functio	Edit Function Dimmable Light	Search	
		Signals	V Functions
Wizard Steps     Func       On/Off Dim Signals (S1)     Sil       Controlled Output     Sil       Options     Feedback Signals       Advanced     Sil	Is On/Off Dim Signals (51) Signals Notes Signals Notes Signals Controlled Output Options Feedback Signals (*) Advanced	• 🗸 🚺	(Fx) switch on all.Scheduler
Scene Selection Uuxsensor Motion detectors Ferery Save Timer ✓ Functions UoCal calendar Sequence A start/stop signals Sequence B start/stop signals Disable Automation Available output status Location Functions	Functions	Input channels us	sed Output channels used Address Consumption (mA)





## 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.

New activity	×
Activity name	Disable
From	1/1/2014 To 12/31/2014
Start	10:30 Stop 11:00
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>During time period</li> <li>1</li> <li>Disable automation</li> </ul>
@ Start time -1 🕞 No action	@ End time -1  💽 No action
	Confirm Cancel Delete

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.

Wizard Edit Fund	ction	Wizard Edit Fund	ction Dimmable	Wizard Edit Fur	nction Dimmable Light
Wizard Steps	Function N	Wizard Steps	Function Name: (Fx) Stairs	Wizard Steps	Function Name: (Fx) Stairs - Dimmable light
On/Off Dim Signals (S1)	Signals	On/Off Dim Signals (S1)	Signals Notes	On/Off Dim Signals (S1)	Signals Notes
Controlled Output		Controlled Output		Controlled Output	3: Bathroom Switch K6 Push3
Options		Options		Options	S. Bathoon Switch to Pasis
Feedback Signals		Feedback Signals		Feedback Signals	
Advanced		Advanced		Advanced	
Scene Selection		Disable Automation		Disable Automation	
Motion detectors	-	Force Output Full On		Force Output Full On	
Energy Save Timer Functions					
Local calendar		Force Output Full Off		Force Output Full Off	
Sequence A start/stop signals					
Sequence B start/stop signals					
Disable Automation					
Available output status					
Location	Disable Ti		Disable Timeout (min)		Disable Timeout (min) 0 😜
Disable Automation	<<<		<		

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



# **CARLO GAVAZZI** Automation Components

Wizard		×
Add funct	tion Constant Light	
		Disable automation
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	1: Kitchen cooker light K4 Push 1	Working mode
<u>Options</u>		0→1 1→0
Luxsensor		
Luxsensor settings		
Feedback signals		Event type
Scene 0%		
Motion detectors		
Energy save timer		Signal settings Signal properties
Disable automation	Disable timeout (min) 0 😜	
Force output fully on		
Force output fully off	<<< >>>	Cancel Confirm

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				
0→1	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.
1→0	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.
0→1 1→0	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.
		be enabled/disabled again when the push be	in toggle mode when utton is released.	the push button is
			goes ON, and it is ena	bled again when the





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.

Disable Timeout (min) 10
<

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.

Wizard				Wizard	
Edit Function		Edit Function Dimmable		Edit Function Dimmable Light	
Wizard Steps	unction N	Wizard Steps	Function Name: (Fx) Stairs	Wizard Steps	Function Name: (Fx) Stairs - Dimmable light
0 /0// 0: - C   - (Cr)	Signals	On/Off Dim Signals (S1)	Signals Notes	On/Off Dim Signals (S1)	Signals Notes
Controlled Output		Controlled Output	notes	Controlled Output	3: Bathroom Switch K6 Push3
Options		Options		Options	3: Bathroom Switch K6 Push3
Feedback Signals		Feedback Signals		Feedback Signals	
Advanced		✓ Advanced		Advanced	
Scene Selection		S-2			
Luxsensor		Disable Automation		Disable Automation	
Motion detectors		Force Output Full On		Force Output Full On	
Energy Save Timer		Force Output Full Off		Force Output Full Off	
Functions					
Local calendar					
Sequence A start/stop signals					
Sequence B start/stop signals					
Disable Automation					
	Disable Ti		Disable Timeout (min)		
Location			L		
Disable Automation	<<<		<<< >>>>		< >>>

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.

Wizard	Wizard	Wizard
Edit Function	Edit Function Constant	<b>Edit Function</b> Constant Light
Wizard Steps Function	Wizard Steps Function Name: (Fx) Stairs	Wizard Steps Function Name: (Fx) Stairs - Dimmable light
On/Off Dim Signals (S1) Signa	On/Off Dim Signals (S1) Signals Notes	On/Off Dim Signals (S1) Signals Notes
Controlled Output	Controlled Output	Controlled Output 3: Bathroom Switch K6 Push3
Options	Options	Options
Feedback Signals	Feedback Signals	Feedback Signals
Advanced	Advanced	Advanced
Scene Selection	Disable Automation	Disable Automation
Luxsensor     Motion detectors	Force Output Full On	Force Output Full On
Energy Save Timer	Force Output Full Off	Force Output Full Off
Functions     Local calendar		
Sequence A start/stop signals		
Sequence B start/stop signals		
Disable Automation		
Available output status Disable	Disable Timeout (min)	
Location		
Disable Automation	~~>>>	~~~ ~~~

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.

Wizard		×
Contract Edit func	tion Constant Light	
		Sequence A start/stop signals
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off dim signals (S1)	Signals Notes	
Controlled output	1: Root Switches K3 SW1 Push 1	Available mode
<u>Options</u>	2: Root Switches K3 SW1 Push 2	
Luxsensor		Event type
Luxsensor settings		
Feedback signals		
Sequence A start/stop signals		Inverted signal
Sequence A actions		
		Signal settings Signal properties
	<	Confirm

#### 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.





Wizard Steps	Function nam	e: (Fx) Root - Constant light			
On/Off signals (S1)	a de la companya de l	<ul> <li>Pulse weight</li> </ul>	Delay before action (m)	Delay before action (s)	ſ
Controlled output		1 4,000 🗘 Set 4000 lux	0	5 🗖	
<u>Options</u>		2 3,000 🗘 Set 3000 lux	0	4	
Luxsensor	:	3 1,000 🗧 Set 1000 lux	0	2	ſ
Luxsensor settings Feedback signals		4 2,000 🗧 Set 2000 lux	0	3	
Advanced	-	5 0 🗧 Light off	0	2	
Sequence A start/stop signals					
Sequence A actions					

#### 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

Delay before action: 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 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.

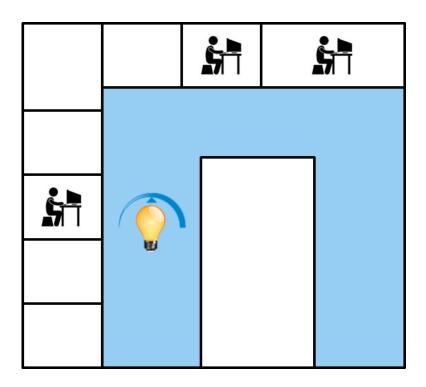




## **10.3.21 Corridor lighting function**

This function is also an enhancement (additional option) to the dimming functions (*Dimmable light, Constant light, Light ON/OFF*).

As shown in the picture below, the main aim of the Corridor lighting function is to control the lighting in the corridor, based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF but has to be at a certain level.







## 10.3.21.1 How to set the Corridor lighting function

To set up a *Corridor lighting* function the user should select one of the existing *Light Functions* present in the project.

Since this is an Advanced functionality, the *Corridor light* field has to be enabled in the Advanced section.

Wizard		Wizard		Add signal	
Edit function Constant Light		Edit funct	tion Constant Light	Search	
				Hide use	d output signals 🔽 Signals
Wizard Steps	Function name: (Fx) Root - Corridor	Wizard Steps	Function name: (Fx) Root - Corridor		Name
On/Off signals (S1) Controlled output	Signals Notes	On/Off signals (S1) Controlled output	Signals Notes		(Fx) Bathroom - Light function.Status
Options		Options			(Fx) Kitchen - Oven.Status
Luxsensor		Luxsensor			(Fx) Kitchen - Light function.Status
Luxsensor settings		Luxsensor settings			(Fx) Bedroom - Light function.Status
Feedback signals		Feedback signals			(Fx) Bathroom - Mirror light.Status
Advanced		Advanced		• 🗹 🞡	(Fx) Garden - Light function.Status
Sequence B start/stop signals 🔺		Corridor light			
Local calendar					
Functions					
Corridor light					
<ul> <li>Disable automation</li> <li>Available output status</li> </ul>			Light level (Lux) 0 🖶 Light off		
			Light level (Lax)		
	<<<		<<< >>>>	Input channels	used Output channels used Address Consumption (mA)

The Corridor light menu will appear. After selecting it, by double clicking on the Signals window the list of available signals will appear.

As shown in the picture above, the user may choose which offices he wants to include in the function, by selecting the relative signals: they can be function status or physical signals. 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 system does the logical OR).

The control of lighting in the corridor is based not only on the presence of people in the corridor, but also on the presence of people in the adjacent offices. If there are people present in one or more offices, the corridor light is not allowed to switch OFF: it has to be at a certain light level (e.g. 400 lux). See the green rectangle in the picture below.



# **CARLO GAVAZZI** Automation Components

Wizard			
Edit func	tion Constant Light	Corridor light	
Wizard Steps	Function name: (Fx) Root - Corridor light		
On/Off signals (S1)	Signals Notes		
Controlled output	Fx) Bathroom - Light function.Status	Available mode	
Options	(Fx) Kitchen - Light function.Status		
Luxsensor	💡 (Fx) Garden - Light function.Status		
Luxsensor settings			
Feedback signals			
Advanced			
Motion detectors			
Energy save timer			
<u>Corridor light</u>		Signal settings Signal proper	ties
	Light level (Lux) 400 🕃 Set 400 lux		
	~~~~ >>>>	Confirm	1

## 10.3.21.2 How to turn a light ON with PIR sensors combined with Corridor light function

If the *Corridor light* option is selected, the user must select at least one signals which he wants to include in the function in the Advanced section.

This will be used by the *corridor light* function to detect if there is "people presence" in the adjacent offices. The signals added in this field are used to keep the light ON at the level defined in the field *Light level (Lux)* (green rectangle, picture above, 400 lux), but they are not used to switch the light ON.

Anyway as usual, a PIR signal can be used to switch the light ON in the *Motion detector* field and 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 to a certain light level. In the green rectangle in the example shown below, a light level of 500 lux has been selected.

Wizard	•
Edit funct	ion Constant Light Motion detectors
Wizard Steps On/Off signals (S1) Controlled output	Function name: (Fx) Root - Corridor light Signals Notes Available mode
Qptions Luxsensor Luxsensor settings Feedback signals C Advanced Motion detectors	VI_F1: Root - House - Living room - Motion detectors K58 Pir 1  Working mode  Note: State of the second sec
Energy save timer Corridor light	Signal settings     Signal properties       Pir switches on     Image: Signal settings     Signal settings       The PIR changes the light level     Image: Signal settings     Set 500 lux       only if the dimmer is off     Image: Signal settings     Set 500 lux       Image: Signal settings     Image: Signal settings     Set 500 lux       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal settings     Image: Signal settings     Image: Signal settings       Image: Signal setting

When the PIR does not detect any movement in the corridor, the light returns to the light level set in the





Corridor light options.

If the office lighting is not PIR-based, the user should use "*light function output*", as shown in the previous paragraph.

#### 10.3.21.3 How the Corridor light function works

There are different possible scenarios, depending on the presence conditions in the offices adjacent to the corridor.

## 10.3.21.3.1 Presence of people in offices is TRUE

In this situation, one or more of the selected *PIRs* are ON or one or more of the selected *light functions* are ON

As long as "people presence" is TRUE, the corridor light function works as a PIR-based scenario control, where the light switches between, for example, 500 lux and 400 lux light level, depending on whether the PIR is ON or OFF.

## 10.3.21.3.2 Presence of people in offices is FALSE

If an energy save timer is used to switch the light OFF or to set the light at a lower level, it starts counting down when all the signals in the field *Motion detector* and *Corridor light* are OFF: this means people presence neither in the corridor nor in the adjacent offices.

In the example shown below, while the user is in the corridor the light stays at 500 lux and the energysave timer is continuously reloaded; when no more people are detected in the corridor and in the adjacent offices, the energy-save timer starts counting and the light is switched to a lower level, e.g. 200 lux. In the example shown below an energy save timer of 5 minutes is set by the user.

Wizard		
Edit funct		
	Energy save timer	
Wizard Steps	Function name: (Fx) Root - Corridor light	
On/Off signals (S1)		
Controlled output		
Options		
Luxsensor	0 HH 5 MM	0 🕂 SS
Luxsensor settings		
Feedback signals		
✓ Advanced		
Motion detectors		
Energy save timer		
Corridor light	Disable	24 hr
	Scenario Set light level  Lux value 200 Set 200 lux	
		Confirm



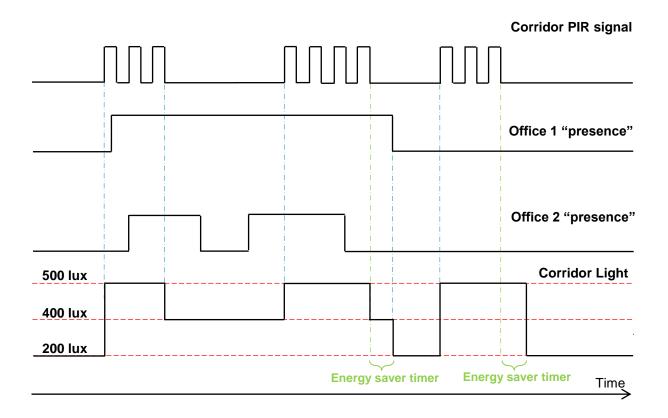


In the example shown below, a PIR is present in the corridor: when it detects any movement, the corridor light switches ON to 500 lux light level and remains at this level until the PIR detects any movement in the corridor.

As long as at least one or more adjacent offices are occupied, and the PIR doesn't detect any movement in the corridor, the corridor is set to 400 lux light level.

When the PIR redetects any movement in the corridor, the corridor light returns ON to 500 lux light level. If the PIR doesn't detect any movement and there is no people presence in the adjacent offices, the corridor light goes to energy saver light level, e.g. 200 lux, as set by the user in the *Energy saver timer* field.

When the PIR in the corridor detects any movement, the corridor light switches ON to 500 lux and the "people present" operation resumes.







## 10.3.22 How to configure a Constant light zone control

This feature is typically used in open office environments where the influx of natural light is stronger close to the windows than it is deeper into the office away from the windows. Typically, the office can be divided into two or three lighting zones with different dimming level requirements to maintain the desired lux setpoints. It is not an option to simply create a separate constant light function for each zone, because then the zones would influence each other and there would be the risk of fluctuating lights.

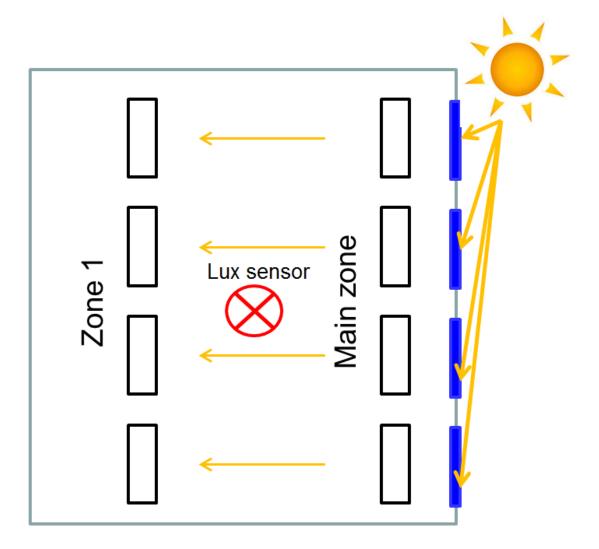
The solution is to create slave zones to the main constant light function. The dimming level of the slave zones can be calculated based on the dimming level of the main constant light function.

The control of the *Main zone* is the "standard" constant light function and *Zone 1* is managed as a slave zone of the *Main* one, as described below.

#### 10.3.22.1 Two zone control

The *Main zone* is the line of lighting fixtures closest to the windows, *Zone 1* is the line farthest away from the windows. The lux sensor (if only one) would typically be located between the *Main zone* and *Zone 1*.

The dimmer controlling the *Main zone* have to be added in the field *Controlled output*.







# 10.3.22.1.1 How to configure the two zone constant light control

In the main constant light function the user must add *Slave zones* in the *Advanced* section.

Wizard	Wizard	Add signal
Add function Constant Light	Add function Constant Light	Search
Wizard Steps On/Off signals (S1) Controlled output Options Luxsensor Luxsensor Luxsensor Luxsensor Luxsensor Luxsensor Ealerst supply relay Motion detectors Energy save timer Sequence A start/stop signals Sequence B start/stop signals	Wizard Steps Qn(Off signals (S1) Controlled output Qptions Lussensor settings Feedback signals ♥ Advanced Slave zones Qptions	Hide used output signals       Signals       Fur         Image: Signals       Name         Image: Signals       Signals       Fur         Image: Signals       Signals       Signals         I
↓ oral calendar ↓ <<<< >>>	~~~ >>>	9 / 120 11 / 112 14 / 249 27.6 / 450.0

The user can select the output modules for *Zone1* from the list: with a double click in the signals field he can add one or more outputs to form the *Zone 1 "group"*.

Wizard		• ×
Edit func	tion Constant Light	
		Slave zones
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off signals (S1)	Zone 1 Zone 2	
Controlled output	9: Root - Dimmer module K59 Zone 1	Available mode
Options	9: Root - Dimmer module K60 Zone 1	$\sim$
Luxsensor	9: Root - Dimmer module K61 Zone 1	
Luxsensor settings		
Feedback signals		
<ul> <li>Advanced</li> </ul>		
<u>Slave zones</u>		
<u>Options</u>		
		Signal settings Signal properties
	<<< >>>>	Confirm





## 10.3.22.1.2 How to set the parameters manually

In the Options field of the wizard, the user can set the following parameters :

#### Max ref(%)

When this value is reached, the Zone 1 dimming level will be the same as the Main zone. A value between 0 and 100% can be set in *Max ref (%)*, as shown in the green box in the picture below. A value between 80 % and 100 % is suggested for most cases (default value is 80 %).

If the *Max ref (%)* value is less than 50%, the *Main zone* and the *Zone 1* light level will move too soon to the same dimming level and all the features of the slave zone control will not be used.

#### Ref zone 1(%)

*Ref zone 1(%) is* calculated by the *auto tune procedure*, as described in the next paragraph. The default value is 50% and the user can modify it manually, before or after the *auto tune procedure*.

#### Ref zone 2(%)

*Ref zone 2(%) is* calculated by the *auto tune procedure*, as described in the next paragraph. The default value is 50% and the user can modify it manually, before or after the *auto tune procedure*.

Wizard			
Edit funct	tion Constant Light		
		Options	
Wizard Steps	Function name: (Fx) Root - Constant light Zone	e Control	
On/Off signals (S1)	Max ref (%) 80		
Controlled output	Ref zone 1 (%) 50		
Options Luxsensor	Ref zone 2 (%) 50		
Luxsensor settings			
Feedback signals			
💌 Advanced			
Scene 3 (S3)			
Scene 4 (S4)			
Scene 5 (S5)			
Scene 0%			
Slave zones			
Options T	<<< >>>>		Confirm



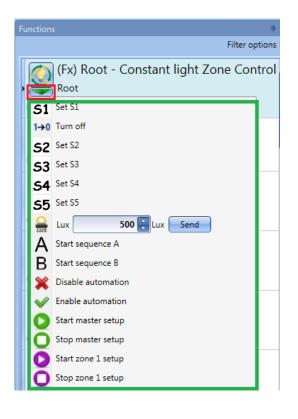


## 10.3.22.1.3 How to set the parameters automatically

To perform the auto tuning procedure for the *Constant light* function with the slave zone control, the user has to save and write the configuration into the SxWEB24 and enable the *live signals* by using the icon at the top of the Tool (see the picture below).

			🖌 🕒 🖌	ff 🦚 📩 🖳 🔍	)				Sm	art House Con
	File	Views	Reports A	dd Program setup	Database	Help				
New	Open	<b>H</b> Save	Save as new configuration	Wired download     Image: Compare the second s	Send to controller	Read from controller	Modules	Orphans modules	Master unit	Enable live signals
		Project		Config	juration			Discovery		Live

The menu of available actions is shown by clicking on the green arrow under each Constant light function icon.



The user can select a *Constant light* Scenario to set the light level in the Main zone: the dimmable lamps of the Main zone will turn ON.





In the picture below, Scenario S2 has been selected for a light level of 400 lux.

	(Fx) Root - Constant light Zone Con Root		
51	Set S1		# ×
1→0	Turn off		Filter options 👻
52	Set S2	(Fx) Root	t - Constant light Zone Control 👗
53	Set S3	 Root	5
54	Set S4	<ul> <li>Light on</li> </ul>	Lux set: 400 2385 Lux
<b>S</b> 5	Set S5		
	Lux 500 Lux Send		

Then, clicking on the green arrow of the function, the user has to select *Start master setup*, as shown in the picture below, to start the auto tune procedure for the *Main zone*.

6	) (Fx) Root - Constant light Zone Con
'	Root
S	Set S1
1→	0 Turn off
S	Set S2
5	<b>3</b> Set S3
S	Set S4
S	5 Set S5
	Lux 500 🖶 Lux Send
A	Start sequence A
E	Start sequence B
	Disable automation
<b>V</b>	Enable automation
	Start master setup
C	Stop master setup
C	Start zone 1 setup
C	Stop zone 1 setup

A small green icon will appear in the function bar, as shown in the red box in the picture below.







The user, by means of a handheld lux meter, should measure the light level present in the Main zone and start adjusting the offset of the lux value.

To do this, he has to open the *Parameter* field and increase or decrease the light level by working in the *Offset value (Lux)* field.

(Fx) Root - Constant light Zone Control	(Fx) Root - Constant light Zone Control
Light on Lux set: 400 🖉 314 Lux 🜔	Light on Lux set: 400 2400 Lux Q
Used signals	Used signals
<ul> <li>Parameters</li> </ul>	<ul> <li>Parameters</li> </ul>
Cloud filter (s)	Cloud filter (s)
Threshold (lux)	Threshold (lux) 1800
S2 200	S2 200 🕄
S3 400 🕄	• S3 400 🕄
S4 600 🕄	S4 600 🕄
S5 800 🗧	S5 800 🕄
Max ref (%) 80	Max ref (%) 80
Offset value (Lux)	Offset value (Lux) -62
Ref zone 1 (%) 49 🕄	Ref zone 1 (%) 50 🕄

When the desired light level is reached, the user can stop the tuning procedure for the *Main zone* by clicking on *Stop master setup* (see the picture below).

ſ	$\bigcirc$	(Fx) Root - Constant light Zone Cont
	$\underline{\forall}$	Root
(	51	Set S1
1	1→0	Turn off
	52	Set S2
	53	Set S3
	<b>S4</b>	Set S4
	<b>S</b> 5	Set S5
		Lux 500 ELux Send
	А	Start sequence A
	В	Start sequence B
	×	Disable automation
	V	Enable automation
	0	Start master setup
	0	Stop master setup
	0	Start zone 1 setup
	0	Stop zone 1 setup





The handheld lux meter should then be put in Zone 1 and, via the live signals, the user can start the *Zone 1* setup by clicking on *Start zone 1 setup*, as shown in the picture below:

$\bigcirc$	(Fx) Root - Constant light Zone Con
¥	Root
51	Set S1
1→0	Turn off
52	Set S2
53	Set S3
54	Set S4
<b>S</b> 5	Set S5
	Lux 500 🕄 Lux Send
Α	Start sequence A
В	Start sequence B
×	Disable automation
V	Enable automation
0	Start master setup
0	Stop master setup
0	Start zone 1 setup
0	Stop zone 1 setup

A small purple icon will appear in the function bar of the function, as shown in the red box in the picture below:



The user, by means of a handheld lux meter, should measure the light level present in the Slave zone 1 and start adjusting the offset of the lux value.

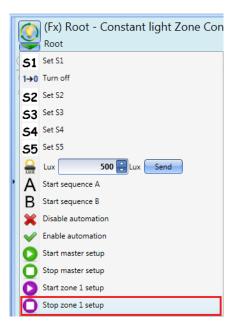
To do this, he has to open the *Parameter* field and increase or decrease the light level by working in the Ref zone 1 (%) field.





(Fx) Root	- Constant light Zone Control		(Fx) Root	- Constant light Zone Control
<ul> <li>Light on</li> </ul>	Lux set: 400 🧭 396 Lux 🜔		🔿 Light on	Lux set: 400 🧭 400 Lux 🜔
Used signals			<ul> <li>Used signals</li> </ul>	
<ul> <li>Parameters</li> </ul>			<ul> <li>Parameters</li> </ul>	
Cloud filter (s)	0		Cloud filter (s)	0
Threshold (lux)	1800		Threshold (lux)	1800
S2	200 🗧		S2	200
• S3	400	1	S3	400
S4	600 🕄		S4	600
S5	800		S5	800
Max ref (%)	80		Max ref (%)	80
Offset value (Lux)	-62		Offset value (Lux)	-62
Ref zone 1 (%)	49	<b>→</b>	Ref zone 1 (%)	30 🖶

When the required light level is reached, the user can stop the tuning procedure for *Zone1* by clicking on *Stop zone 1 setup*.

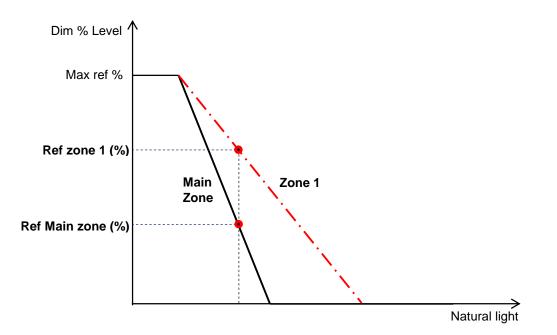


When the tuning procedure is finished, the function starts working according to the zone control algorithm.





The diagram below shows the dimming levels depending on the level of natural light.



The *Max Ref* % is the common point for the straight line of the *Main zone* and the straight line of *Zone1*. The dimmable lights closer to the windows (Main zone) usually have a lower dimming percentage than the ones present in *Zone 1* (slave zone) farther from the windows.

By means of the *automatic tuning procedure*, as described above, the system calculates the light level in the *Main zone* (Ref Main zone (%)) according to the Zone 1 (Ref zone 1 (%)) level.

#### Example:

When the natural light is low (e.g. during night hours), the *Main Zone* and *Zone 1* have the same dimming light level: in this situation the *Max ref %* is reached.

When the natural light is high (e.g. during the day), *Zone 1* has a higher dimming light level than the *Main Zone* and it will follow a straight line as shown in the picture above.





## 10.3.22.2 Three zone control

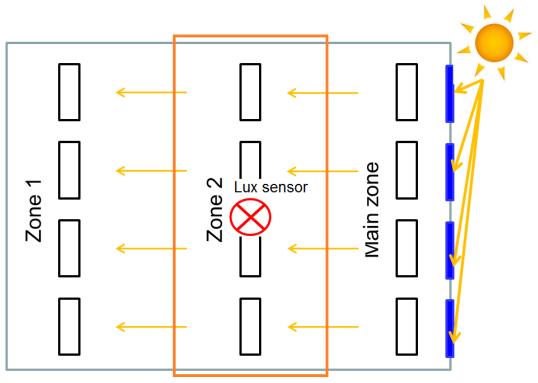
The maximum number of zones is three. The user has two options in the case of three zones (one main zone and two slave zones):

- Slave zone 2 between Main zone and Zone 1
- Slave zone 2 in a darker position than Zone 1

## 10.3.22.3 How to configure the three *zone* constant light control

#### 10.3.22.3.1 Slave zone 2 in-between Main zone and Zone 1

The system is configured as a two zone system and then the third zone is automatically put in the middle between the *Main zone* and *Zone 1* as shown in the picture below. This saves commissioning time for the user.



The third zone is configured in the same way as *Zone 1* as an additional slave zone.

In the main constant light function the user must add *Slave zones* in the *Advanced* section, then select the dimmer modules for *Zone 2* from the list, then with a double click in the signals field he can add one or more outputs to form the *Zone 2* "group".

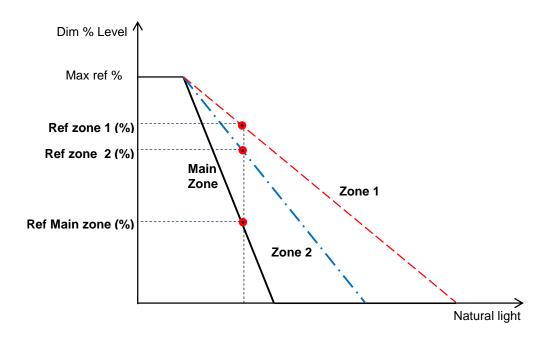


# **CARLO GAVAZZI** Automation Components

Wizard		= ×
Edit funct	ion Constant Light	Slave zones
Wizard Steps On/Off signals (51) Controlled output Options Luxsensor Luxsensor settings Feedback signals ✓ Advanced Slave zones Options	Function name: (Fx) Root - Constant light Zone 1 Zone 2 9: Root - Dimmer module K62 Zone 2 9: Root - Dimmer module K63 Zone 2 9: Root - Dimmer module K64 Zone 2	
		Signal settings Signal properties

In the graph below, the same situation is shown as seen above in a *two zone* system, but adapted to a three zone system: *Zone 2* is set between the *Main zone* and *Zone 1*.

The auto tune procedure for *Zone 2* is the same as described in the previous paragraph for *Zone 1* tuning.



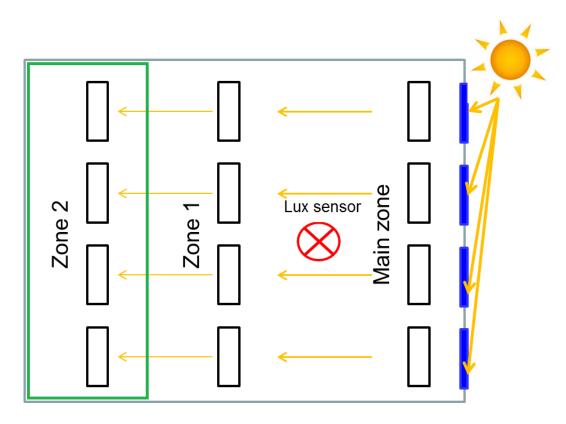




## 10.3.22.3.2 Slave zone 2 in a darker position than Zone 1

The third zone is configured in the same way as *Zone 1* as an additional slave zone.

The *Main zone* is the line of lighting fixtures closest to the windows, *Zone 2* is the line farthest away from the windows. The lux sensor (if only one) would typically be located between the *Main zone* and *Zone 1*.



In the main constant light function the user must add *Slave zones* in the *Advanced* section, then select the dimmer modules for *Zone 2* from the list, then with a double click in the signals field he can add one or more outputs to form the *Zone 2* "group". See the picture below:

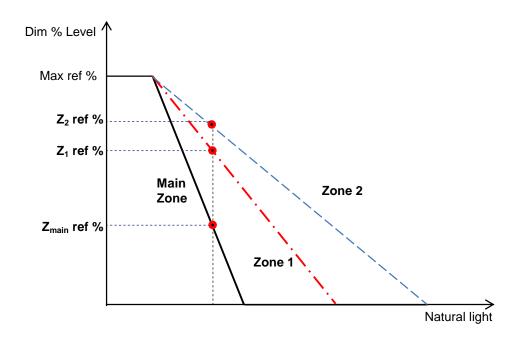


# **CARLO GAVAZZI** Automation Components

Wizard		•
Edit funct	tion Constant Light	
		Slave zones
Wizard Steps	Function name: (Fx) Root - Constant light	
On/Off signals (S1)	Zone 1 Zone 2	
Controlled output	9: Root - Dimmer module K62 Zone 2	A
Options	9: Root - Dimmer module K63 Zone 2	
Luxsensor	9: Root - Dimmer module K64 Zone 2	
Luxsensor settings		
Feedback signals		
Advanced		
<u>Slave zones</u>		
Options		
		Signal settings Signal properties
	<<< >>>>	Confirm

The auto tune procedure for *Zone 2* is the same as described in the previous paragraph for *Zone 1* tuning.

In the graph below, the same situation is shown as seen above in a *two zone* system, but adapted to a three zone system: *Zone 2* is set in a darker position than *Zone 1*. The auto tune procedure for *Zone 2* is the same as described in the previous paragraph for *Zone 1* 



tuning.



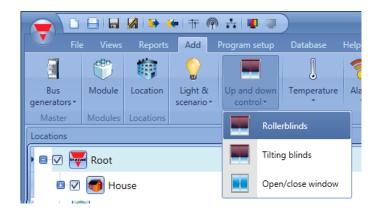


# 10.4 How to set a Rollerblind function

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.

		×
Add func	ON Rollerblind Up signals	
Wizard Steps	Function Name: (Fx) Root - Rollerblind	
Up signals	Signals Notes	_
Down signals		
Clockwise tilting signals		
Anticlockwise tilting signals		
Controlled outputs		
Feedback signals		
Advanced		
Wind sensors		
Luxsensor		
Local calendar		
Functions		
Emergency signals		
Disable automation		
Available output status	Signal Settings Signal Propert	ties
Location		
<b>\$</b>	Cancel Confirm	m

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.

Wizard	😽 Add Signal		
Edit Function Rollerbling	Search		Location
			Living ro
	V Signals	V Functions	Group by
Wizard Steps         Function Name:         (Fx) Livir           Up signals         Gazala         V	• 🗹 🔶	1: Living room control up	Living roo
Down signals Signals Notes		2: Living room control down	Living roo
Controlled outputs		3: Living room Switch K10 Push3	Living roo
Feedback signals		4: Living room Switch K10 Push4	Living roo
Advanced  Local calendar	Input channels 0 / 119	used Output channels used Address Consumption (mA) 0 / 111 0 / 250 4,5 / 450,0	

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).

Wizard		×
Edit funct	tion Rollerblinds	Up signals
Wizard Steps Up signals Down signals	Function name: (Fx) Bedroom - Rollerblinds Signals Notes	Available mode
Controlled outputs <u>Options</u> <u>Feedback signals</u> <u>Options</u>		Inverted signal
Disable automation Force non safety position Force safety position		
		Signal settings Signal properties





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:

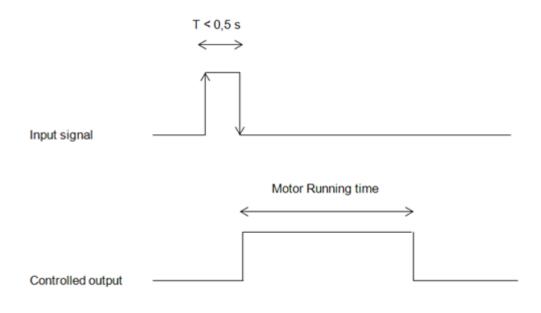
1) A short click action (<0,5sec) on the pushbutton, if enabled, generates a "fully Up/Down" command. The click action is enabled in the *Controlled output options* (see picture below).

Wizard	×
Edit funct	tion Rollerblinds
	Options
Wizard Steps	Function name: (Fx) Root - Rollerblinds
Up signals Down signals	Enable click command
Controlled outputs	Enable reset command for motor running time 💉 🔀
Options Feedback signals	Safety position is 100%
Advanced	

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.

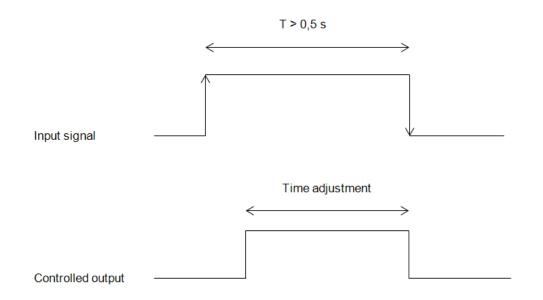
Example 1: short press with the "click command" option enabled







## 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%.

Wizard		×
Edit funct	ion Rollerblinds	
		Options
Wizard Steps	Function name: (Fx) Root - Rollerblinds	
<u>Up signals</u> Down signals	Enable click command	
Controlled outputs	Enable reset command for motor running time	
Options Feedback signals	Safety position is 100%	
<ul> <li>Advanced</li> </ul>		

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.

Wizard	🔻 Add Signal		
Edit Function Rollerblind	Search		Local Gen
	Signals	V Functions	Grou
Wizard Steps Function Name: (Fx) Living roo	• ☑ ·M·	1: Cabinet Motor 1	Cabine
Up signals Signals Notes		4: Cabinet Motor 2	Cabine
Down signals Controlled outputs			· · · · ·
Feedback signals			
Advanced			
Enable fully up and very and v	Input channels t 2 / 119	used Output channels used Address Consumption (mA) 0 / 111 2 / 250 4,5 / 450,0	

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.





Wizard			×
Edit funct	ion Rollerblinds		
		Controlled outputs	
Wizard Steps	Function name: (Fx) Root - Rollerblinds		
Up signals	Signals Notes		
Down signals	1: Motor kitchen	Available mode	
Controlled outputs			
<u>Options</u>			
Feedback signals			
Advanced			
		Signal settings Signal properties	
	<<< >>>>	Confirm	

#### **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).

Wizard		×
Edit funct	tion Rollerblinds	Controlled outputs
		· ·
Wizard Steps	Function name: (Fx) Bedroom - Rollerblinds	
Up signals	Signals Notes	
Down signals	1: Cabinet Rollerblinds module K9 Motor	1 Source details
Controlled outputs		K9 SH2ROAC224
Options		Reverse motor timer (s)
Feedback signals		1
<ul> <li>Advanced</li> </ul>		Up running motor time (s)
		10
		Tilting time (s)
		2
		Motor direction
		🗰 🐋 👻
		Signal settings Signal properties
	<<< >>>>	Confirm

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).





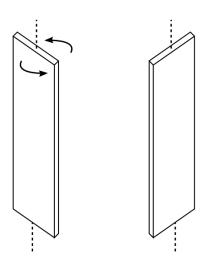
Running motor time (seconds):

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.

Running time	L <sub>a</sub>		
Running time			
		Running time	
Curtain fully down			

## 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.

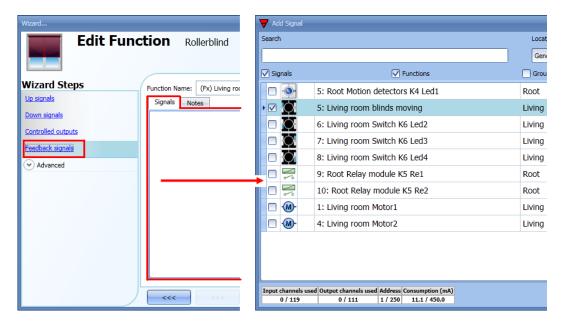




## **10.4.5** How to set a signal to be a feedback of the status of the function

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).

Edit Fun	ction Rollerblind	
		Feedback signals
Wizard Steps	Function Name: (Fx) Living room - Rollerblind no tilt Signals Notes	
Down signals	Signals Notes	Available mode
Controlled outputs Feedback signals		Inverted Signal
<ul> <li>Advanced</li> </ul>		
		Signal Settings Signal Properties
	<b>~~~</b>	Confirm





## 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.

		×
Edit funct	tion Rollerblinds	Signals
Wizard Steps	Function name: (Fx) Root - Rollerblinds	_
Down signals Controlled outputs	Signals Notes	A
Options Feedback signals		
<ul> <li>Advanced</li> <li>✓ Signals</li> </ul>		
Wind sensors Luxsensor Rain sensors		
Local calendar     Functions     Emergency signals		
		Signal settings Signal properties

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.

		×
Edit funct	tion Rollerblinds	Signals
Wizard Steps	Function name: (Fx) Root - Rollerblinds Signals Notes	
Down signals Controlled outputs Options Feedback signals	1: Root Switches K4 Push 1	Available mode
Advanced     Signals		Action on very long Fully UP





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 is stopped. The next time the push button is pressed, the motor reverses its direction and will go down for the whole down running time.		
Move UP step by step	The motor is activated to go up for the selected running percentage each time the pushbuttor 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.

			×
Edit func	tion Rollerblinds	Signals	
Wizard Steps <u>Up signals</u> Down signals	Function name: (Fx) Root - Rollerblinds Signals Notes	Available mode	
Controlled outputs Options Feedback signals Controlled outputs	1: Root Switches K4 Push 1	Action on short Fully UP and reverse	
Signals		Action on very long Go UP - stop - reverse	9
		Signal settings Signal propertie	2





## 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.

Wizard	Wizard		🔻 Add Signal	
	Edit Function	Rollerblin	Search	
			V Signals	V Functions
Wizard Steps Function Name: (Fx) Liv	Wizard Steps Function N	ame: (Fx) Livi	▶ 🛛 🕡	1: Living room wind
Up signals Signals Notes	Up signals Signals	Notes		1. Elving room wind
Down signals	Down signals			
Controlled outputs	Controlled outputs			
Feedback signals	Feedback signals			
Advanced	→ Advanced			
Wind sensors	Wind sensors			
Rain sensors	Wind speed			
🗌 Local calendar				
Functions				
Emergency signals				
Disable automation				
Available output status				
Location				
Wind sensors				
			Input channels us	ed Output channels used Address Consumption (mA)
Wind speed		>>>	0 / 119	0 / 111 1 / 250 3,1 / 450,0

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

Wizard		×
Edit Fund	ction Rollerblind	Wind speed
Wizard Steps Up signals Down signals Controlled outputs Feedback signals (*) Advanced Wind sensors Wind sensors	Function Name:       (Fx) Living room - Rollerblind no tilt         Strong wind speed to bring in the safety position (m/s)       6 •         Wind speed to bring in the selected positions (m/s)       2 •         Wanted position when the wind speed goes above the threshold       30 •         Wanted position when the wind speed       •	Strong wind speed delay (s) 10 : Wind speed delay (s) 60 : Set 30%
	Wanted position when the wind speed  goes below the threshold	Fully up Confirm





The Wind speed menu is split into two main fields:

Wizard				×
Edit Fun	ction Rollerblind			
		Wind spe	eed	
Wizard Steps	Function Name: (Fx) Living room - Rollerblind no tilt			
<u>Up signals</u> Down signals				
Controlled outputs	Strong wind speed to bring in the safety position (m/s)	Strong delay	g wind speed [10]	•
Feedback signals				_
Advanced	Wind speed to bring in the selected positions (m/s)	Wind	speed delay (s) 60	
Wind sensors Wind speed	Wanted position when the wind speed goes above the threshold 30	Set 30%		
	Wanted position when the wind speed 1	Fully up		
				_
	>>>			Confirm

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).

Wizard		Wizard		😽 Add Signal	
Edit Func	tion Rollerbl	Edit Fund	ction Rolle	Search	
				Signals	Functions
Wizard Steps	Function Name: (Fx) I	Wizard Steps	Function Name: (f		1: Living room Switch K6 Push1
Up signals	Signals Notes	<u>Up signals</u>	Signals Notes		2: Living room Switch K6 Push2
Down signals		Down signals			3: Living room Switch K6 Push3
Controlled outputs		Controlled outputs			4: Living room Switch K6 Push4
Feedback signals		Feedback signals			1: Root Motion detectors K4 Pir1
Advanced     Wind sensors		Advanced     Rain sensors		• ☑ 🧔	1: Root Water detector K11 Water Alarm1
Luxsensor		Kain sensora			
Rain sensors					
Functions					
Emergency signals					
Disable automation			Wanted position whe		
Available output status			it starts raining		
Location			Wanted position who		
Rain sensors			it stops raining		
			<<<	Input channels us 0 / 119	ed         Output channels used         Address         Consumption (mA)           0 / 111         0 / 250         3,5 / 450,0

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:

Wizard		×
Edit Fund	ction Rollerblind	Rain sensors
Wizard Steps	Function Name: (Fx) Living room - Rollerblind no tilt Signals Notes	
Controlled outputs Feedback signals C Advanced Rain sensors		Inverted Signal
		Signal Settings Signal Properties
	Wanted position when 1 Fully up it starts raining Wanted position when 0 Fully down it stops raining	Delay On 15  Delay Off 20  Overwrite other automations
	<b>~~~</b> >>>	Confirm

#### 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:

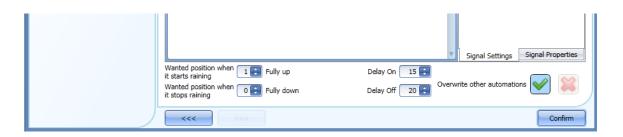
A delay time for the deactivation of the rain condition can be set (if the value is set to 0, the delay timer is not enabled).

#### Overwrite other automations:

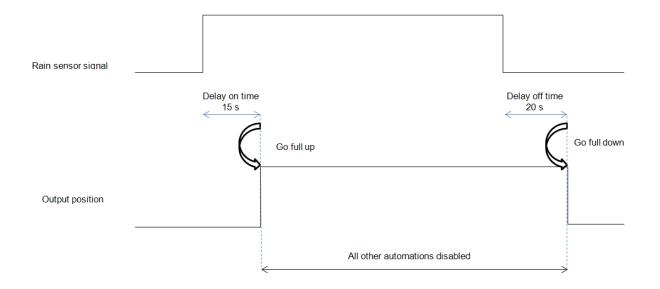
When the green V is checked, until the rain sensor detects water, all the other events coming from other automations, are not considered by the function (the rain condition overwrite other automations). If the red cross is checked, the rain condition doesn't overwrite other automations.

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.

Wizard	Wizard	V Add Signal			
Edit Function	Edit Function Rolle	Search			
		Signals Functions			
Wizard Steps Function	Wizard Steps Function Name: (F	→ 🗹 🔒 4: External Luxmeter 1			
Up signals Signals	Up signals Signals Notes	-			
Down signals	Down signals				
Controlled outputs	Controlled outputs				
Feedback signals	Feedback signals				
Advanced     Wind sensors	Advanced				
✓ Luxsensor	Luxsensor				
Rain sensors	Luxsensor settings	1			
Functions					
Emergency signals     Disable automation					
Available output status					
Location					
Luxsensor settings		Input channels used         Output channels used         Address         Consumption (mA)           0 / 119         0 / 111         2 / 250         11,1 / 450,0			

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.

Wizard					
Add funct	tion Rolle	rblinds		Luxsensor setti	ngs
Wizard Steps	Function name:	(Fx) Root - Rollerbl	inds		
<u>Up signals</u> Down signals Controlled outputs	Threshold 1	2500 🗧 Lux	Curtain position (0%) 30 😜	30%	
Options Feedback signals Advanced	Threshold 2			65%	
Luxsensor Luxsensor settings	✓ Threshold 3			70%	
	Threshold 4		90 🕄	90%	
			100 🕄	100%	
	Cloud filter (s)	60 🖶	Curtain position (100%)	1	* /
		>>>			Cancel Confirm

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.

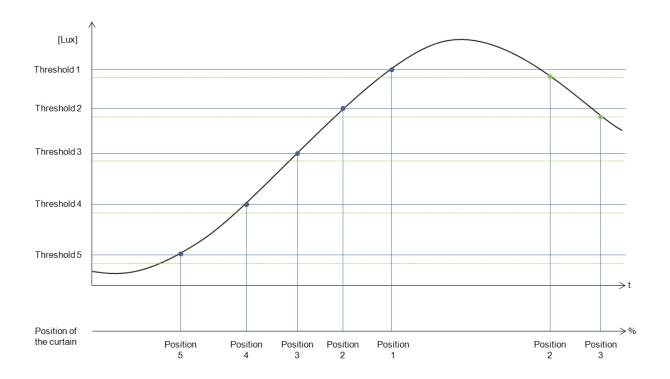
The hysteresis value is fixed at 10% and it is used for all the thresholds.

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.

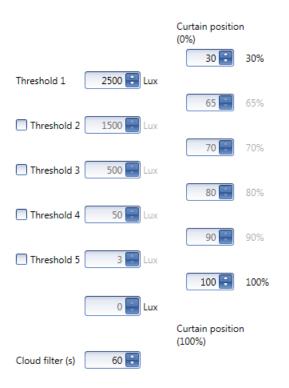




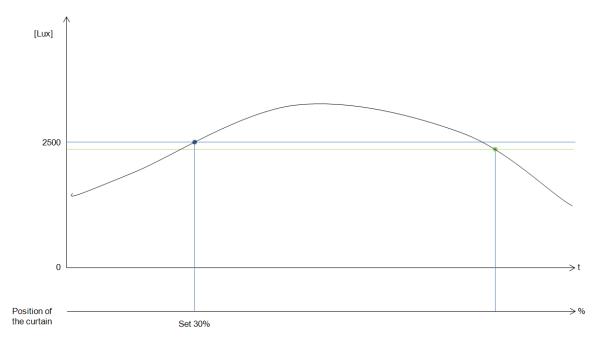


# Example 1:

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.

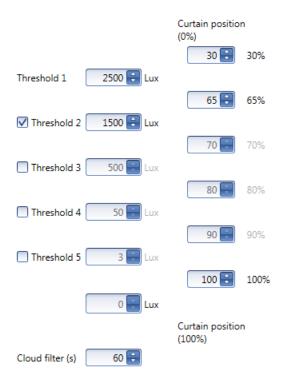




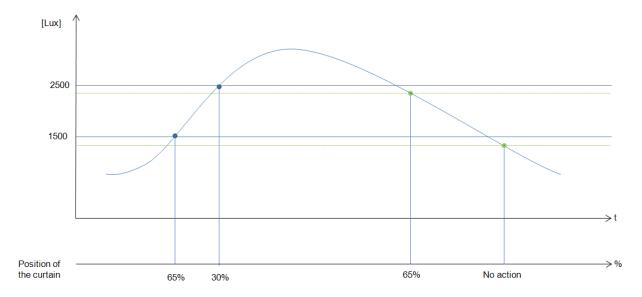


# Example 2:

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..

Wizard		Wizard									×
Edit Func	tion Rollerblind	Edit Function Rollerblind		Local calendar							
Wizard Steps	Function Name: (Fx) Living room -	Wizard Steps	Function N	ame: (Fx) Living	g room - Rollerbli	nd no tilt					
Up signals	Signals Notes	Up signals	🔿 📀	🗖 🔍 Q	157	31 6 1					
Down signals		Down signals		lunedî 31 dic	mar 1 gennaio	mer 2 gennaio	gio 3 gennaio	ven 4 gennaio	sab 5 gennaio	dom 6 gennaio	
Controlled outputs Feedback signals		Controlled outputs	900								•
Advanced		Feedback signals									
Wind sensors		Advanced  Local calendar	1000								
Luxsensor     Rain sensors											
Local calendar			1100	•						•	U
Emergency signals											
Disable automation Available output status			1200								
Location											
Local calendar			1300								
	< <b>&gt;&gt;&gt;</b>		<<<							Confirm	n

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

# | 🛇 🕑 🗉 🍳 🔍 | 1 5 7 31 🖏 | 🙁

#### Tool bar icons:

TUUI Dal IC	
	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.
$\bigcirc$	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.
0,	Magnifying lens to see more/fewer time bands.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally.
6	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:

New activity	×
Activity name	example
From	1/7/2014 To 12/31/2014
Start	07:30 Stop 20:30
	Saturday Sunday ✓ Monday ✓ Tuesday ✓ Wednesday ✓ Thursday ✓ Friday During time period -1 No action
@ Start time 100 💭 100%	@ End time 0 = 0%
	Confirm Cancel Delete

*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 1<sup>st</sup> January to 31<sup>st</sup> 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.

New activity	×
Activity name	example
From	1/7/2014 To 12/31/2014
Start	07:30 Stop 20:30
	☐ Saturday ☐ Sunday ✔ Monday ✔ Tuesday ✔ Wednesday ✔ Thursday ✔ Friday
	During time period
	No action
@ Start time 100 😜	@ End time
100%	0%
	Confirm Cancel Delete





#### **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.

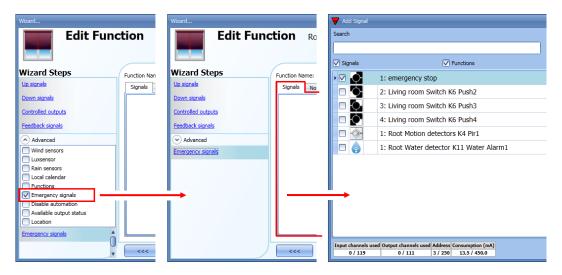
Wizard		Wizard		😽 Add Signal		
Edit Func	tion Roller	Edit Fun	nction Rollerbli	Search		Location
						General
				Signals	✓ Functions	Group by fi
Wizard Steps	Function Name: (Fx	Wizard Steps	Function Name: (Fx) Li	• 14	(Fx) Blinds calendar.Scheduler	Living room
Up signals	Signals Notes	Up signals	Signals Notes		(i x) billiob calcinaariberiedalei	Lining room
Down signals		Down signals				
Controlled outputs		Controlled outputs				
Feedback signals		Feedback signals				
Advanced		Advanced				
Wind sensors		Functions				
Luxsensor Rain sensors						
Local calendar						
Functions					►	
Disable automation						
Available output status						
Location						
Functions						
0				Input channels u	used Output channels used Address Consumption (mA)	3
<b></b>	<<<		<<< >>			]

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).



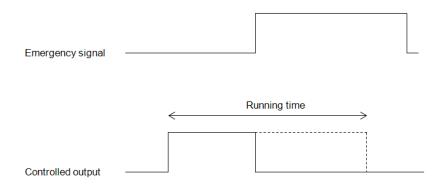




When the signal is added, the inverted logic can be used (see the yellow rectangle in the picture below).

Wizard		×
Edit Fund	ction Rollerblind	Emorgonau cionale
		Emergency signals
Wizard Steps	Function Name: (Fx) Living room - Rollerblind no tilt Signals Notes	
Down signals	1: emergency stop	Available mode
Controlled outputs Feedback signals		Inverted Signal
Advanced		
Emergency signals		
		Signal Settings Signal Properties
		Confirm

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).

Wizard	Wizard	V Add Signal
Edit Function Roller	Edit Function Rolle	Search [√] Signals (√) Functions
Wizard Steps       Function Name: (F:         Up signals       Signals Notes         Controlled outputs       Feetback signals         Advanced       Lussensor         Lussensor       Lussensor         Local calendar       Functions         Functions       Disable automation         Avaasote output status       Disable Timeout (mi         Disable automation       Force non safety position	Wizard Steps       Function Name: (*         Up stanals       Down stanals         Controlled outputs       Feedback signals         (*) Advanced       Disable automation         Disable automation       Force non safety position         Force safety position       Disable Timeout (m	Imput channels used Address Consumption (mA)         0 / 11

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

Wizard		×
Edit funct	ion Rollerblinds	
		Disable automation
Wizard Steps	Function name: (Fx) Bedroom - Rollerblinds	
<u>Up signals</u>	Signals Notes	
Down signals	3: Kitchen Wireless K4 Push 3	Working mode
Controlled outputs		0→1 1→0
Options		
Feedback signals		
		Event type
Disable automation Force non safety position		
Force safety position		
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Confirm





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			Г	
0→1	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.
1→0	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.
0→1 1→0	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.
		be enabled/disabled again when the push be	in toggle mode when utton is released.	the push button is
			goes ON, and it is ena	bled again when the

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			
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.





Disable Timeout (min) 10 🗧
<

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.

Wizard		Wizard		😽 Add Signal	
Edit Fund	ction	Edit Fund	ction R	Search	
				✓ Signals	V Functions
Wizard Steps	Function N	Wizard Steps	Function Name:		1: disable automations
Up signals Down signals	Signals	<u>Up signals</u> Down signals	Signals N	• ☑ Ŏ	2: Living room force to safe position
Controlled outputs		Controlled outputs			3: Living room force to no safe position
Feedback signals		Feedback signals			4: Living room Switch K6 Push4
Advanced		Advanced			1: Root Motion detectors K4 Pir1
Wind sensors		Disable automation			1: Root Water detector K11 Water Alarm1
Luxsensor		Force non safety position			
Rain sensors					
Local calendar		Force safety position			
Functions					
Emergency signals Disable automation					
Available output status					
Disable automation				L	
Force non safety position					ed Output channels used Address Consumption (mA)
T				0 / 119	0 / 111 1 / 250 11,1 / 450,0

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.

Wizard		Wizard		Add Signal	
Edit Fund	ction	Edit Fund	ction Ro	Search	
				✓ Signals	V Functions
Wizard Steps	Function N	Wizard Steps	Function Name:		1: disable automations
Up signals	Signals	<u>Up signals</u>	Signals Not	ΠŌ	2: Living room force to safe position
Down signals		Down signals			3: Living room force to no safe position
Controlled outputs		Controlled outputs			4: Living room Switch K6 Push4
Feedback signals		Feedback signals			1: Root Motion detectors K4 Pir1
Advanced		Advanced			
Wind sensors		Disable automation			1: Root Water detector K11 Water Alarm1
Luxsensor Rain sensors		Force non safety position	II		
Local calendar		Force safety position			
Functions					
Emergency signals Disable automation					
Available output status					
Location					
Disable automation					
Force non safety position	<		<<<	Input channels us 0 / 119	ed         Output channels used         Address         Consumption (mA)           0 / 111         1 / 250         11,1 / 450,0

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.



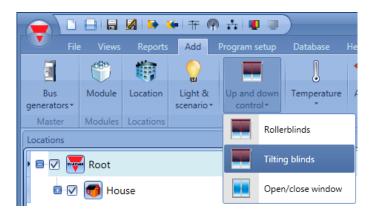


# 10.5 How to set a Rollerblind function with tilting slats

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.

Wizard		×
Add func	ON Rollerblind	
	Up signals	
Wizard Steps	unction Name: (Fx) Root - Rollerblind	
Up signals	Signals Notes	
Down signals	A	
Clockwise tilting signals		
Anticlockwise tilting signals		
Controlled outputs		
Feedback signals		
Advanced		
Wind sensors		
Luxsensor		
Local calendar		
Functions		
Emergency signals		
Disable automation		
Available output status	Signal Settings Signa	al Properties
Location		
<b>A</b>	Cancel	Confirm

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.

Wizard		Wizard		😽 Add Signal	
Edit Fund	tion	Edit Fund	ction Ro	Search	
Wizard Steps Up signals Down signals Clockwise tilting signals Anticlockwise tilting signals Controlled outputs Feedback signals	Function N: Signals	Wizard Steps Up signals Down signals Clockwise tilting signals Anticlockwise tilting signals Controlled outputs Feedback signals	Function Name: Signals Not	✓ Signals ✓ Ø ✓ Ø ✓ Ø ✓ Ø ✓ Ø ✓ Ø ✓ Ø ✓ Ø	✓ Functions           1: move up           2: move down           3: tilt clockwise           4: tilt anticlockwise           1: Root Motion detectors K4 Pir1           1: Root Water detector K11 Water Alan
✓ Advanced		Advanced     Advanced		Input channels use 0 / 119	d Output channels used Address Consumption (mA) 0 / 111 3 / 250 13.5 / 450.0

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).

Wizard		×
Edit Fund	ction Rollerblind	Up signals
Wizard Steps Up signals Down signals	Function Name: (Fx) Root - Rollerblind Signals Notes 1: move up	Available mode
Clockwise tilting signals Anticlockwise tilting signals Controlled outputs Feedback signals		Inverted Signal
Advanced		
		Signal Settings Signal Properties
	< >>>>	Confirm





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:

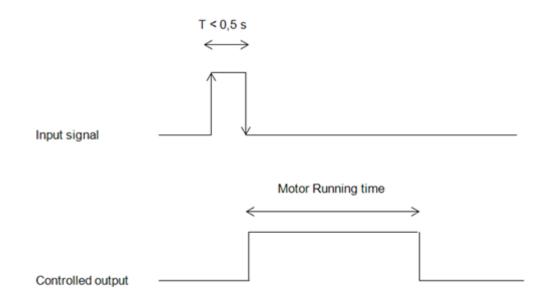
1) A short click action (<0,5sec) on the pushbutton, if enabled, generates a "fully Up/Down" command. The click action is enabled in the *Controlled output options* (see picture below).

Wizard		×
Edit funct	tion Rollerblinds	
	Options	
Wizard Steps	Function name: (Fx) Root - Rollerblinds	
<u>Up signals</u> Down signals	Enable click command	
Controlled outputs	Enable reset command for motor running time 💚 🔀	
Options Feedback signals	Safety position is 100%	
Advanced		

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.

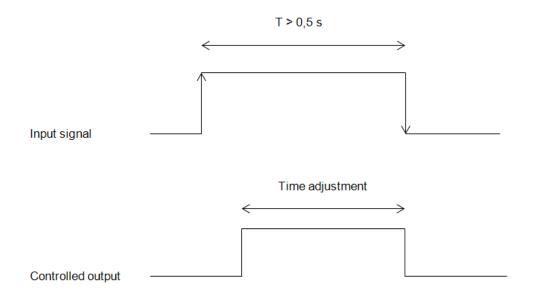
Example 1: short press with the "click command" option enabled







# 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.

Wizard	Wizard	😽 Add Signal	
Edit Function	Edit Function Re	Search	
Winned Change	Winned Change	Signals	V Functions
Wizard Steps  Up signals  Function N  Func	Up signals		1: Living room Switch K6 Push1
Down signals	Up signals Signals Nc		2: move down
Clockwise tilting signals	Clockwise tilting signals	• ☑ 🔶	3: tilt clockwise
Anticlockwise tilting signals	Anticlockwise tilting signals		4: tilt anticlockwise
Controlled outputs	Controlled outputs		1: Root Motion detectors K4 Pir1
Feedback signals	Feedback signals		1: Root Water detector K11 Water Alarm1
Advanced	Advanced		
		Input channels us 0 / 119	ed Output channels used Address Consumption (mA) 0 / 111 3 / 250 13,5 / 450,0

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).

Wizard			×
Edit Func	ction Rollerblind		
		Clockwise tilting signals	
Wizard Steps	Function Name: (Fx) Root - Rollerblind		
Down signals Clockwise tilting signals	3: tilt clockwise	Available mode	
Anticlockwise tilting signals Controlled outputs		Inverted Signal	
Feedback signals			
		Signal Settings Signal Properties	
	<<< >>>>	Confirm	

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





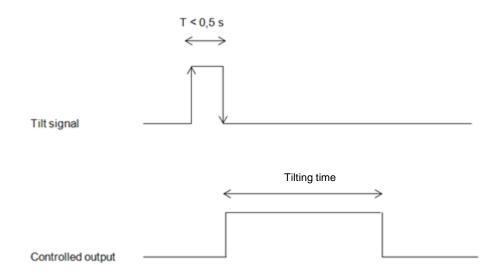
disabled, otherwise the click action will reset the blind up/down...see picture below).

	×
Edit funct	ion Rollerblinds
	Options
Wizard Steps	Function name: (Fx) Root - Rollerblinds
Up signals	Enable click command
Down signals	
Clockwise tilting signals	Enable reset command for motor running time 💜 🞇
Anticlockwise tilting signals	Safety position
Controlled outputs	is 100%
<u>Options</u>	
Feedback signals	
<ul> <li>Advanced</li> </ul>	

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.

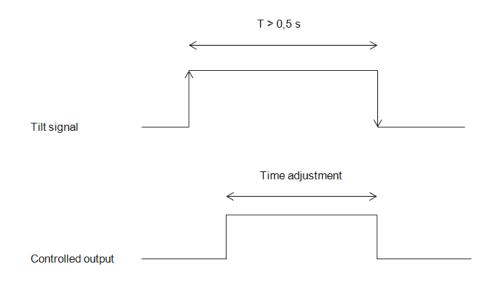
Example 1: click action for the full tilting







# 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%.

Wizard		×
Edit funct	ion Rollerblinds	
		Options
Wizard Steps	Function name: (Fx) Root - Rollerblinds	
<u>Up signals</u>	Enable click command	
Down signals		
Clockwise tilting signals	Enable reset command for motor running time ✔	
Anticlockwise tilting signals	Safety position	
Controlled outputs	is 100%	
<u>Options</u>		
Feedback signals		

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.





	Warning The reset command can not be undone. Proceed? Yes No
8	SMARTHOUSE
	ATTENTION: The reset command can not be stopped Continue? YES NO

# 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.

Wizard		Wizard		😽 Add Signal	
Edit Fund	tion	Edit Fund	ction Roll	Search	
Winewd Change				V Signals	V Functions
Wizard Steps	Function	Wizard Steps	Function Name:	• <b>⊘</b> · <b>M</b> ·	1: Living room Rollerblind Motor1
<u>Up signals</u>	Signa	<u>Up signals</u>	Signals Note		4: Living room Rollerblind Motor2
Down signals		Down signals			
Clockwise tilting signals		Clockwise tilting signals			
Anticlockwise tilting signals		Anticlockwise tilting signals			
Controlled outputs		Controlled outputs			
Feedback signals		Feedback signals			
Advanced					
	Enable		Enable fully up ar		
	down c		down commands		
			<<<	Input channels u 0 / 119	Sed         Output channels used         Address         Consumption (mA)           0 / 111         0 / 250         2,6 / 450,0

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.

Edit func	tion Rollerblinds
	Controlled outputs
Wizard Steps	Function name: (Fx) Root - Rollerblinds
<u>Up signals</u>	Signals Notes
Down signals	Available mode
Clockwise tilting signals Anticlockwise tilting signals	@
Controlled outputs	
Options	
Feedback signals	





# 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).

Nodules			Show	only highlighted n	nodules 🗌 Grouping by subnet
	Part number	Subnet	Name	SIN	Location
	<u>B4X-LS4-U</u>	Net 1	pulsante esterno	001.013.051	<u>Sala riunioni</u>
	SHSQP360L	Net 1	K72 SHSQP360L	001.014.215	<u>Sala riunioni</u>
	SH2ROAC224	Net 1	K73 SH2ROAC224	001.020.092	<u>Sala riunioni</u>
	SH2D500WE23	Net 1	K77 SH2D500WE230	001.015.175	Cucina
	SH2D500WE23	Net 1	K74 SH2D500WE230	001.015.183	Cucina
	SH2D500WE23	Net 1	K75 SH2D500WE230	001.015.110	Cucina

Vizard					×
Edit mod	ule	Module			
12 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -			Output	t signals	
Vizard Steps	Name	K9 SH2ROAC224			
Input signals Output signals	SIN:	001 🔁	030 🗧	156 🗧 Subnet 🛛 Net 1 🔽	
Advanced		als Info 1: Cabinet Rollerblinds module K9 Motor 4: Cabinet Rollerblinds module K9 Motor		Reverse motor timer 1 Up running motor timer 10 Tilting time (s) 2 Motor direction Motor direction Apply to all	

#### Reverse motor time (seconds):

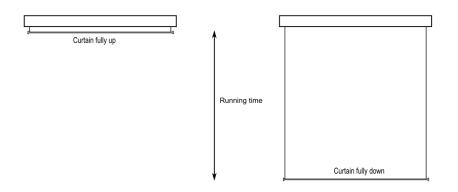
This is the time in seconds to change the motor direction (this time should be set to 1 second at least, to avoid damaging the motor).

#### 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.

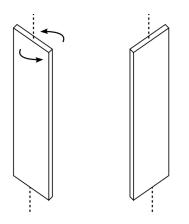




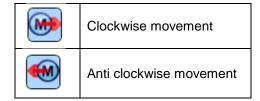


The motor tilting time (seconds):

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.



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.

Wizard	Wizard	V Add Signal
		Search
Wizard Steps     Function Name       Up signals     Signals       Down signals     Signals       Clockwise tilting signals     Controlled outputs       Exectback signals     Image: Signals       Image: Image: Image: Signals     Image: Signals       Controlled outputs     Image: Signals       Image: Image: Signals     Image: Signals       Image: Image: Image: Signals     Image: Signals       Image: Image: Image: Signals     Image: Signals       Image: Image: Image: Signals     Image: Signals	Wizard Steps     Function Name: (Fx)       Up signals     Signals       Down signals     Clockwise tilting signals       Clockwise tilting signals     Controlled outputs       Feedback signals     Image: Controlled outputs       V Advanced     Image: Controlled outputs	✓ Signals       ✓ Functions         Image: Channels used Output channels used Address Consumption (mA)         Image: Channels used Output channels used Address Consumption (mA)         Image: Channels used Output channels used Address Consumption (mA)         Image: Channels used Output channels used Address Consumption (mA)         Image: Channels used Output channels used Address Consumption (mA)

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).

Wizard		×
Edit Fund	ction Rollerblind	
		Feedback signals
Wizard Steps	Function Name: (Fx) Root - Rollerblind	
Down signals	Signals Notes	Available mode
Clockwise tilting signals Anticlockwise tilting signals		Inverted Signal
Controlled outputs		
Feedback signals		
Advanced		
		Signal Settings Signal Properties
	<<< >>>>	Confirm

#### 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.

Wizard		×
Edit funct	ion Rollerblinds	
		Signals
Wizard Steps	Function name: (Fx) Root - Rollerblinds	
Up signals	Signals Notes	
Down signals		
Clockwise tilting signals		
Anticlockwise tilting signals		
Controlled outputs		
Options		
Feedback signals		
Advanced		
✓ Signals		
Wind sensors		
Luxsensor		
Local calendar		Signal settings Signal properties
Emergency signals		
Disable automation	<<< >>>>	Confirm

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.

		×
Edit functi	on Rollerblinds	Signals
Wizard Steps Up signals Down signals	Function name: (Fx) Root - Rollerblinds Signals Notes	Available mode
Clockwise tilting signals Anticlockwise tilting signals Controlled outputs Options	1: Root Switches K4 Push 1	Action on short No action
Feedback signals           Year           Year           Advanced           Signals		Action on very long No action
	<<< >>>>	Signal settings Signal properties





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.

Wizard		×
Edit func	tion Rollerblinds	
		Signals
Wizard Steps	Function name: (Fx) Root - Rollerblinds	
<u>Up signals</u>	Signals Notes	
Down signals	1: Root Switches K4 Push 1	Available mode
Clockwise tilting signals	2: Root Switches K4 Push 2	
Anticlockwise tilting signals		Action on short
Controlled outputs		Fully UP
Options		
Feedback signals		Action on very long
Advanced     Signals		Fully CLOCKWISE tilting - stop
		Signal settings Signal properties
	<<< >>>>	Confirm

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 is stopped. The next time the push button is pressed, the motor reverses its direction and will go down for the whole down running time.		
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.: 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 tiltingstop	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

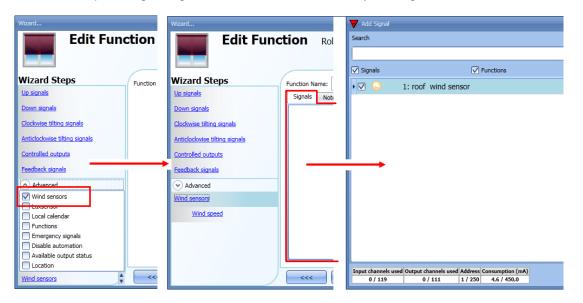
The wind sensor can be used to perform different actions:

- 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:

Wizard		×				
Add function Rollerblinds						
Wind speed						
Wizard Steps	Function name: (Fx) Root - Tilt rollerblinds					
Up signals						
Down signals	Strong wind speed to bring	Strong wind speed				
Clockwise tilting signals	in safety position (m/s)	delay (s)				
Anticlockwise tilting signals						
Controlled outputs	Wind speed to bring in the selected positions (m/s)	Wind speed delay (s)				
Options	Wanted position when wind	-1 🐳 M: / T:				
Feedback signals	speed goes above the threshold					
<ul> <li>Advanced</li> </ul>	Wanted position when wind speed goes below the threshold	-1 🕄 M: / T:				
Wind sensors	2					
Wind speed						
	<b>~~~</b>	Cancel Confirm				

The Wind speed menu is split into two main fields:

Wizard		×		
Add func	tion Rollerblinds	Wind speed		
Wizard Steps	Function name: (Fx) Root - Tilt rollerblinds			
Down signals Clockwise tilting signals	Strong wind speed to bring in safety position (m/s)	Strong wind speed 10		
Anticlockwise tilting signals Controlled outputs Options	Wind speed to bring in the selected positions (m/s)	Wind speed delay (s)		
Feedback signals	Wanted position when wind speed goes above the threshold	-1 : M: / T:		
Advanced     Wind sensors	Wanted position when wind speed goes below the threshold	-1 🕄 M: / T:		
Wind speed				
	<b>~~~</b>	Cancel Confirm		

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.

Wizard	Wizard Add Signal	
Edit Function	Edit Function Roller	Search
Wizard Steps	Wizard Steps	✓ Signals     ✓ Functions
Up signals Signals	Up signals Signals Notes	C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C      C
Down signals	Down signals	
Clockwise tilting signals	Clockwise tilting signals	
Anticlockwise tilting signals	Anticlockwise tilting signals	
Controlled outputs	Controlled outputs	
Feedback signals	Feedback signals	
Advanced	Advanced	
Vind concore	Luxsensor	
Luxsensor	Luxsensor settings	
Functions		
Emergency signals		
Available output status		
		Input channels used Output channels used Address Consumption (mA)
Luxsensor		0 / 119 0 / 111 2 / 250 11,1 / 450,0

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.

Wizard					
Add funct	tion Rolle	erblinds		Luxsensor settir	ngs
Wizard Steps	Function name:	(Fx) Root - Tilt rolle	rblinds		A
<u>Up signals</u> Down signals			Curtain position (0%)	Tilting position (home) -1 😭 M:10% / T:	
Clockwise tilting signals Anticlockwise tilting signals	Threshold 1	2000 🖶 Lux	30	-1 🕃 M:30% / T:	
Controlled outputs Options Feedback signals	Threshold 2	1000 🖶 Lux	50	-1 💼 M:50% / T:	
Advanced Luxsensor	Threshold 3 Threshold 4		70	-1 💼 M:70% / T:	
Luxsensor settings	Threshold 5		90 🖶	-1 🕃 M:90% / T:	
		0 ELux	100 🖶	-1 🕃 M:100% / T:	
	Cloud filter (s)	60 🖨	Curtain position (100%)	Tilting position (fully tilted)	v /
	<<<	>>>			Cancel Confirm





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.

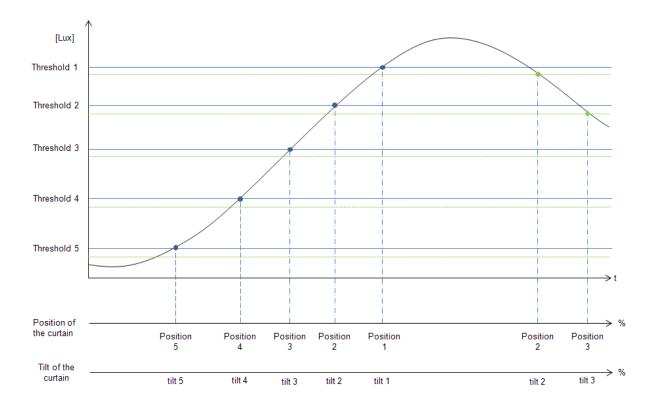
The hysteresis value is fixed at 10% and it is used for all the thresholds.

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.

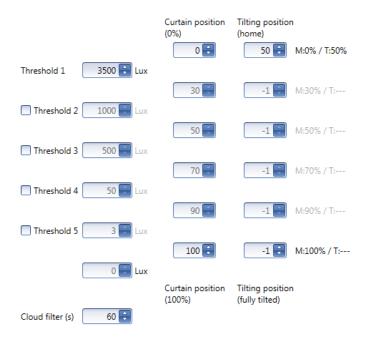




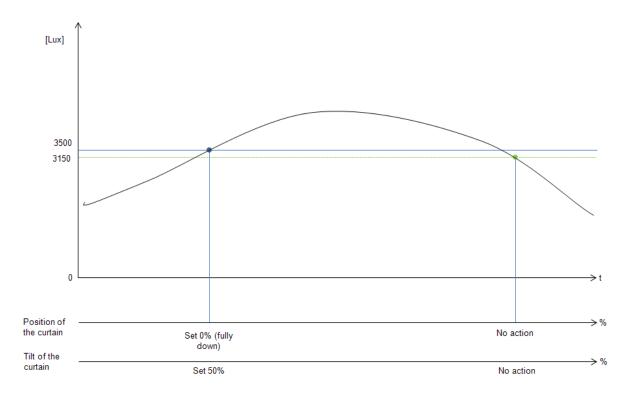


# Example 1:

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.

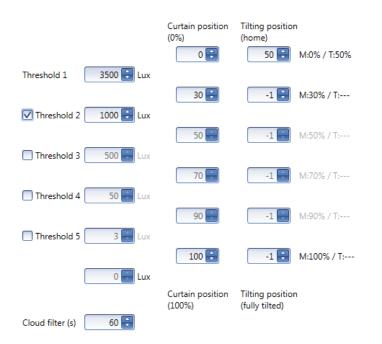




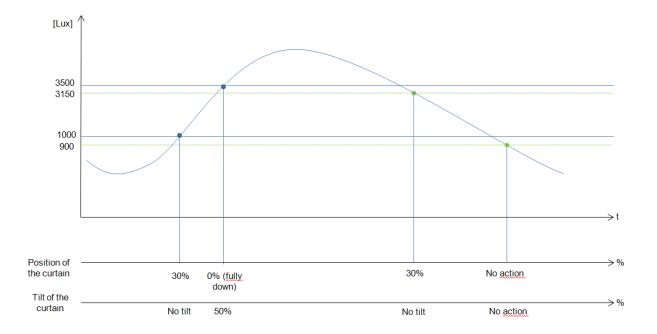


# Example 2:

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.

Wizard	Wizard							
Edit Function	Edit Fund	tion	Rollerblind			ocal calen	dar	
Wizard Steps	Wizard Steps	Function Nar		g room - Rollerbli				
Down signals Clockwise tilting signals	Down signals Clockwise tilting signals			mar 1 gennaio	 gio 3 gennaio	ven 4 gennaio	sab 5 gennaio	dom 6 gennaio
Anticlockwise tilting signals Controlled outputs Feedback signals	Anticlockwise tilting signals Controlled outputs Feedback signals	1000						
Advanced Wind sensors Luncencer	Advanced      Local calendar	1100	•					<b>F</b> O
Local calendar      Functions      Emergency signals      Disable automation		1200						
Available output status Location Local calendar		1300	<b></b> >>>					Confirm

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.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally.
6	The calendar visualizes 7 days vertically.
Ħ	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:

New activity						×
Activity name						
From	1/6/2014		То	12/31/20	14	
Start	10:30		Stop	11:00		
	✓ Saturday ✓ Wednesday	✓ Sunday ✓ Thursday		Monday Friday	🗸 Tue	sday
	D	uring time pe	_			
		-1				
		No action				
@ Start time					-	End time
Up / down mov	-1		ſ	Up -1	/ down m	-1 🖶
M: / T:				- (		/ T:
		Confirm		Cancel		elete

*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:

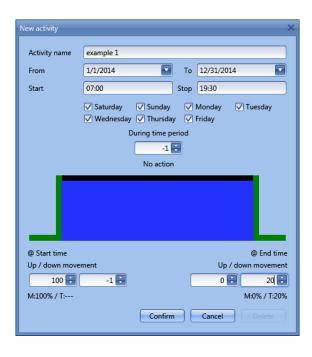
- No action (-1)
- Set the tilting position at a fixed value between 0% and 100% (0-100)

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 1<sup>st</sup> January to 31<sup>st</sup> 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.

Wizard		Wizard		😽 Add Signal	
Edit Function		Edit Fun	ction Rol	Search	
				Signals	V Functions
Wizard Steps	Function N	Wizard Steps	Function Name:	▶ 🗸 🚺	(Fx) Blinds calendar.Scheduler
Up signals	Signals	Up signals	Signals Not		( )
Down signals		Down signals			
Clockwise tilting signals		Clockwise tilting signals			
Anticlockwise tilting signals		Anticlockwise tilting signals			
Controlled outputs		Controlled outputs			
Feedback signals		Feedback signals			
Advanced		Advanced			
Wind sensors		Functions			
Luxsensor					
Local calendar					
Functions					
Emergency signals					
Disable automation					
Available output status					
Location				Input channels u	used Output channels used Address Consumption (mA)
Functions 🗘	<<<		<<<	· ···	

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).

Wizard	Wizard	Wizard
Edit Function	Edit Function Rollert	Edit Function Rollerblind
Wizard Steps Function	Wizard Steps Function Name: (Fx)	Wizard Steps Function Name: (Fx) Living room - Rollerblind
Up signals Signa	Up signals Signals Notes	Up signals Signals Notes
Down signals	Down signals	Down signals 1: Living room Switch K6 Push1
Clockwise tilting signals	Clockwise tilting signals	Clockwise tilting signals
Anticlockwise tilting signals	Anticlockwise tilting signals	Anticlockwise tilting signals
Controlled outputs	Controlled outputs	Controlled outputs
Feedback signals	Feedback signals	Feedback signals
Advanced	Advanced	Advanced
Wind sensors	Emergency signals	Emergency signals
Luxsensor		
Emergency signals		
Disable automation		
Available output status		
Location		
Emergency signals	~~~	>>>

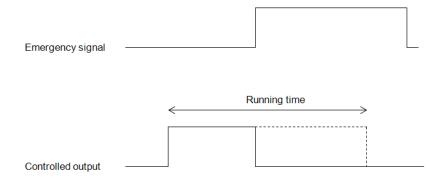




When the signal is added, the inverted logic can be used (see the yellow rectangle in the picture below).

Wizard		×
Edit Fund	ction Rollerblind	
		Emergency signals
Wizard Steps Up signals	Function Name: (Fx) Living room - Rollerblind Signals Notes	
<u>Down signals</u> <u>Clockwise tilting signals</u>	1: Living room emergency stop	Available mode
Anticlockwise tilting signals Controlled outputs		Inverted Signal
Feedback signals		
Emergency signals		
		Signal Settings Signal Properties
	~~~ >>>	Confirm

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).

Wizard		Wizard		Add Signal		
Edit Function		Edit Function Ro		Search		
				V Signals	V Functions	
Wizard Steps	Function Narr	Wizard Steps	Function Name:		1: Living room emergency stop	
Up signals	Signals	<u>Up signals</u>	Signals Not		2: Living room Switch K6 Push2	
Down signals		Down signals			3: Living room Switch K6 Push3	
Clockwise tilting signals		Clockwise tilting signals				
Anticlockwise tilting signals		Anticlockwise tilting signals			4: Living room Switch K6 Push4	
Controlled outputs		Controlled outputs			1: Root Motion detectors K4 Pir1	
Feedback signals	$\rightarrow$	Feedback signals			1: Root Water detector K11 Water Alarm1	
					2: Living room Lux sensor K13 Strong Win	
Advanced		<ul> <li>Advanced</li> </ul>			5	
Wind sensors		Disable automation				
Luxsensor		Force non safety position				
Functions		Force safety position				
Emergency signals		rorce sarcey position				
Disable automation						
Available output statue	Disable Time		Disable Timeout			
Location				Input channels u	sed Output channels used Address Consumption (mA)	
Disable automation	<<<		<<<	0 / 119	0 / 111 2 / 250 11,1 / 450,0	

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

Wizard		×
Edit funct	tion Rollerblinds	Disable automation
		Disable automation
Wizard Steps	Function name: (Fx) Bedroom - Rollerblinds	
<u>Up signals</u>	Signals Notes	
Down signals	3: Kitchen Wireless K4 Push 3	Working mode
Controlled outputs		0→1 1→0
Options		
Feedback signals		
<ul> <li>Advanced</li> </ul>		Event type
Disable automation		
Force non safety position		
Force safety position		
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Confirm





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			Γ	
0→1	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.
1→0	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.
0→1 1→0	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.
		be enabled/disabled again when the push be	in toggle mode when utton is released.	the push button is
			goes ON, and it is ena	bled again when the





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					
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.

Disable Timeout (min)
<<< >>>>

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.

Wizard		Wizard		😽 Add Signal	
Edit Function R		Edit Fund	ction Rollerb	Search	
Winned Change				Signals	Functions
Wizard Steps	Function Name	Wizard Steps	Function Name: (Fx)		1: Living room emergency stop
<u>Up signals</u>	Signals N	<u>Up signals</u>	Signals Notes		2: Living room disable automations
Down signals		Down signals			3: Living room Switch K6 Push3
Clockwise tilting signals		Clockwise tilting signals			4: Living room Switch K6 Push4
Anticlockwise tilting signals		Anticlockwise tilting signals			1: Root Motion detectors K4 Pir1
Controlled outputs		Controlled outputs			1: Root Water detector K11 Water Alarm1
Feedback signals		Feedback signals			
Advanced		Advanced			2: Living room Lux sensor K13 Strong Wind Alarm1
Wind sensors		Disable automation			
Luxsensor		Force non safety position			
Functions		Force safety position			
Emergency signals		Force safety position			
Disable automation					
Available output status					
Disable automation				Input channels us 0 / 119	ed Output channels used Address Consumption (mA) 0 / 111 2 / 250 11,1 / 450,0

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.

Wizard		Wizard		🔻 Add Signal	
Edit Function R				Search	
Wizard Steps		Wizard Steps		✓ Signals	V Functions
	Function Name		Function Name: (		1: Living room emergency stop
Down signals	Signals N	Up signals Down signals	Signals Notes		2: Living room disable automations
Clockwise tilting signals					3: Living room Switch K6 Push3
Anticlockwise tilting signals		Clockwise tilting signals Anticlockwise tilting signals		▶ 🗹 🔆	4: Living room Switch K6 Push4
Controlled outputs		Controlled outputs		□ ·••	1: Root Motion detectors K4 Pir1
Feedback signals		Feedback signals			1: Root Water detector K11 Water Alarm1
Advanced					2: Living room Lux sensor K13 Strong Wind Alarm1
Wind sensors		Advanced			
		Disable automation			
Local calendar		Force non safety position			
Functions		Force safety position			
Emergency signals		rolecturely postori			
Disable automation					
Available output status					
Disable automation	<<<			Input channels u 0 / 119	used         Output channels used         Address         Consumption (mA)           0 / 111         2 / 250         11,1 / 450,0

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.

🔒 📓 🛸 🗰 📅 📩 🖉 🧶 Add 3 œ 14 3 ő ET. Bus Module Light & Up and down Temperature Calendar Location Alarm Sequence Timers extension scenario control -Modules Master Zone intruder alarm Locazioni Main intruder alarm Root Smoke alarm Water alarm Alarm siren

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.

Wizard		×
Add func	tion Smoke Alarm Function	
		Alarm signals
Wizard Steps	Function Name: (Fx) Root - Smoke Alarm	
Feedback signals	Signals Notes	*
Alarm status output		
Reset alarm Available output status		
Location		
		Signal Settings Signal Properties
	<b>&gt;&gt;&gt;</b>	Cancel Confirm



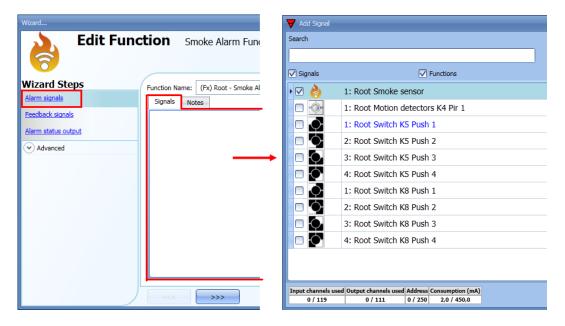


#### 10.6.1 How to set a simple smoke alarm system

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.

Wizard		×
Edit Fund	ction Smoke Alarm Function	Alarm signals
Wizard Steps Alarm signals Feedback signals Alarm status output ✓ Advanced	Function Name: (Fx) Root - Smoke Alarm Signals Notes 1: Root Smoke sensor	Available mode
		Signal Settings Signal Properties Confirm





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.

Wizard		×
Edit Fund	ction Smoke Alarm Function	
		Alarm status output
Wizard Steps Alarm signals	Function Name: (Fx) Root - Smoke Alarm	
Feedback signals	9: Root Relay module K6 Re 1	Available mode
Alarm status output		Inverted signal
Auvanceu		
		Signal Settings Signal Properties
	<<< >>>>	Confirm

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.

Wizard	Add Signal
<b>Edit Function</b> Smoke Alarm Func	Search
	Signals Functions
Alarm signals	5: Root Motion detectors K4 Led 1
Feedback signals Signals Notes	▶ 🗹 💽 5: Root Switch K5 Led 1
Alarm status output	6: Root Switch K5 Led 2
Advanced	7: Root Switch K5 Led 3
	8: Root Switch K5 Led 4
	5: Root Switch K8 Led 1
	6: Root Switch K8 Led 2
	7: Root Switch K8 Led 3
	8: Root Switch K8 Led 4
	🔲 🚍 🔔 9: Root Relay module K6 Re 1
	10: Root Relay module K6 Re 2
	1: Root Cabinet module K7 Re 1
>>>	Input channels used         Output channels used         Address         Consumption (mA)           1 / 119         0 / 111         4 / 250         16.5 / 450.0

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.

Wizard				×
Edit Func	tion s	Smoke Alarm Function		
0			Feedback s	ignals
Wizard Steps	Function Name	e: (Fx) Root - Smoke Alarm		
Alarm signals	Signals	Notes		
Feedback signals	• 🔿 5: R	oot Switch K5 Led 1		Available mode
Alarm status output				R.
Advanced				Inverted signal
				✓ X
			*	Signal Settings Signal Properties
				Signal Seconds Signal Hoperado
		>>>		Confirm





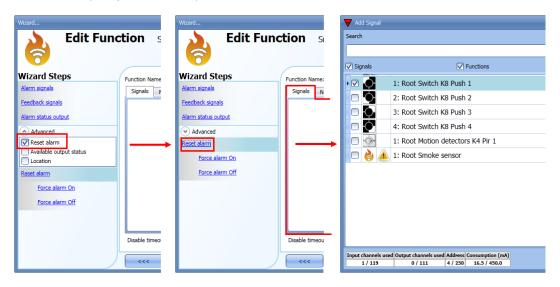
### 10.6.3 How to add the reset signal to inhibit the output status

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:

Wizard Edit funct	tion Smoke alarm	×
6		Reset alarm
Wizard Steps Alarm signals Alarm status output Feedback signals <ul> <li>Advanced</li> </ul> <li>Reset alarm <ul> <li>Force alarm on</li> <li>Force alarm off</li> </ul></li>	Function name: (Fx) Bedroom - Smoke alarm Signals Notes	A       A         Image: Construction of the second se
	Disable timeout (min)	Confirm





If a push button type is selected, the working mode can be defined following the table below:

	Event type			
Working mode		_		
	Event on push	Event on push	Event on long	Event on very
	button pressed	button released	pressure	long pressure
	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1	the function is	press, the
1→0	the function is disabled.	second), at the	disabled at the	function is
	disabled.	release of the push button the function	release of the push button.	disabled at the release of the
		is disabled.	bullon.	push button.
	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1	the function is	press, the
0→1	the function is	second), the	enabled again at the	function is
	enabled again.	function is enabled	release of the push	enabled again at
	<b>U</b>	again at the release	button.	the release of the
		of the push button.		push button.
	As soon as the push	After a short press	After a long press,	After a very long
0→1 1→0	button is pressed,	(less than 1	the function will be	press, the
	the function will be	second), the	enabled/disabled in	function will be
	enabled/disabled in	function will be	toggle mode at the	enabled/disabled
	toggle mode.	enabled/disabled in	release of the push button.	in toggle mode at the release of the
		toggle mode at the release of the push	bullon.	push button.
		button.		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			
<b>.</b>	signal goes OFF.			

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

	Event type		
Working mode	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.





Disable Timeout (min) 10
<

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.

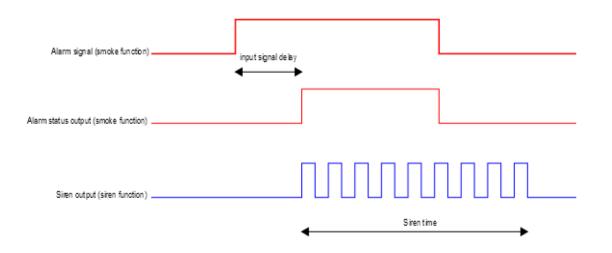
The steps to add an *Alarm siren* function are as follows:

- 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).

Wizard		×
🔥 Edit Fund	ction Smoke Alarm Function	
6		Force alarm On
Wizard Steps	Function Name: (Fx) Root - Smoke Alarm	
Feedback signals	Signals Notes 1: Root Switch K5 Push 1	Available mode
Alarm status output		Inverted signal
Reset alarm		
Force alarm On Force alarm Off		
		Signal Settings Signal Properties
	<	Confirm

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).

Wizard		×
🔥 🔥 🖌	tion Smoke alarm	
6		Force alarm off
Wizard Steps	Function name: (Fx) Root - Smoke alarm	
<u>Alarm signals</u>	Signals Notes	
Alarm status output		
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Reset alarm		
Force alarm on		
Force alarm off		
		Signal settings Signal properties
	<b>~~~</b>	Cancel Confirm

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.



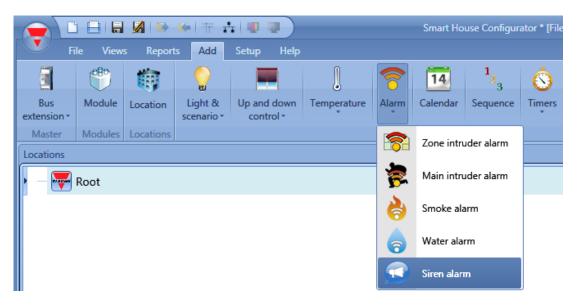


# 10.7 How to set a Siren alarm function

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)

Wizard		×
Add func	tion Alarm Siren Function	Siren settings
Wizard Steps	Function Name: (Fx) Root - Siren	
Siren settings	Siren time (s)	60 🗧
<u>Fx Alarm signals</u> <u>Trigger signals</u>	Pulsing siren	
Reset signals	Siren ON time (s)	10 🗧
Siren output	Siren OFF time (s)	10
Advanced		
		Cancel Confirm

With the *Siren time* the user can define the activation time of the siren output when it is triggered by an alarm function.





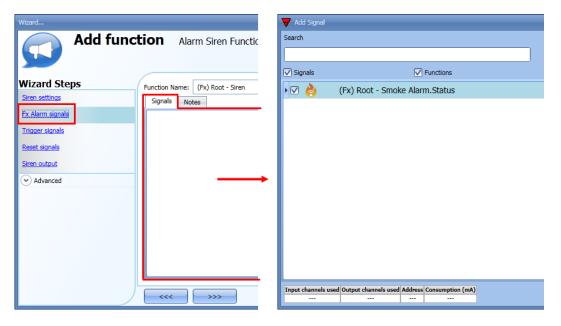
The user can also use a pulsing siren: if the green V is selected, the siren output will pulsate with the intervals selected in the Siren ON time and Siren OFF time fields.

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.

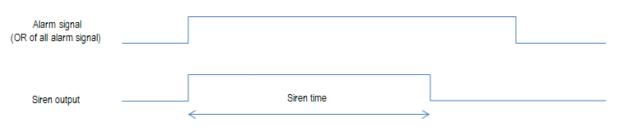






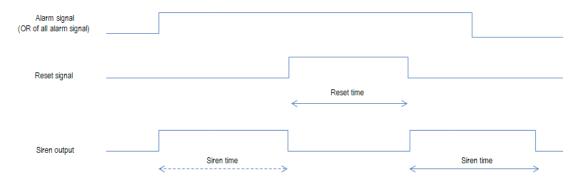
# Example2:

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.

Wizard		>
Edit Funct	tion Alarm Siren Function	
		Siren output
Wizard Steps	Function Name: (Fx) Root - Siren	
<u>Siren settings</u> <u>Fx Alarm signals</u>	Signals Notes 9: Root Relay module K6 Re 1	Available mode
Trigger signals		
Reset signals Siren output		Inverted signal
Advanced		
		Signal Settings Signal Properties
	<b>~~~</b>	Cancel Confirm





### 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).

Wizard		×
Edit Fund	ction Alarm Siren Function	
		Trigger signals
Wizard Steps	Function Name: (Fx) Root - Siren	
Siren settings	Signals Notes	
<u>Fx Alarm signals</u>	1: Root Switch K5 Push 1	Available mode
Trigger signals		
Reset signals		Inverted signal
Siren output		
<ul> <li>Advanced</li> </ul>		
		Signal Settings Signal Properties
	<	Cancel Confirm

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.

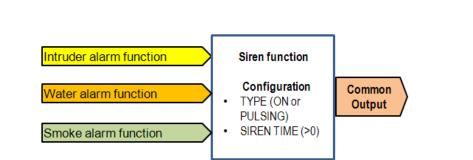
#### 10.7.5 How to use more than one alarm with a common siren

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).

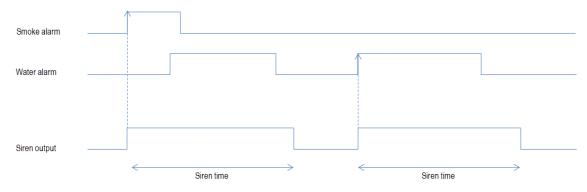






# Example 4:

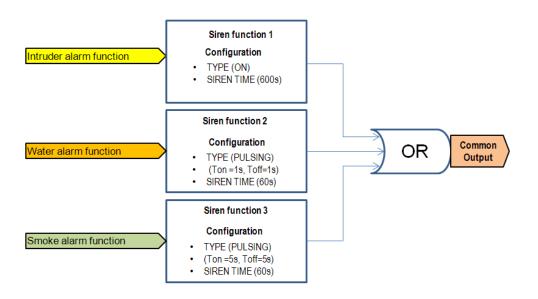
The first alarm event triggers the siren: all the other alarm events do not affect it if it is already on.



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).

Wizard		×
Edit Fund	ction Alarm Siren Function	
		Reset signals
Wizard Steps	Function Name: (Fx) Root - Siren	
Siren settings	Signals Notes	
<u>Fx Alarm signals</u>	2: Root Switch K5 Push 2	Available mode
Trigger signals		
Reset signals		Inverted signal
Siren output		
✓ Advanced		
		Signal Settings Signal Properties
	<	Cancel Confirm

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.

	File Views Reports Add Setup Help							
	٣	<b>I</b>			l	8	14	1 <mark>2</mark> 3
Bus extension <del>+</del>	Module	Location	Light & scenario +	Up and down control <del>-</del>	Temperature	Alarm	Calendar	Sequence
Master	Modules	Locations					Zone intru	ider alarm
Locazioni							2011C IIII C	
) – 🐺	Root					7	Main intru	ıder alarm
						8	Smoke ala	arm
							Water ala	m
							Alarm sire	n

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.





Wizard		
Add func	tion Water alarm function	
3		Alarm signals
Wizard Steps	Function Name: (Fx) Root - Water alarm	
Alarm signals	Signals Notes	
Feedback signals		A
Alarm status output		
Advanced		
Reset alarm Available output status		
		The second se
		Signal Settings Signal Properties
	~~~~ <b>&gt;&gt;&gt;</b>	Cancel Confirm

#### 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).

Wizard	V Add Signal
Add function Water alarm f	Search
	Signals Functions
Wizard Steps         Function Name:         (Fx) Root - Wi           Alarm signals         Signals         Name:         (Fx) Root - Wi	▶ 🗹 🍙 1: Water detector K12
Feedback signals	1: Root Motion detectors K4 Pir 1
Alarm status output	1: Root Switch K5 Push 1
Advanced	2: Root Switch K5 Push 2
Advanced	3: Root Switch K5 Push 3
	4: Root Switch K5 Push 4
	1: Root Switch K8 Push 1
	2: Root Switch K8 Push 2
	3: Root Switch K8 Push 3
	4: Root Switch K8 Push 4
	1: Root Smoke sensor
· · · · · · · · · · · · · · · · · · ·	Input channels used         Output channels used         Address         Consumption (mA)           0 / 119         0 / 111         1 / 250         3,5 / 450,0

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.



# **CARLO GAVAZZI** Automation Components

Wizard		×
Edit Fund	tion Water alarm function	
		Alarm signals
Wizard Steps	Function Name: (Fx) Root - Water alarm	
Alarm signals	Signals Notes	
Feedback signals Alarm status output	1: Water detector K12	Available mode
Advanced		Inverted signal
		Input signals delay
		Signal Settings Signal Properties
	· · · · · · · · · · · · · · · · · · ·	Confirm

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.

Wizard		×
Edit Fund	ction Water alarm function	Feedback signals
Wizard Steps Alarm signals Feedback signals Alarm status output ✓ Advanced	Function Name: (Fx) Root - Water alarm Signals Notes	Available mode
		Signal Settings Signal Properties

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).

Wizard		Wizard		Add Signal	
Edit Fu	nction wa	Edit F	unction Wat	Search	
Wizard Steps  Alam signals  Feedback signals  Alam status output  Available output status  Location  Reset alam  Force alam On Force alam Off	Function Name:	Wizard Steps Alarm signals Feedback signals Alarm status output	Function Name: ( Signals Note:		Functions  Def Switch K5 Push 1  Def Switch K5 Push 2  Def Switch K5 Push 3  Def Switch K5 Push 4  Def Switch K8 Push 4  Def Switch K8 Push 2  Def Switch K8 Push 3  Def Switch K8 Push 4  Def Switch K8 Push 4  Def Switch K8 Push 4  Def Smoke sensor  Def Smoke Sensor  Def Switch K12  Def Switch K12  Def Switch K1  Def Swi
	Disable timeout (		Disable timeout (n		channels used Address Consumption (mA) 0 / 111 4 / 250 16,5 / 450,0

When the reset signal is added, the user has to select the working mode and the type of the event:

Wizard		×
Edit func	tion Water alarm	Reset alarm
Wizard Steps Alarm signals Alarm status output	Function name: (Fx) Bathroom - Water alarm Signals Notes	Available mode
Feedback signals             Advanced          Reset alarm         Force alarm on         Force alarm off		Working mode         0→1       1→0         1→1       Image: Second s
	Disable timeout (min)	Signal settings Signal properties





If a push button type is selected, the working mode can be defined following the table below:

Working	Event type					
mode			Π			
	Event on push	Event on push	Event on long	Event on very		
	button pressed	button released	pressure	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:

	Event type					
Working mode	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.

Disable Timeout (min) 10 🗧
<<< >>>>

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

ю н.

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)

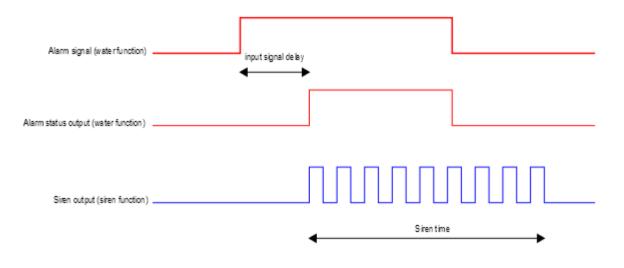
Once the siren alarm is configured, the output of the siren will be triggered when the alarm condition is activated. An activation of the reset signal in the water alarm function will reset the timer and the siren output.

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).

Wizard	×
Edit Function Water alarm function	Force alarm On
Wizard Steps Alarm signals Feedback signals Alarm status output C Advanced Reset alarm Force alarm Off C C C C C C C C C C C C C C C C C C	Available mode

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.

Wizard		×
Edit Fund	ction Water alarm function	
3		Force alarm Off
Wizard Steps	Function Name: (Fx) Root - Water alarm	
Feedback signals	Signals Notes	Available mode
Alarm status output		Inverted signal
Reset alarm		
Force alarm On		
Force alarm Off		
		Signal Settings Signal Properties
	<b>~~~</b>	Confirm





# 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).

						S		
F	ile Vie	ws Repo	rts Add	Setup Hel	p			
	٣	<b>E</b>			l	1	14	13
Bus extension <del>+</del>	Module	Location	Light & scenario +	Up and down control <del>-</del>	Temperature	Alarm	Calendar	Sequence
Master	Master Modules Locations						Zone intru	ıder alarm
Locazioni								
) – 🐺	🕨 — 🐺 Root						Main intru	ıder alarm
						\$	Smoke ala	arm
						0	Water ala	rm
							Alarm sire	n

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.

F T	ile Vie	ws Repo	orts Add	Setup Hel	p			
1	٣	(iii)			l	1	14	1 2 3
Bus extension <del>•</del>	Module	Location	Light & scenario <del>+</del>	Up and down control <del>•</del>	Temperature	Alarm	Calendar	Sequence
Master Modules Locations						8	Zone intru	uder alarm
🕨 — 🐺 Root						7	Main intru	ıder alarm
					8	Smoke ala	arm	
					0	Water ala	rm	
							Alarm sire	in





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.

Wizard		×
🖕 Add funct	ion Main intruder alarm	
<b>5</b>		Zone functions
Wizard Steps	Function Name: (Fx) Root - Intruder alarm main	
Local calendar Local	Signals     Notes       Image: Signals     Notes       Image: Signals     (Fx) zone kitchen.Status       Image: Signals     (Fx) zone first floor.Status       Image: Signals     (Fx) zone living room.Status	Available mode
		Signal Settings Signal Properties
	<<< >>>>	Cancel Confirm

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 funct	tion Main intruder alarm	
<b>1</b>		Reset alarm
Wizard Steps	Function name: (Fx) House - Main intruder alarm	
Arming signals	Signals Notes	
Local calendar		
Zone functions		
Feedback signals 1		
Options		
Feedback signals 2		
Options		
Buzzer		
Options		
Advanced	1	Signal settings Signal properties
Functions		Signal settings
Reset alarm	Disable timeout (min) 0 💽	
Available output status	<<< >>>>	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).

Wizard		😽 Add Signal	
Add function	Cone intruder alarm	Search	
		V Signals	V Functions
Alexandra	ion Name: (Fx) Living room - Intru	• ☑ 🔶	1: Root Motion detectors K4 Pir 1
Feedback signals 1	nals Notes		1: arm alarm
Options			2: disarm alarm
Feedback signals 2			3: reset signal
Options			4: Living room Switch K6 Push 4
Buzzer			
Options			
Stress light			
✓ Advanced			
Ŭ			
Armi	ng Time (s) 🛛 🛛 🕄		
		Input channels us 0 / 119	output channels used         Address         Consumption (mA)           0 / 111         4 / 250         13,5 / 450,0

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.

Wizard		×
Add func	tion Zone intruder alarm	m signals
Wizard Steps Alarm signals Feedback signals 1 Options Feedback signals 2 Options Buzzer Options Stress light ✓ Advanced	Function Name:       (Fx) Living room - Intruder alarm zone         Signals       Notes         I: Root Motion detectors K4 Pir 1         I: Root Motion detectors K4 Pir 1	Available mode  Input signals delay  Inverted signal  Signal Settings  Signal Properties
	~~~ <b>&gt;&gt;&gt;</b>	Cancel Confirm





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).

Wizard		×
Add func	Cion Zone intruder alarm	
	Alarm si	gnals
Wizard Steps	Function Name: (Fx) Living room - Intruder alarm zone	
Alarm signals	Signals Notes	
Feedback signals 1	1: Root Motion detectors K4 Pir 1	
Options		
Feedback signals 2		
Options		
Buzzer		
Options		
Stress light		
Advanced		
		Signal Settings Signal Properties
	Arming Time (s) 60 😜 Disarming time (s) 20 😜	Signal Setungs Signal Properties
	< <b>&gt;&gt;&gt;</b>	Cancel Confirm





# 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).

Wizard	V Add Signal
Add function Main intruder alarm	Search
	Signals Signals
Wizard Steps Function Name: (Fx) Living room - Int	▶ 🗹 💽 1: arm alarm
Arming signals Signals Notes	2: disarm alarm
Zone functions	3: reset signal
Feedback signals 1	4: Living room Switch K6 Push 4
Options	(Fx) Living room - Intruder alarm zone.Status
Feedback signals 2	1: Root Motion detectors K4 Pir 1
Options	1: Living room Keypad
Buzzer	2: Living room Keypad K9 Code Accepted
Options	
→ Advanced	
Addition	
	Input channels used         Output channels used         Address         Consumption (mA)           2 / 119         0 / 111         4 / 250         13,5 / 450,0

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.

Wizard		×
Ldit func	tion Main intruder alarm	
<b>5</b>		Arming signals
Wizard Steps	Function name: (Fx) House - Main intruder alarm	
Arming signals	Signals Notes	
Local calendar	4: Studio Alarm arming	Working mode
Zone functions		0→1 1→0
Feedback signals 1		
Options		8≠1
Feedback signals 2		Event type
<u>Options</u>		
Buzzer		
<u>Options</u>		
V Advanced		Inverted signal
		Signal settings Signal properties
	<	Confirm





If a push button type is selected, the working mode can be defined following the table below:

Working		Event	type	
mode			Γ	
	Event on push	Event on push	Event on long	Event on very
	button pressed	button released	pressure	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	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.
		rmed/disarmed in toggl en the push button is re	le mode when the push leased.	n button is pressed
	The automation will k when the signal goes		ignal goes ON, and it	is disarmed again

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

	Even	t type
Working mode	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





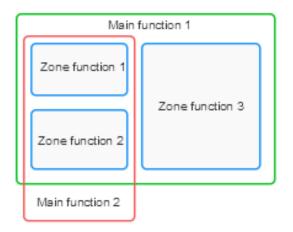
## 10.9.4 How to manage zones using different arming/disarming signals

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 1<sup>st</sup> 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	Description
(This is the result of the logical OR of all the alarm signals in the zone function)	
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	Description
(This is the result of the logical OR of all alarm signals in the zone function)	
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.



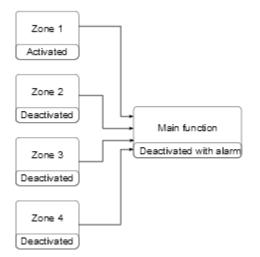


# Example 1:

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.

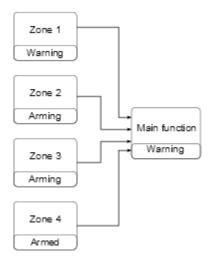
The alarm status of the main function is deactivated because in zone 1 there is an alarm signal active.



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.

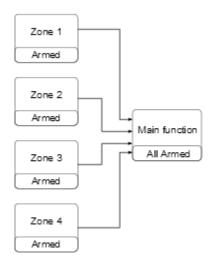
The status of the function is Warning. If the owner leaves zone 1 within the arming time, zone 1 status becomes "arming".



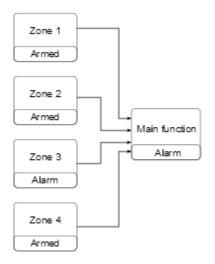
When all the zones enter the armed status, the status of the main intruder alarm function becomes "All armed".







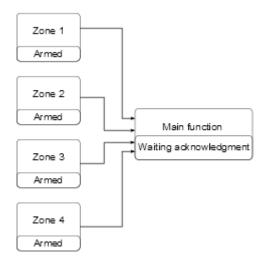
When all zones are armed, if an intrusion is detected in zone 3, the status changes to "pre-alarm" and then when the disarming time expires the zone goes into "alarm". The alarm status is transmitted to the main function and the main status becomes "alarm".



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.

# **CARLO GAVAZZI** Automation Components





### 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).

Wizard		Wizard	
Edit Fund	ction Main intruder alarm	Edit Fund	ction Zone intruder alarm
Wizard Steps	Function Name: (Fx) Living room - Intruder	Wizard Steps	Function Name: (Fx) Living room - Intruder
Arming signals	Signals Notes	Alarm signals	Signals Notes
Local calendar		Feedback signals 1	
Zone functions		Options	
Feedback signals 1		Feedback signals 2	
Options		Options	
Feedback signals 2		Buzzer	
Options		Options	
Buzzer		Stress light	
Options		Advanced	
Advanced			
	<		< >>>>

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.

Feedback signals 1 deactivat	Name: (Fx) Living roo g mode when alarm i red with no sensor activ		r alarm zor			Optio	าร		
larm signals eadback signals 1 Options Variant Options Variant Varian	g mode when alarm i		r alarm zor						
working aedback signals 1 deactivat Qptions deactivat options Warning uzzer Armed options PreAlarm	-	is							
Options     deactivation       Options     Warning       Uzzer     Armed       Options     PreAlarm       tress light     Armed	ed with no sensor activ		0	n time (s)			c	Off time (s)	
eedback signals 2 Arming <u>Options</u> <u>Uzzer</u> <u>Options</u> tress light Arming		/e 🛺		+	0				0
Options Warning Uzzer Armed Options PreAlarm PreAlarm	ed with sensor active	+	'		0	-	'		0
Options Warning ZZEF Armed Options PreAlarm ress light Alarm		Ť	1	· · ·		Y	1	1.1	1.1
Varning Varning Options Armed PreAlarm			1		1		1		1
Options Armed PreAlarm				· .	Or			+	0
PreAlarm				-	Or				0
ress light		1	1		· Y Or				0
Advanced		1	1		· Y	Ť	1		
		1	1	· .	Or		1	+ .	0
									Confin

ledit F	unction Main intruder ala	arm							
<b>5</b>						Option	5		
/izard Steps	Function Name: (Fx) Living room -	Intruder a	larm main						
rming signals	Working mode when alarm is		0	n time (s)	)		0	ff time (s)	)
ocal calendar	deactivated with no sensor active				0				0
one functions	deactivated with sensor active				0				0
edback signals 1	arming in at least one zone				1			I	1
Options edback signals 2	arming with one sensor active	-			o	n 🕡 —			0
Options	armed in at least one zone								
zzer	armed on all the zones				6				6
Options	disarming				1			I .	1
Advanced	in alarm in at least one zone				• •	n			0
	waiting for a reset and was in alarm	1			8				

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.





zard Steps	Function Name: (Fx) Living roo	om - Intrude	r alarm zo	ne					
<u>m signals</u>	Working mode when alarm i	is	(	)n time (s)			0	ff time (s)	
dback signals 1	deactivated with no sensor activ	/e 🛺	1		0			-	0
Options	deactivated with sensor active	ı 			0				0
dback signals 2	A main a	Y_	1		· · .	Y	1	1.1	1 A A
Options	Arming		1		1		1		· · ·
zer	Warning			+	0			· .	0
	Armed			+	1				5
Options	PreAlarm	, ~	1		0		Ť		0
ess light		Ŷ	1		1.1	Y	1		
Advanced	Alarm	1		1	On			1	0

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.

Wizard									×
🛬 Edit Fund	ction Main intruder ala	arm							
<b>F</b>						Option	S		
Wizard Steps	Function Name: (Fx) Living room -	Intruder a	alarm main						
Arming signals	Working mode when alarm is		O	n time (s)			c	ff time (s)	)
Local calendar	deactivated with no sensor active			+	0			+	0
Zone functions	deactivated with sensor active			+	0				0
Feedback signals 1	arming in at least one zone	T		-	0	T (41)			0
Options	arming with one sensor active	Y	1			Y	1		0
Feedback signals 2	armed in at least one zone	Ÿ	1	1		Ÿ	1		
Options .		ų—	1		0	ų.	1		0
Buzzer	armed on all the zones	1	4	+ ,	5	1			5
Options	disarming			+	0			+	0
Advanced	in alarm in at least one zone			+ .	On I				0
	waiting for a reset and was in alarm			+	1				1
		~	1	1	1.1	. ~		1	
	<<< >>>>								Confirm

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).

Wizard		Wizard		Wizard	
Edit Fund	tion Main intrud	Edit Fund	ction Main ir	Edit Fund	ction Main intruder alarm
Wizard Steps	Function Name: (Fx) Living	Wizard Steps	Function Name: (Fx)	Wizard Steps	Function Name: (Fx) Living room - Intru
Arming signals	Signals Notes	Arming signals	Signals Notes	Arming signals	Signals Notes
Local calendar		Local calendar		Local calendar	3: reset signal
Zone functions		Zone functions		Zone functions	
Feedback signals 1		Feedback signals 1		Feedback signals 1	
Options		Options		Options	
Feedback signals 2		Feedback signals 2		Feedback signals 2	
Options		<u>Options</u>		Options	
Buzzer		Buzzer		Buzzer	
Options		Options		Options	
Advanced		Advanced		Advanced	
Reset alarm		Reset alarm		Reset alarm	
<ul> <li>Available output status</li> <li>Location</li> </ul>	Disable timeout (min)	Force alarm	Disable timeout (min)	Force alarm	Disable timeout (min) 1 💽
Reset alarm	<	Force alarm disarmed	<<< i>	Force alarm disarmed	<

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.

		Even	t type	
Working mode				
	Event on push	Event on push	Event on long	Event on very long
	button pressed	button released	pressure	pressure
0→1	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed, the reset condition is	(less than 1 second), at the release of the	the reset condition is activated at the	press, the reset
	activated.			condition is activated
	activated.	push button, the reset condition is	release of the push button.	at the release of the
		activated.	button.	push button.
	As soon as the push	After a short press	After a long press,	After a very long
1→0	button is pressed,	(less than 1 second),	the reset condition is	press, the reset
	the reset condition is	the reset condition is	deactivated at the	condition is
	deactivated.	deactivated at the	release of the push	deactivated at the
	adadiivatodi	release of the push	button.	release of the push
		button.		button.
0→1 1→0	As soon as the push	After a short press	After a long press,	After a very long
1→0	button is pressed,	(less than 1 second),	the reset is	press, the reset is
	the reset is	the reset is	activated/deactivated	activated/deactivated
	activated/deactivated	activated/deactivated	in toggle mode at the	in toggle mode at the
	in toggle mode.	in toggle mode at the	release of the push	release of the push
		release of the push	button.	button.
		button.		
			mode when the push b	outton is pressed and
	toggled again when the	e push button is release	u	
		when the signal goes O	N, 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:

	Event type	
Working mode	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*).

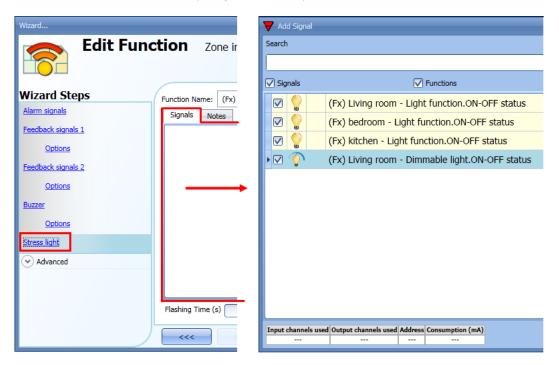
### 10.9.9 How to set the stress lights when the alarm is active

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).



# **CARLO GAVAZZI** Automation Components

Wizard		×
🦱 Edit Func	tion Zone intruder alarm	
		Stress light
Wizard Steps	Function Name: (Fx) Living room - Intruder alarm zone	
Feedback signals 1	Signals Notes  (Fx) bedroom - Light function.ON-OFF status	Available mode
Options Feedback signals 2	(Fx) kitchen - Light function.ON-OFF status	
Options	(x) Living room - Light function.ON-OFF status	
Buzzer Options		
Stress light  Advanced		
		Signal Settings Signal Properties
	Flashing Time (s) 2	
	~~~ >>>	Confirm

# 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).

Wizard								×
🔙 Edit Func	tion	Main intru	der alarm					
1 Star					I	ocal calen	dar	
Wizard Steps	Function Nar	ne: (Fx) Livin	g room - Intruder	alarm main				
Arming signals	♦ ♦ ♦	<b>•</b> • Q	1 5 7	31 👸 🛛 🖬				
Local calendar		lun 4 febbraio	mar 5 febbraio	mer 6 febbraio	gio 7 febbraio	ven 8 febbraio	sab 9 febbraio	dom 10 feb
Zone functions	900							<b>^</b>
Feedback signals 1								
Options	1000							
Feedback signals 2 Options								
Buzzer	1100							U
Options								
Advanced	1200							
	1300							•
	<<<	>>>						Confirm





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

0 0 0 0 0 0 0 1 5 7 3 6 1 📰

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
$\odot$	Magnifying lens to see more/fewer time bands
1	The calendar visualizes one day horizontally
5	The calendar visualizes 5 days horizontally
7	
31	The calendar visualizes 7 days horizontally
6	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:

New activity	×
Activity name	example
From	1/7/2014 To 12/31/2014
Start	09:30 Stop 10:00
	<ul> <li>✓ Saturday □ Sunday ✓ Monday ✓ Tuesday</li> <li>✓ Wednesday ✓ Thursday ✓ Friday</li> </ul>
	No action
@ Start time 1 = Arm intruder ala	@ End time 0 😭 rm Disarm intruder alarm
	Confirm Cancel Delete

*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)

Wizard		×
🛬 Edit Fund	ction Main intruder alarm	
1 Star		Force alarm
Wizard Steps	Function Name: (Fx) Root - Intruder alarm main	
Arming signals	Signals Notes	
Local calendar	3: Root Switch K8 Push 3	Available mode
Zone functions		
Feedback signals 1		Inverted signal
Options		
Feedback signals 2		
Options		
Buzzer		
Options		
Advanced		
Reset alarm		
Force alarmi		Signal Settings Signal Properties
Force alarm disarmed	<	Confirm

The alarm can be forced in only a single zone by adding the force alarm signal in that specific zone function (see below).

Wizard		×
🦱 Edit Fund	ction Zone intruder alarm	
		Force armed
Wizard Steps	Function Name: (Fx) Root - Intruder alarm zone	
<u>Alarm signals</u>	Signals Notes	
Feedback signals 1	4: Living room Switch K6 Push 4	A
Options		
Feedback signals 2		
<u>Options</u>		
Buzzer		
Options		
Stress light		
✓ Advanced		
Force alarm		
		Card December
		Signal Settings Signal Properties
	<b>~~~</b>	Confirm

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).

Wizard		×
🔙 🔬 Edit Fund	ction Main intruder alarm	
<b>K</b>	Force al	arm disarmed
Wizard Steps	Function Name: (Fx) Root - Intruder alarm main	
Arming signals	Signals Notes	
Local calendar	4: Root Switch K8 Push 4	Available mode
Zone functions		
Feedback signals 1		Inverted signal
Options		
Feedback signals 2		
Options		
Buzzer		
Options		
<ul> <li>Advanced</li> </ul>		
Reset alarm		
Force alarm		Signal Settings Signal Properties
Force alarm disarmed	<b>~~~</b>	Confirm

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).

Wizard		×
👝 Edit Fund	ction Zone intruder alarm	
		Force Disarmed
Wizard Steps	Function Name: (Fx) Root - Intruder alarm zone	
<u>Alarm signals</u>	Signals Notes	Available mode
Feedback signals 1	4: Living room Switch K6 Push 4	Available mode
Options		Inverted signal
Feedback signals 2 Options		
Buzzer		
Options		
Stress light		
Advanced		
Force Disarmed		
		Signal Settings Signal Properties
	<b>~~~</b>	Confirm

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.

Heating/cooling system	Heating/cooling system temperature function		
Zone 1	Zone 2		
Zone 3	Zone 4		

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).







Once the system temperature function is added, the user should click on *Temperature* from the Add menu and select *Zone temperature* (see picture below).

C 📄 📄 📓 🛸 🖛 🕂 🕂 💷 💷 Smart House Configurator [ C:\Doc						\Doci				
File Views Reports Add Setup Help										
		1			l		8	14	1_2	3
Bus extension <del>+</del>	Module	Location	Light & scenario <del>•</del>	Up and down control <del>-</del>	Tempera	ture	Alarm	Calendar	Seque	ence
Master	Modules	Locations			11	701	ne tempera	hura	a la company	ns
Locations				11	201	ie tempera	luie			
🕨 — 🐺 Root				Hea	ating syste	m temperatu	ıre			
						Cod	oling syster	n temperatu	re	

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.

Wizard		Wizard
Add funct	tion Zone temperature System temperature function	Add function Zone temperature
Wizard Steps Reon.temperature System temperature function Setpoint Output signals Feedback signals  O Advanced	Function name: (Fx) Root - Zone temperature Heating system temp. function Cooling system temp. function Signal setting: Signal properties	Wizard Steps Room Lemperature function System temperature function Setpoint Output signals ♥ Advanced
	Heating system function not used	

According to the added system temperature, the zone function can manage either only heating, only cooling, or both.

### 10.10.1 Heating/Cooling control system configuration

The heating/cooling control system 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 control system function

To add the on/off signal, the user has to select the relevant section in the wizard of the heating/cooling control system function, then double click on the *Signals* window and select the input signal from the list of available signals (see picture below).

Wizard		•	Wizard	
Edit funct	Heating system temperature	On/off control		Heating system tempe
Wizard Steps On/off control Heating output Feedback signals  Advanced	Function name: (F:) Root - Heating system temperatur Signals Notes		Wizard Steps       On/off centrol       Heating output       Feedback signals       Image: Advanced	Function name: (Fx) Root - Heating sy Signals Notes 1: Root Wireless K3 Push 1
	Antifreeze (°C) 5	Signal settings Signal properties System temperature function v Signal properties		Antifreeze (°C)
	<<<	Confirm		< <b>&gt;&gt;&gt;</b>

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).

Wizard		
Edit funct	tion Heating system temperature	
<b>B</b> \$\$\$		On/off control
Wizard Steps	Function name: (Fx) Root - Heating system temperature	
On/off control	Signals Notes	
Heating output	1: Root Wireless K3 Push 1	Available mode
Feedback signals		
Advanced		Working mode 📃
		0→1 1→0
		Event type
		Signal settings Signal properties
	Antifreeze (°C)	System temperature function 💉 💓
	~~~~ <b>&gt;&gt;&gt;</b>	Confirm





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	Event type				
mode					
	Event on push	Event on push	Event on long	Event on very long	
	button pressed	button released	pressure	pressure	
	As soon as the push	After a short press	After a long press,	After a very long	
0→1	button is pressed,	(less than 1 second),	the function is	press, the function is	
	the function is	at the release of the	activated at the	activated at the	
	activated.	push button the	release of the push	release of the push	
		function is activated.	button.	button.	
	As soon as the push	After a short press	After a long press, the function is	After a very long	
1→0	button is pressed, the function is	(less than 1 second), the function is	the function is deactivated at the	press, the function is deactivated at the	
	deactivated.	deactivated at the	release of the push	release of the push	
	deactivated.	release of the push	button.	button.	
		button.	button.	button.	
	As soon as the push	After a short press	After a long press,	After a very long	
0→1 1→0	button is pressed,	(less than 1 second),	the function will be	press, the function	
1-70	the function will be	the function will be	activated/deactivated	will be	
	activated/deactivated	activated/deactivated	in toggle mode at the	activated/deactivated	
	in toggle mode.	in toggle mode at the	release of the push	in toggle mode at the	
		release of the push	button.	release of the push	
	button. 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:

	Event type		
Working mode	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 set the Heating/Cooling control system function always active

By enabling System temperature function always active (see below), this function will always be activated and the On/Off signals and the calendar will be ignored.

Wizard		□ ×
Edit funct	tion Heating system temperature	
<b>B</b> ***		On/off control
Wizard Steps On/off control Heating output Feedback signals	Function name: (Fx) House - Heating temperature system Signals Notes Notes 1: Kitchen cooker light K4 Push 1	n Available mode ♥ ₩orking mode 0→1 1→0 ♥ €vent type ♥ Signal settings Signal properties
	Antifreeze (°C) 5	Function always active 🖌 🔛
	< <b>&gt;&gt;&gt;</b>	Confirm

## 10.10.4 How to add the heating output

The heating output must be added in the relevant field of the wizard function (see picture below).

Wizard		×
Edit Fund	ction Heating system temperature	
		Heating ouput
Wizard Steps	Function name: (Fx) Root - Heating system temperature	
Heating ouput	Signals Notes 9: Root Relay module K5 Re 1	Available mode
Feedback signals	~~ · · · · · · · · · · · · · · · · · ·	
(v) Advanced		Inverted signal
		Signal settings Signal properties
	Delay On (s) 30 😜	Delay Off (s) 30 💽
	<<< >>>>	Confirm

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.





	Signal settings Signal properties
Delay On (s) 30 🕃	Delay Off (s) 30 🕄
<	Confirm

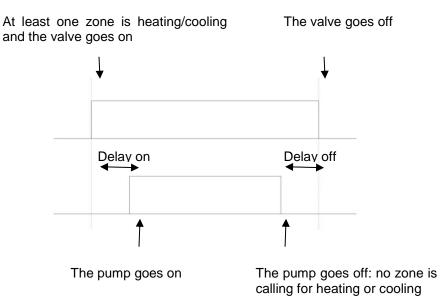
When the zone temperature status goes on:

- The valve output in the zone goes on immediately.
- The pump output in the heating control 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 heating control 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:







# 10.10.5 How to set a feedback signal

The feedback signal can be used to give information about the status of the heating control 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.

Wizard		×
Edit Fund	tion Heating system temperature	
<b>B</b> \$\$\$		Feedback signals
Wizard Steps	Function name: (Fx) Root - Heating system temperature	
Heating ouput	Signals Notes 5: basement Switch K4 Led 1	Available mode
Feedback signals		<b>X</b>
(v) Advanced		Inverted signal
		Signal settings     Signal properties
	<b>~~~</b>	Confirm

The inverted logic for the feedback can be selected as shown in the yellow rectangle in the picture above.





### 10.10.6 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 control system function to switch on/off according to the outdoor temperature.

Wizard					×
Edit Fund	ction	Heating system tempe	rature		
<b>B</b> ***				Outdoor tempera	ture override
Wizard Steps	Function na	ame: (Fx) Root - Heating system	temperature		
On/off control	Signals	Notes			
Heating ouput	• 👌 1:	Root Temperatures K34 Te	mperature 1	<b>A</b>	Available mode
Feedback signals					
Advanced					
Outdoor temperature override					
Outdoor temp. settings					
				•	Signal settings Signal properties
	<<<	>>>>			Confirm

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).

Wizard		
	tion Heating system temperature Outdoor temp. settings	
Wizard Steps	Function name: (Fx) Root - Heating system temperature	
On/off control	High temperature threshold (°C)	
Heating output	Hysteresis for max.	
Feedback signals	rysteresis for max. temperature (°C)	
<ul> <li>Advanced</li> </ul>	Delay (s) 60 🗧	
Outdoor temperature override	Over temperature action 0 🗧 Disable heating	
Outdoor temp. settings	Low temperature threshold (°C) 10 🚼	
	Under temperature action -1 🚼 No action	
	Conf	rm

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.

### 10.10.7 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 .

Wizard		
Edit funct	tion Heating system temperature On/off control	
Wizard Steps On/off control Heating output Feedback signals (→) Advanced Outdoor temperature override Outdoor temp. settings	Function name: (Fx) Root - Heating system temperature Signals Notes ▲ Vailable mode Working mode → 1 1→ Event type 1 Signal settings Signal prop	
	Antifreeze (°C) 5	×
		onfirm

The antifreeze regulation works with a hysteresis of one degree: Heating  $ON \rightarrow$  temperature < antifreeze temperature Heating OFF  $\rightarrow$  temperature ≥ antifreeze temperature





# 10.10.8 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).

Wizard		Wizard	
	ction Heating system temp	Edit Fund	ction Cooling temperature s
Wizard Steps	Function name: (Fx) Root - Heating system	Wizard Steps	Function name: (Fx) basement - Cooling ter
On/off control	00	On/off control	00 1 2 2 1 5 7
Heating ouput	lun 25 febbraio martedì 26 feb	Cool output	lun 25 febbraio martedi 26 feb
Feedback signals	900	<u>Feedback</u>	900
Advanced		Advanced	
Local calendar	1000	Local calendar	1000
	1100		1100
	1200		1200
	1300		1300
	<b>~~~</b>		<b>~~~</b>

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

# 📀 🕑 🗉 🔍 🔍 | 1 5 7 31 🖧 | 🖂

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 u				
<b>U</b>	to the next week.			
	Go to the current day.			
€ 0	Magnifying lens to see more/fewer time bands.			
1	The calendar visualizes one day horizontally.			
5	The calendar visualizes 5 days horizontally.			
7	The calendar visualizes 7 days horizontally.			
31	The calendar visualizes 31 days horizontally.			
6	The calendar visualizes 7 days vertically.			
Ħ	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:

New activity	×
Activity name	example
From	1/7/2014 To 12/31/2014 💽
Start	07:00 Stop 19:30
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>During time period</li> <li>-1</li> <li>No action</li> </ul>
@ Start time 1 = Enable heating	@ End time 0 💽 Disable heating
	Confirm Cancel Delete

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.

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 to be performed 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 can select the action to be performed at the end time. The available actions are:
  - (-1) No action: nothing will be done at end 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

### 10.10.9 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).

Wizard		Wizard	
	tion Heating system tempe		ction Heating system tempe
Wizard Steps	Function name: (Fx) Root - Heating system	Wizard Steps	Function name: (Fx) Root - Heating system
On/off control	Signals Notes	On/off control	Signals Notes
Heating ouput		Heating ouput	1: Root Switch K32 Push 1
Feedback signals		Feedback signals	
Advanced		✓ Advanced	
Disable automation	$ \longrightarrow $	Disable automation	
Force output on		Force output on	
Force output off		Force output off	
	Disable timeout (min) 0 🕃		Disable timeout (min) 0 🕃
	<		<

The timer *Disable timeout* starts every time the disable status is activated: the disable status is automatically deactivated as soon as the time expires.

	Disable timeout (min) 0
ſ	<<< >>>>

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.

	Event type			
Working mode	L 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/deactivate d in toggle mode at the release of the push button.	After a long press, the disable condition is activated/deactivate d in toggle mode at the release of the push button.	After a very long press, the disable condition is activated/deactivat ed 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.			
L	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:

	Even	t type
Working mode	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.





### **10.10.10** How to force the control system function 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).

Wizard		×
📔 🛛 Edit Func	Heating system temperature	
<b>1</b> { { { { } } { { } } { { } } { } { } {	Ford	e output on
Wizard Steps	Function name: (Fx) Root - Heating system temperature	
On/off control	Signals Notes	
Heating ouput	1: Root Switch K32 Push 1	A
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Disable automation		
Force output on		
Force output off		
	L	Signal settings Signal properties
	<<< >>>>	Confirm

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.





# **10.10.11** How to force the control system function 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).

Wizard				×		
Edit Function Heating system temperature						
<b>1</b> { { } { } { } {			Force outp	ut off		
Wizard Steps	Function name	: (Fx) Root - Heating system temperature				
On/off control	Signals 🚽	Notes				
Heating ouput	2: RC	oot Switch K32 Push 2	<b>A</b>	Available mode		
Feedback signals						
✓ Advanced				Inverted signal		
Disable automation						
Force output on						
Force output off						
				Signal settings Signal properties		
				Signal catalige		
				Confirm		

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 and MasterGlass Temdis, which has a dedicated tab window.

Wizard		•					
Edit function Zone temperature							
8 ↓		Room temperature					
Wizard Steps	Function name: (Fx) Root - Zone temperature						
Room temperature	Room temperature Temdis and MasterGlass						
System temperature function	6: Root Switches K5 Temperature 1	Available mode					
<u>Setpoint</u>							
Output signals							
Feedback signals							
<ul> <li>Advanced</li> </ul>							
		Signal settings Signal properties					
	Offset value (°C) 5	Signal settings Signal properties					
	Offset value (°C) 5 🚦						
	<<< >>>>	Confirm					

In the *Temdis and MasterGlass* signals window, the user can add the temperature signals (*TRoom and TAuxiliary*) of the Temdis modules (SHxxXTEMDIS) and the *TRoom* of MasterGlass Temdis modules (SHGxxxW-BSLT)

Wizard		•					
Edit function Zone temperature							
8 ↓		Room temperature					
Wizard Steps	Function name: (Fx) Root - Zone temperature						
Room temperature	Room temperature Temdis and MasterGlass						
System temperature function Setpoint Output signals Feedback signals Advanced	1: Root Temdis display K10 TRoom 1	Available mode					
	Offset value (°C) 5	Signal settings Signal properties					
	<<< >>>>>	Confirm					





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 and/or Masterglass 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.

Off set value (°C)	5 😜

# 10.11.2 How to use a zone temperature function without a heating/cooling control system function

The user can create a *Zone temperature* function for Heating and/or Cooling control without needing to link it to the heating/cooling control function.

In the option *System temperature function* of the wizard, if there is no main function selected, the green "V" icon is selectable and the user can manage either only heating or only cooling, or both.

If at least one heating system temperature or cooling system temperature is present, this option will be unavailable.

Wizard		
Edit funct	Zone temperature	
	System temperature function	
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
Room temperature	Heating system temp. function Cooling system temp. function	
System temperature function Setpoint		
Output signals		
Feedback signals		
Advanced     Auxiliary temperature		
Aux. temperature settings		
	Signal settings Signal propertie	es
	Heating system function not used 🤡 Cooling system function not used ✔ 📗	
	Confirm	





# 10.11.3 How to configure the setpoints

Up to three different set points can be used 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.

Wizard		
Edit funct	tion Zone temperature Setpoint	
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling Heating dead-band Cooling dead-band	
System temperature function Setpoint Output signals Feedback signals Second		
	Setpoints are linked together  Same setpoint for heating and cooling  Context Setpoint for heating and cooling  Context Setpoint Setup Set	irm

The user can select one, two or three setpoints (T1, T2, T2) by clicking on the relevant box/es. When the option *Enable heating switching off* is selected, this allows the user to switch the heating off using a TEMDIS display or remotely via the webserver (see green rectangle in the picture above). If this feature is not enabled, this possibility will be hidden in the TEMDIS display and webserver.

It is possible to select the green "V" icon in the option *Use the same setpoint for heating and cooling*: by doing this, 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 needs to manage only the heating set points.

Use the same setpoint for heating and cooling	$\checkmark$	$\approx$	





#### 10.11.4 How to use the heating and cooling dead-bands

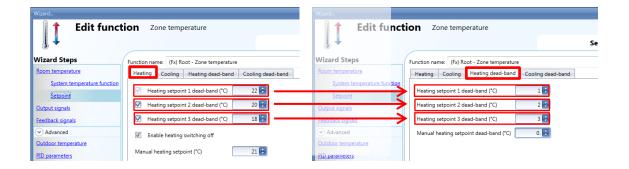
Advanced temperature features, such as dead-bands, allow for a more comfortable environment with more control over heating and cooling when they are needed at the same time, mainly in building applications.

In an application where two outputs are used to control heating and cooling of the same process, this has the effect of defining a band around the setpoint in which neither the heating nor the cooling output is on. This avoids having the heating and cooling devices working against one another.

However, if the application sometimes requires use of heating and cooling simultaneously, a negative dead-band value can be specified.

To allow you to optimize the control of your process, the heating dead-band and the cooling dead-band can be different values. When the dead-band value is applied to an output, it has the effect of shifting the setpoint (see example below).

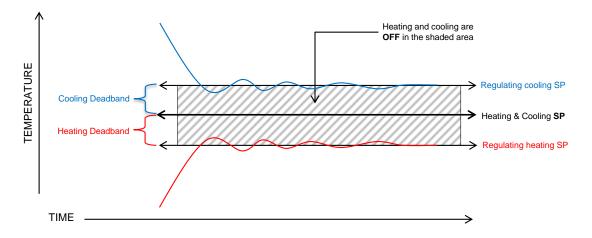
The user can set up three dead-bands for heating and cooling, each working with the relevant setpoint T1 (setpoint 1), T2 (setpoint 2) and T3 (setpoint 3).



In the example shown above, setpoint1 is 21° (22-1) so heating will be switched off at 21° and switched on according to the set hysteresis; setpoint2 is 18° (20-2) so heating will be switched off at 18° and switched on according to the set hysteresis; setpoint3 is 15° (18-3) so heating will be switched off at 15° and switched on according to the set hysteresis.







There are two ways of working with dead-bands:

- The three setpoints can be independent: the option Setpoints are linked together is not enabled. In this situation the user can change one setpoint without affecting the others and the system will show three different values when selecting T1, T2 or T3. If dead-bands are used, the three setpoints are shifted as explained above.
- 2) The three setpoints can be linked together: the option *Setpoints are linked together* is enabled. In this case the setpoint is only one (setpoint1, setpoint2 and setpoint3 have the same value) and the three regulating levels are managed using the dead-bands.

Wizard		Wizard	
Edit funct	ion Zone temperature	Edit funct	ion Zone temperature
Wizard Steps	Function name: (Fx) Root - Zone temperature	Wizard Steps	Function name: (Fx) Root - Zone temperature
Room temperature	Heating Cooling Heating dead-band Cooling dead-band	Room temperature	Heating Cooling Heating dead-band Cooling dead
System temperature function Setpoint	Heating setpoint 1 dead-band (°C)	System temperature function Setpoint	Heating setpoint 1 dead-band (*C)
Output signals	Heating setpoint 2 dead-band ("C) 21	Output signals	Heating setpoint 2 dead-band (*C) 3 🕃
Feedback signals	Heating setpoint 3 dead-band (*C)	Feedback signals	Heating setpoint 3 dead-band (*C) 5 🕃
Advanced	Enable heating switching off	<ul> <li>Advanced</li> </ul>	Manual heating setpoint dead-band (*C)
Outdoor temperature PID parameters	Manual heating setpoint (°C)       Set values are linked together	Outdoor_temperature PID_parameters	

In this situation, if setpoint1 is selected, the regulating level is 20° (i.e 21-1), if setpoint2 is selected, the regulating level is 18° (i.e 21-3), if setpoint3 is selected, the regulating level is 16° (i.e 21-5). In the TEMDIS and webserver all the three setpoints will be 21°, and the changing of any one of them will also change the other two.





# Example:

The following example shows how the system behaves with the following settings, where we can have one setpoint if an office is occupied (comfort level), a second one if the office is not occupied (economy level), and a third one during the night (night setback).

Wizard Edit function Zone temperature				
Wizard Steps Room temperature System temperature function Setpoint Output signals Feedback signals ✓ Advanced Outdoor temperature PID parameters	Function name:       (Fx) Root - Zone temperature         Heating / Cooling       Heating dead-band       Cooling dead-band         Image: Cooling Setpoint 1 / Cooling setpoint 1 (°C)       23       Image: Cooling Setpoint 2 (°C)       23         Image: Cooling Setpoint 2 / Cooling Setpoint 2 (°C)       23       Image: Cooling Setpoint 3 (°C)       1mage: Cooling Setpoint 3 (°C)       1mage: Cooling Setpoint 3 (°C)       Image: Coolin			

# Heating dead-band

# Cooling dead-band

Wizard		Wizard	
Edit funct	tion Zone temperature	Edit function Zone temperature	2
Wizard Steps	Function name: (Fx) Root - Zone temperature	Wizard Steps Function name: (Fx) Root - Zone	e temperature
Room temperature	Heating / Cooling Heating dead-band Cooling dead-b	Room temperature Heating / Cooling Heating (	dead-band Cooling dead-band
System temperature function Setpoint Output signals Feedback signals C Advanced Outdoor temperature	Heating setpoint 1 dead-band (°C) 1 Heating setpoint 2 dead-band (°C) 3 Heating setpoint 3 dead-band (°C) 5 Manual heating setpoint dead-band (°C) 0	System temperature function           Setpoint         Cooling setpoint 1 dead-band           Output signals         Cooling setpoint 2 dead-band           Feedback signals         Cooling setpoint 3 dead-band           O Advanced         Manual cooling setpoint dead	i (°C) 3 :
PID parameters	Same setpoint for heating and cooling 💓 🗱	PID parameters Same setpoint for heating and co	poling 💓 🔛

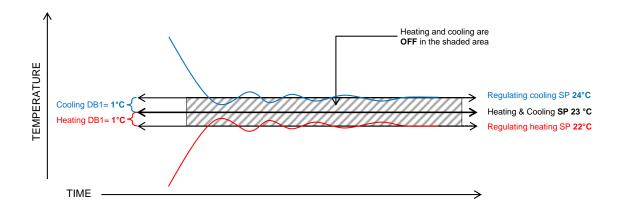




# Office occupied- comfort setpoint

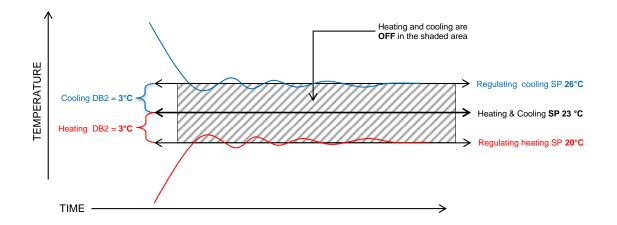
Heating and cooling setpoint=23°C, Dead-band 1°C

Heating will be regulated at 22°C Cooling will be regulated at 24°C



# *Office not occupied- economy setpoint* Heating and cooling setpoint=23°C, Dead-band 2= 3°C

Heating will be regulated at 20°C Cooling will be regulated at 26°C

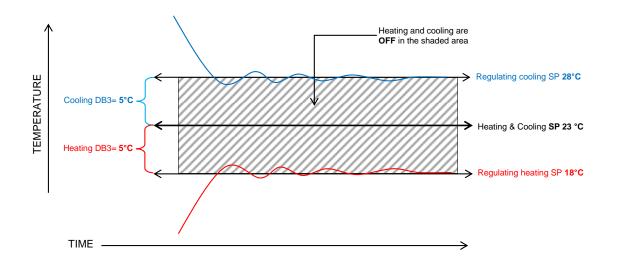






*Night time- night setback* Heating and cooling setpoint=23°, Dead-band 3= 5°C

Heating will be regulated at 18° Cooling will be regulated at 28°







#### 10.11.5 How to set the maximum and minimum values for the setpoints

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, Masterglass Temdis modules and all remote commands such as webserver.

Wizard		
🛛 👔 🕇 🛛 Edit funct	tion Zone temperature	
	Setpoint ran	ges
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling	
System temperature function Setpoint Output signals Feedback signals © Advanced	Min (°C) 10 ਦ Max (°C) 30 ਦ	
<u>Setpoint ranges</u>		Confirm

# 10.11.6 How to add the heating output

The heating output must be added in the relevant field of the function (see picture below)

Wizard		×
Edit Fund	ction Zone temperature	Output signals
Wizard Steps Room temperature System temperature function Setpoint Output signals Peedback signals (*) Advanced Set point ranges	Function name: (Fx) Root - Zone temperature Heating Cooling Final 10: Root Relay module K5 Re 2	Available mode         Inverted signal         Inverted signal         Image: Signal settings
	<	Confirm

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*.





# 10.11.7 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.

Wizard		
👔 🕇 🛛 Edit funct	Zone temperature	
8 ↓		Feedback signals
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
Room temperature	Heating Cooling	
System temperature function	6: Root House Studio Switches K13 Led 2	Available mode
<u>Setpoint</u>		
Output signals		Inverted signal
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Auxiliary temperature		
Aux. temperature settings		
		Signal settings Signal properties
	<<< >>>>	Confirm

The inverted logic for the feedback can be selected in the Signal settings tab window.

#### 10.11.8 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, SHGxxxW-BLSx). In the *Temdis and MasterGlass* 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.





Wizard				
🛛 🕇 🛛 Edit funct	ion Zone tempe	rature		
₿ ↓			Auxiliary temperature	
Wizard Steps	Function name: (Fx) Kitc	hen - Zone temperature		
Room temperature	Auxiliary temperature	Temdis and MasterGlass		
System temperature function			▲	
<u>Setpoint</u>				
Output signals				
Feedback signals				
✓ Advanced				
Auxiliary temperature				
Aux. temperature settings				
			Signal settings Signal proper	ties
	<<< >>>>		Confi	rm

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.

Wizard			
Edit funct	Zone temperature		
		Aux. temperature settings	
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature		
Room temperature	High temperature threshold (°C) 15 💼		
System temperature function Setpoint	Low temperature threshold (°C)		
Output signals	Hysteresis for max. temperature (°C)		
Feedback signals	Delay (s) 60 😜		
Advanced	Heating Cooling		
Auxiliary temperature Aux. temperature settings	Under heating action -1 🕄 None		
	Over heating action -1 🕄 None		
	Show auxiliary temperature 💉 🔀		
	<b>~~~</b>		Confirm

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				
-1	No action			
0	Force the heating OFF			
1	Force the heating ON			





Under/over cooling action				
-1	No action			
0 Force the cooling OFF				
1	Force the cooling ON			

If an ON/OFF action is enabled, it has priority over the regulation according to the room temperature.

By selecting the green "V" icon at the bottom of the window *Show auxiliary temperature*, the auxiliary temperature is shown in the Temdis Display.

Show auxiliary temperature



#### 10.11.9 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).

Wizard		•
Edit funct	Zone temperature	
8 ◆		Outdoor temperature
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
Room temperature	Outdoor temperature Temdis and MasterGlass	
System temperature function	6: Root House Bedroom Switches K22 Te	mperature 1 Available mode
<u>Setpoint</u>		
Output signals		
Feedback signals		
✓ Advanced		
Outdoor temperature		
		Signal settings Signal properties
	<b>~~~</b>	Confirm

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). In the *Temdis and MasterGlass* signals window, the user can select to use the TEMDIS "T Auxiliary" signal.





# 10.11.10 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).

Wizard		
🛛 👔 🕇 🛛 Edit funct	ion Zone temperature	
[]↓	Safe mode	
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling	
System temperature function		
<u>Setpoint</u>	Heating safe mode	
Output signals	Heating on time (min) 15	
Feedback signals	Heating off time (min) 15	
Advanced		
<u>Safe mode</u>		
	<b>««</b>	Confirm

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					
off	Force the heating output OFF					
Force heating output to recycle (the output goes on/off according to the time set When this icon is selected, the on/off time settings are automatically enabled.						
	Safe action (cooling)					
×	No action					
off	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.					





# 10.11.11 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).

Wizard								□ ×
🛛 👔 🕇 🛛 Edit funct	ion 2	Zone tempe	rature					
						Calendar	,	
Wizard Steps	Function n	ame: (Fx) Roo	t - Zone temper	ature				
Room temperature	Heating	Cooling						
System temperature function			1 5 7	31 👸 🛛 🖂				
<u>Setpoint</u>		Sun, Nov 30	Mon, Dec 01	Tue, Dec 02	Wed, Dec 03	Thu, Dec 04	Friday, Dec 05	Sat, Dec 06
Output signals	900							
Feedback signals								
<ul> <li>Advanced</li> </ul>	10 <sup>00</sup>							
Calendar								
	11 <sup>00</sup>							
	12 <sup>₽M</sup>							
	12							•
	<<-	<	>>>					Confirm

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:

100104110					
	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.				
1	The calendar visualizes one day horizontally.				
5	The calendar visualizes 5 days horizontally.				
7	The calendar visualizes 7 days horizontally				
31	The calendar visualizes 31 days horizontally.				
6	The calendar visualizes 7 days vertically.				
22	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.

New activity		×
Activity name	test	
From	1/1/2014 To 12/31/2014	
Start	09:30 Stop 10:00	
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>	
	During time period -1 -1 No action	
@ Start time 1 Setpoint 1	@ End tin 3 Setpoint	•
	Confirm Cancel Delete	3

**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...

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.

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 can select the action to be performed at the start time. 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 can select the action to be performed at the end time. The available actions are:

- (-1) No action: nothing will be done at end 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 behavior of the calendar is the same as that described for the local calendar.

Wizard		×
👔 🕇 🛛 Edit func	tion Zone temperature	
8 ↓		Functions
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling	
System temperature function	14 (Fx) heating control.Status	
Setpoint		
Output signals		
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Functions		
	L	Signal settings Signal properties
	<b>~~~</b>	Confirm

#### 10.11.12 How to change the set point using the 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.



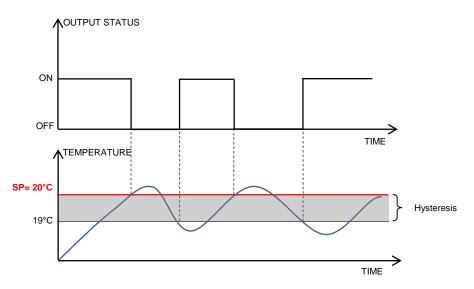


# 10.11.13 How to set the ON/OFF control

If the first icon is selected, the temperature function works as an on/off function, regulating according to the setpoint and the hysteresis.

Wizard			
🛛 👔 🕇 🛛 Edit funct	ion Zone temperature		
1 ↓		Regulation mode	
Wizard Steps	Function name: (Fx) Root - Zone temperature		
Room temperature	Heating Cooling		
System temperature function Setpoint	Control mode PID 1 PI	D 2	^
Output signals	Hysteresis (°C)		
Feedback signals			
Advanced			
Regulation mode			
	<b>~~~</b>	Ca	onfirm

If the setpoint is 20° and the hysteresis is 1°, the output is switched off at 20° and activated again at 19°. (see the graph below)







# 10.11.14 How to set the PID

If the user wants to use the PID regulation algorithm, the *Regulation mode* field must be selected in the *Advanced* sections.

The PID output is a percentage from 0% to 100%, which can be applied on a cycle time relay output or on an analogue output module.

Example 1: relay output and cycle time of 10 seconds. If the PID output is 0%, the relay will be off for all of the 10 seconds. If the PID output is 30%, the relay will be off for 7 seconds and on for 3 seconds. If the PID output is 100%, the relay will be on for all of the 10 seconds.

*Example 1: 0-10 analogue output SHPOUTV224 (Only PID2 algorithm)* If the PID output is 0%, the output of the SHPOUTV224 is 0V. If the PID output is 30%, the output of the SHPOUTV224 is 3V. If the PID output is 100%, the output of the SHPOUTV224 is 10V.

# 10.11.15 How to set the PID 1 mode

By default, the Regulating mode is set as a *PID 1* mode (see the red rectangle in the picture below).

Wizard		
🛛 👔 🕇 🛛 Edit funct	tion Zone temperature	
₿ ↓	Regulation mode	
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling	
System temperature function Setpoint	Control mode	<b></b>
Output signals	Proportional parameter 5	
Feedback signals	Integrative parameter 100 🕃	
<ul> <li>Advanced</li> </ul>	Derivative parameter 5 🕃	
Regulation mode	Proportional band (°C)	
		-
	Cor	firm

Proportional parameter (default value 5)

The proportional action gives a change to the input (temperature value measured) directly proportional to the control error (error=setpoint-temperature).

This adds an amount to the output based on the current error.

# Integrative parameter (default value 100)

This adds an amount to the output based on the sum of the error.

It gives a change to the output proportional to the integrated error, and its main purpose is to reduce the error by increasing or decreasing the output, until the temperature value reaches the desired setpoint value.

By default the Integral term is disabled.





### Derivative parameter (default value 5)

This subtracts an amount from the output based on the rate of change of the error.

The less commonly used derivative action is used in some cases to speed up the response or to stabilize the system, and it gives a change to the output inversely proportional to the rate of change of the controlled variable. By default the Derivative term is disabled (value 0).

#### Proportional band (°C) (default value 2)

When Proportional-Integral-Derivative (PID) control is used, the controller modulates output power by adjusting the output power percentage within a proportional band.

Power is proportionally reduced as the process temperature gets closer to the setpoint temperature. It is the width of the band above (cooling: direct-acting outputs) or below (heating: reverse-acting outputs) the setpoint within which the controller modulates the output as the process value approaches the setpoint.

#### 10.11.16 How to set the PID 2 (PID advanced)

If the user wants to use the PID 2 regulator and be free to define all the parameters, the Regulation mode field must be selected in the Advanced section and the third icon should be checked (PID 2). The available settings are shown in the picture below:

Wizard		
Add funct	Cone temperature Regulation mode	
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature	Heating Cooling	
System temperature function Setpoint	Control mode PID 1 PID 2	^
Output signals	Cycle time (s) 60 🕄	
Feedback signals	Proportional band (°C)	
Advanced     Regulation mode	Proportional coefficient	
Regulation mode	Integral coefficient 0	
	Maximum integral error 100 🗧	
	Derivative coefficient 0	
	Minimum output value 0	
	Maximum output value 100 🔁	
	Default output value 0	-
	Cancel	Confirm

#### Cycle time (s)

When an output is used for PID control, a cycle time that is appropriate for the application must be specified. The cycle time is the period of time in which the PID makes its calculation and updates the output.

For example, let's suppose that the cycle time is set to 10 seconds and that the control algorithm calculates the output percentage equal to 50%. A normally open relay will be closed for 5 seconds and open for 5 seconds in each ten second cycle. If the output percentage changes to 70%, the relay will be closed for 7 seconds and open for 3 seconds in each ten second cycle.

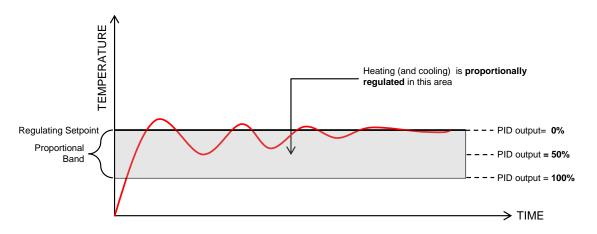
#### Proportional band (°C) (default value 1)

When Proportional-Integral-Derivative (PID) control is used, the controller modulates output power by adjusting the output power percentage within a proportional band.





Power is proportionally reduced as the process temperature gets closer to the setpoint temperature. It is the width of the band above (cooling: direct-acting outputs) or below (heating: reverse-acting outputs) the setpoint, within which the controller modulates the output as the process value approaches the setpoint.



Proportional coefficient (default value 1)

The proportional action gives a change to the input (temperature value measured) directly proportional to the control error (error=setpoint-temperature).

It adds an amount to the output based on the current error.

#### Integral coefficient (default value 0)

This adds an amount to the output based on the sum of the error.

It gives a change to the output proportional to the integrated error, and its main purpose is to reduce the error by increasing or decreasing the output, until the temperature value reaches the desired setpoint value.

By default the Integral term is disabled.

# Maximum integral error (default value 100) This is the maximum value the integral term can have.

#### Derivative coefficient (default value 0)

This subtracts an amount from the output based on the rate of change of the error.

The less commonly used derivative action is used in some cases to speed up the response or to stabilize the system, and it gives a change to the output inversely proportional to the rate of change of the controlled variable. By default the Derivative term is disabled (value 0).

#### Minimum output value

This is the minimum value the output of the PID algorithm can have

#### Maximum output value

This is the maximum value the output of the PID algorithm can have

#### Default output value

This is the default value applied to the PID output when the input is faulty or not available, or the disable status is active (default 0).

To have some hints on how to set these parameters, please look at How to set PID parameters.pdf.





#### 10.11.17 How to add Analogue output signals

#### This field is enabled only if PID2 is checked in the field Regulation mode.

The analogue output signals permit an actuator to be managed like a motorized valve driven by 0...10 V DC or by a 3-position signal: the output is set according to the PID calculation.

If a SHPOUTV224 module is used:

- If the PID output is 10%, the SHPOUTV224 output is 1V
- If the PID output is 60%, the SHPOUTV224 output is 6V

To add the *Analogue output signals* the user should click on the relevant field in the *Advanced* sections then double click on the *Signals* window and select the signal from the list of those available (see picture below):

Wizard		Add signal
Edit funct	ion Zone temperature	Search
Wizard Steps <u>Room temperature</u> <u>System temperature function</u> <u>Setpoint</u> <u>Output signals</u> <u>Feedback signals</u> ✓ Advanced <u>Analogue output signals</u>	Function name: (Fx) Root - Zone Heating Cooling	Hide used output signals       ✓ Signals       ✓ Functions         Name       1: Root Analog output K60 Analogue 0-10 1       2: Root Analog output K60 Analogue 0-10 2         ✓       2: Root Analog output K60 Analogue 0-10 2
	<b>~~~</b>	22 / 120 18 / 112 11 / 249 25.8 / 450.0

The output types available for this field are those from the module SHPOUTV224 (to control actuators with 0...10 V inputs).





# 10.11.18 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.

Wizard	t	
🛛 🕇 🛛 Edit funct	tion Zone temperature	
\$ ↓	Inputs for setpoint selection	
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
System temperature function Setpoint Output signals Feedback signals	Heat(H) T1 H T2 H T3 H Off Cool(C) T1 C T2 C T3 C Off  Available mode  Working mode	
Inputs for setpoint selection	Inverted signal Signal settings Signal propertie	:5
	Confirm	





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).
0→1 1→0	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.

Wizard			
Edit funct	tion Zone temperature	Inputs for setpoint selection	
Wizard Steps Room temperature System temperature function Setpoint Output signals Feedback signals Odvanced Inputs for setpoint selection	Function name: (Fx) Root - Zone temperature Heat(H) T1 H T2 H T3 H Off Cool(C) T1	Available mode	
Wizard Edit funct	tion Zone temperature	Inputs for setpoint selection	
Wizard Steps Room temperature System temperature function	Function name:       (Fx) Kitchen - Zone temperature         Heat(H) T1       H T2       H T3       H Off       Cool(C) T1         Image: Status       Image: Status		





# 10.11.19 How to set the feedback signals for the selected setpoint

A feedback signal can be used to give information about the regulating setpoint, so that a LED switches on if the associated setpoint is active at that moment.

To add the *Feedback signals for setpoint* the user should click on the relevant field in the *Advanced* sections, then double click on the *Signals* window and select the feedback signal from the list of those available.

Wizard		
Add funct	tion Zone temperature	
₿ ↓	Feedback sign	als for setpoint
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature System temperature function	Heat(H) T1 H T2 H T3 H Off Cool(C) T1 C T2 C T3 C Off	Available mode
Setpoint Output signals		Inverted signal
Feedback signals		
Feedback signals for setpoint		
		Signal settings Signal properties
	<b>~~~</b>	Cancel Confirm

As shown in the picture above, LEDs can be programed to be on or off, indicating if the temperature function is regulating according to setpoint1, setpoint2 or setpoint3.

The inverted logic for the feedback can be selected as shown in the yellow rectangle in the picture above.

In the next picture, an example of configuration is shown: feedback Led1 turns on when heating setpoint1 is activated, while feedback LED3 goes on when cooling setpoint 1 is activated.

tion Zone temperature	s for setpoint
Function name: (Fx) Root - Zone temperature Heat(H) T1 H T2 H T3 H Off Cool(C) T1 C T2 C T3 C Off T5: Root Temdis display K2 Led 1	Available mode
tion Zone temperature	
Feedback signals	s for setpoint
Function name:         (Fx) Root - Zone temperature           Heat(H) T1         H T2         H T3         H Off         Cool(C) T1         C T2         C T3         C Off	
	Feedback signals         Function name:       (Fx) Root - Zone temperature         Heat(H) T1       H T2       H T3       H Off       Cool(C) T1       C T2       C T3       C Off         S:       Root Temdis display K2 Led 1       Image: State of the state of th





# 10.11.20 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).

Wizard		×
Edit funct	Zone temperature	
8 ↓		Disable automation
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
Room temperature	Signals Notes	
System temperature function	3: Kitchen Wireless K4 Push 3	Available mode
<u>Setpoint</u>		
Output signals		Working mode
Feedback signals		0→1 1→0
<ul> <li>Advanced</li> </ul>		
PID parameters Heating/Cooling setpoint selection		
		Event type
Disable automation		
Force output on		Signal settings Signal properties
Force output off	Disable timeout (min)	
	<	Confirm

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.

	Disable timeout (min) 0
Ĵ	<<< >>>>

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.

	Event type			
Working mode	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.			
L	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	
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	





# 10.11.21 How to force 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).

Wizard		×
🛛 🕇 🛛 Edit func	tion Zone temperature	
8 ◆		Force output on
Wizard Steps	Function name: (Fx) Root - Zone temperature	
Room temperature System temperature function	Heating Cooling	Available mode
Setpoint	1: Root Switches force heating ON Push 1	
Output signals		
Feedback signals		
Advanced  Disable automation		
Force output on		
Force output off		
		Signal settings Signal properties
	<	Confirm

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.





# 10.11.22 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).

Wizard		×
Edit funct	ion Zone temperature	
		Force output off
Wizard Steps	Function name: (Fx) Kitchen - Zone temperature	
Room temperature	Heating Cooling	
System temperature function	3: Kitchen Wireless K4 Push 3	Available mode
<u>Setpoint</u>		
Output signals		Inverted signal
Feedback signals		
Advanced		
PID parameters		
Heating/Cooling setpoint selection		
Disable automation		
Force output on		
Force output off		
	L	Signal settings Signal properties
	<b>~~~</b>	Confirm

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.

	👝 🛅 📄 🔚 📓 🛸 🎼 🏦 🖳 🐨 Hause Configurator * [ C:\Users\rsirena.CG_CONTROLS\Desktop\Milano 11 febbraic										
Fi V	le View	s Report	s Add	Program setup	Help						
<u>a</u>	<b>680</b>	<b>I</b>		-	Į	8	14	1 <sub>2</sub> 3	Š	٣	
Bus extension *	Module	Location	Light & scenario *	Up and down control •	Temperature *	Alarm	Calendar	Sequence	Timers	Basic	Simulated habitation
Master Locations	Modules	Locations						Functions		Delay ti	mer
Root R					Recyclir	ng timer					
-										Interval	timer

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).

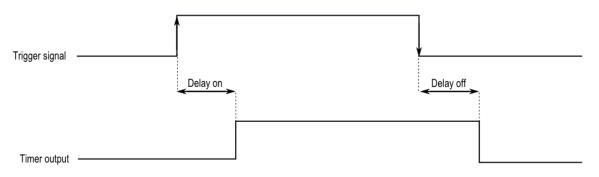
Wizard	□ ×
Add function Timer	
	Timer configuration
Wizard Steps Function name: (Fx) Root - Delay timer	
Timer configuration         Delay On (s)         Delay Off (s)	
Start signals	
Controlled output	
✓ Advanced     0 .	0 MM 0 SS





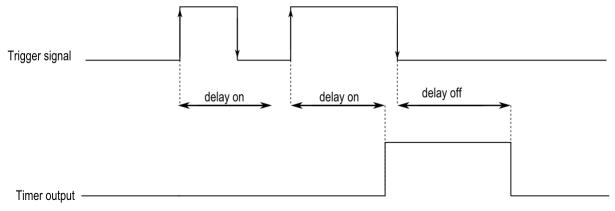
# Example 1:

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.



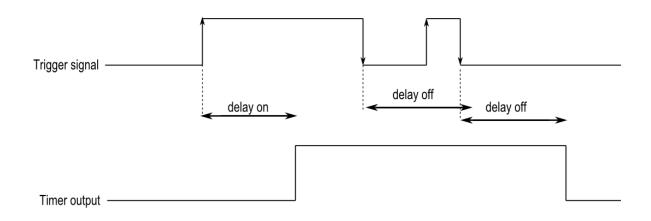
#### Example 2:

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).

Wizard	😽 Add Signal	
Add function Timer	Search	
	V Signals	V Functions
Wizard Steps Function name: (Fx) Ro	• 🗹 💽	1: Root Switch K11 Push 1
Timer configuration Signals Notes		2: Root Switch K11 Push 2
Start signals		3: Root Switch K11 Push 3
Stop signals Controlled output		4: Root Switch K11 Push 4
Controlled output ○ Advanced		(Fx) v1.ON-OFF status
		(Fx) v2.ON-OFF status
		(Fx) v3.ON-OFF status
		(Fx) Root - Light function.ON-OFF status
<<< >>>>	Input channels use 7 / 119	ed         Output channels used         Address         Consumption (mA)           6 / 111         3 / 250         16,5 / 450,0

The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

Wizard		□ ×
Add funct	tion Timer	
		Start signals
Wizard Steps	Function name: (Fx) Root - Delay timer	
Timer configuration	Signals Notes	
Start signals	1: Root Switch K11 Push 1	Available mode
<u>Stop signals</u>		
Controlled output		Inverted signal
Advanced		
		Signal settings Signal properties
	<<< >>>>	Cancel Confirm





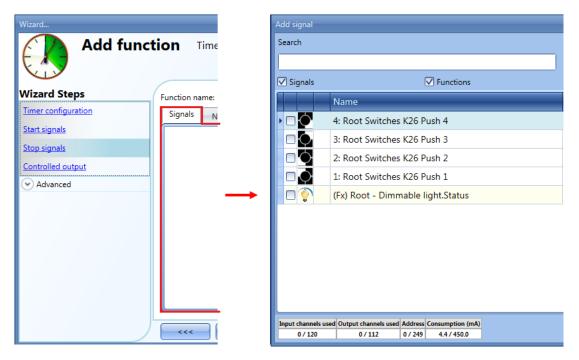
# 10.14 How to add the stop signal

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).

Wizard		□ ×
Add func	tion Timer	
		Stop signals
Wizard Steps	Function name: (Fx) Bedroom - Delay timer	
Timer configuration	Signals Notes	
Start signals	1: Root Switch K11 Push 1	Available mode
Stop signals		
Controlled output		Inverted signal
🕑 Advanced		
		Signal settings Signal properties
	<	Cancel Confirm





# 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.

Wizard	😽 Add Signal	
Add function Time	Search	
	🗸 Signals	V Functions
Wizard Steps Function Name: (	• 🗹 🔀	9: Root Relay module K5 Re 1
Timer configuration Signals Notes		10: Root Relay module K5 Re 2
Trigger signals		1: Re 1
Controlled outputs		2: Re 2
Advanced		3: Re 3
		4: Re 4
		5: Root Switch K6 Led 1
		6: Root Switch K6 Led 2
		7: Root Switch K6 Led 3
		8: Root Switch K6 Led 4
		5: Root Motion detectors K10 Led 1
		5: Root Switch K11 Led 1
		sed Output channels used Address Consumption (mA)
~~~	7 / 119	6 / 111 3 / 250 16,5 / 450,0

The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

Wizard		□ ×
Add funct	ion Timer	Controlled output
		controlled output
Wizard Steps	Function name: (Fx) Bedroom - Delay timer	
Timer configuration	Signals Notes	
Start signals	1: Root Relay module K5 Re1	Available mode
Stop signals	0.0	
Controlled output		Inverted signal
<ul> <li>Advanced</li> </ul>		
		Signal settings Signal properties
	<b>~~~</b>	Cancel Confirm

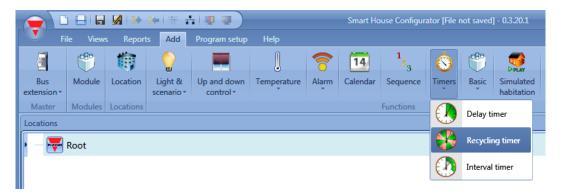




# 10.15 How to set a recycling timer function

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).

Wizard	×
Add func	tion Timer
	Timer configuration
Wizard Steps Timer configuration Trigger signals Stop signals	Function name: (Fx) Root - Recycling timer TOn TOff Options
Start/stop signals       Controlled output <ul> <li>Advanced</li> </ul>	O HH O MM O SS
	Disable 24 hr
	Cancel Confirm

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).

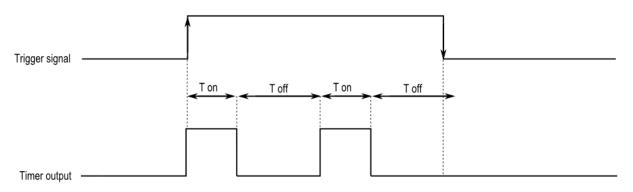




Wizard	
Add funct	tion Timer
Wizard Steps	Function name: (Fx) Root - Recycling timer
Timer configuration	TOn TOff Options
Start signals	
Stop signals	
Start/stop signals	
Controlled output	

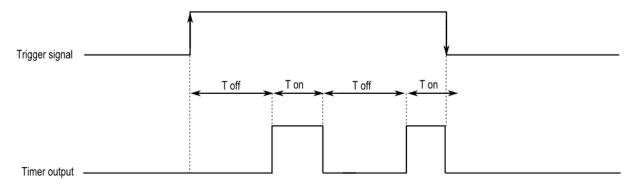
Example 1:

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).

Wizard		×
Add func	tion Timer	
		Start signals
Wizard Steps	Function name: (Fx) Root - Recycling timer	
Timer configuration	Signals Notes	
Start signals		
Stop signals		
Start/stop signals		
Controlled output		
<ul> <li>Advanced</li> </ul>		
		Signal settings Signal properties
	~~~ >>>	Cancel Confirm

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).

Wizard		×
Add func	tion Timer	
		Trigger signals
Wizard Steps	Function name: (Fx) Root - Recycling timer	
Timer configuration	Signals Notes	
Trigger signals	1: Kitchen cooker light K4 Push 1	Working mode
<u>Stop signals</u> Start/stop signals		0→1 1→0
Controlled output		
<ul> <li>Advanced</li> </ul>		Event type
		Signal settings Signal properties
	<<< >>>	Cancel Confirm

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.

	Event type			
Working mode				
0→1	As soon as the push button is pressed, the timer is started on the rising edge.	Withthiscombinationthesystemdoesnothing.	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.
1→0	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.
0→1 1→0	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:

	Event type			
orking mode	Signal activated	Signal deactivated		
0→1	The timer is started	No action		
1→0	No action	The timer is started		
0→1 1→0	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).

Wizard X			
		Stop signals	
Wizard Steps	Function name: (Fx) Root - Recycling timer Signals Notes		
Start signals Stop signals Start/stop signals Controlled output Advanced	Si Kitchen Wireless K4 Push 3	Working mode ○→1 1→0 P→2 Event type L Inverted signal ▼	
		Signal settings Signal properties Cancel Confirm	

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).

Wizard		×
Add func	tion Timer	Stop signals
Wizard Steps Timer configuration Trigger signals	Function name: (Fx) Root - Recycling timer Signals Notes	
Stop signals Start/stop signals Controlled output	1: Kitchen cooker light K4 Push 1	Working mode       0→1       1→0       1→1
(*) Advanced		Event type
		Inverted signal v Signal settings Signal properties
	<<< >>>>	Cancel Confirm





In the table below, all the possible activations of the stop signal are shown.

		Even	t type	
Working mode			Г	
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:

	Event type		
Vorking mode	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.

Wizard		×
Add func	tion Timer	
		Controlled output
Wizard Steps	Function name: (Fx) Root - Recycling timer	
Timer configuration	Signals Notes	
Start signals	1: House Wireless K3 Re 1	A
Stop signals		
Start/stop signals		
Controlled output		
🕑 Advanced		
	L	Signal settings Signal properties
	<<< >>>>	Cancel Confirm

The inverted logic for the input signal can be enabled by selecting the green V in *Inverted signal* (see picture below).

Wizard		×
Add fun	ction Timer	Controlled output
Wizard Steps	Function name: (Fx) Root - Recycling timer Signals Notes	
Trigger signals Stop signals Start/stop signals	1: House Wireless K3 Re 1	Available mode
Controlled output  Advanced		
		Signal settings Signal properties
		Cancel Confirm

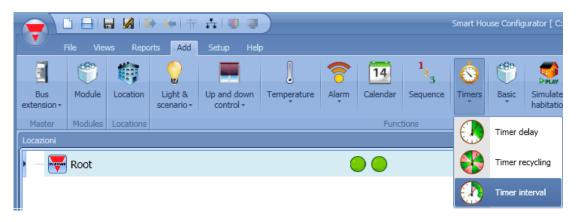




# **10.16** How to set an interval timer function

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.

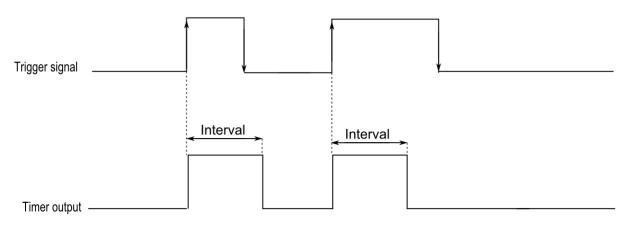
Wizard		
Add func	tion Timer	
		Timer configuration
Wizard Steps	Function Name: (Fx) Root - Interval timer	
Timer configuration	Interval	
Start signals		
Stop signals		
Controlled output		
Advanced	0 🖬 нн	0 MM 30 SS





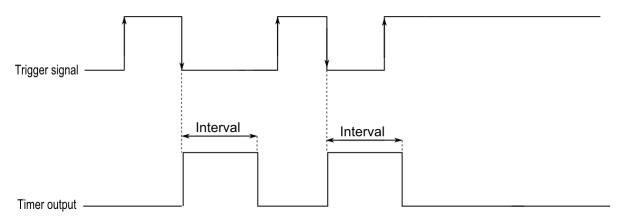
Example 1:

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.

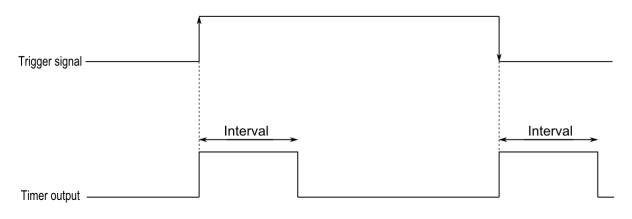






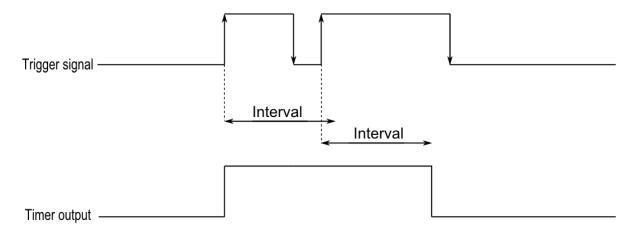
Example 3:

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).

Wizard	V Add Signal
Add function Timer	Search
	Signals Functions
Wizard Steps         Function Name:         (Fx) Root - Interva           Timer configuration         Signals         Numerical Steps	▶ 🗹 💽 1: Root Switch K5 Push 1
Signals Notes	2: Root Switch K5 Push 2
Stop signals	3: Root Switch K5 Push 3
Controlled output	4: Root Switch K5 Push 4
→ Advanced	1: Root Switch K8 Push 1
	2: Root Switch K8 Push 2
	3: Root Switch K8 Push 3
	4: Root Switch K8 Push 4
	1: Root Motion detectors K4 Pir 1
<	Input channels used         Output channels used         Address         Consumption (mA)           0 / 119         1 / 111         3 / 250         16,5 / 450,0

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).

Wizard			×
Add func	tion Timer		
		Start signals	
Wizard Steps	Function Name: (Fx) Root - Interval timer		
Timer configuration	Signals Notes		
Start signals	1: Root Switch K5 Push 1	Working mode	<b>^</b>
Stop signals		0→1 1→0	
Controlled output		<b>()</b>	
<ul> <li>Advanced</li> </ul>			
		Event Type	
			) =
		Inverted signal	
			-
		Signal Settings Signal Prope	rties
	<<< >>>>	Cancel	irm

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.

		Even	t type	
Working mode			Л	
0→1	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.
1→0	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
0→1 1→0	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:

	Event type		
Working mode	Signal activated	Signal deactivated	
0→1	The timer is started	No action	
1→0	No action	The timer is started	
0→1 1→0	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).

Wizard		×
Add func	tion Timer	Stop signals
Wizard Steps	Function name: (Fx) Root - Interval timer	
Timer configuration	Signals Notes	
Start signals	· · · ·	
Stop signals		
Controlled output		
✓ Advanced		
		Signal settings Signal properties
	L	Signal settings Signal properties
	<<< >>>>	Cancel

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).

Wizard Add func	tion Timer	×
		Stop signals
Wizard Steps Timer configuration	Function name: (Fx) Root - Interval timer	
Start signals	Signals Notes	Working mode
Stop signals Controlled output		0→1 1→0
Advanced		
		Event type
		Inverted signal     Signal settings     Signal properties
	<	Cancel Confirm





In the table below, all the possible activations of the stop signal are shown.

		Even	t type				
Working mode			Γ				
0→1	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.			
1→0	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			
0→1 1→0	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:

		Event type						
Working Signal activated mode		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					





# 10.16.3 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.

Wizard		×						
		Controlled output						
Wizard Steps	Function name: (Fx) Root - Interval timer							
Timer configuration	Signals Notes							
<u>Start signals</u>	1: House Wireless K3 Re 1							
Stop signals								
Controlled output								
<ul> <li>Advanced</li> </ul>								
		Signal settings Signal properties						
	<b>~~~</b>	Cancel Confirm						

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.

		×
Add func	ction Calendar	
14	Calendar options	
Wizard Steps	Function name: (Fx) Root - Calendar	
Calendar Calendar options	Use this calendar only with "Tilting blinds" functions	
Advanced	Use this calendar for level signals	
	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.





New activity	×
Activity name	example
From	12/8/2013 To 12/31/2013
Start	09:30 Stop 10:00
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>
	During time period
@ Start time	Confirm Cancel Delete

Once the external calendar function is created, the calendar must be linked to the other functions by using the advanced field *Functions*.

Wizard		Wizard	
Add funct	tion Lig	Add funct	tion Dimmable
Wizard Steps	Function nam	Wizard Steps	Function name: (Fx) R
On/off signals	Signals	On/Off dim signals (S1)	On/Off - Up/Down
Controlled outputs		Controlled output	
Feedback signals		Options	
Advanced		Feedback signals	
Luxsensor		Advanced	
Motion detectors		Energy save timer	
Energy save timer		Sequence A start/stop signals	
Local calendar		Sequence B start/stop signals	
Corridor light		Master Glass switch interface	
Disable automation		Local calendar     Functions	
Available output status		Corridor light	
Location		Disable automation	
â		Available output status	
		Location	
<b></b>	<<<		<<<

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.



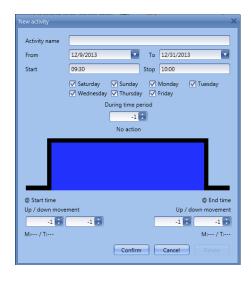


#### 10.17.2 How to use a global calendar in roller blind functions

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.

Edit funct	ion Calendar	,	¢.
14		Calendar options	
Wizard Steps	Function name: (Fx) Root - Calendar		
Calendar Calendar options	Use this calendar only with "Tilting blinds" functions		
<ul> <li>Advanced</li> </ul>	Use this calendar for level signals		
	Use this calendar for command and disable signals		



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.

New activity						×
Activity name			T (12)	31/2013		
From	12/9/2013		_		M	J
Start	07:00		Stop 22:	00		
	✓ Saturday ✓ Wednesday	✓ Sunday ✓ Thursday			🗸 Tuesday	
	Du	ring time pe	riod			
	(	-1				
		No action				
@ Start time					@ End tim	e
Up / down move				Up / d	own movemen	_
0 🕄	-1 🗧			100 🗧	50	
M:0% / T:				1	M:100% / T:509	6
		Confirm	Ca	ncel		

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.

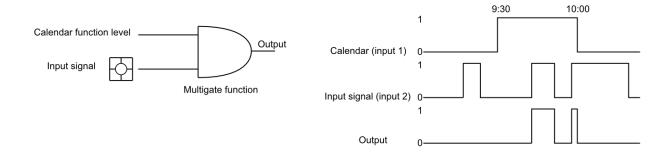
		×
Edit funct	<b>ion</b> Calendar	
14		Calendar options
Wizard Steps	Function name: (Fx) Root - Calendar	
Calendar Calendar options	Use this calendar only with "Tilting blinds" fun	ctions 🖌 🕅
Advanced	Use this calendar for level signals	
	Use this calendar for command and disable sig	inals 🖌 🏹

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.

New activity	×
Activity name	example
From	12/18/2013
То	12/31/2013
Start	09:30
Stop	10:00
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>Confirm</li> <li>Cancel</li> <li>Delete</li> </ul>

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).

Wizard								×
Add func	tion	Calendar						
14						Calenda	r	
Wizard Steps	Function Na	ame: (Fx) Cale	ndar example					
<u>Calendar</u>	♦ ♦	<b>.</b> Q	1 5 7 (	31 堝 🛛 🖂				
Calendar options		lun 14 gennaio	martedî 15 gen	mer 16 gen	gio 17 gennaio	ven 18 gennaio	sab 19 gennaio	dom 20 gen
Advanced	900							•
	1000							
	1100	4						) v
	1200							
	1300							T
		>>>					Cancel	Confirm

It is not necessary to go to a specific day of the calendar; the user can change the day in the activity window.

New activity	×
Activity name	example on
From	1/6/2014 To 12/31/2014
Start	09:30 Stop 10:00
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>
	During time period
@ Start time	@ End time -1 🔛 ?
	Confirm Cancel Delete

*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 start 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:

Wizard Add func	tion	Calendar						×
						Calenda	r	
Wizard Steps	Function No	anne. (Fx) Cale	idar example					
Calendar Calendar options		. 🖸 🔍 Q	1 5 7	31 😽 🛛 🖂				
Advanced	900	lun 14 gennaio	martedî 15 gen	mer 16 gen	gio 17 gennaio	ven 18 gennaio	sab 19 gennaio	dom 20 gen
	1000							
	11 <sup>00</sup>	•						P
	1200							
	1300							
		>>>					Cancel	Confirm

#### 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.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally.
6	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					Fu	nctions				
	ON/OFF light	Dimmabl e light	Intruder alarm	Roller blind	Window	Sequence	Car- heating	Playback	System temp.	Zone temp.
-1	No	No	No	No	No	No	No	No action	No	No
	action	action	action	action	action	action	action		action	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	

# **CARLO GAVAZZI** Automation Components



40		400/	100/	100/			
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
	ON						ON
66		66%	66%	66%	Start	Play	
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
94 95	ON	95%	94 %	94 % 95%	Start	Play	ON
95 96	ON	96%	95%	95% 96%	Start	Play	ON
96 97	ON	97%	96%	96% 97%	Start		ON ON
31		31/0	31/0	31/0	Jian	Play	

# **CARLO GAVAZZI** Automation Components



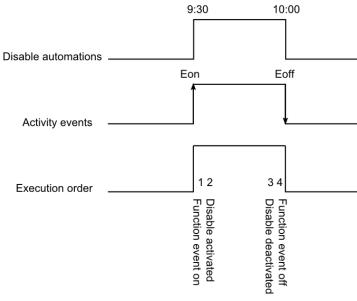
98	ON	98%	98%	98%	Start	Play	ON	
99	ON	99%	99%	99%	Start	Play	ON	
100	ON	100%	100%	100%	Start	Play	ON	

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).

		Functions	Value		×
Edit functio	Falls favorabel	Light	Light on	×	
Edit functio	Edit - [example]	Dimmer	Set 50%	^	
14		Constant Light	Set 50 lux		
	Activity name	Rollerblinds	Set 50%		
		Rollerblinds	Set 50%		
Wizard Steps	From	Window control function	Set 50%	12/31/2013	
		Zone temperature	Setpoint 3		
Calendar	Start	Heating system temp. function	Enable heating	10:00	
		Cooling system temp. function			
Calendar options		Zone intruder alarm		Vonday 🗹 Tuesday	iday, Dec 13 Sat, Dec 14
✓ Advanced		Main intruder alarm		riday	
		Smoke alarm	Alarm		
		Water alarm	Alarm		
		Alarm siren	Siren on		🔁 еха 🔀 еха
		Sequence			
		Dimmer sequence	Set 50%		
		Timer delay	Timer ON		
		Timer recycling	Timer ON		
		Timer interval	Timer ON		U
		Gate function	On		
		Analogue comparator	50		
		Simulated habitation	Play		
	@ Start time	Car heating	Play	@ End time	
	50 🖨	7		0 🕀 💡	
		Co	nfirm	Cancel Delete	<b>▼</b> /
	<<< >>>				Confirm
	~~		_		Contirm

### 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 1<sup>st</sup> August and finish on 1<sup>st</sup> March.

	Next							Current													
Aug Sep	Aug	A	Jul	Jun	May	Apr	Mar	Feb	Jan	Dec	Nov	Oct	Sep	Aug	Jul	Jun	May	Apr	Mar	Feb	Jan
	A		Jul	Jun	Мау	Apr	Mar	Feb	Jan	Dec	Nov	Oct	Sep	Aug	Jul	Jun	Мау	Apr	Mar	Feb	Jan

Both activities are set with the same actions at start/end time; the only difference is the date: the first activity will start on 1<sup>st</sup> August and end on 31<sup>st</sup> December, the second activity will start on 1<sup>st</sup> January and end on 1<sup>st</sup> March.

					Cur	rent						Next											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
V											T												
Calendar 1									C	alenda	ar 2												

Once configured, the calendar must be added in the field *Function* of the function that has to be automated (see picture below).

Wizard		×
🔼 Edit Fun	ction Dimmable light	
		Functions
Wizard Steps	Function Name: (Fx) Root - Dimmable light	
Controlled output	Signals Notes 14 (Fx) Calendar 1.Status	Available mode
Options Feedback signals	(Fx) Calendar 2.Status	14 Inverted signal
Advanced  Functions		
		Signal Settings Signal Properties
	<	Confirm





### 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 1<sup>st</sup> January to 31<sup>st</sup> August 2013. The green edges indicate that an action is present both at the start and end time.

New activity	×
Activity name	
From	1/1/2013 To 8/31/2013
Start	07:00 Stop 12:30
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>During time period</li> <li>-1 : ?</li> </ul>
@ Start time	@ End time 0 💽 ? Confirm Cancel Delete

The calendar will automatically be updated to 2014 the following year and so on so forth.



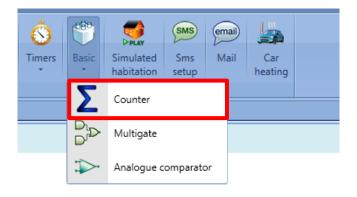


# 10.18 How to configure a counter function

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).



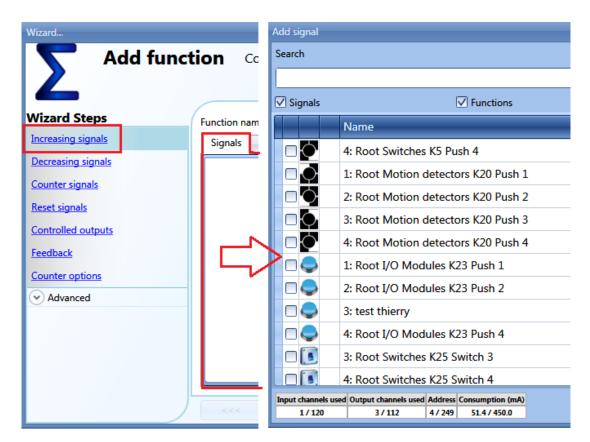
### 10.18.1 How to add the increasing input

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.

# **CARLO GAVAZZI** Automation Components





#### 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.

Wizard		□ ×
C Add func	tion Counter function	
4		Increasing signals
Wizard Steps Increasing signals Decreasing signals Counter signals Reset signals	Function name: (Fx) Root - Counter function Signals Notes 1: Root Switches K4 Push 1	Working mode
Controlled outputs Feedback Counter options Controlled Advanced		Rise action   d5 :::     Action on short pressure   1 ::
		Action on very long pressure 1 Inverted signal Signal settings Signal properties
	<<< >>>>	Cancel Confirm

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).

Wizard		
C Edit funct	tion Counter function	
		Increasing signals
Wizard Steps	Function name: (Fx) Root - Counter function	
Increasing signals	Signals Notes	
Decreasing signals Counter signals Reset signals Controlled outputs Feedback Counter options   Advanced	4: Root Switches K25 Switch 4         2: Ex) Root - Light function.Status	Available mode
		Signal settings Signal properties
	<<< <b>&gt;&gt;&gt;</b>	Confirm





#### 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.

Wizard		Add signal						
Add funct	t <b>ion</b> Cour	Search						
		✓ Signals	✓ Functions					
Wizard Steps	Function name:		Name					
Increasing signals Decreasing signals	Signals No		4: Root Switches K5 Push 4					
Counter signals			1: Root Motion detectors K20 Push 1					
Reset signals			2: Root Motion detectors K20 Push 2					
Controlled outputs			3: Root Motion detectors K20 Push 3					
Feedback		⋗⊓ᢓ	4: Root Motion detectors K20 Push 4					
Counter options			1: Root I/O Modules K23 Push 1					
✓ Advanced			2: Root I/O Modules K23 Push 2					
			3: test thierry					
			4: Root I/O Modules K23 Push 4					
			3: Root Switches K25 Switch 3					
			4: Root Switches K25 Switch 4					
	<b>~~~</b>	Input channels u 1 / 120	used         Output channels used         Address         Consumption (mA)           3 / 112         4 / 249         51.4 / 450.0					

#### 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.

Wizard		
<b>Edit funct</b>	tion Counter function	
		Decreasing signals
Wizard Steps	Function name: (Fx) Root - Counter function	
Increasing signals	Signals Notes	
Decreasing signals	2: Root Switches K4 Push 2	Available mode
Counter signals		
Reset signals		Working mode
Controlled outputs Feedback		
Counter options		Rise action 0.1
<ul> <li>Advanced</li> </ul>		Action on short pressure
		Action on very long pressure
		Inverted signal
		Signal settings
	<u>S</u>	
	<	Confirm





#### 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.

Wizard		Add signal						
C Edit funct	ion Cour	Search						
		✓ Signals         ✓ Functions						
Wizard Steps	Function name:	Name						
Increasing signals	Signals N	▶ ♥ III Root Switches K2 Pulses 1						
Decreasing signals	) 🔤 1: Root	🛛 💷 🛕 2: Root Switches K2 Pulses 2						
Counter signals Reset signals	2: Root	3: Root Switches K2 Pulses 3						
Controlled outputs		4: Root Switches K2 Pulses 4						
Feedback		5: Root Motion detectors K3 Luxmeter 1						
Counter options	$\square$	> 🗌 🐵 1: Root Relay module K4 kWh 1						
✓ Advanced		2: Root Relay module K4 Wdmd 1						
Digital signals		3: Root Relay module K4 Watt 1						
Functions		4: Root Relay module K4 VA 1						
		5: Root Relay module K4 var 1						
		6: Root Relay module K4 Ampere 1						
	<<< (	Input channels used         Output channels used         Address         Consumption (mA)           2 / 120         0 / 112         2 / 249         5.2 / 450.0						

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.





Wizard		□ ×
C Edit func	tion Counter function	
		Counter signals
Wizard Steps	Function name: (Fx) Root - Counter function	
Increasing signals	Signals Notes	
Decreasing signals	1: Counter1	Source details
Counter signals	2: Counter 2	K2 SH2INDI424
Reset signals		Point digit
Controlled outputs		0.1 0.01 0.001
Feedback		Pulses weight
Counter options		10 📄
<ul> <li>Advanced</li> </ul>		Unit of measure
Digital signals		Number
Functions		Apply to all
		Signal settings Signal properties
	<	Confirm

#### 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).

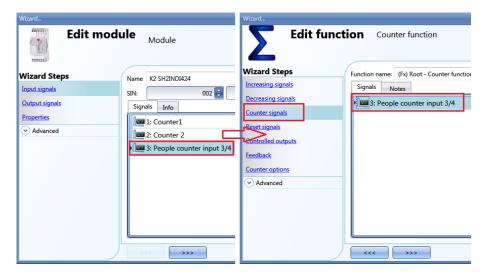




Wizard Edit modu	Module	× =
	Properties	
Wizard Steps	ame K2 SH2INDI424	
Input signals	N: 002 🕄 119 🗧 250 🗧 Su	ubnet Net 1 🔽
Output signals	roperties Info	
Properties		
<ul> <li>Advanced</li> </ul>	Autocount function active on Ch1/Ch2	
	Autocount function active on Ch3/Ch4	
	ncremental counting direction (Ch1-Ch2) CH1 CH2	
	ncremental counting direction (Ch3-Ch4) CH3 CH4	
	Autocount timeout (s) 5 🗄	
	***	Confirm

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.



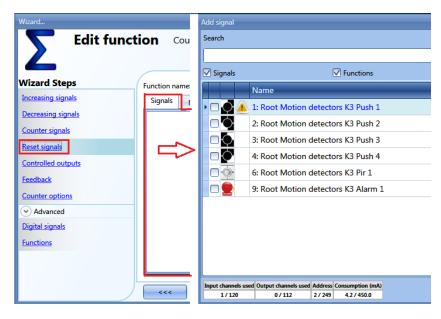




### 10.18.5 How to reset the counting value

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.





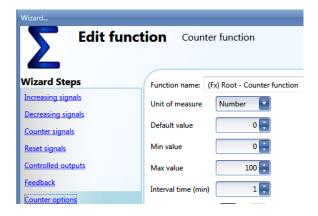
#### 10.18.6 How to add an analogue output signal

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.

Wizard		Add signal	
C Edit funct	ion Counter fu	Search	
		Signals	✓ Functions
Wizard Steps	Function name: (Fx) F		Name
Increasing signals	Signals Notes	• 🗆 🕪	1: Root Analogue output K10 Analogue 0-10 1
Decreasing signals Counter signals			2: Root Analogue output K10 Analogue 0-10 2
Reset signals			
Controlled outputs			
Feedback	$  \square >$		
Counter options	-		
✓ Advanced			
Digital signals			
<u>Functions</u>			
		Input chappels	sed Output channels used Address Consumption (mA)
	<<< >>>	4 / 120	2/112 3/249 7.2/450.0

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.

Wizard		Add signal
Edit funct	counter function	Search
		Signals Signals
Wizard Steps	Function name: (Fx) Root - Counte	Name
Increasing signals	Signals Notes	10: Root Motion detectors K3 Led 1
Decreasing signals		5: Root Switches K13 Led 1
Counter signals		6: Root Switches K13 Led 2
Reset signals		7: Root Switches K13 Led 3
Controlled outputs		8: Root Switches K13 Led 4
Feedback		1: Root Relay module K14 Re 1
Counter options  Advanced		2: Root Relay module K14 Re 2
Digital signals		3: Root Relay module K14 Re 3
Functions		4: Root Relay module K14 Re 4
	Threshold 50 💽	
	<<< >>>>	Input channels used Output channels used Address Consumption (mA) 2 / 120 0 / 112 2 / 249 7.6 / 450.0

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).

Wizard	
Edit funct	Counter function
Wizard Steps	Function name: (Fx) Root - Counter function
Increasing signals	Unit of measure Number
Decreasing signals	
Counter signals	Reset value 0, 📑
Reset signals	Min value 0
Controlled outputs	Max value 100000
Feedback	Delta time (min) 15
Counter options	
Advanced	Enable roll-over
Reset signals Controlled outputs Feedback Counter options	Max value

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 Delta time - Counter Delta time-1



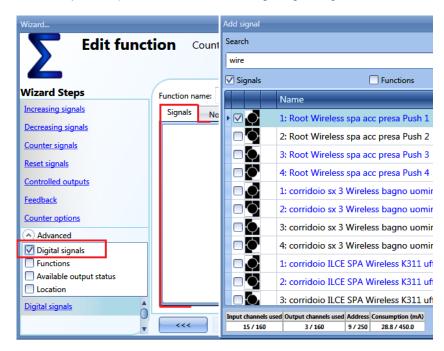


This is also the value logged if the *Delta time* is not zero. If *Delta time* is set to 0, no delta calculation is made.

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.

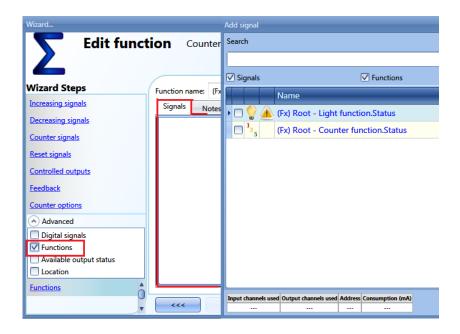
Wizard		
Edit func	tion Counter function	Digital signals
		Bigrai signais
Wizard Steps	Function name: (Fx) Root - Counter function	
Increasing signals	Signals Notes	
Decreasing signals	1: Root Switches K15 Switch 1	Available mode
Counter signals	3: Root Motion detectors K3 Push 3	
Reset signals		Value on signal activation
Controlled outputs		1
Feedback		Value on signal de-activation
Counter options		0
Advanced		
Digital signals		
		Signal settings Signal properties
	<<< >>>>	Confirm





#### 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 Delta time - Counter 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.

# **CARLO GAVAZZI** Automation Components



Α	В	С	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.

Bus generators •	Module	Location	Light & scenario *	Up and down control •	J Temperature	Alarm	14 Calendar	1 <sub>2</sub> 3 Sequence	123 Dimmer sequence	S Timers	Basic	Simulated habitation	Sms Setup	email Mail
Master	Modules	Locations		Functions							Counter			
Locations							Multigate							
	🚮 Hoi							Analogue comparator			ır			

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).

Wizard				×
Dr Add fund	tion Multigate			
			Gate function	
Wizard Steps	Function name: (Fx) Root - Mu	ltigate		
Gate function				
Input signals				
Output signals				
Advanced	AND	NOT	NAND	
	OR	XOR	NOR	
	51	lion		
			(	
	<<< >>>>>			Cancel Confirm

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

Sx tool manual





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.

Wizard	😽 Add Signal
Add function Multigate	Search
	Signals Signals
Vizard Steps Function Name: (Fx) Root - ML Logic Type	• 🗹 💽 1: Root Switch K8 Push 1
Signals Notes	2: Root Switch K8 Push 2
Output	3: Root Switch K8 Push 3
→ Advanced	4: Root Switch K8 Push 4
	(Fx) R.ON-OFF status
	(Fx) G.ON-OFF status
	(Fx) B.ON-OFF status
	(Fx) Root - Light function.ON-OFF status
<	Input channels used         Output channels used         Address         Consumption (mA)           5 / 119         3 / 111         3 / 250         16,5 / 450,0

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.

Wizard	×
Add function Multigate	
	Input signals
Wizard Steps         Function Name:         (Fx) Root - Multigate           Logic Type         Signals         Notes	Ausilable mede
Input signals         Output <ul> <li>Advanced</li> <li>I: Root Switch K8 Push 1</li> <li>(Fx) R.ON-OFF status</li> </ul>	Available mode
~~~ >>>	Cancel Confirm





## 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.

Wizard	V Add Signal
Edit Function Multigate	Search
Wizard Steps	Signals 🗸 Functions
	▶ 🗹 🛁 9: Root Relay module K6 Re 1
Input signals Notes	10: Root Relay module K6 Re 2
Output	2: Root Cabinet module K7 Re 2
Advanced	3: Root Cabinet module K7 Re 3
	4: Root Cabinet module K7 Re 4
	5: Root Motion detectors K4 Led 1
	S: Root Switch K5 Led 1
	6: Root Switch K5 Led 2
	7: Root Switch K5 Led 3
	8: Root Switch K5 Led 4
	5: Root Switch K8 Led 1
	6: Root Switch K8 Led 2
	Input channels used         Output channels used         Address         Consumption (mA)           6 / 119         3 / 111         4 / 250         16.5 / 450.0

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).

Wizard		×
D <sub>L</sub> Edit Fund	ction Multigate	
		Output
Wizard Steps	Function Name: (Fx) Root - Multigate	
Input signals	Signals Notes 5: Root Motion detectors K4 Led 1	Available mode
Output	5: Root Switch K5 Led 1	N.
(v) Advanced	9: Root Relay module K6 Re 1	Inverted signal
		Signal Settings Signal Properties
	~~~ >>>	Confirm





#### 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.

Wizard			
D <sub>L</sub> Edit Fund	ction Multigate	9	
			Logic Type
Wizard Steps	Function Name: (Fx) Ro	ot - Multigate	
Logic Type Input signals			
Output			
Advanced			

In the *Input signals* step, the user has to add the two light functions.

Wizard		×
Du Edit Fun	ction Multigate	
		Input signals
Wizard Steps	Function Name: (Fx) Root - Multigate	
Logic Type	Signals Notes	
Input signals	(Fx) kitchen - Light function.ON-OFF st	tatus Available mode
Output	(Fx) Hall - Light function.ON-OFF statu	IS 🖉
✓ Advanced		Inverted signal

In the Output signals step, the user has to add the LED signal.

Wizard		×
D Edit Fund	ction Multigate	
		Output
Wizard Steps	Function Name: (Fx) Root - Multigate	
Logic Type	Signals Notes	
Input signals	5: Root Switch K5 Led 1	Available mode
Output		
<ul> <li>Advanced</li> </ul>		Inverted 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).

File Views Reports Add Setup Help											
1	٢	<b>I</b>			l	8	14	1 <mark>2</mark> 3	Š		
Bus extension <del>-</del>	Module	Location	Light & scenario <del>•</del>	Up and down control <del>-</del>	Temperature	Alarm	Calendar	Sequence	Timer	Basic	Simulated habitation
Master	Modules	Locations					Fund	tions			oporter

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**.

Wizard		Add signal
Add funct	ion Simulated habitation	Search
Wizard Steps         Play/stop signals         Functions to playback         Feedback signals         • Advanced	Function name: (Fx) Root - Simulated habitation Signals Notes	Signals       ✓ Functions         Provide the second s
	<	Input channels used Output channels used Address Consumption (mA)





Other types of signals (e.g. relays, push buttons), will not be recorded.

Wizard		•
Add functi	on Simulated habitation	
PLAY		Functions to playback
Wizard Steps	Function name: (Fx) House - Simulated habita	ition
Play/stop signals	Signals Notes	
Functions to playback	2: 1: ROOL Roley K3 Re 1	Available mode
Feedback signals	1. Post Relay module K5 Re2	
<ul> <li>Advanced</li> </ul>		
		Signal settings Signal properties
	<<< >>>>	Cancel Confirm

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 2				
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
12:00 Write configuration	10:00 light on T1:30 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	14:00 light on	17:00 light on 21:00 light off		18:00 light on 23:00 light off	3:00 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).

Wizard	Wizard
Edit function Simulated habitation	Edit function Simulated habitation
Wizard Steps     Function name: (Fx) Root - Simulated       Play/stop signals     Signals       V< Advanced     Notes	Wizard Steps Play/stop signals Functions to playback Feedback signals ♥ Advanced Function name: (Fx) Root - Simulated habitation Signals Notes 1: Root Switches K2 Push 1 (<<<>>>>

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

Wizard		
Edit funct	tion Simulated habitation	
PLAY		Play/stop signals
Wizard Steps Play/stop signals	Function name: (Fx) Root - Simulated habitation Signals Notes	
Functions to playback Feedback signals	Notes	Available mode         Image: Signal settings
		Confirm





If a push button type is selected, the way of working has to be selected according to the table below.

	Event type				
Working mode	Ĺ		П		
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.				

In the Signals window the user may select a function status as a input signal from the list (see picture below). When the function status is added, the user should select the working mode as shown in the picture below:

Wizard		
Edit funct	ion Simulated habitation	Play/stop signals
Wizard Steps Play/stop signals Functions to playback	Function name: (Fx) Root - Simulated habitation Signals Notes	Available mode
Feedback signals	Y 🖌 (Fx) Root - Light.Status	Vorking mode         O→1         I→0         Imported signal         Inverted signal         Imported signal
	<	Confirm





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

	Even	t type	
Working mode	Rising Edge	Falling Edge	
0→1	The simulated habitation is played on rising edge of the input signal	No action	
1→0	No action	The simulated habitation is stopped on falling edge of the input signal	
0→1 1→0	The simulated habitation is played on the first rising edge of the input signal, the simulated habitation is stopped on the second rising edge of the input signal	No action	
	The simulated habitation is played on rising edge of the input signal. The simulated habitation is stopped on falling edge of the input signal		
	The status of the simulated habitation (play/stop) is changed at every change of the input signal		

The user can also choose to invert the signal by selecting the green *V* below *Inverted signal*, in the Signal Setting tab window. If *Inverted* is enabled, the following table applies:

	Even	Event type		
Working mode	Rising Edge	Falling Edge		
0→1	No action	The simulated habitation is played on falling edge of the input signal		
1→0	The simulated habitation is stopped on rising edge of the input signal	No action		
0→1 1→0	No action	The simulated habitation is played on the first falling edge of the input signal, the simulated habitation is stopped on the second falling edge of the input signal		
	The simulated habitation is stopped on rising edge of the input signal. The simulated habitation is played on falling edge of the input signal			
	The status of the simulated habitation (play/stop) is changed at every change of the input signal			





#### 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.

Wizard		Wizard	
Edit funct	ion Simulated habitation	Edit funct	tion Simulated habitation
Wizard Steps	Function name: (Fx) Root - Simulated	Wizard Steps	Function name: (Fx) Root - Simulated
Play/stop signals	Signals Notes	Play/stop signals	Signals Notes
Functions to playback		Functions to playback	5: Root Switches K2 Led 1
Feedback signals		Feedback signals	
<ul> <li>Advanced</li> </ul>		<ul> <li>Advanced</li> </ul>	
	$ \longrightarrow $		
	<<< >>>		<<< >>>>

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.

Edit fun	ction Simulated habitation	
PLAY		Feedback signals
Wizard Steps Play/stop signals	Function name: (Fx) Root - Simulated habitation	
Functions to playback Feedback signals  Advanced	5: Root Switches K2 Led 1	Available mode
		Signal settings Signal properties  Confirm





## 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).

Wizard							×
Edit funct	<b>tion</b> Simul	lated habitation		I	ocal calen	dar	
Wizard Steps	Function name:	(Fx) Root - Simulated ha	bitation				
Play/stop signals		2, 2,   1 5 7	31 👸 🛛 🖂				
Functions to playback	Sun, M	March 30 Mon, Mar 31	Tue, April 01	Wed, April 02	Thu, April 03	Friday, Apr 04	Sat, April 05
Feedback signals	900						•
Advanced  Local calendar							
	<b>10</b> <sup>00</sup>						
	1100						Ð
	12 <sup>PM</sup>						
	« nn	>>>	1				Confirm

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

| 📀 📀 🔍 🔍 | 1 5 7 31 🖏 | 😆

Tool bar icons:

$\bigcirc$	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.			
$\bigcirc$	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.				
e)	Magnifying lens to see more/fewer time bands.			
1	The calendar visualizes one day horizontally.			
5	The calendar visualizes 5 days horizontally.			
7	The calendar visualizes 7 days horizontally			
31	The calendar visualizes 31 days horizontally.			
Ð	The calendar visualizes 7 days vertically.			
a de la compañía de la	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:

New activity	×
Activity name	
From	3/30/2014 To 12/31/2014
Start	09:00 Stop 09:30
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> <li>During time period</li> <li>-1</li> <li>No action</li> </ul>
@ Start time -1 🗬 No action	@ End time -1 💽 No action
	Confirm Cancel Delete

*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 2<sup>nd</sup> April.





New activity	×
Activity name	example
From	4/2/2014 To 4/11/2014
Start	09:00 Stop 09:30
	✓ Saturday ✓ Sunday ✓ Monday ✓ Tuesday ✓ Wednesday ✓ Thursday ✓ Friday
	During time period
@ Start time 1 💽 Play	@ End time 0 😭 Stop
	Confirm Cancel Delete

### 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 *Light 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):

Wizard		Wizard	
Edit funct	ion Simulated habitation	Edit funct	tion Simulated habitation
Wizard Steps	Function name: (Fx) Root - Simulated	Wizard Steps	Function name: (Fx) Root - Simulated
Play/stop signals	Signals Notes	Play/stop signals	Signals Notes
Functions to playback		Functions to playback	(Fx) Root - Calendar.Status
Feedback signals		Feedback signals	
Advanced		<ul> <li>Advanced</li> </ul>	
Local calendar		Functions	
Functions Disable automation			
Available output status		·	
Location			
Functions			
	<<< >>>>		<b>~~~</b>

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).

Wizard		Wizard	
Edit funct	tion Simulated habitation	Edit funct	tion Simulated habitation
Wizard Steps	Function name: (Fx) Root - Simulated habitati	Wizard Steps	Function name: (Fx) Root - Simulated
<u>Play/stop signals</u>	Signals Notes	Play/stop signals	Signals Notes
Functions to playback		Functions to playback	2: Root Switches K2 Push 2
Feedback signals		Feedback signals	
Advanced		✓ Advanced	
Local calendar		Disable automation	
Functions		Force play	
Disable automation     Available output status	→	Force stop	
Location			
Disable automation			
Force play			
Force stop			
	Disable timeout (min) 0 🗐		Disable timeout (min) 0 😜
	<<< >>>>		<

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

Wizard		×
Edit func	tion Simulated habitation	
PLAY		Disable automation
Wizard Steps	Function name: (Fx) Root - Simulated habitation	
Play/stop signals	Signals Notes	
Functions to playback	2: Root Switches K2 Push 2	Available mode
Feedback signals		
🕑 Advanced		Working mode
Disable automation		0→1 1→0
Force play		
Force stop		
		Event type
		Signal settings Signal properties
	Disable timeout (min) 0 🕄	
	<	Confirm

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

# **CARLO GAVAZZI** Automation Components



Working	Event type			
mode				
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.
<mark>toggle Pterstand</mark>	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		be disabled/enabled in t again when the push bu	oggle mode when the p tton is released.	ush button is

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

Working	Event type		
mode	Signal activated	Signal deactivated	
0→1	The automations are disabled	No action	
Switch on			
event			
1→0	The automations are enabled	No action	
Switch off			
event			
0→1 1→0	The automations are disabled/enabled in	No action	
Event	toggle mode		
toggle			
	The automations are disabled/enabled in	The automations are disabled/enabled in	
Level	toggle mode	toggle mode	
signal			

If the user needs to be sure that the disabling of the automation is automatically removed, the *disable automation timer* has to be set.





Disable Timeout (min) 10 🗧
<<< >>>>

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).

Wizard		\$
Edit func	tion Simulated habitation	
PLAY		Force play
Wizard Steps Play/stop signals Functions to playback Feedback signals	Function name: (Fx) Root - Simulated habitation Signals Notes Notes 3: Root Switches K2 Push 3	Available mode
		Signal settings Signal properties

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).

Wizard		×
Edit fund	tion Simulated habitation	
PLAY		Force stop
Wizard Steps	Function name: (Fx) Root - Simulated habitation	
Play/stop signals	Signals Notes	
Functions to playback	4: Root Switches K2 Push 4	Available mode
Feedback signals	_	
V Advanced	_	Inverted signal
Disable automation		
Force play		
Force stop		
		Signal settings Signal properties
		Confirm

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).

Wizard	V Add signal	
1 Add function Sequence	Search ion Sequence	
<sup>2</sup> 3		tart/stop signals
Wizard Steps Function name: (Fx) F	✓ Signals     ✓ Functions     Function name: (fx) Root - Sequence	
Start/stop signals Signals Notes	Name         Function name         (rx) Noot - Sequence           Image: Signals         Notes         Signals         Notes	
Start/pause signals	2: Kitchen Oven K4 Push 2	Working mode
Sequence functions Feedback signals	S: Kitchen Wireless K4 Push 3	0→1 1→0
Advanced	4: Kitchen Wireless K4 Push 4	
	I: Studio dimming On/Up      Z: Studio dimming Off/Down	Event type =
	3: Studio dimming ON/Off Up/DONN	
	4: Studio Alarm arming	
	1: Bedroom rol UP K22 Push 1     2: Bedroom rol DOWN K22 Push 2	Inverted signal
	3: Bedroom bedside light K22 Push 3	Signal settings Signal properties
	Input channels used         Output channels used         Address         Consumption (mA)           4 / 160         1 / 160         2 / 250         6 .4 / 450.0         >>>>	Cancel Confirm

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:

	Event type			
Working mode			П	
mode	Event when push	Event when push	Event with long	Event with very
	button pressed	button released	pressure	long pressure
0→1	As soon as the push button is pressed,	After a short press (less than 1 second),	After a long press, the sequence is	After a very long press, the
	the sequence is	the sequence is	started at the release	sequence is
	started.	started at the release	of the push button.	started at the
		of the push button.		release of the
		•		push button.
1→0	As soon as the push button is pressed,	After a short press (less than 1 second),	After a long press, the sequence is	After a very long press, the
	the sequence is	the sequence is	stopped at the	sequence is
	stopped.	stopped at the	release of the push	stopped at the
	Stopped.	release of the push	button.	release of the
		button.	Suton.	push button.
0→1 1→0	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1 second),	the sequence will be	press, the
	the sequence will be	the sequence will be	started/stopped in	sequence will be
	started/stopped in	started/stopped in	toggle mode at the	started/stopped in
	toggle mode.	toggle mode at the	release of the push	toggle mode at the
		release of the push	button.	release of the
-	<b>-</b>	button.		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:

	Event type		
Working mode	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	





## 10.21.2 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).

		×
1 Add func	tion Sequence	
<b>4</b> 3		Start/pause signals
Wizard Steps Start/stop signals	Function name: (Fx) Root - Sequence	
Start/pause signals Sequence functions Feedback signals	Signals Notes	Working mode       0→1       1→0       0→1
		Inverted signal Signal settings Signal properties

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:

		Event	type	
Working				
mode	Event when push	Event when push	Event with long	Event with very
	button pressed	button released	pressure	long pressure
0→1	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1 second),	the sequence is	press, the
	the sequence is	the sequence is	started at the release	sequence is
	started.	started at the release	of the push button.	started at the
		of the push button.		release of the
				push button.
1→0	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1 second),	the sequence is	press, the
	the sequence is	the sequence is	paused at the	sequence is
	paused.	paused at the	release of the push	paused at the
		release of the push	button.	release of the
		button.		push button.
0→1 1→0	As soon as the push	After a short press	After a long press,	After a very long
	button is pressed,	(less than 1 second),	the sequence will be	press, the
	the sequence will be	the sequence will be	started/ paused in	sequence will be
	started/paused in	started/ paused in	toggle mode at the	started/ paused in
	toggle mode.	toggle mode at the	release of the push	toggle mode at the
		release of the push	button.	release of the
		button.		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:

	Even	t type
Working mode	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

### 10.21.3 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).

Wizard		
1 Edit funct	ion Sequence	
3		Controlled outputs
Wizard Steps	Function name: (Fx) Root - Sequence	
Start/stop signals	Signals Notes	
Start/pause signals	🔺 Name Pu	Ilse weight Hours Min Seco
Sequence functions		
Feedback signals		
✓ Advanced		
	Auto cycle sequence V Recycle delay (s)	Enable energy save of the functions 💙 🔀
	<<< >>>>	Confirm

*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).





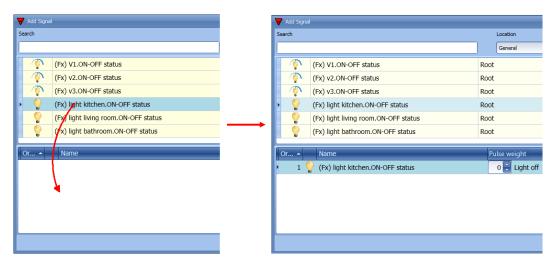
*Recycle delay (s):* It is the delay (in seconds) between two repetitions of the sequence if the recycling option is enabled.

*Enable energy save of the functions*: 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.





## 10.21.4 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).

₹	Add Si	Signal						-	- 🗆 X
Se	arch				Location				
					General				
	Ŷ	2	(Fx) V1.ON-OFF status	Root					
	Ŷ		(Fx) v2.ON-OFF status	Root					
Þ	ୄୖ		(Fx) v3.ON-OFF status	Root					
			(Fx) light kitchen.ON-OFF status	Root					
			(Fx) light living room.ON-OFF status	Root					
		)	(Fx) light bathroom.ON-OFF status	Root					
	Dr 🔺		Name	P	ılse weight	Hours	Min	Seco	
		1 🧐	(Fx) light kitchen.ON-OFF status		0 🚽 Light off	0013	0		
×	2	2 🐧	(Fx) v3.ON-OFF status		20 딎 Set 20%	0	0	0	
									<b>S</b>
						E	Cancel	Con	firm

The user can also change the action of the function in the sequence functions window.

Wizard				×
1 Edit Fund	ction Sequence			
<b>4</b> 3		Controlled o	outputs	
Wizard Steps	Function Name: (Fx) example			
Start/stop signals	Signals Notes			
Sequence functions	O. 🔺 Name	Pulse weight	lours Min Seco	
Feedback signals	1 🂡 (Fx) light kitchen.ON-OFF status	0 🗧 Light off	0 0 0	
Advanced	<ul> <li>2 (Fx) v3.ON-OFF status</li> </ul>	20 🗧 Set 20%	0 0 0	-
	Sequence Reset 💙 🐹		Sequence Recycle 💊	🛯 🗶 )
	<		E	Confirm





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
0	- 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.

Or ~     Name     Pulse weight     Hours     Min     Seco       1     1     (Fx) light 1.0N-OFF status     1     Light on     0     0       2     1     (Fx) light 2.0N-OFF status     1     Light on     0     0			
2 <ul> <li>(Fx) light 2.ON-OFF status</li> <li>0</li> <li>Light off</li> <li>0</li> <li>0</li> <li>Light off</li> <li>0</li> <li0< li=""></li0<></ul>	Or 🔺 Name	Pulse weight	Hours Min Seco
3               (Fx) light .ON-OFF status                0                0           0	1 💡 (Fx) light 1.ON-OFF status	0 🗧 Light off	0 0 0
Or •       Name       Pulse weight       Hours       Min       Seco       Image: Second se	2 💡 (Fx) light 2.ON-OFF status	0 🗧 Light off	0 0 0 😾
Or       Name       Pulse weight       Hours       Min       Seco       Image: Second seco	3 🂡 (Fx) light .ON-OFF status	0 🗧 Light off	0 0 0
Or       Name       Pulse weight       Hours       Min       Seco         1			
Or • Name       Pulse weight       Hours       Min       Seco         1			
Or • Name       Pulse weight       Hours       Min       Seco         1			
1               (Fx) light 1.ON-OFF status                1 = Light on               0 = 0                      0               0               0               0               0               0                  0                0                  0                    0                0                0                0                0                0                0                0			Cancel Confirm
1               (Fx) light 1.ON-OFF status                1 = Light on               0 = 0                      0               0               0               0               0               0                  0                0                  0                    0                0                0                0                0                0                0                0		<b>↓</b>	
2 <sup>(Fx)</sup> light 2.ON-OFF status        0       Light off        0       0       0         3 <sup>(Fx)</sup> light .ON-OFF status        0       Light off        0       0       0         3 <sup>(Fx)</sup> light .ON-OFF status        0       Light off        0       0       0         0 <sup>(Fx)</sup> light .ON-OFF status <sup>(Fx)</sup> light 1.ON-OFF status <sup>(Fx)</sup> light 0 <sup>(Fx)</sup> light 0         2 <sup>(Fx)</sup> light 1.ON-OFF status <sup>(Fx)</sup> light 0 <sup>(Fx)</sup> light 0	Or 🔺 Name	Pulse weight	Hours Min Seco
2	1 💡 (Fx) light 1.ON-OFF status	1 🗧 Light on	
3			
Or < Name       Pulse weight       Hours       Min       Seco         1       (Fx) light 1.0N-OFF status       1       Light on       0       0       0         2       (Fx) light 2.0N-OFF status       1       Light on       0       0       0			0 0 0
Or < Name       Pulse weight       Hours       Min       Seco         1			
Or < Name         Pulse weight         Hours         Min         Seco           1         (Fx) light 1.0N-OFF status         1         Light on         0         0         0           2         (Fx) light 2.0N-OFF status         1         Light on         0         0         0			
Or < Name     Pulse weight     Hours     Min     Seco       1     (Fx) light 1.0N-OFF status     1     Light on     0     0       2     (Fx) light 2.0N-OFF status     1     Light on     0     0			
1       (Fx) light 1.ON-OFF status       1       Light on       0       0       0         2       (Fx) light 2.ON-OFF status       1       Light on       0       0       0         0       (Fx) light 2.ON-OFF status       1       Light on       0       0       0			Cancel Confirm
1       (Fx) light 1.ON-OFF status       1       Light on       0       0       0         2       (Fx) light 2.ON-OFF status       1       Light on       0       0       0         0       (Fx) light 2.ON-OFF status       1       Light on       0       0       0			
1       (Fx) light 1.ON-OFF status       1       Light on       0       0       0         2       (Fx) light 2.ON-OFF status       1       Light on       0       0       0         0       (Fx) light 2.ON-OFF status       1       Light on       0       0       0	Or a Namo	Pulse weight	Hours Min Soco
2 (Fx) light 2.ON-OFF status			
s 🝟 (rx) light .ON-OFF status			
	3 🝟 (FX) light .ON-OFF status	1 Jught on	0 0 0

Cancel

Con





## 10.21.5 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).

Wizard					×
1 Edit Func	tion s	Sequence			
<sup>2</sup> 3			Controlle	d outputs	
Wizard Steps Start/stop signals	Function Name Signals	e: (Fx) kitchen - Sequence			
Sequence functions	O. 🗢	Name	Pulse weight	Hours Min	Seco
Feedback signals	• 1 😭	(Fx) light 1.ON-OFF status	1 🔒 Light on	0	0 0 1
Advanced	2 💡	(Fx) light 2.ON-OFF status	1 🔒 Light on	0	0 0 💙
	3 💡	(Fx) light .ON-OFF status	1 🗧 Light on	0	0 0 📷
					×
	Sequence Res	et 🧭 🔀		Sequence	Recycle 💉 🔀
	<<<	>>>			Confirm

Or in the window where the functions are added to the sequence.

Add S	Signal							-	. 🗆 ×
Search				Location					
				General					
۱ 😜		(Fx) light 1.ON-OFF status	Li	ving room					
		(Fx) light 2.ON-OFF status	Li	ving room					
		(Fx) light .ON-OFF status	be	edroom					
									•
Or 4	<u> </u>	Name		Pulse weight	Ηοι	ırs	Min	Seco	•
	1	Name (Fx) light 1.ON-OFF status		Pulse weight	Ηοι	irs 0	Min 0	Seco 0	·
) 1					Ηοι		0		•
• 1	1	(Fx) light 1.0N-OFF status (Fx) light 2.0N-OFF status		1 Eight on	Ηοι	0	0	0	
• 1	1 💡 2 🍚	(Fx) light 1.0N-OFF status (Fx) light 2.0N-OFF status		1 🖶 Light on 1 🖶 Light on	Ηοι	0 0	0	0	• ● ● ●
• 1	1 💡 2 🍚	(Fx) light 1.0N-OFF status (Fx) light 2.0N-OFF status		1 🖶 Light on 1 🖶 Light on	Hou	0 0	0	0	
• 1	1 💡 2 🍚	(Fx) light 1.0N-OFF status (Fx) light 2.0N-OFF status		1 🖶 Light on 1 🖶 Light on	Hou	0 0	0	0	• • • •

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

#### 10.21.6 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.

😽 Add Signa	al		_ = ×
Search		Location	
		General	
•	(Fx) light 1.ON-OFF status	Living room	<b>^</b>
	(Fx) light 2.ON-OFF status	Living room	
	(Fx) light .ON-OFF status	bedroom	
			v
Or 🔺	Nama		
	Name	Pulse weight	Hours Min Seco
1	(Fx) light 1.ON-OFF status	Pulse weight           1         Light on	Hours         Min         Seco           0         1         5
2	(Fx) light 1.ON-OFF status	1 🗧 Light on	
2	(Fx) light 1.0N-OFF status         (Fx) light 2.0N-OFF status	1   Light on     1   Light on	
2	(Fx) light 1.0N-OFF status         (Fx) light 2.0N-OFF status	1   Light on     1   Light on	

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.



# **CARLO GAVAZZI** Automation Components

Add function 2 3 Wizard Steps Start/stop signals	on se	equence					
			<b>6 1 1</b>				
			Controlle	l outpu	its		
Start/stop signals	Inction Name	: (Fx) Root - Sequence					
	Signals N	lotes					
Sequence functions	O. 🔺	Name	Pulse weight	Hours	Min	Seco	
Feedback signals	1 💡	(Fx) light 1.ON-OFF status	0 🚼 Light off	0	0	15 🔺	
Advanced	2 💡	(Fx) light 2.ON-OFF status	0 😜 Light off	0	0	0	
	3 💡	(Fx) light .ON-OFF status	0 🗧 Light off	0	0	0	<b>W</b>
	equence Rese			Sec	quence Re	ovde	
	<<<	· • • • • • • • • • • • • • • • • • • •			Cance		onfirm

## 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.

Wizard							×
1 Add funct	<b>tion</b> s	Sequence					
<sup>2</sup> 3			Controlle	d outpu	its		
Wizard Steps Start/stop signals	Function Nam	e: (Fx) Root - Sequence					
Sequence functions	0.	Name	Pulse weight	Hours	Min	Seco	
Feedback signals	• 1 🔮	(Fx) light 1.ON-OFF status	0 🗧 Light off	0	0	0	
Advanced	2 💡	(Fx) light 2.ON-OFF status	0 🗧 Light off	0	0	5	-
	3 💡	(Fx) light .ON-OFF status	0 🗧 Light off	0	0	5	57
	Sequence Res	et 🖌 🔀		Sec	quence Rea	cycle ✔	
	<<<	>>>>			Cance		Confirm





## 10.21.7 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.

Add function Set	al	Wizard
Wizard Steps         Function Name:           Start/stop signals         Signals           Sequence functions         Image: Comparison of the second se		1 Add function Sequence
Sequence functions	Functions	-3
	8: Root Switch K11 Led 4 9: Root Relay module K5 Re 1 10: Root Relay module K5 Re 2 1: Re 1 2: Re 2 3: Re 3 4: Re 4	Wizard Steps     Function Name:     (Fu) Root - Sequence       Start/stop signals     Sequence functions       Peedback signals     Notes       Advanced     8: Root Switch K11 Led 4

Once the feedback signal is entered, the user can also select to use the inverted logic.

Wizard	×
1 Add function Sequence	
23	Feedback signals
Wizard Steps         Function Name:         (Fx) Root - Sequence           Start/stop signals         Signals         Notes           Sequence functions         Image: Construction Start	Available mode
Sequence functions       Feedback signals          • Advanced	V Signal Settings Signal Properties
	Cancel Confirm





## 10.21.8 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).

Wizard								×
1 Edit Fund	ction	Sequence						
<sup>2</sup> 3					I	ocal calen	dar	
Wizard Steps	Function Na	ame: (Fx) Root	- Sequence					
Start/stop signals	🕥 🕑	<b>.</b> Q	1 5 7	31 👸 🛛 🔀				
Sequence functions			martedì 29 gen	mer 30 gen	gio 31 gennaio	ven 1 febbraio	sab 2 febbraio	domenica 3 feb
Feedback signals	900							
Advanced								
☐ Functions ✓ Local calendar	1000							
Disable Automation								0
Available output status Location	1100	•						•
Local calendar	**							
	1200							
	1300							<b></b>
		>>>						Confirm

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

| 🕹 😂 🗉 🔍 🔍 | 🖬 📑 7 33 🖏 | 😆

#### 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
) D	Magnifying lens to see more/fewer time bands.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally.
<u>6</u>	The calendar visualizes 7 days vertically.
Ħ	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:

New activity		×
Activity name		
From	1/7/2014 To 12/31/2014	
Start	10:00 Stop 10:30	
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>	ay
	During time period -1 💭 No action	
@ Start time -1 🕃 No action		nd time -1 😜 action
	Confirm Cancel Delo	te

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.

New activity	×
Activity name	example
From	1/1/2014 To 12/31/2014
Start	09:30 Stop 10:00
	<ul> <li>✓ Saturday</li> <li>✓ Sunday</li> <li>✓ Monday</li> <li>✓ Tuesday</li> <li>✓ Wednesday</li> <li>✓ Thursday</li> <li>✓ Friday</li> </ul>
	During time period -1 -1 No action
@ Start time 1 Start sequence	@ End time 0 = Stop sequence
	Confirm Cancel Delete

#### 10.21.9 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).

Wizard		Wizard			
1 Edit Func	tion :	$\begin{array}{c} 1 & \text{Edit Func}\\ 2 & 3 \end{array}$	ction Sequ	$\frac{1}{2}_{3}$ Add func	tion Sequence
Wizard Steps Start/stop.stands Sequence functions Feedback stands  Advanced Functions Geose leadorder V Disable Automation Guidation Disable Automation Start sequence Stop sequence	Function Nam	Wizard Steps         Start/stop signals         Sequence functions         Esedback signals	Function Name: [ Signals Note:	Wizard Steps         Start/stop signals         Sequence functions         Feedback signals         (*) Advanced         Disable Automation         Start sequence         Stop sequence	Function Name: (fx) Root - Sequence Signals Notes 1: Root Switch K11 Push 1
	Disable timec		Disable timeout (n		Disable timeout (min) 0

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



# **CARLO GAVAZZI** Automation Components

Wizard		×
1 Edit func	tion Sequence	
<b>4</b> 3		Disable automation
Wizard Steps	Function name: (Fx) House -Good morning	
Start/stop signals	Signals Notes	
Start/pause signals	3: Kitchen Wireless K4 Push 3	🔺 Working mode 🔺
Sequence functions		0→1 1→0
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Disable automation		Event type
Start sequence		
Stop sequence		
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Confirm

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

		Event	type			
Working mode						
mode	Event when push	Event when push	Event with long	Event with very		
	button pressed	button released	pressure	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	Event type							
mode	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						
L	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.

Disable Timeout (min) 10 🗧
<

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.





### 10.21.10 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).

Wizard	Wizard	😽 Add Signal	
1 Edit Function	1 Edit Function	Search	
23	23		
5	5	Signals	V Functions
Wizard Steps Function Name:	Wizard Steps Function Name:		(Fx) light 1.ON-OFF status
Start/stop signals Signals No	Start/stop signals Signals No		(Fx) light 2.ON-OFF status
Sequence functions	Sequence functions		(Fx) activate sequence.Status
Feedback signals	Feedback signals	• 🗸 🏷	(Fx) OR.Status
Advanced     Functions	(v) Advanced		()
Local calendar	Functions		
Disable Automation			
Available output status			
Functions			
	~~~	Input channels use	d Output channels used Address Consumption (mA)

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.

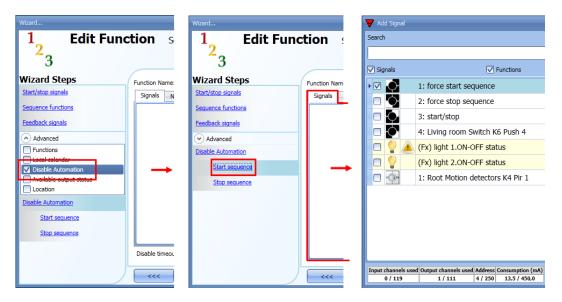
The global calendar has to be added in this field and it works in the same way as the internal calendar.





#### 10.21.11 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.





## 10.21.12 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).

Wizard		Wizard		🔻 Add Signal		
1 Edit Function		<b>1</b> Edit Function Set		Search		
$\frac{2}{2}$		22				
5		5		Signals	V Functions	
Wizard Steps	Function I	Wizard Steps	Function Name:		1: force start sequence	
Start/stop signals Sequence functions	Signals	Start/stop signals Sequence functions	Signals No	•☑ 🔿	2: force stop sequence	
Feedback signals		Feedback signals			3: start/stop	
Advanced		Advanced			4: Living room Switch K6 Push 4	
Functions		Disable Automation		🗖 💡 🔔	(Fx) light 1.ON-OFF status	
Local calendar		Start sequence			(Fx) light 2.ON-OFF status	
Disable Automation     Available output status		Stop sequence			1: Root Motion detectors K4 Pir 1	
Location						
Disable Automation						
Start sequence						
Stop sequence						
	Disable 1					
	<<+		<<<	Input channels use 0 / 119	ed Output channels used Address Consumption (mA) 1 / 111 4 / 250 13,5 / 450,0	

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 is activated and at the same time the Stop sequence signal is 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.



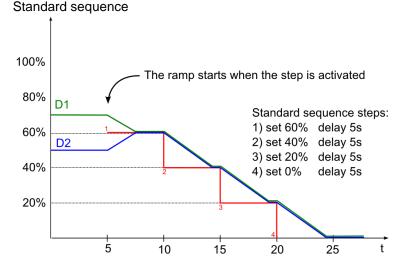
#### 10.22.1 How the dimmer sequence works

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%.



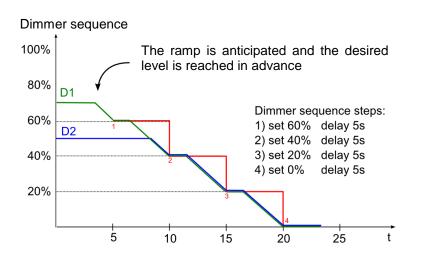
The following figure shows the behaviour of the dimmer sequence using the same steps. At instant 0 the sequence is activated and even if the first step is executed with a delay of 5 seconds, dimmer 1 starts going down immediately.

Sx tool manual



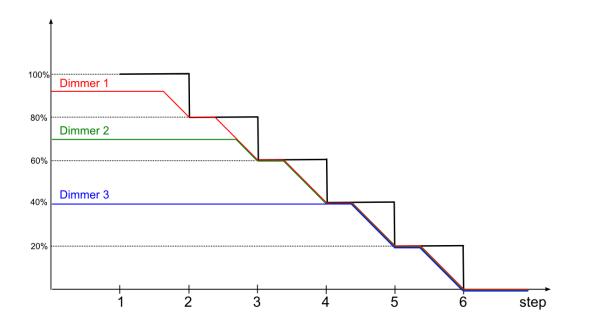


Dimmer 2 skips the first unnecessary step of the sequence, waits for dimmer 1 to reach 50% and then goes directly to the second step together with dimmer 1. In the dimmer sequence function, each dimmer starts dimming the output before the step activation in order to reach the required level at the beginning of each step.



We suggest using the dimmer sequence with steps that are always increased or always decreased.

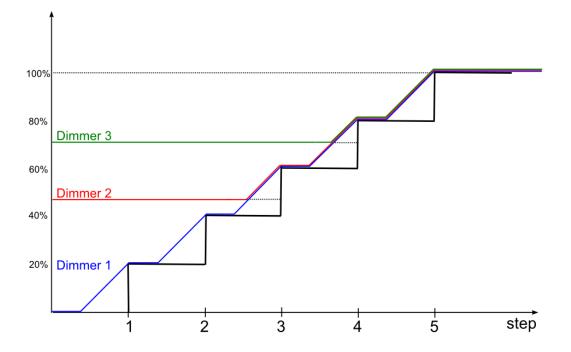
In the figure below, a "Switching off scenario" is shown, where all the steps are created in order to guarantee that all the dimmers of the sequence are managed at the same time. In this example, three dimmers are added to the sequence with three different starting light levels: each function starts 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.

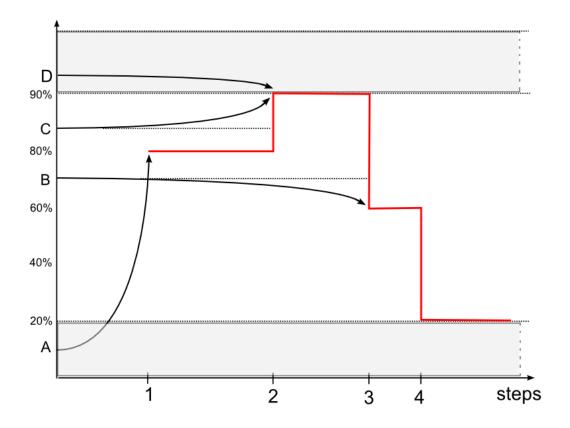






There are some special cases where the steps of the sequence are not designed for creating a linear sequence; the figure below shows the behavior of the different sequence steps according to the starting light level (the steps are not added in a linear way). There could be three different situations:

- 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).

Wizard		×
123 Add func	Dimmer sequence	
		Start/stop signals
Wizard Steps           Start/stop signals           Start/pause signals           Sequence functions	Function name: (Fx) Root - Dimmer sequence Signals Notes 3: Kitchen Wireless K4 Push 3	Working mode
Sequence steps Feedback signals Advanced		0→1 1→0 (→) Event type
		Inverted signal Signal settings Signal properties
	<	Cancel Confirm

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:

		Event t	уре				
Working mode							
	Event when push	Event when push	Event with long	Event with very			
	button pressed	button released	pressure	long pressure			
0→1	As soon as the push button is pressed,	After a short press (less than 1 second),	After a long press, the sequence is	After a very long press, the			
	the sequence is	the sequence is	started at the release	sequence is			
	started.	started at the release	of the push button.	started at the			
		of the push button.		release of the			
				push button.			
1→0	As soon as the push button is pressed,	After a short press (less than 1 second),	After a long press, the sequence is	After a very long press, the			
	the sequence is	the sequence is	stopped at the	sequence is			
	stopped.	stopped at the	release of the push	stopped at the			
		release of the push	button.	release of the			
		button.		push button.			
0→1 1→0	As soon as the push	After a short press	After a long press,	After a very long			
	button is pressed,	(less than 1 second),	the sequence will be	press, the			
	the sequence will be	the sequence will be	started/stopped in	sequence will be			
	started/stopped in	started/stopped in	toggle mode at the	started/stopped			
	toggle mode.	toggle mode at the	release of the push	in toggle mode at			
		release of the push	button.	the release of the			
		button.		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 signal goes OFF.	started when the signal	goes ON, and it will be	stopped when the			

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
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).

Wizard		\$
123 Add func	tion Dimmer sequence	
( <mark>?</mark> )		Start/pause signals
Wizard Steps Start/stop signals	Function name: (Fx) Root - Dimmer sequence	
Start/pause signals	Signals Notes	Working mode
Sequence functions Sequence steps		0→1 1→0
Feedback signals		
✓ Advanced		Event type
		Inverted signal     Signal settings     Signal properties
	····	Cancel Confirm

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:

		Event t	уре				
Working mode							
meae	Event when push	Event when push	Event with long	Event with very			
	button pressed	button released	pressure	long pressure			
0→1	As soon as the push button is pressed,	After a short press (less than 1 second),	After a long press, the sequence is	After a very long press, the			
	the sequence is	the sequence is	started at the release	sequence is			
	started.	started at the release	of the push button.	started at the			
		of the push button.		release of the			
		•		push button.			
1→0	As soon as the push	After a short press	After a long press,	After a very long			
	button is pressed,	(less than 1 second),	the sequence is	press, the			
	the sequence is	the sequence is	paused at the	sequence is			
	paused.	paused at the	release of the push	paused at the			
		release of the push	button.	release of the			
		button.		push button.			
0→1 1→0	As soon as the push	After a short press	After a long press,	After a very long			
	button is pressed,	(less than 1 second),	the sequence will be	press, the			
	the sequence will be	the sequence will be	started/paused in	sequence will be			
	started/paused in	started/paused in	toggle mode at the	started/paused in			
	toggle mode.	toggle mode at the	release of the push	toggle mode at			
		release of the push	button.	the release of the			
	<b>-</b>	button.		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 signal goes OFF.	started when the signal	goes ON, and it will be	e paused when the			

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
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).

Wizard		×
123 Add funct	tion Dimmer sequence	
· 💙 •		Sequence functions
Wizard Steps	Function name: (Fx) Root - Dimmer sequence	
Start/stop signals	Signals Notes	
<u>Start/pause signals</u>	(Fx) dimmer 1.Status	Available mode
Sequence functions	(Fx) Dimmer 2.Status	
Sequence steps	(Fx) dimmer 3.Status	
Feedback signals	💮 (Fx) dimmer 4.Status	
<ul> <li>Advanced</li> </ul>		
		Signal settings Signal properties
	<<< >>>>	Cancel Confirm

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).

Wizard 123 Edit funct	tion Dimr	ner sequence			□ ×
$\langle \widehat{\mathbf{Q}} \rangle$			Sequen	ice steps	
Wizard Steps	Function name:	(Fx) Root - Dimmer sequence			
Start/stop signals	N. 🔦	Pulse weight	Delay before action (m)	Delay before action (s)	
Start/pause signals	• 1	30 🗧 Set 30%	0	10	
Sequence functions Sequence steps	2	20 🗧 Set 20%	0	10	
Feedback signals	3	40 💽 Set 40%	0	10	
Advanced	4	50 💽 Set 50%	0	11	
					×
	Auto cycle sequ	Jence 😪 🔀 Recycle (	delay (s) 0 Enable smar	t sequence <mark> </mark>	_
	<<<	>>>		Co	nfirm

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).

Wizard				
123 Edit funct	tion Dimr	mer sequence		
( 💙 )			Sequen	ce steps
Wizard Steps	Function name:	(Fx) Root - Dimmer sequence		
Start/stop signals	N. 🔶	Pulse weight	Delay before action (m)	Delay before action (s)
Start/pause signals	• 1	30 🗧 Set 30%	0	10
Sequence functions	2	20 🗧 Set 20%	0	10
Sequence steps Feedback signals	3	40 🗧 Set 40%	0	10
Advanced	4	50 🗧 Set 50%	0	11
	Auto cycle sequ	Jence 🧹 💢 Recycle	e delay (s) 0 🗧 Enable smar	t sequence 🖌 🔛
		>>>		Confirm

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:

$\bigcirc$	By clicking on this icon a new step is 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 *Delay before action,* 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 *Delay before action* time is the delay between the start command and the activation of the first action.

Wizard	_				
Edit funct	tion Dim	mer sequence	Sequer	ice steps	
Wizard Steps	Function name:	(Fx) Root - Dimmer sequence			_
<u>Start/stop signals</u>	N. ^	Pulse weight	Delay before action (m)	Delay before action (s)	$\bigcirc$
Start/pause signals	• 1	30 🗧 Set 30%	0	10	
Sequence functions	2	20 🗧 Set 20%	0	10	Ð
Sequence steps Feedback signals	3	40 🗧 Set 40%	0	10	
Advanced	4	50 🗧 Set 50%	0	11	
	Auto cycle sequ	Jence 💓 🔀 Recycle dela	iy (s) 0 Enable smar	t sequence 🖌 🔛	-
	<<<	>>>		Con	firm





## 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.

Wizard		×
123 Add fun	ction Dimmer sequence	
( 💙 )		Feedback signals
Wizard Steps	Function name: (Fx) Hall - Dimmer sequence	
Start/stop signals	Signals Notes	Available mode
Start/pause signals Sequence functions Sequence steps Feedback signals (*) Advanced	8: Root Switches K4 Led 4	Inverted signal
		Signal settings Signal properties
	<<< >>>>	Cancel

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).

Wizard X 123 Add function Dimmer sequence								
Add func	tion	Dimmer sec	quence			Local calen	dar	
Wizard Steps	Function n	ame: (Fx) Hall	- Dimmer sequ	ence				
Start/stop signals	♦ ♦	<b>•</b> • •	1 5 7	31 👸 🛛 🖂				
Start/pause signals		lunedì 8 apr	martedì 9 apr	mer 10 aprile	gio 11 aprile	ven 12 aprile	sabato 13 apr	dom 14 aprile
Sequence functions	0900							
Sequence steps								
Feedback signals	10 <sup>00</sup>							
Advanced								
✓ Local calendar Functions	1100	•						► U
Disable automation								
Available output status Location	12 <sup>00</sup>							
Local calendar	IZ							
	a -> 00							
		>>>					Cancel	Confirm

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

# | 📀 📀 🔍 🔍 | 🖬 📑 7 🛐 🖏 | 😆

#### 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.	
3	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
e)	Magnifying lens to see more/fewer time bands.
1	The calendar visualizes one day horizontally.
5	The calendar visualizes 5 days horizontally.
7	The calendar visualizes 7 days horizontally.
31	The calendar visualizes 31 days horizontally.
ц.	The calendar visualizes 7 days vertically.
Ħ	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:

New activity				×
Activity name				
From	1/7/2014		To 12/31/2	2014
Start	10:00		Stop 10:30	
	<ul> <li>✓ Saturday</li> <li>✓ Wednesday</li> <li>□</li> </ul>	✓ Sunday ✓ Thursday During time pe -1 No action	v <b>√</b> Friday riod	✓ Tuesday
@ Start time -1 💭 No action				@ End time -1 💽 No action
		Confirm	Cancel	Delete

**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.

New activity	×
Activity name	example
From	1/1/2014 To 12/31/2014
Start	09:30 Stop 10:00
	Saturday V Sunday V Monday V Tuesday
	✓ Wednesday ✓ Thursday ✓ Friday During time period
	-1
	No action
@ Start time	@ End time
Start sequence	Stop sequence
	Confirm Cancel Delete

# 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).

Wizard		×
123 Add fund	tion Dimmer sequence	
( 💙 🔪		Disable automation
Wizard Steps	Function name: (Fx) Root - Dimmer sequence	
Start/stop signals	Signals Notes	
Start/pause signals	1: Kitchen cooker light K4 Push 1	Working mode
Sequence functions		0→1 1→0
Sequence steps		
Feedback signals		iii 📙 🕒
<ul> <li>Advanced</li> </ul>		Event type
Disable automation Start sequence		
Stop sequence		
		Signal settings Signal properties
	Disable timeout (min)	
	<<< >>>>	Cancel Confirm





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:

	Event type				
Working mode	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	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	Event type			
mode	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.





Disable Timeout (min) 10 🗧
<

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).

Wizard		×
123 Edit funct	tion Dimmer sequence	
· · 💙 •		Functions
Wizard Steps	Function name: (Fx) Hall - Dimmer sequence	
Start/stop signals	Signals Notes	
Start/pause signals	•14 (Fx) Hall - Calendar activation sequence.	
Sequence functions		14
Sequence steps		Inverted signal
Feedback signals		
Advanced		
Local calendar		
✓ Functions		
Disable automation		
Available output status		
Location		
Functions		
		Signal settings Signal properties
	<b>&lt;&lt;&lt;</b>	Confirm

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).

Wizard					
123 Edit function Dimmer sequence					
( 💙 )	Start sequence				
Wizard Steps	Function name: (Fx) Hall - Dimmer sequence				
Start/stop signals	Signals Notes				
Start/pause signals	2: force on Available mode				
Sequence functions					
Sequence steps	Inverted signal				
Feedback signals					
<ul> <li>Advanced</li> </ul>					
Disable automation					
Start sequence					
Stop sequence					
	Signal settings Signal properties				
	Confirm				

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).

Wizard		×				
123 Edit function Dimmer sequence						
	Stop sequence	:e				
Wizard Steps	Function name: (Fx) Hall - Dimmer sequence					
Start/stop signals	Signals Notes					
Start/pause signals	2: force stop	Available mode				
Sequence functions						
Sequence steps		Inverted signal				
Feedback signals		/ 🔀				
<ul> <li>Advanced</li> </ul>						
Disable automation						
Start sequence						
Stop sequence						
	Sign	al settings Signal properties				
	· · · · · · · · · · · · · · · · · · ·	Confirm				

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.

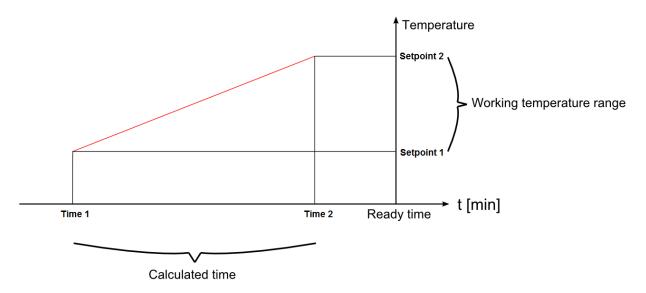
The wizard relevant to a Car heating function can also be opened by typing Alt+Y.



#### 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.

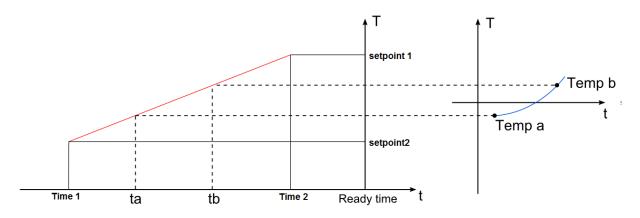


If the outdoor temperature is lower than or equal to *Setpoint1*, the heating is activated a *Time 1* before the *Ready time*. If the temperature is above *Setpoint2*, the heating is never activated. If the measured temperature is between *Setpoint1* and *Setpoint2*, the activation time of the heating output is calculated using the straight red line.

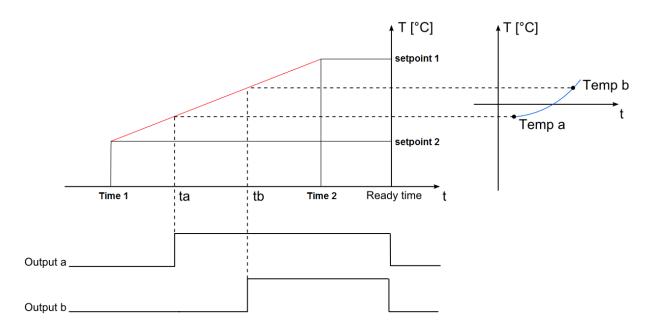




In the picture below it is shown how the algorithm works according to the outside measured temperature. If the temperature has a value "Temp a" inside the range [*Setpoint1*, *Setpoint2*], the output will be activated at the time "ta".



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 picture below.

Wizard				×
Edit funct	tion Car heating			
			Setpoint and presetting time	
Wizard Steps	Function name: (Fx) Roo	ot - Car heating		
On/off signals				
Controlled outputs	Setpoint 1 (°C)	-27 📫	Setpoint 2 (°C) -5 😜	
Feedback signals				
Outdoor temperature sensor Setpoint and presetting time				
Local calendar	Time 1 (min)	210	Time 2 (min) 30 🖡	
Advanced	Time 1 (min)		Time 2 (min) 50 💽	
	<<< >>>>			Confirm

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).

Wizard	×
Add function Car heating	
	On/off signals
Wizard Steps Function name: (Fx) Root - Car heating	
On/off signals Signals Notes	Working mode
Controlled outputs     3: on       Feedback signals     4: off	0→1 1→0
Outdoor temperature sensor Setpoint and pre-setting time	1⇒1 [
Local calendar	Event type
Advanced	
	Signal settings Signal properties
Manual start/stop timeout (min)	
	Cancel Confirm

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.

	Event type								
Workin			Γ	П					
g mode	Event on push	Event on push	Event on long	Event on very					
	button pressed	button released	button released pressure						
0→1	As soon as the push	After a short press	After a long press,	After a very long					
	button is pressed,	(less than 1 second),	the output is	press, the output					
	the output is	the output is	activated at the	is activated at					
	activated.	activated at the	release of the push	the release of the					
		release of the push button.	button.	push button.					
1→0	As soon as the push	After a short press	After a long press,	After a very long					
	button is pressed,	(less than 1 second),	the output is	press, the output					
	the output is	the output is	deactivated at the release of the push						
	deactivated.			the release of the					
	release of the push button.		button.	push button.					
0→1 1→0	As soon as the push		After a long press,	After a very long					
	button is pressed,	(less than 1 second),	the output will be	press, the output					
	the output will be	the output will be	activated/deactivated	will be					
	activated/deactivated	activated/deactivated	in toggle mode at the	activated/deactiv					
	in toggle mode.	in toggle mode at the	release of the push button.	ated in toggle mode at the					
		release of the push button.	bullon.	mode at the release of the					
		bullon.		push button.					
	The output will be activated/deactivated in toggle mode when the push button is presse								
	and toggled again when the push button is released.								
		ed on when the signal	goes ON, and it is swite	ched 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:

	Event	type
Working mode	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.



.



Manual start/stop timeout (min)	0 🖶

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).

Wizard		×
Add funct	tion Car heating	
		Feedback signals
Wizard Steps On/off signals	Function name: (Fx) Root - Car heating Signals Notes	
Controlled outputs Feedback signals Outdoor temperature sensor Setpoint and presetting time Local calendar C Advanced	• 💽 5: function active	Available mode
	<	Signal settings Signal properties

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).

Wizard		×
Edit funct	tion Car heating	
		Controlled outputs
Wizard Steps	Function name: (Fx) Root - Car heating Signals Notes	
Controlled outputs	9: outside contact	Available mode
Feedback signals Outdoor temperature sensor		Inverted signal
Setpoint and presetting time		
Advanced		
		Signal settings Signal properties
	<<< >>>>	Confirm

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.

Wizard		×
Add func	tion Car heating	
	Outdoor temp	erature sensor
Wizard Steps	Function name: (Fx) Root - Car heating	
On/off signals	Signals Notes	
Controlled outputs	1: external temperature sensor	Available mode
Feedback signals		
Outdoor temperature sensor		
Setpoint and presetting time		
Local calendar		
✓ Advanced		
	Y.	Signal settings Signal properties
	Output status if Dupline bus is faulty (°C) 5	
	<<< >>>>	Cancel Confirm

Should the temperature sensor be faulty, the system will use a default value that the user can set from -  $50^{\circ}$ C to + $50^{\circ}$ C.

Output status if Dupline bus is faulty (°C) -5 😜		





# 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).

Wizard								×
Edit funct	ion (	Car heating						
					l	Local calen	dar	
Wizard Steps	Function n	ame: (Fx) Roo	t - Car heating					
On/off signals	😋 🕑	<b>•</b> 🔍 Q	1 5 7	31 6 2				
Controlled outputs		lunedì 15 apr	mar 16 aprile	mer 17 aprile	gio 18 aprile	ven 19 aprile	sabato 20 apr	dom 21 aprile
Feedback signals	0900							•
Outdoor temperature sensor								
Setpoint and presetting time	10 <sup>00</sup>							
Local calendar								
💌 Advanced	11 <sup>00</sup>	•						) (
	1200							
	<<<	>>>						Confirm

The user can select the kind of visualization he prefers clicking on the icons of the *Tool bar* reported below:

| 😋 📀 🔍 🔍 | 🖬 🗟 ७ 🕄 😽 | 😆

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.
) D	Magnifying lens to see more/less time bands.
1	The calendar visualizes horizontally one day.
5	The calendar visualizes horizontally 5 days.
7	The calendar visualizes horizontally 7 days.
31	The calendar visualizes horizontally 31 days
9	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:

New activity		×
Activity name	example	
From	01/01/2013	
То	31/12/2013	
Ready at	07:30	
	□ sabato □ domenica ♥ lunedì ♥ martedì ♥ mercoledì ♥ giovedì ♥ venerdì	
	Confirm Cancel Delete	

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).

Wizard		×
Add func	tion Car heating	
		Disable automation
Wizard Steps On/off signals	Function name: (Fx) Root - Car heating Signals Notes	
Controlled outputs	Signals Notes	Working mode
Feedback signals Outdoor temperature sensor		0→1 1→0
Setpoint and pre-setting time		Event type
Advanced Disable automation		
Force output on Force output off		
	Disable timeout (min)	Signal settings Signal properties
	<<< >>>>	Cancel Confirm





If a push button type is selected, the working mode can be selected according to the following table:

	Event type			
Working mode	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.
<mark>₽⇒1</mark> 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 automations are on signal goes OFF.	disabled when the signa	al goes ON, and are ena	abled again when the





If a switch signal is used, the set of the working mode has to be done following the table below:

Working	Event type		
mode	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 automations are disabled	The automations are 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.

Disable timeout (min)	0

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).

Wizard		×
Add funct	tion Car heating	
		Force output on
Wizard Steps	Function name: (Fx) Root - Car heating	
On/off signals Controlled outputs	Signals Notes	Available mode
Feedback signals		
Outdoor temperature sensor Setpoint and presetting time		Inverted signal
Local calendar		
Advanced  Disable automation		
Force output or		
Force output off		
		Signal settings Signal properties
	<	Cancel Confirm

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).

Wizard		×
Add funct	tion Car heating	
		Force output off
Wizard Steps	Function name: (Fx) Root - Car heating	
On/off signals	Signals Notes	
Controlled outputs	1: force output off push1	Available mode
Feedback signals		
Outdoor temperature sensor		Inverted signal
Setpoint and presetting time		
Local calendar		
<ul> <li>Advanced</li> </ul>		
Disable automation		
Force output on		
Force output off		
		Signal settings Signal properties
	<b>~~~</b>	Cancel Confirm

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).

Wizard	×
Add func	tion Analogue comparator
	Comparator function
Wizard Steps	Function name: (Fx) Root - Analog comparator
Input signals Comparator function	
Reference threshold	
Controlled outputs           Oracle           Oracle	Input < threshold Input > threshold Threshold1 < Input Input < Threshold1, > threshold2 Input > threshold2
	This comparator is used in the rollerblinds function
	Threshold () 100 🗧
	Hysteresis (%)
	Delay On (s) 60 🗧 Delay Off (s) 60 🗧
	Cancel Confirm

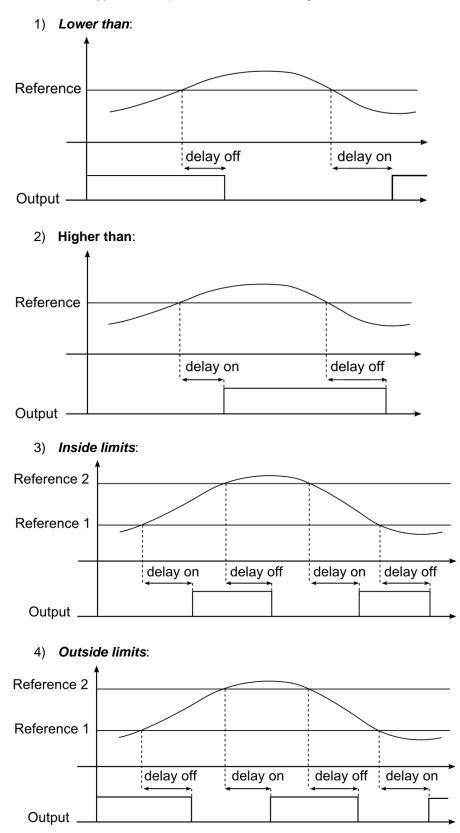
If this function is used into a roller blind function, the relevant check box has to be selected.

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:







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.

Wizard					×
Edit func	tion An	alogue comp	barator		
•				Reference t	hreshold
Wizard Steps	Function name:	(Fx) Root - Ana	og comparator		
Input signals	References	References 2			
Comparator function	• 1: Roo	ot Temdis disp	lay K14 TRoom 1	<b>A</b>	Available mode
Reference threshold					
Controlled outputs					
<ul> <li>Advanced</li> </ul>					
				v	Signal settings Signal properties
	<<<	>>>			Confirm

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  $^\circ\text{C/}^\circ\text{F}$  .

Wizard		×
Edit func	tion Analogue comparator	Input signals
Wizard Steps	Function name: (Fx) Root - Analog comparator Signals Notes	
Comparator function Reference threshold Controlled outputs Advanced	2: Root Temdis	Available mode
	<<< >>>>	Confirm

#### **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.

Wizard		×
Edit func	tion Analogue comparator	
		Controlled outputs
Wizard Steps	Function name: (Fx) Root - Analog comparator	
Comparator function	Signals Notes 9: Root Relay module K13 Re 1	Available mode
Reference threshold Controlled outputs  Advanced		Inverted signal
	Output when comparator is off 0	Signal settings Signal properties Output when comparator is on 50
	<<< >>>>	Confirm





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".



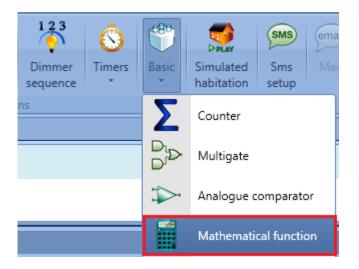


# 10.25 How to configure a mathematical function

The *Mathematical function* provides a set of mathematical operations on two or more analogue input signals. The output value can also be used to control an analogue output module such as the SHPOUTV224 or motor control modules (SH2RODC224, SH2ROAC224, SHDRODC230). The available operations are listed below:

- Average: This operation returns the *average* value of all signals present in the *Analogue input* field;
- **Maximum**: This operation returns the maximum value among the input signals present in the *Analogue input* field;
- **Minimum**: This operation returns the minimum value among the input signals present in the *Analogue input* field;
- **Difference**: This function returns the difference between the first and second input added in the *Analogue input;*
- **Linearization**: It is used to calculate an analogue output by means of a user defined curve. An example of it is the calculation of a temperature setpoint that is changing according to the outdoor temperature.

To set up a mathematical function, the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.







# 10.25.1 How to add the input signals

To add the input signals for the *Mathematical function*, the user has to click on *Analogue input*, then double click on the *Signals* window and select the input signal from the list (see picture below).

The input signal may be a physical signal such as a temperature, humidity, lux sensor, etc.. or an analogue function output (e.g. *Analogue output* function etc..) configured in the project. The signals added in this field must be all the same type (e.g. all temperature or humidity ones). Up to 50 input signals can be added.

Wizard		Add signal
Add func	tion Mathematical functio	Search
Winned Chang		Hide used output signals Signals
Wizard Steps	Function name: (Fx) Root - Mathema	Name
Analogue inputs Curve settings	Signals Notes	5: Root Switches K5 Humidity 1
Output signals		6: Root Switches K5 Temperature 1
Advanced		4: Root Motion detectors K6 Luxmeter 1
		1: Root Relay module K7 kWh 1
		2: Root Relay module K7 Wdmd 1
		3: Root Relay module K7 Watt 1
		4: Root Relay module K7 VA 1
		5: Root Relay module K7 var 1
		6: Root Relay module K7 Ampere 1
		7: Root Relay module K7 Volt 1
		8: Root Relay module K7 PF 1
	<	Input channels used         Output channels used         Address         Consumption (mA)           0 / 120         0 / 112         0 / 249         27.3 / 450.0

A correct selection of the input signals is shown in the picture below:

Wizard		
Add funct	tion Mathematical function Analog	ue input
Wizard Steps Analogue input Curve settings	Function name: (Fx) Root - Linear approximation Signals Notes	Available mode
Output signals           Output signals           O Advanced	•	
	· · · · · · · · · · · · · · · · · · ·	Signal settings Signal properties

All the added signals are of the same type (three lux-meters).





In the example shown below, there are different types of analogue signals in the same *Mathematical function*, therefore the generated output signal is not a valid one.

Wizard		
Add func	tion Mathematical function Analogu	ie input
Wizard Steps Analogue input Curve settings Output signals (*) Advanced	Function name: (Fx) Root - Linear approximation          Signals       Notes         I: Root House Kitchen Temdis display K11 TRoom 1         S: Root House Bedroom Switches K22 Humidity 1         S: Root House Bathroom Motion detectors K57 Luxmeter 1	Available mode
	<b>T</b>	Signal settings Signal properties





#### 10.25.2 How to set the curve

In the *Curve settings* field of the wizard, the user can configure the parameters of the conversion curve and manage the output status.

Wizard					
Add funct	tion Mathem	atical functio	n		
				Curve settings	
Wizard Steps	Function name: (Fx)	Root - Linear app	proximation		1
Analogue input	Output type	Numbe	er 🔽	Default value 0 🛟	
Curve settings Output signals	Offset value		0	Number of points in the curve 2	
Advanced	Enable restore		1		
	Enable conversion cu	rve			
	Coordinates X	Coordinates Y	Points		
	0	0 😜	(0,0)		
	1	0	(1,0)		
	0	0	(0,0)		•
	<<<	>>>		Cancel	Confirm

*Output type*: In this field the user can select the unit of measurement and the icon type applied to the output of the *Mathematical function*;

*Default value*: In this field the user can set up the default value applied to the output when all the input signals value are not (or yet) available;

*Offset value*: In this field the user can set the value that is added to the average calculated on the input signals. It is used to apply a virtual calibration of the input signal. The offset value can be positive or negative;

*Number of point in the curve*: In this field the user can select the number of points used to build the curve. By default, the minimum value is 2 points (to build a straight line), while the maximum value is 10 points. These settings are available if *Enable conversion curve* is enabled;

*Enable restore*: When this option is enabled (the green "V" is selected), the last value of the output is maintained after a system start-up. Otherwise (when the red "cross" is chosen), the default value is applied at start-up;

*Enable conversion curve*: When this option is enabled (the green "V" is selected), the conversion curve is enabled for the *Mathematical function*. Otherwise (when the red "cross" is chosen), the conversion curve is not enabled.





#### 10.25.3 How to generate an output according to the conversion curve

By means of the linear conversion, the user can obtain an analogue output signal, according to a predefined curve. In the *Curve settings* field, the user can set the output value according to the input value. When the input signal value is equal to the value indicated in the *Coordinates X* field, the output of the function will be the value indicated in the *Coordinates Y* field. When the value of the input signal is in-between two points, the output value will be calculated according to the linear conversion (straight line). The user can add up to 10 points and the minimum number is 2 points.

#### 10.25.3.1 Example: heating setpoint compensation

In the example shown below, the *Mathematical function* is used to compensate the water temperature of a boiler according to the outdoor one. With a lower external temperature, the hot water temperature will be increased to obtain a better response of the heating system.

In the *Analogue input* field, the user has to add an outdoor temperature value read from a temperature module (e.g. BSI-TEMANA-U).

Wizard			
Add function Math	ematical function	Analogue inputs	
Wizard Steps Function name:	(Fx) Root - Mathematical function		
Analogue inputs Signals No	ites		
Curve settings	emp sensor K60 Temperature 1	Available	mode
Output signals			
Advanced			
		Signal settings Si	ignal properties
	>>>	Cancel	Confirm

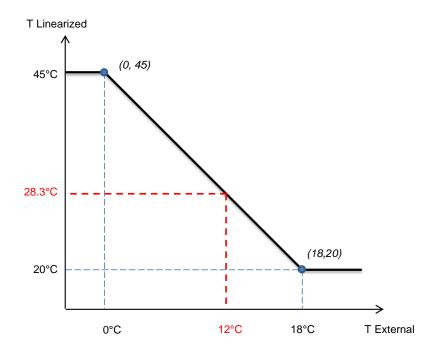
When the external temperature is equal or lower than 0° C, the hot water temperature will be maintained at 45° C. If the external temperature is between 0°C and 18° C, the hot water temperature will be adjusted according to a straight line as shown in the graph below. If the external temperature is higher than 18° C, the hot water temperature will be maintained at 20° C.



# **CARLO GAVAZZI** Automation Components

Wizard		
Edit funct	tion Mathematical function	
		Curve settings
Wizard Steps	Function name: (Fx) Root - Linear approximation	â
Analogue input	Output type	Default value 0
Curve settings Output signals	Offset value 0	Number of points in the curve 2
<ul> <li>Advanced</li> </ul>	Enable restore	
	Enable conversion curve	
	Coordinates X Coordinates Y Points 0 45 (0,45)	
	18         20         (18,20)           0         0         (0,0)	,
	<<< >>>>	Confirm

If the external temperature value is 12°C, the linearized value of the *Mathematical function* will be 28.3°C, as shown in the graph below:







### 10.25.4 How to use a Mathematical function without a conversion curve

If the user disables the conversion curve, the output signals such as Average input values linearized + offset, Minimum linearized value, Maximum linearized value are equals to Average input values + offset, Minimum input value and Maximum input value output signals.

The user can disable the conversion curve by clicking on the red cross icon on the *Enable conversion curve* field:

Wizard		
Edit funct	tion Mathematical function	
	Curve settings	
Wizard Steps	Function name: (Fx) Root - Linear approximation	
Analogue input	Output type Lux Default value 0 🕃	
Curve settings Output signals	Offset value 0	
Advanced	Enable restore	
	Enable conversion curve	
		V
	Confirm	n

The user can still change the value of the fileds *Output type*, *Default value*, *Offset value and Enable restore*.





#### 10.25.5 How to add an analogue output signals

To add an analogue output signal, the user has to click on *Output signals*, then double click on the *Signals* window and select the output signal from the list (see picture below).

The available outputs are the signals managed by the modules: SHPOUTV224, SH2RODC224, SH2RODC224, SH2ROAC224, SHDRODC230. For example, the analogue output value of the SHPOUTV224 is calculated using the output of the *Mathematical function* as the virtual range in the *Signal properties* of the module.

Wizard	Add signal
Add function Mathematical funct	Search           Hide used output signals         V Signals
Wizard Steps     Function name: (Fx) Root - Linear       Analogue input     Signals       Output signals     Notes <ul> <li>Advanced</li> <li> </li> </li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></ul>	Index deed output signals       Image: Constructions         Name       Image: Constructions         Image: Constructions       Image: Constructions         Image: Constructions

The user can then select in the *Relation between input and output* field, which calculation has to be used to set the output.

Wizard		
Edit fur	nction Mathematical function	
		Output signals
Wizard Steps	Function name: (Fx) Root - Linear approximation	
Curve settings Output signals Advanced	2: Root Analog output K7 Analogue 0-10 2	Available mode
		f(x)=Average input values + or          f(x)=Average input values + offset         f(x)=Minimum input value         f(x)=Maximum input value         f(x)=A input-B input         f(x)=Linearized average input values + offset         f(x)=Linearized minimum value         f(x)=Linearized maximum value
		Signal settings Signal properties

The 0-10 V output value is calculated based on a linear relation between the input and output values of the *Mathematical function*.





## 10.25.6 How to use an analogue output signal to regulate the valve position

In the example shown below, an external temperature sensor is used as a input signal. The external temperature is linearized with a conversion curve and the Volt unit is selected as Output type: the icon will also be changed accordingly. See the picture shown below for the curve settings:

Wizard		•
Edit funct	tion Mathematical function	
		Curve settings
Wizard Steps	Function name: (Fx) Root - Linear approximation	•
Analogue input	Output type V	Default value 0 😜
Curve settings Output signals	Offset value 0	Number of points in the curve 2
Advanced	Enable restore	2
	Enable conversion curve	
	Coordinates X Coordinates Y Points	9
	Coordinates X Coordinates Y Points 0  0  (0,45)	
	18 20 (18,20)	
	0 - 0 - (0,0)	
	<<< >>>>	Confirm

In the *output signals* window, the first output of SHPOUTV224 module is added, then, in the *Signal settings* window is assigned the *Average input values linearized* + *offset* as the *Relation between input and output*. See the picture shown below:

Wizard		
Edit func	tion Mathematical function	Output signals
		output signais
Wizard Steps	Function name: (Fx) Root - Linear approximation	
Analogue input	Signals Notes	
Curve settings		2 Available mode
Output signals		· · · · · · · · · · · · · · · · ·
<ul> <li>Advanced</li> </ul>		Relation between input and output
		f(x)=Average input values + o
		f(x)=Average input values + offset
		f(x)=Minimum input value
		f(x)=Maximum input value
		f(x)=A input-B input
		f(x)=Linearized average input values + offse
		f(x)=Linearized minimum value f(x)=Linearized maximum value
		t(x)=Linearized maximum value
		Signal settings Signal properties
	<<< >>>>	Confirm





The 0-10 V output value is calculated based on a linear relation between the minimum and maximum values of the function: in the Signal properties window of the output, the user can set the Virtual range (0 - 100) and the Output range (0-10 V) according to the project, as explained in the picture below:

Wizard		
Edit funct	tion Mathematical function	
	Output s	ignals
Wizard Steps	Function name: (Fx) Root - Linear approximation	
Analogue input	Signals Notes	
Curve settings	• 🕢 1: Root - Analog output K16 Analogue 0-10 1	Source details
Output signals		K16 SHPOUTV224
<ul> <li>Advanced</li> </ul>		Unit of measure
		V
		Virtual range
		0 🗧 100 🗧
		Output range 📃
		0 🗧 10 🗧
		Apply to all
		Signal settings Signal properties
		s s signa properties
	<<< >>>>	Confirm

If the minimum and maximum virtual values of the function are 0 and 100, and the virtual output value is 30, the voltage output of the SHPOUTV224 will be 3V

In the example shown below, the linearized output values are between 20°C (min value) and 45°C (max value), so the voltage output is from 2.0V(min) up to 4.5 V(max).

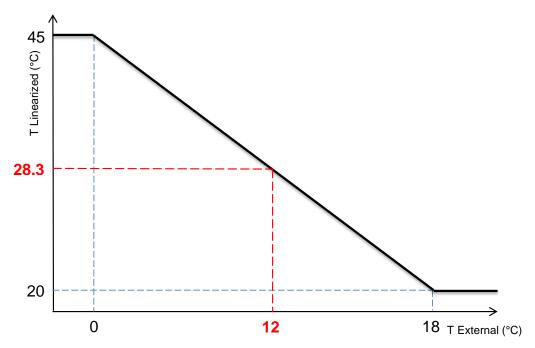
If the output of the *Mathematical function* is 28.3°C (equal to 28.3V virtual value), the voltage output of the SHPOUTV224 will be 2.83 V.

In the graph below it is shown the relation between the output of *Mathematical function* and the Voltage output of the SHPOUTV224 module.

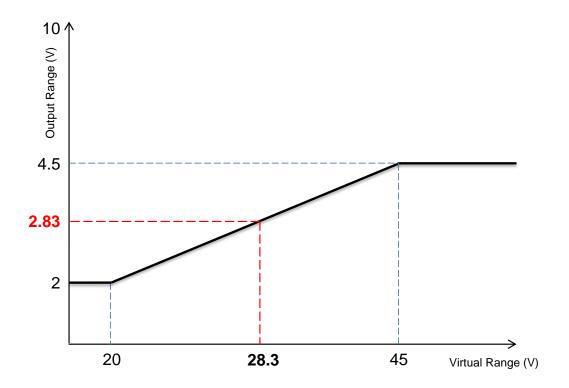




The linear conversion from the external temperature to the linearized temperature



The linearized values are used as Virtual Range for the Output Range (in Volts).







#### 10.25.7 How to use the calculated values

In the *Available output status* field, the user can decide which value out from this 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.

Wizard	C	I X
Add function	ON Mathematical function	
	Available output status	
Wizard Steps	FX Functions	
Curve settings	- 🔗 (Fx) Studio - Mathematical function.f(x)=Average input values + offset	
Output signals	— 🔀 (Fx) Studio - Mathematical function.Minimum input	
Advanced      Available output status	- 🔀 (Fx) Studio - Mathematical function.Maximum input	
Available output status	- 🔀 (Fx) Studio - Mathematical function.f(x)=A input-B input	
	- 🔀 (Fx) Studio - Mathematical function.f(x)=Linearized average input values + offset	
	- 🔀 (Fx) Studio - Mathematical function.Linearized minimum input value	
	- 🔀 (Fx) Studio - Mathematical function.Linearized maximum input value	
		▼
	<<< Cancel Confirm	

#### Function

f(x)=Average input values + offset

It is the result of the instantaneous average calculation of the input signals plus the offset value;

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

#### f(x)=Minimum input value

It is the instantaneous minimum value among the input signals (without offset)

#### f(x)=Maximum input value

It is the instantaneous maximum value among the input signals (without offset)

#### f(x)=A input - B input

It is the difference between the signals A and B: the first two signals of the input list without offset. When one of the two inputs is not valid or not present, the value is set to 0

f(x)=Average input values linearized + offset It is the result of the linear conversion of the Average input value + offset value

#### f(x)=Minimum linearized value

It is the result of the linear conversion of the Minimum input value

#### f(x)=Maximum linearized value

It is the result of the linear conversion of the Maximum input value





### 10.25.8 How to log additional function status in the Database

This procedure has to be followed in order to log in the Database the addition status of the functions (for example the additional status of math function)

- 1) Add a function (es. "Math1")
  - a. Select the advanced menu and enable the "available output status"

Add function	Mathematical function		
		Available output status	
Mizard Steps	X Functions		
Curve settings	- ✔ (Fx) Root - Math 1.f(x)=Average i	nput values + offset	
Output signals	– 渊 (Fx) Root - Math 1.Minimum inpu	ut	
Advanced - 🙀 (Fx) Root - Math 1.Maximum input			
Location	— 🔀 (Fx) Root - Math 1.f(x)=A input-B	input	
Available output status (Fx) Root - Math 1.f(x)=Average input values + offset, linearized			
(Fx) Root - Math 1.Linearized minimum input value			
(Fx) Root - Math 1.Linearized maximum input value			
	<b>&lt;&lt;</b>	Cancel	onfirm

b. Select the additional function status (es. "Minimum input" and "maximum input")

Wizard		
Add funct	ion Mathematical function Available output status	
	Avanusie output status	
Wizard Steps Analogue inputs Curve settings	FX Functions      (Fx) Root - Math 1.f(x)=Average input values + offset	•
Output signals	- 🔗 (Fx) Root - Math 1.Minimum input	
Advanced     Available output status	(Fx) Root - Math 1.Maximum input	
Location	(Fx) Root - Math 1.f(x)=A input-B input	
Available output status	(Fx) Root - Math 1.f(x)=Average input values + offset, linearized	
	(Fx) Root - Math 1.Linearized minimum input value	
	(Fx) Root - Math 1.Linearized maximum input value	v
	Cancel Confir	m

2) Add one AnalogOutput function for each additional status selected at step 1 b.

# **CARLO GAVAZZI** Automation Components



Functions	<b>4 Х</b>
	Filter options 📀
(Fx) Root - Math 1 Root ♥	Î
0-10V (Fx) Root - Analogue output Root ❤	
0-10V (Fx) Root - Analogue output Root ↔	

a. For each AnalogOutput function, add as input signal one of the additional function status selected at step 1

Wizard		□ ×
0-10V Edit funct	ion Analogue output	
		Input signals
Wizard Steps	Function name: (Fx) Root - Analogue output	
Input signals	Signals Notes	
Reset signals	(Fx) Root - Math 1.Minimum input	A
Output signals		
Advanced		

b. Change the name of the AnalogOutput functions in order to have a clear description of the additional status (es. function\_name" + "additional\_status")

Functions	<b>4</b>
Filt	ter options
(Fx) Math1 Root	
(Fx) Math1.input_minimum Root	
0-10V (Fx) Math1.input_maximum Root	





3) In the DB select the AnalogOutput functions added at step 2

Wizard			×□
Add func	tion Database management		
		Data history	
Wizard Steps	Function name: (Fx) Root - Database		
Data history	Signals Notes		
Data event	0-10V (Fx) Math1.input_minimum.Status		
Webserver, live signals	0-10V (Fx) Math1.input_maximum.Status		
Options			

- 4) Save and write the configuration file in the Sx2WEB24
- 5) The report file will show the logged value in the field "counter 1" of the AnalogOutput function

#### 10.25.9 How to change the location of a function

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

Wizard			×
Add function	ON Mathematical function	Location	
Wizard Steps Analogue inputs Curve settings Output signals	Root House House Fill Kitchen Fill Bathroom Fill Bathroom Fill Bathroom Fill Bathroom Fill Bathroom Fill Bathroom Fill Bathroom Fill Bathroom Fill Studio Fill Studio Fill Studio Fill Garden		
	<b>~~~</b>	Cancel Confirm	

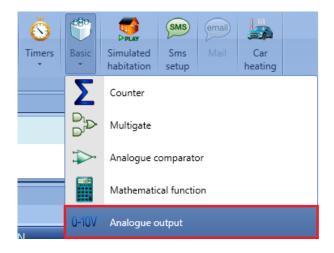




# 10.26 How to configure an analogue output function

The *Analogue output* function provides a driver interface and reset feature which can be used to control an analogue output module. It is mainly used for motor driving where it is periodically necessary to reset the position (fully open or fully closed).

To set up an *Analogue output* function, the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.



### 10.26.1 How to add the input signal

To add the input signal for the *Analogue output* function, the user has to click on *Input signals*, then double click on the *Signals* window and select the input signal from the list (see picture below).

The input signal may be a physical signal such as temperature sensors, humidity sensors, lux sensors, etc.. or an analogue function status (e.g. *PID Control* function, *Zone temperature* function etc..) configured in the project.





Wizard	Add signal
0-10V Edit function Analogue output	Search
Wizard Steps     Function name: (Fx) Root - Analogue       Input signals     Signals       Output signals     Notes	Hide used output signals       Signals       Image: Functions         Name       Image: Signals       Image: Signals       Image: Signals         Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals         Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals         Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals         Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals       Image: Signals

Only one input signal can be added to the Analogue output function

Wizard		
0-10V Edit func	tion Analogue output	Input signals
Wizard Steps Input signals	Function name: (Fx) Root - Analogue output Signals Notes	
Reset signals Output signals (*) Advanced	2: Root Environmental sensor K2 Temperat	ture 2
	<	Signal settings Signal properties





#### 10.26.2 How to reset the Analogue output value

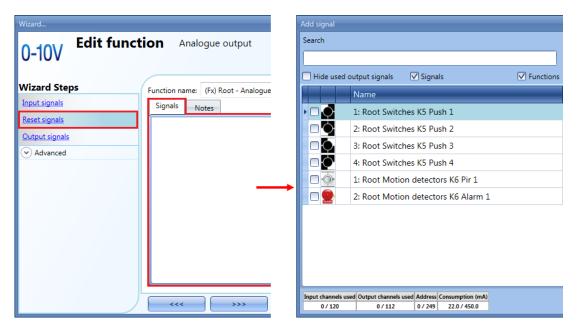
The Analogue output function is mainly used for motor driving where it is periodically necessary to reset the position. When a rollerblind module such as SH2ROAC224, SH2RODC230 and SHDRODC230 is used in the *Analogue output* function, the user needs to manage the Reset.

Let's say, for example, that the *Analogue output* function is used to regulate the heating and/or cooling of a zone with a *PID Control* function as an input signal. The output value of the *Analogue output* function will vary depending on the output of the *PID Control* function, but the continuous fluctuations will generate an error on the motor position.

N.B. Reset to 0/100% works only if the position of the output coincides with the 0/100%:

To reset the output value, the user has to click on *Reset signals*, then double click on the *Signals* window and select the input signal from the list (see picture below).

The reset signals may be physical signals such as pushbutton or switch, or functions like a calendar. Up to 10 *Reset signals* can be added.



If a level signal is selected, such as a switch or a function, the available actions are **Event on rising** (i.e. when the switch is closed or the function is activated), **Event on falling** (i.e. when the switch is open or the function is deactivated), or both (see the green box in the picture below).





Wizard		•
0-10V Edit func	tion Analogue output	
0-10 0		Reset signals
Wizard Steps	Function name: (Fx) Root - Analogue output	
Input signals	Signals Notes	
Reset signals	3: Root House Kitchen Wireless K4 Push 3	Available mode
Output signals		
<ul> <li>Advanced</li> </ul>		Event on rising
		No action
		Event on falling
		No action
		Reset mode
		Inverted signal
		Signal settings Signal properties
	·····	Confirm

The available actions for *Event on rising* or *Event on falling* are listed in the tables below:

Reset action			
No action	No action will be carried out if the push button is pressed/released or the function is activated/deactivated		
Reset 100%	The reset signal (when the push button is pressed/released or the function is activated/deactivated) will set the output value to 100%		
Reset 0%	The reset signal (when the push button is pressed/released or the function is activated/deactivated) will set the output value to 0%		

The inverted logic for the input signal can be enabled by selecting the green V in Inverted signal.



For example, in the picture below, as soon as the push button 3 is pressed, (*Event on rising is set to* Reset 100%), the reset signal is activated and the output value is reset to 100%.





Wizard		
0-10V Edit funct	tion Analogue output	
0-10 0		Reset signals
Wizard Steps	Function name: (Fx) Root - Analogue output	
Input signals	Signals Notes	
Reset signals	3: Root House Kitchen Wireless K4 Push	
Output signals		Event on rising
Advanced		Reset 100%
		Event on falling
		No action
		Reset mode 🗮
		Inverted signal
		Signal settings Signal properties
	<<< >>>>	Confirm

#### **10.26.3 How to force the Reset output**

If the *Reset mode* is not enabled, Reset to 0/100% works only if the position of the output coincides with the 0/100%: if the user wants to force the Reset output, regardless of all the other signals used in the function, he must click on the signals window and select the real signal to use (see yellow box in the picture below), then in *Reset mode* select the green "V" icon to force the output with this signal.

Wizard		•
0-10V Edit func	tion Analogue output	
0-10 0		Reset signals
Wizard Steps	Function name: (Fx) Root - Analogue output	
Input signals Reset signals	Signals Notes	14
Output signals	-	Event on rising
V Advanced		No action
		No action
		Reset mode
		Inverted signal
		Signal settings Signal properties
	<<< >>>>	Confirm





#### 10.26.4 How to add an analogue output signal

The outputs are the signals from the rollerblind modules such as SH2ROAC224, SH2RODC230 and SHDRODC230. The Analogue output function may also manage all the Smart Dupline analogue output modules such as SHPOUTV224 and the dimmer modules, but the reset control cannot be managed for the SHPOUTV224 and dimmer modules.

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).

Wizard	Add signal
0-10V Edit function Analogue output	Search
Wizard Steps     Function name: (Fx) Root - Analogue       Input signals     Signals       Output signals     Notes	Hide used output signals       ✓ Signals       ✓ Functions         Name        1: Root Rollerblinds module K4 Motor 1         ●       ●       4: Root Rollerblinds module K4 Motor 2         ●       ●       1: Root Analog output K7 Analogue 0-10 1         ●       ●       2: Root Analog output K7 Analogue 0-10 2
	Input channels used         Output channels used         Address         Consumption (mA)           2 / 120         0 / 112         1 / 249         22.0 / 450.0

The running parameters of the rollerblind modules can be set directly from this wizard, in the *Signal properties* tab window, without the need to re-open the wizard of the module.

Wizard	
0-10V Edit funct	tion Analogue output Output signals
Wizard Steps	Function name: (Fx) Root - Analogue output Signals Notes
Reset signals           Output signals           (*) Advanced	I: Root House Cabinet Rollerblinds module K9 Motor 1       Source details         Name       K9 SH2ROAC224         Reverse motor timer (s)       0.5 :         Up running motor time (s)       5 :
	Down running motor time (s) 5 Tilting time (s) 0 Signal settings Signal properties
	Confirm

N.B The user must set the *Up running motor time* and *Down running motor time* for the Reset command: any value set in *Tilting time* will not be used.





#### 10.26.5 How to enable the function diagnostic

In the *Available output status* the user can decide which status from the *Analogue output* 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.

Wizard	
0-10V Add function Analogue output	
0-10 V Available output status	
Wizard Steps	
Input signals         (Fx) Root - Analogue output.Status	
Output signals         (Fx) Root - Analogue output.Output value after a reset command           Advanced         (Fx) Root - Analogue output.Output value after a reset command	
Advanced Advanced Advanced	
	V
<<< Cancel Co	onfirm

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

Analogue output.Status: This output status shows the analogue output value of the function

Analogue output.Output value after a reset command: Analogue output value after a reset command





### 10.26.6 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 one required.

Wizard			
0-10V Edit function	Analogue output		
0-10 0		Location	
Wizard Steps	🕨 📴 🐺 Root		
Input signals Reset signals	House		
Output signals	- 筒 Kitchen		
Advanced     Location	- 🗾 Bathroom		
	— 🔜 Living room		
	- 👰 Bedroom		
	Cabinet		
	- 📔 Studio		
	Garden		_
	<<< >>>>	Confirm	

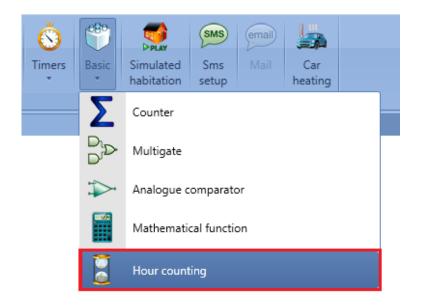




# 10.27 How to configure an hour counting function

The purpose of the *Hour counting* function is to count the hours a function output has been ON, since the last reset. This is typically used in light control for preventive replacement of fluorescent light tubes before they burn out. It is also used for keeping track of HVAC pump running hours for early replacement and for planning maintenance.

To set up an *Hour counting* function, the user has to select *Basic* from the Add menu (see picture below). The new function will be added into the selected location.







## 10.27.1 How to add the input signal

To add the input signal (the function to be monitored for "ON" hours status) for the *Hour counting* function, the user has to click on *Input signals*, then double click on the *Signals* window and select the input signal from the list (see picture below).

The input signal may be a physical signal or a function status (e.g. *Light function, Zone temperature* function etc..) configured in the project.

Wizard	Add signal
Add function Hour counting	Search
Wizard Steps Function name: (Fx) Root - Hour c	✓ Hide used output signals Signals ✓ Functions
Input signals Signals Notes	Name
Reset signals	EX (Fx) Bathroom - Light function.Status
Options	🗌 💭 😧 (Fx) Kitchen - Oven.Status
Alarm status output	(Fx) Kitchen - Light function.Status
Advanced	(Fx) Bedroom - Light function.Status
Advanced	(Fx) Floor - Corridor light.Status
	(Fx) Bathroom - Mirror light.Status
	(Fx) Garden - Light function.Status
	Input channels used Output channels used Address Consumption (mA)

Only one input signal can be added to the *Hour counting* function.

Wizard		
Add funct	ion Hour counting	
		Input signals
Wizard Steps	Function name: (Fx) Root - Hour counter	
Input signals	Signals Notes	
Reset signals	🕨 🍚 (Fx) Bedroom - Bedside light.Status	Available mode
Options		
Alarm status output		
Advanced		
	L	Signal settings Signal properties
	<<< >>>>>	Cancel Confirm





#### 10.27.2 How to reset the Hour counting value

To reset the *Hour counting* value, the user has to click on *Reset signals*, then double click on the *Signals* window and select the input signal from the list (see picture below).

The reset signals may be physical signals such as pushbutton or switch, or functions such as a calendar.

Up to 10 Reset signals can be added.

Wizard	Add signal
Add function Hour counting	Search
	☐ Hide used output signals
Wizard Steps Function name: (Fx) Root - Hc	Name
Input signals Signals Notes	• 🗆 💽 1: Root Switches K5 Push 1
Reset signals	2: Root Switches K5 Push 2
Options Alarm status output	3: Root Switches K5 Push 3
Advanced	4: Root Switches K5 Push 4
Hardined	1: Root Motion detectors K6 Pir 1
	2: Root Motion detectors K6 Alarm 1
	Input channels used Output channels used Address Consumption (mA)
<b>~~~ ~~~</b>	0/120 0/112 0/249 22.0/450.0

Each time the reset signal is activated, the counting value is reset.

Wizard		□ ×
Edit funct	tion Hour counting	Reset signals
Wizard Steps	Function name: (Fx) Studio - Hour counter garden	
Input signals	Signals Notes	
Reset signals	4: Root - House - Kitchen - Wireless K4 P	ush 4
Options		Working mode
Alarm status output		
<ul> <li>✓ Advanced</li> </ul>		
		Reset value (hour)
		0
		Inverted signal
		Signal settings Signal properties
	<	Confirm

For each signal it is possible to set a certain reset value when the reset signal is triggered (e.g. when the push button is pressed): the user may set the *Reset value (hour)* field.





The inverted logic for the input signal can be enabled by selecting the green V in Inverted signal.



### 10.27.3 How to set the Hour counting options

To configure the *Hour counting* options, the user has to click on Options: a window with the different configuration options will appear (see picture below).

Wizard				
Edit funct	ion Hour coun	ting	Options	
			options	
Wizard Steps	Function name: (Fx) St	tudio - Hour counter garden		
Input signals	Working time (h)	100 ≑		
Reset signals				
Options	Delta time (min)	5 💼		
Alarm status output				
<ul> <li>Advanced</li> </ul>				
	<<<	>>>		Confirm

In this window, the threshold can be set in the field *Working time*: if the counted value is greater than the *Hour counting* value, the Alarm status will be on, otherwise it will be off.

*Delta time* is the interval time used to calculate how much the counter has been increased during the period *delta time*.

Delta counter= Counter Delta time - Counter 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.





## 10.27.4 How to add an Alarm status output

The user can configure an alarm output to be warned when the *Working hours limit* is reached. To add the alarm output, the user should select the relevant section in the wizard of the function, then double click on the *Alarm status output* window and select the output signals 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 the reset signal appears.

Wizard	Add signal
Edit function Hour counting	Search Hide used output signals Signals Functions
Wizard Steps Input signals Reset signals Options Alarm status output	Name         Il: Root - House - Cabinet - Relay module K5 Re 2         I: Root - House - Cabinet - Relay module K6 Re 1         I: Root - House - Cabinet - Relay module K6 Re 1         I: Root - House - Cabinet - Relay module K6 Re 1         I: Root - House - Cabinet - Relay module K6 Re 2         I: Root - House - Cabinet - Relay module K6 Re 3         I: Root - House - Cabinet - Relay module K6 Re 3         I: Root - House - Cabinet - Relay module K6 Re 4         I: Root - House - Studio - Switches K13 Led 1         I: Root - House - Studio - Switches K13 Led 2         I: Root - House - Studio - Switches K13 Led 3         I: Root - House - Studio - Switches K13 Led 4         I: Root - House - Bedroom - Switches K22 Led 1         I: Root - House - Bedroom - Switches K22 Led 2         Input channels used Output channels used Address Consumption (mA)         4/160       1/160

The selected signals will be on if the counted value is greater than the configurable threshold *Working time* (h), otherwise it will be off.





#### 10.27.5 How to log the outputs of the Hour counting function

It is possible to log the *Hour counting* values with a selectable time interval, just like the standard Counter function.

To be logged, the Hour counting function has to be added to the database in the usual way. In the logged file, two columns are present: the first one (*COUNTER 1*) indicates the total value calculated; the second one (*COUNTER 2*) shows the difference calculated during the Delta time:

Delta= Counter Delta time - Counter 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.

А	В	С	D	F	G	L	М
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





# 11 How to configure BACnet objects in SB2WEB24

# 11.1 How BACnet is implemented in SB2WEB24

The SB2WEB 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 is 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 is 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.

	🔒 💆 🗭 🏍 十 干 🦚 🚓 🕷 ews Reports Add Program s		troller configurator * [ (	C:\Program Files\SB Tool 3.4.2\Firm\	vare\Test.sbweb ] - 3.4.2
8 8	Wizard				E ×
Project System	🚳 👞 Setup sys	tem properties	Edit system prope	erties	
setup setup Gener				Bacnet Setu	<b>b</b>
Locations	Wizard Steps	SB2WEB instance number	5000 📮		
) — 🐺 Root	<u>Properties</u>	Binary input instance start	0		
	System information Communication settings	Binary output instance start	0		
	Bacnet Setup	Analog input instance start	0		
	Advanced settings	Analog output instance start	0		
	Module tags Defined locations	Multistate output instance start	0		
	FTP push/pull	Multistate input instance start	0		
Modules		Bit string value instance start	0		
		Analogue value instance start	0		
Part num					
SH2MC		<<< >>>>			Cancel Confirm





# 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.

File Views Reports Add Program setu		EB BACnet Cont	roller configur	ator ^ [ C:\ŀ	rogram File	s/SR Tool 3.4	4.2\Firmware	<pre>&gt;\Test.sbweb ] - 3</pre>	.4.2
BAC Net				IP	Dyn DNS	ð		<b>*</b>	1
roject System Webserver Password Bacnet etup setup accounts	Save modbus map as .csv	Reset Modbus map	Modbus managemen	IP t setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import s settir
acnet management		N.4 11			1 11				_ 0 3
								Filter	options 🔇
Name	Part number	Location	S	ubnet	Obje	ct type	In	stance	SIN
1: Root Switches K2 Push 1	B4X-LS4-U	Root	N	let 1	Bina	y input	$\checkmark$		0 001.
2: Root Switches K2 Push 2	B4X-LS4-U	Root	N	let 1	Bina	y input	<b>~</b>		1 001.(
3: Root Switches K2 Push 3	B4X-LS4-U	Root	N	let 1	Bina	y input	<b>~</b>		2 001.(
4: Root Switches K2 Push 4	B4X-LS4-U	B4X-LS4-U Root		Net 1 Binary input		<b>~</b>		3 001.0	
5: Root Switches K2 Led 1	B4X-LS4-U Root		N	Net 1 Binary output		<b>~</b>		0 001.0	
6: Root Switches K2 Led 2	B4X-LS4-U Root		N	Net 1 Binary output		<b>~</b>		1 001.0	
7: Root Switches K2 Led 3	B4X-LS4-U	Root	N	let 1	Bina	y output	<b>~</b>		2 001.(
8: Root Switches K2 Led 4	B4X-LS4-U	Root	N	let 1	Bina	y output	<b>~</b>		3 001.0
1: Root Switches K3 Switch 1	SH2INDI424	Root	N	let 1	Bina	y input	×		4 001.0
2: Root Switches K3 Switch 2	SH2INDI424	Root	N	let 1	Bina	y input	*		5 001.0
3: Root Switches K3 Switch 3	SH2INDI424	Root	N	let 1	Bina	y input	*		6 001.(
4: Root Switches K3 Switch 4	SH2INDI424	Root	N	let 1	Bina	y input	×		7 001.(
1: Root Environmental sensor K4 Analogue C	SHSUCOTHD	Root	N	let 1	Anal	og input	<b>~</b>		0 001.
2: Root Environmental sensor K4 Temperatur	SHSUCOTHD	Root	N	let 1	Anal	og input	<b>~</b>		1 001.:
3: Root Environmental sensor K4 Humidity 3	SHSUCOTHD	Root	N	let 1	Anal	og input	<b>~</b>		2 001.:
1: Root Motion detectors K5 Pir presence 1	SHSQP360L	Root	N	let 1	Bina	y input	$\checkmark$		8 001.0
2: Root Motion detectors K5 Pir movement 1	SHSQP360L	Root	N	let 1	Bina	y input	<b>~</b>		9 001.0
🔒 4: Root Motion detectors K5 Luxmeter 1	SHSQP360L	Root	N	let 1	Anal	og input			3 001.0





# 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.

		8 🛛	• •	Ŧ 🖗 🕂 🛡		SBWEB BACnet Cor	ntrolle
	File Vie	ews Rep	orts /	Add Program s	etup Databas	e Help	
Modules report	Bill of materials	Function details	Subnet usage	Modbus TCP/IP report	Bacnet object reports	Create EDE files	
			Reports			Create EDE files	
Locations							

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
		3. D C						





## 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 SxWEB in a standardized that can be read by the client.

To create the EDE-files, select the menu "Create EDE files"

		a 🔏 🛯	• •	Ŧ 🖗 🕂 🖉		SBWEB BACnet Contr
	File Vie	ws Rep	orts /	Add Program s	etup Databas	e Help
Modules report	Bill of materials	Function details	Subnet usage	Modbus TCP/IP report	Bacnet object reports	Create EDE files
			Reports			Create EDE files
Landing						

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

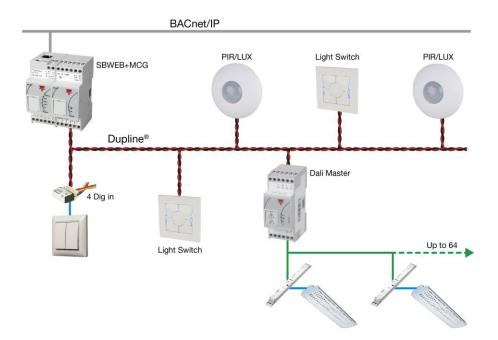
## 12.1 How to interface Dupline to DALI

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 decentrally.

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.

Wizard			a ×
Add modu	le <sub>Module</sub>		
			Choose module
Wizard Steps	Groups	Modules	Description
Choose module	Light switches	SH2D10V424	
Innutrienale	Motion detectors	SH2D500WE230	
Input signals	Temperature	SH2D500W1230	5555
Output signals	Sensors	SH2INDI424	10 × 1
Properties	Alarm products	SH2RE16A2E230	
✓ Advanced	Decentral units	SH2RE16A4	2. 8
Advanced	Cabinet	SH2RODC224	
	MasterGlass switches	SH2ROAC224	
	MasterGlass temp. display	SH2RE1A424	
	Show all	SH2SSTRI424	Dali module that manages one Dali bus with up to
		SB2DALI230	64 devices. Power supply is 230Vac.
			Number of elements
			1
	<<< >>>>>		Cancel





## 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.

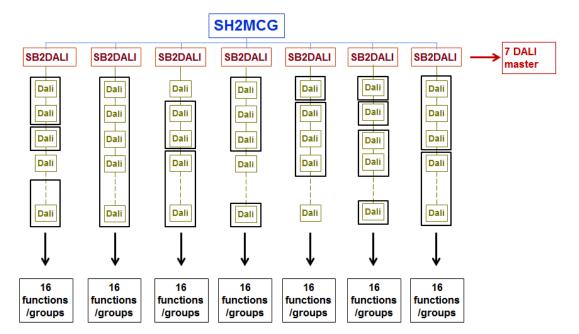
Each smart-Dupline network can manage up to 256 dimmer functions:

- 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).

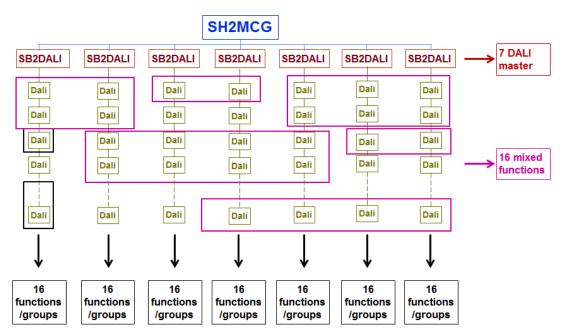
A Dimmable or Constant light function uses an average of 3 input channels and 2 output channels (Input 3/120 - Output 2/112): this should be considered in the design of a DALI network integrated into the Dupline bus.



#### 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:

SB2DALI230         Net 1         K5 SB2DALI230         000.000.000         Root	ŦŦ
---------------------------------------------------------------------------------	----

The configuration wizard will appear:

Wizard				<b>□</b> ×
Edit modu	ıle	Module		
133353			Inj	out signals
Wizard Steps	Name	K5 SB2DALI230		
Input signals	SIN:	000 🗧	000 🗧	000 🗧 Subnet 🛛 Net 1 💽
Output signals	Sign	als Info		
Properties				
Advanced				
	<	<< >>>>>		Confirm

No input signals are present in this window.

Wizard		
Edit module	Module	
-		Properties
Wizard Steps	ne K2 SB2DALI230	
Input signals SIN:	000	000 🕄 000 🗧 Subnet Net 1 🔽
Output signals Pro	perties Info	
	Name         I: Office 1         I: Office 2	Switch all on Switch all off
	<<<	Confirm

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.

Wizard			□ ×
Edit module	Module		
······		Output sigr	nals
Wizard Steps Nam Input signals SIN:	e K12 SB2DALI230	000	0 🕄 Subnet 🛛 Net 1 🔽
Output signals Sig	gnals Info		Available mode
Properties          • Advanced	1: Office 1 2: Office 2	A	
		v	Apply to all
	<		Confirm

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.

Wizard	Add signal		
Add function Dimmable light	Search		Locati
			Gene
	✓ Signals	✓ Functions	🔲 Grou
Wizard Steps Function name: (Fx) Root - Dimm		Name	Location
On/Off dim signals (S1) Signals Notes		2: Office 2	Root
Controlled output	• 🗸 📀	1: Office 1	Root
Options			
Feedback signals			
Advanced			
Energy save timer	<b>—</b>		
		used Output channels used Address Consumption (mA)	
~~~ >>>	0 / 120	0 / 112 0 / 249 1.0 / 450.0	

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.

Wizard		
Edit funct	tion Dimmable light	
U		Controlled output
Wizard Steps	Function name: (Fx) Dimmable light - Office 1	
On/Off dim signals (S1)	Signals Notes	
Controlled output	1: Office 1	Available mode
<u>Options</u>		(
Feedback signals		
<ul> <li>Advanced</li> </ul>		
Energy save timer		
	L	Signal settings Signal properties
	<	Confirm





unctions	<b>д</b> у
	Filter options 🔇
(Fx) Dimmable light - Of Root	ffice 1
• 🔿 Used signals	
🕨 📀 1: Office 1	
<ul> <li>Parameters</li> </ul>	
<ul> <li>Available output status</li> </ul>	
(Fx) Dimmable light - O	ffice 2
Used signals	
🕨 🕐 2: Office 2	
Parameters	
Available output status	

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.

SB2DALI230         Net 1         K12 SB2DALI230         000.00	.000.000 Root
--	---------------

## 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:

Wizard					
Edit modu	ıle	Module			
PRESS				Properties	
Wizard Steps	Name	K2 SB2DALI230			
Input signals	SIN:	001	021 🗧	008 🗘 Subnet Net 1	
Output signals	Prope	rties Info			
Properties		Name			
✓ Advanced	• 🔀				
		2: Office 2			w
		Add signal Find DALI ballasts		Switch all on Switch	h all off
	<	<<			Confirm

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):

DALI net	work management 🛛 🗙
×	New discovery
×	Add new modules
$\checkmark$	Rename modules
×	Advanced setup
	Cancel Confirm

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 <b>only</b> 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*:

DALI net	work management
$\checkmark$	New discovery
×	Add new modules
×	Rename modules
×	Advanced setup
	Cancel Confirm





The following window will appear:

Find DALI ballasts		_ = ×
1 Found DALI ballasts	39	%
List of connected DALI ballasts		
Stop discovery	Switch all on Switch all off	Confirm

After a few seconds, when the bus scan is completed, all the ballasts found will be shown (see below).

Find DALI ballasts	_ = >
17 Found DALI ballasts 100 %	
List of connected DALI ballasts	
0 👰 1: Office 1	
1 🕐 2: Office 2	
2 🕥 3: Root Dimmer module K2 Dimmer DALI 3	
3 🕎 4: Root Dimmer module K2 Dimmer DALI 4	
4 🕎 5: Root Dimmer module K2 Dimmer DALI 5	
5 👰 6: Root Dimmer module K2 Dimmer DALI 6	
6 👰 7: Root Dimmer module K2 Dimmer DALI 7	
0               1: Office 1           1              2: Office 2           2              3: Root Dimmer module K2 Dimmer DALI 3           3              4: Root Dimmer module K2 Dimmer DALI 4          4              5: Root Dimmer module K2 Dimmer DALI 5          5              6: Root Dimmer module K2 Dimmer DALI 6          6              7: Root Dimmer module K2 Dimmer DALI 7          7              8: Root Dimmer module K2 Dimmer DALI 8	
8 👰 9: Root Dimmer module K2 Dimmer DALI 9	
Start discovery Switch all on Switch all off Confirm	

*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).

Find D	DALI ba	llasts		_ 🗆 ×
17 Fo	ound D	ALI ballasts 100 %	_	
		List of connected DALI ballasts		
0	o 📀	1: Office 1		Â
1		2: Office 2		
2	2	3: Root Dimmer module K2 Dimmer DALI 3		
• 3	s 📀	4: Root Dimmer module K2 Dimmer DALI 4		
4	ı 📀	1: Office 1 2: Office 2		J
5	; 🅎	3: Root Dimmer module K2 Dimmer DALI 3		
6	5 📀	5: Root Dimmer module K2 Dimmer DALI 5 6: Root Dimmer module K2 Dimmer DALI 6		
7	v 📀	7: Root Dimmer module K2 Dimmer DALI 6 7: Root Dimmer module K2 Dimmer DALI 7		
8	3 📀	8: Root Dimmer module K2 Dimmer DALI 8 9: Root Dimmer module K2 Dimmer DALI 9		v
		10: Root Dimmer module K2 Dimmer DALI 10 11: Root Dimmer module K2 Dimmer DALI 11		
		11: Root Dimmer module K2 Dimmer DALI 11 12: Root Dimmer module K2 Dimmer DALI 12		
		13: Root Dimmer module K2 Dimmer DALI 13		

Found DAL	I ballasts 100 %	
L	st of connected DALI ballasts	
0 ү 🛙	: Office 1	
1 🕎 🛛	: Office 2	
2 (é) 🗏	:: Office 2 :: Root Dimmer module K2 Dimmer DALI 3 🛛 🕂	
3 🖤 🕨	: Root Dimmer module K2 Dimmer DALI 4 : Root Dimmer module K2 Dimmer DALI 5	
8	: Root Dimmer module K2 Dimmer DALI 6 : Root Dimmer module K2 Dimmer DALI 7	
5 ү 8	: Root Dimmer module K2 Dimmer DALI 8	
c 🙆 🗍	): Root Dimmer module K2 Dimmer DALI 9 .0: Root Dimmer module K2 Dimmer DALI 10	
7 🖤 🕛 🗆	1: Root Dimmer module K2 Dimmer DALI 11 2: Root Dimmer module K2 Dimmer DALI 12	
o 💡 -	3: Root Dimmer module K2 Dimmer DALI 13 4: Root Dimmer module K2 Dimmer DALI 14	
	Start discovery Switch all on Switch all off Confirm	]

In the picture above, the ballast with address 1 (Office 2) has been addressed with address 3 (Dimmer output DALI 4)





Find	DALI ballasts	_ 🗆 ×
17 F	ound DALI ballasts	
	List of connected DALI ballasts	
	0 📀 1: Office 1	
	1 🌾 4: Root Dimmer module K2 Dimmer DALI 4	
	2 🕐 3: Root Dimmer module K2 Dimmer DALI 3	
	3 🕐 2: Office 2	
	4 📀 5: Root Dimmer module K2 Dimmer DALI 5	
	5 📀 6: Root Dimmer module K2 Dimmer DALI 6	
	6 🕐 7: Root Dimmer module K2 Dimmer DALI 7	
	7 🕐 8: Root Dimmer module K2 Dimmer DALI 8	
	8 🕐 9: Root Dimmer module K2 Dimmer DALI 9	
	Start discovery Switch all on Switch all off	Confirm

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.

Error	×
8	Two or more ballasts have the same name!
	ОК





#### 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.* 

DALI net	work management 🛛 🗙
×	New discovery
$\checkmark$	Add new modules
×	Rename modules
×	Advanced setup
	Cancel Confirm

This function performs a new network scan, leaving unchanged the ballasts already configured.

Find DALI ballasts	_ = ×
16 Found DALI ballasts 100 %	
List of connected DALI ballasts	
• 0 🕎 1: Office 1	
1 🕎 2: Office 2	
2 🕎 3: Root Dimmer module K2 Dimmer DALI 3	
3 🕎 4: Root Dimmer module K2 Dimmer DALI 4	
4 🕎 5: Root Dimmer module K2 Dimmer DALI 5	
5 📀 6: Root Dimmer module K2 Dimmer DALI 6	
6 🕐 7: Root Dimmer module K2 Dimmer DALI 7	
7 🕐 8: Root Dimmer module K2 Dimmer DALI 8	
8 🕎 9: Root Dimmer module K2 Dimmer DALI 9	
Start discovery Switch all on Switch all off Confirm	





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 Rename 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* 

DALI net	work management	×
×	New discovery	
×	Add new modules	
$\checkmark$	Rename modules	
*	Advanced setup	
Cancel Confirm		

The following window will appear:

Find DALI ballasts	_ 🗆 X
0 DALI devices found 0%	
List of connected DALI ballasts	
> 0 📀 1: Office 1	
1 👔 2: Office 2	
2 📀 3: Root Dimmer module K2 Dimmer DALI 3	
3 💿 4: Root Dimmer module K2 Dimmer DALI 4	
4 📀 5: Root Dimmer module K2 Dimmer DALI 5	
5 💿 6: Root Dimmer module K2 Dimmer DALI 6	
6 💿 7: Root Dimmer module K2 Dimmer DALI 7	
7 💿 8: Root Dimmer module K2 Dimmer DALI 8	
8 💿 9: Root Dimmer module K2 Dimmer DALI 9	
Start discovery Switch all on Switch all off Confirm	

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.

DALI advanced setup					_ 0	= X
DALI network discovery	Addr Nr	Device t	Signal n	Pulse we	Quality	
Swap addresses				•		٨
Execute DALI command						
Reset History						
History						
						v
	Active De	efault name				
	Assign addres	s:		Assign add	dress N	lext
					Confirm	





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.

DALI network discovery	Addr	Device type	Signal name	Pulse weight		_	_	Quality
Swap addresses		Fluorescent lamp	1: Office 1	Reset	Test	On	Off	
Execute DALI command	] :	Fluorescent lamp	2: Office 2	Reset	Test	On	Off	
Reset History	2	Pluorescent lamp	3: Root Dim	Reset	Test	On	Off	
History	-	Fluorescent lamp	4: Root Dim	Reset	Test	On	Off	
8:25 AM Initialized	4	Fluorescent lamp	5: Root Dim	Reset	Test	On	Off	
8:25 AM Receiving Discovery diagnostic - Initializing 8:25 AM Receiving Discovery diagnostic - Running		Fluorescent lamp	6: Root Dim	Reset	Test	On	Off	
8:25 AM Receiving Discovery diagnostic - Running 8:25 AM Receiving Discovery diagnostic - Terminated 8:25 AM Receiving Discover ballasts with address - Initializing 8:25 AM Receiving Discover ballasts with address - Running 8:25 AM Receiving Discover ballasts with address - Running			Reset ballasts wi	th the same add	ress			
		Default name						
8:25 AM Receiving Discover ballasts with address - Running 8:25 AM Receiving Discover ballasts with address - Running								
8:25 AM Receiving Discover ballasts with address - Running 8:25 AM Receiving Discover ballasts with address - Running								
8:25 AM Receiving Discover ballasts with address - Terminated 8:25 AM Receiving Find ballast with the same address - Initializir								
8:25 AM Receiving Find ballast with the same address - Running 8:25 AM Receiving Find ballast with the same address - Running								
8:25 AM Receiving Find ballast with the same address - Running								
9/26 AM Passiving Find ballact with the same address. Provide								
8:26 AM Receiving Find ballast with the same address - Running 8:26 AM Receiving Find ballast with the same address - Termina								

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	<ul> <li>Four actions are available:</li> <li>Reset: this resets the ballast address, bringing it back to factory settings</li> <li>Test: this sends an acknowledge command</li> <li>On: Swith on the selected lamp</li> <li>Off: Switch off the selected lamp</li> </ul>		
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.

Addr Nr	Device type	Signal name	Pulse weight	Quality
0	Fluorescent lamp	1: Office 1	Reset Test On Off	ń
1	Fluorescent lamp	2: Office 2	Reset Test On Off	100 %
2	Fluorescent lamp	3: Root Dimmer	Reset Test On Off	
3	Fluorescent lamp	4: Root Dimmer	Reset Test On Off	
4	Fluorescent lamp	5: Root Dimmer	Reset Test On Off	U
5	Fluorescent lamp	6: Root Dimmer	Reset Test On Off	
6	Fluorescent lamp	7: Root Dimmer	Reset Test On Off	
7	Fluorescent lamp	8: Root Dimmer	Reset Test On Off	
8	Fluorescent lamp	9: Root Dimmer	Reset Test On Off	•

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.

Addr Nr	Device type	Signal name	Pulse weight	Quality
0	Fluorescent lamp	1: Office 1	Reset Test On Off	Â
1	Fluorescent lamp	2: Office 2	Reset Test On Off	100 %
2	Fluorescent lamp	3: Root Dimmer	Reset Test On Off	
3	Fluorescent lamp	4: Root Dimmer	Reset Test On Off	
4	Fluorescent lamp	5: Root Dimmer	Reset Test On Off	U
5	Fluorescent lamp	6: Root Dimmer	Reset Test On Off	
6	Fluorescent lamp	7: Root Dimmer	Reset Test On Off	
7	Fluorescent lamp	8: Root Dimmer	Reset Test On Off	
8	Fluorescent lamp	9: Root Dimmer	Reset Test On Off	•

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.

				_ = ×
Addr	Device type	Signal name	Pulse weight	Quality
0	Fluorescent lamp	1: Office 1	Reset Test On Off	â
1	Fluorescent lamp	2: Office 2	Reset Test On Off	100 %
3	Fluorescent lamp	4: Root Dimmer	Reset Test On Off	U
4	Fluorescent lamp	5: Root Dimmer	Reset Test On Off	
5	Fluorescent lamp	6: Root Dimmer	Reset Test On Off	
6	Fluorescent lamp	7: Root Dimmer	Reset Test On Off	•
		Reset	ballasts with the same address	
Active	Default name			
	Device 0			On Off
Assign add	dress:			Assign address Next
				Confirm

All the modules can be reset and a temporary name will be assigned to each of them. As shown in the

Sx tool manual





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.

Active	Default name			Active	Default name
	Device 0				Device 0
	Device 1	On Off			Device 1
			-		
		<b>•</b>			
Assign add	dress:	Assign address Next		Assign add	dress:
		Confirm			





#### 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*.

					_ = ×
Ad.		Device type	Signal name	Pulse weight	Quality
	0	Fluorescent la	1: Office 1	Rest Test On Off	Â
	1	Fluorescent la	2: Office 2	Res Test On Off	100 %
	4	Fluorescent la	5: Root Dim	Rest Test On Off	U
	5	Fluorescent la	6: Root Dim	Rest Test On Off	
	6	Fluorescent la	7: Root Dim	Rest Test On Off	
	7	Fluorescent la	8: Root Dim	Rest Test On Off	•
			Reset ba	llasts with the same address	
Act	ive	Default name	_		
		Device 0			A
	7	Device 1			On Off
Assigr	n ad	ldress: 2			Assign address Next
					Confirm

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).



# **CARLO GAVAZZI** Automation Components

				_
Ad	Device type	Signal name	Pulse weight	Quality
0	Fluorescent la	1: Office 1	Reset Test On Off	
1	Fluorescent la	2: Office 2	Reset Test On Off	100 %
2	Fluorescent la	3: Root Di	Reset Test On Off	
4	Fluorescent la	5: Root Di	Reset Test On Off	
5	Fluorescent la	6: Root Di	Reset Test On Off	
6	Fluorescent la	7: Root Di	Reset Test On Off	
Reset ballasts with the same address				
Active	Default name			
$\checkmark$	Device 0			On Off
	Device 1			
sign ac	ddress: 2		Assi	gn address Next

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.

Add	Device type	Signal name	Pulse weight	Quality
0	Fluorescent lamp	1: Office 1	Reset Test On Off	Â
1	Fluorescent lamp	2: Office 2	Reset Test On Off	100 %
2		3: Root Dimmer	Reset	J
4	Fluorescent lamp	5: Root Dimmer	Reset Test On Off	
5	Fluorescent lamp	6: Root Dimmer	Reset Test On Off	
6	Fluorescent lamp	7: Root Dimmer	Reset Test On Off	T





#### 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.

DALI advanced setup		
DALI network discovery		
Swap addresses	2	4
Execute DALI command		
Reset History		
History		
8:36 AM Initialized 8:36 AM Running 8:36 AM Receiving Discovery diagnostic - Initializing 8:36 AM Receiving Discovery diagnostic - Running 8:36 AM Receiving Discovery diagnostic - Running 8:36 AM Receiving Discovery diagnostic - Terminated		





## 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 *Options* 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.

Wizard	• × •
Edit func	tion Dimmable light
	Options
Wizard Steps	Function name: (Fx) Dimmable light - Office 2
On/Off dim signals (S1)	Ramp time (s)
Controlled output	Output status if Dupline bus is faulty
Options	
Feedback signals	Allow to change scene
Energy save timer	Allow to save scene
	Power on level 10 🕃 Light level if DALI bus is faulty 10 🕃
	<<< >>>> Confirm

#### 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.

		SB2DALI230	Net 1	K5 SB2DALI230	001.021.008	<u>Root</u>	ve 🖳 💭
--	--	------------	-------	---------------	-------------	-------------	--------

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.

		$\mathbf{N}$
		$\sim$
Ballast number	DALI lamp failure DALI network short cit	rcuited DALI pow
1: Root Dimmer module KS Dimmer DALI 1		
2: Root Dimmer module K5 Dimmer DALI 2		
3: Root Dimmer module K5 Dimmer DALI 3		
4: Root Dimmer module K5 Dimmer DALI 4		
5: Root Dimmer module K5 Dimmer DALI 5		
6: Root Dimmer module K5 Dimmer DALI 6		
7: Root Dimmer module K5 Dimmer DALI 7		
8: Root Dimmer module K5 Dimmer DALI 8		
9: Root Dimmer module K5 Dimmer DALI 9		
10: Root Dimmer module K5 Dimmer DALI 1		
11: Root Dimmer module K5 Dimmer DALI 1		
12: Root Dimmer module K5 Dimmer DALI 1		
13: Root Dimmer module K5 Dimmer DALI 1		
14: Root Dimmer module K5 Dimmer DALI 1		
15: Root Dimmer module K5 Dimmer DALI 1		
16: Root Dimmer module K5 Dimmer DALI 1		
17: Root Dimmer module K5 Dimmer DALI 1		

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.





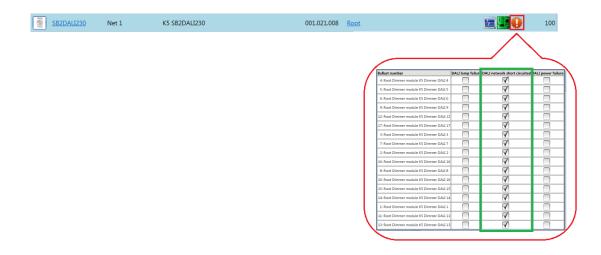
#### 12.11.1 DALI lamp failure

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).

SB2DALI230	Net 1	K5 SB2DALI230	001.021.008	Root			<b>.</b>	100
							$\square$	
					Ballast number	DALI lamo failure	ALI network short circuited	DALI power failure
				/	4: Root Dimmer module KS Dimmer DALI 4			
				- 1	5: Root Dimmer module KS Dimmer DALI S			
					6: Root Dimmer module KS Dimmer DALI 6			
					9: Root Dimmer module K5 Dimmer DALI 9			
					12: Root Dimmer module K5 Dimmer DALI 1			
					17: Root Dimmer module K5 Dimmer DALI 1			
					3: Root Dimmer module K5 Dimmer DALI 3			
					7: Root Dimmer module K5 Dimmer DALI 7			
					2: Root Dimmer module K5 Dimmer DALI 2			
					16: Root Dimmer module K5 Dimmer DALI 1			
					8: Root Dimmer module K5 Dimmer DALI 8			
					10: Root Dimmer module K5 Dimmer DALI 1			
					15: Root Dimmer module K5 Dimmer DALI 1	$\checkmark$		
					14: Root Dimmer module K5 Dimmer DALI 1			
					1: Root Dimmer module KS Dimmer DALI 1			
				1	11: Root Dimmer module K5 Dimmer DALI 1			
					13: Root Dimmer module K5 Dimmer DALI 1			
								/

#### 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:

	Function name: Parameter name Admin User				
	Read	Write	Read	Write	
Heating setpoint 1		 		· · · · · · · · · · · · · · · · · · ·	
Heating setpoint 2	$\checkmark$	$\checkmark$	$\checkmark$	×	
Heating setpoint 3	$\checkmark$	$\checkmark$	<b>~</b>	×	
Heating setpoint 1 dead-band	<b>V</b>	$\checkmark$	<b>~</b>	×	
Heating setpoint 2 dead-band	<b></b>	<b>V</b>	<b>V</b>	×	
Heating setpoint 3 dead-band	<b>V</b>	<b>V</b>	<b></b>	×	
(Fx) Root - Zone temperature.Status	<b></b>	<b>V</b>	<b>~</b>	×	
H H H	leating setpoint 2 leating setpoint 3 leating setpoint 1 dead-band leating setpoint 2 dead-band leating setpoint 3 dead-band	leating setpoint 2 leating setpoint 3 leating setpoint 1 dead-band leating setpoint 2 dead-band leating setpoint 3 dead-band leating setpoint 3 dead-band	leating setpoint 2     Image: Comparison of the setpoint 2       leating setpoint 3     Image: Comparison of the setpoint 1 dead-band       leating setpoint 2 dead-band     Image: Comparison of the setpoint 2 dead-band       leating setpoint 3 dead-band     Image: Comparison of the setpoint 3 dead-band	leating setpoint 2     V     V     V       leating setpoint 3     V     V     V       leating setpoint 1 dead-band     V     V     V       leating setpoint 2 dead-band     V     V     V       leating setpoint 3 dead-band     V     V     V	

The **Admin** column is the admin account (by default read and write permissions are all ticked, indicating full access to all the functions). **User** 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 User account can change the heating setpoint 1 value; other settings are not editable; however, the Admin account has full access to all the parameters.

By means of the *Filters options* menu, available in the top area of the *Functions* window, the user can enable or disable all the permissions for reading /writing functions.

In the picture below, all the Write permissions are enabled for the User account.

# **CARLO GAVAZZI** Automation Components



				min - read 🕑 🕱 min - write 🕑 🕱	Filter option User - read User - write 💽
Function name:	Parameter name	Admin		User	
		Read	Write	Read	Write
(Fx) Root - Zone temperature	Heating setpoint 1				
(Fx) Root - Zone temperature	Heating setpoint 2		$\checkmark$		×
(Fx) Root - Zone temperature	Heating setpoint 3	<b>~</b>	<b>~</b>	<b>~</b>	×
(Fx) Root - Zone temperature	Heating setpoint 1 dead-band	<b>V</b>	<b>V</b>		×
Fx) Root - Zone temperature	Heating setpoint 2 dead-band		<b>~</b>	<b></b>	×
Fx) Root - Zone temperature	Heating setpoint 3 dead-band	<b>~</b>	<b>~</b>		×
Fx) Compatibility - Dupline: Temperature regul	Cooling setpoint value	<b>~</b>	<b>~</b>		×
· · · · · · · · · · · · · · · · · · ·				min - read 🕑 🕱 min - write 🕑 🕱	Filter option: User - read 🕑 User - write 💌
unctions Users	Parameter name	Admin			User - read 👿
unctions Users	Parameter name	Admin		min - write 💌 💌	User - read 👿
unctions Users	Parameter name Heating setpoint 1		Ad	min - write 💌 💌 User	User - read 👻 User - write 💽
unctions Users unction name: Fx) Root - Zone temperature		Read	Ad	min - write <table-cell> 🕷 User Read</table-cell>	User - read 🐨 User - write 🐨 Write
unctions Users unction name: Fx) Root - Zone temperature Fx) Root - Zone temperature	Heating setpoint 1	Read	Ad Write	min - write 🕑 🕷 User Read	User - read 🕑 User - write 💽 Write
Function name: Fxx Root - Zone temperature FxX Root - Zone temperature FxX Root - Zone temperature FxX Root - Zone temperature	Heating setpoint 1 Heating setpoint 2	Read	Ad Write	min - write 🕑 🕷 User Read 🕑	User - read Ver - read Ver - read Ver - vrite
Functions Users Function name: (Fx) Root - Zone temperature (Fx) Root - Zone temperature (Fx) Root - Zone temperature (Fx) Root - Zone temperature	Heating setpoint 1 Heating setpoint 2 Heating setpoint 3	Read	Adi Write	win - write V 🕷 User Read V V	User - read V User - write V Write V V
Function name: Function name: (Fx) Root - Zone temperature (Fx) Root - Zone temperature	Heating setpoint 1 Heating setpoint 2 Heating setpoint 3 Heating setpoint 1 dead-band	Read	Ad	min - write v x User Read v v v	User - read V User - write V Vrite V V V V V V V

The access data for the two accounts can be configured by entering the *Users* window. The admin account (Admin) 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 (User) has a lower priority: it has access to and control of only the ticked functions.

Parameter access p	oolicies		×
Functions Use	rs		
Admin		User	
Name	Admin	Name	User
Surname	Default	Surname	Default
Username	admin	Username	user
Password	admin	Password	user
			Close

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.



The previous version of web server is available by typing the controller IP address with */app* (e.g. *http://192.168.2.71/app*), as shown in the picture below.

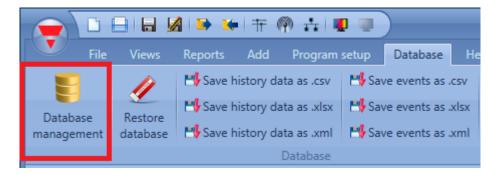
CARLO GAVAZZI ×	
← → C fi ] ip address of controller/app	우☆ ≡
CARLO GAVA	221
User ad Password ···· Login Ramember password	
Login	





## 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).

Wizard	
Edit func	tion Database management
	Data history
Wizard Steps	Function name: (Fx) Root - Database
Data history	Signals Notes
Data event	1: Temperature1
Webserver, live signals	16: Total house consumption
Options	1: Plug energy consumption
<ul> <li>Advanced</li> </ul>	8: Temperature2
	🔒 4: Light measurement-North
	-@ 3: Plug power Watt 1
	🔒 5: Light measurement-South
	S: Humidity2
	Confirm

*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).



# **CARLO GAVAZZI** Automation Components

Wizard		
Edit fund	ction Database management	
	Data event	
Wizard Steps	Function name: (Fx) Root - Database	
Data history	Signals Notes	
Data event	Fx) Bathroom - Washing machine.Status	
Webserver, live signals	💡 (Fx) Kitchen - Oven.Status	
<u>Options</u>	💡 (Fx) Kitchen - Cooker light.Status	
<ul> <li>Advanced</li> </ul>	💊 (Fx) Bedroom - Bedside light.Status	
	💡 (Fx) Living room - Wall light.Status	
	💡 (Fx) Living room - Corridor.Status	
	💡 (Fx) Bathroom - Mirror light.Status	
	1: Root - House - Wireless K3 Re 1	
	9: Root - House - Cabinet - Relay module K5 Re 1	
	10: Root - House - Cabinet - Relay module K5 Re 2	
	1: Poot House Cabinet Polay module K6 Po 1	
	Con	firm

- Values over webserver, live signals: All the values added here are 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.

Wizard		□ ×
Edit funct	Database management	
	Webserver, live signals	
Wizard Steps Data history Data event Webserver, live signals Options Advanced	Function name:       (Fx) Root - Database         Signals       Notes         I: Temperature1       1: Temperature2         5: Light measurement-South       5: Light measurement-North         I: Total house consumption       1: Plug energy consumption         I: Plug energy consumption       5: Humidity2	
		_
	<<< >>>> Co	nfirm

- *Options*: All logged variables are stored in the Database according to the time set in the Option tab-window.



# **CARLO GAVAZZI** Automation Components

Wizard			
Edit funct	tion Database manager	ment	
			Options
Wizard Steps	Function name: (Fx) Root - Datab	oase	
Data history	Data logging time interval (min)	5	
Data event		1	
Webserver, live signals Options		2 3	
Advanced		5	
		10	
		12 15	
		20	
		30	
	<<< >>>>		Confirm

## 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.

		🕒 🗱 🕂 🖗 🕂 🖉	💭 Smart He	ouse Configurator *	D:\Docume			
File Views Reports Add Program setup Database Help								
<b>E</b>	11	Save history data as .csv	Bave events as .csv	(				
Database management	Regenerate database	Save history data as .xlsx	Save events as .xlsx	Open web report page				
		Database						
Locations	Locations							
Root								
🖬 🗑 House								

Regenerate 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

🗶   🛃 🖤 • 🗟 •   =								
File	e Ho	me Inse	rt Pag	e Layout	t	Formulas	Data	Rev
*	1	習 !				0	Connect	
From	n From	From From	n Other	Existin	a	Refresh	Properti	
Acces	s Web			Connect		00	Edit Link	s
Get External I			Data			Connections		
A1 $\checkmark$ $f_x$								
	А	В	С	(	D	E	F	
1								
2		[						
3								

2. Select the CSV file and click on Next

The Text Wizard has determined that your data is Delimited. If this is correct, choose Next, or choose the data type that best describes your data. Original data type Choose the file type that best describes your data:
Original data type
Choose the file type that best describes your data:
Delimited - Characters such as commas or tabs separate each field.
Fixed width - Fields are aligned in columns with spaces between each field.
Start import at row: 1 File origin: 65001 : Unicode (UTF-8)
Preview of file G:\BM0760001001U_2013-11-26_03.30.00_Sdata.csv.
1 "Position"; "Timestamp"; "Date"; "Hour"; "Part Number"; "Object Name"; "Location"
2 1;1385389832;11/25/2013;15:30:32;"SH2D500WE230";"K9 SH2D500WE230";"Root" 3 2;1385389892;11/25/2013;15:31:32;"SH2D500WE230";"K9 SH2D500WE230";"Root"
43;1385389951;11/25/2013;15:32:31;"SH2D500WE230";"K9 SH2D500WE230";"Root";
54;1385390011;11/25/2013;15:33:31;"SH2D500WE230";"K9 SH2D500WE230";"Root" -
< >
Cancel < Back Next > Finish

3. Select the character ";" as delimiter, then click on Next Text Import Wizard - Step 2 of 3

This screen lets you set below.	the delimiters your dat	a contains. N	'ou can see how yo	ur text is affected in th	ne preview
Delimiters	Treat consecutive	delimiters as	one		
Data preview					
2 138538 3 138538	amp Date 9832 11/25/2013 9892 11/25/2013 9951 11/25/2013 0011 11/25/2013	15:31:32 15:32:31	SH2D500WE230 SH2D500WE230	Object Name K9 SH2D500WE230 K9 SH2D500WE230 K9 SH2D500WE230 K9 SH2D500WE230	Root Root
•		Cancel	< <u>B</u> ack	<u>N</u> ext >	► <u>F</u> inish





4. In the data click on Advanced and select dot "." as decimal separator, leaving empty the thousands separator

his screen lets you sele Column data format	ct each col	umn and set the Data Format.				
		'General' converts numeric values to numbers, date values to dates, and all remaining values to text.				
○ Date: DMY		Advanced				
🔘 Do not import colu	mn (skip)					
Data greview           Eeneral         Eeneral           Position         Timest           1         138538           2         138538           4         138538	Settings Decima Thousa Note: I specific	d Text Import Settings used to recognize numeric data al separator:				

5. Click on OK and then on Finish





# **15 How to configure Modbus**

First, the Modbus protocol should be enabled in the Project setup menu in the field Communication settings.

	) 🗈 🔒 🔚 🗖 🛸 🗰 🕇	👘 📩 🔳 🔳			[File not saved] - 5.0.2
	File Views Reports Ado	Program setup Database Help			
-	Sa 🖉 🖉		IP Dyn DNS	<b>6</b>	<b>*</b>
Project setup	System Webserver Password setup accounts	Save modbus Modbus Modbus TCP connectio map as .csv management editor	ns IP DynDNS setup Setup		Export system Imp settings
L	General settings	Create	Network settings	Controller	System setti
Location	ns				
e	🛚 🐺 Root	😑 💿 🔵			
	/izard				□ ×
	🚳 🛶 🛛 Setup pro	gram properties Edit program p	roperties		
P			Communic	ation settings	
	Vizard Steps	Modbus TCP/IP slave Modbus RTU Com 1 slave			
	Properties System information	Enable Modbus TCP/IP			
Mod	Communication settings	Enable MSWord - LSWord modality	<ul><li>✓</li></ul>		
	Advanced settings Module tags	TCP Port	502 🛟		=
	Customised locations	Modules are automatically added to the Modbus map			
	ETP push/pull	Functions are automatically added to the Modbus map	✓		
		Data connection in progress Only LAN			
H		PPP modem APN			
Ч		DDD modem connection number			•
		<			Confirm

#### 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).

#### Modules are automatically added to the Modbus map

Each time a module is added into the project, the tool automatically adds the command descriptions and the corresponding tables to the Modbus map.

#### Functions are automatically added to the Modbus map

Each time a function is added into the project, the tool automatically adds the command descriptions and the corresponding tables to the Modbus map.





### 15.1.1 Modbus management

The user can access to the *Modbus management* window by selecting *Program setup* and then clicking on the *Modbus management* icon.

		8 🛛	+ 🔶 🕂	🦚 📩 🛡				
	File \	/iews Repo	orts Add	Program set	up Database	Help		
-		ß	Ø					
Project setup	System setup	Webserver accounts	Password	Save modbus Modbus Modbus TCP conne map as .csv management editor				
	Gene	eral settings			Creat	e		
Location	s							

The *Modbus management* window allows the user to configure the signals to read and write via Modbus. They are split into two groups:

- Modbus signals related to modules;
- Modbus signals related to functions

In the first column the user can select which functions/modules have to be added to the Modbus map: if the user clicks on the *small green V* icon, as shown in the green rectangle in the picture below, the selected modules/functions will be added to the Modbus map; otherwise if the user clicks on the small red cross, as shown in the red rectangle, the selected modules/functions will not be added to the Modbus map.

-			Name	Part number	Use different Id	Id	Туре	Address	Address (Hex)	Length (word)	
- (	2	0	(Fx) Bathroom - Washing machine	Light function	×	1					
-	2	0	(Fx) Kitchen - Oven	Light function	×	1					
-	2	0	(Fx) Kitchen - Cooker light	Light function	×	1					
-	2	0	(Fx) Bedroom - Bedside light	Light function	×	1					
H	2	Ŷ	(Fx) Studio - Studio Light	Dimmable light	*	1					
1	2	0	(Fx) Living room - Wall light	Light function	*	1					
-	2	0	(Fx) Living room - Corridor	Light function	*	1					
	2	0	(Fx) Bathroom - Mirror light	Light function	×	1					
	2	1	(Fx) Kitchen - climate control	Zone temperatu	×	1					
	2	9	(Fx) Garden - Garden light	Light function	×	1					
	<b>2</b>	1	(Fx) Bathroom - climate control	Zone temperatu	×	1					
-	2	]]1	(Fx) Studio - climate control	Zone temperatu	×	1					
-	2	]]1	(Fx) Bedroom - climate control	Zone temperatu	×	1					
-	2	]]1	(Fx) Living room - Living room climat	Zone temperatu	×	1					
-	2	12	(Fx) House -Good morning	Sequence	×	1					
-	<b>×</b>	12	, (Fx) House - Good night	Sequence	×	1					
0	<b>×</b>	12	, (Fx) House -Good bye	Sequence	×	1					
0	2	12	(Fx) House - Wellcome	Sequence	×	1					
E	56	_									

If the user clicks on the *expand/collapse* button, a selective selection of the signals (for modules and functions) can be done.





In the example shown below in the yellow rectangle, the function (fx) Bathroom - Washing machine is fully available in the Modbus map. While as shown in the blue rectangle, the function (fx) Kitchen – Oven has only the status signal available in the Modbus map.

9	ystem setup Gener	Web acco	ounts map as .csv mana		connections IP E	Setup a	iet date nd time Controller	Export system Impor	t system ttings s			
	unugen		Name	Part number	Use different Id	Id	Туре	Address	Address (Hex)	Length (word)	Mult.	Filter opti
9		6	(Fx) Bathroom - Washing machine	Light function		10	туре	Address	Address (Hex)	Length (word)	muit.	system name
-	•		(Fx) Bathroom - Washing machine (Fx) Bathroom - Washing machine	Light function	•	1	Input Register	0	H0000	UInt16 (1 Word)	1	
		-	(Fx) Bathroom - Washing machine (Fx) Bathroom - Washing machine	Light function			Holding Register	0		UInt16 (1 Word)		Status
9			(Fx) Kitchen - Oven	Light function	×	1		, i i i i i i i i i i i i i i i i i i i	10000	0.112012110101	-	Status
Ē	×	0		Light function				34				
	×	0										
	×	I										
	×	Q						40				
Н	<b>V</b>	0	(Fx) Kitchen - Oven	Light function			Holding Register	38	H0026	UInt16 (1 Word)	1	Status
	×	Q										
	×	Q										
	×	Q										
	×											
	×	×						45				
	×							48				
Ч	×		(Fx) Kitchen - Oven	Light function			Holding Register	49	H0031	UInt16 (1 Word)	0.001	Pir switches or
9	_		(Fx) Kitchen - Cooker light	Light function	×	1						
2	8		(Fx) Bedroom - Bedside light	Light function	×	1						

#### 15.1.2 How to change the default Modbus ID

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.

		_		Name	Part number	Use different Id Id	Туре	Address	Address (Hex)	Length (word)	Mult.	System r
0	2	*	6	K5 SH2RE16A2E230	SH2RE16A2E230	2						
		×	-00		SH2RE16A2E230				H0000			
		×	0		SH2RE16A2E230				H0002			
		<b>V</b>	-00	3: Root - House - Cabinet - Relay mo	SH2RE16A2E230		Input Register	4	H0004	UInt32 ( 2 Word )	0.1	Watt
		×	<b></b>	4: Root - House - Cabinet - Relay mo	SH2RE16A2E230				H0006			
		×	-		SH2RE16A2E230			8	H0008			var
		<b>V</b>	-🔿	6: Root - House - Cabinet - Relay mo	SH2RE16A2E230		Input Register	10	H000A	UInt32 ( 2 Word )	0.001	Ampere
		×	-00		SH2RE16A2E230				H000C			
		×	•		SH2RE16A2E230				HOOOE			
		×	N		SH2RE16A2E230				H0010			
		×	2	10: Root - House - Cabinet - Relay m	SH2RE16A2E230		Holding Register	17	H0011			
8	<b>e</b>	×	6	K90 SH2RE16A2E230	SH2RE16A2E230	<b>≥</b> 3						
		×	-00		SH2RE16A2E230				H0000			
		×	0	2: Root - Relay module K90 Wdmd 1	SH2RE16A2E230				H0002			
		<b>V</b>	-00	3: Root - Relay module K90 Watt 1	SH2RE16A2E230		Input Register	4	H0004	UInt32 ( 2 Word )	0.1	Watt
		×	<b></b>	4: Root - Relay module K90 VA 1	SH2RE16A2E230				H0006			
		×	1	5: Root - Relay module K90 var 1	SH2RE16A2E230			8	H0008			var
		<b>V</b>	-🔿	6: Root - Relay module K90 Ampere 1	SH2RE16A2E230		Input Register	10	H000A	UInt32 ( 2 Word )	0.001	Ampere
		×	-00	7: Root - Relay module K90 Volt 1	SH2RE16A2E230				H000C			
		×	•		SH2RE16A2E230				HOOOE			
		×	2	9: Root - Relay module K90 Re 1	SH2RE16A2E230				H0010			
		×	2	10: Root - Relay module K90 Re 2	SH2RE16A2E230				H0011			
•		8	6	K6 SH2RE16A4	SH2RE16A4	<b>X</b> 1						

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





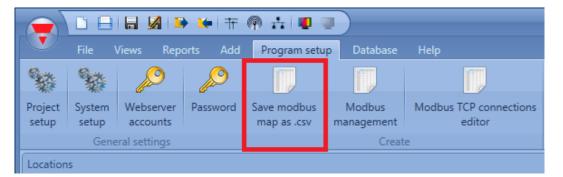
Туре	Function name		Id	Address	Address (hex)	Туре	Mult.	System name	Туре
SH2RE16A2E23 0	3: Root - House - Cabinet - Relay module K5 Watt 1	IR	2	4	H0004	UInt32	0.1	Watt	w
SH2RE16A2E23 0	6: Root - House - Cabinet - Relay module K5 Ampere 1	IR	2	10	H000A	UInt32	0.001	Ampere	A
SH2RE16A2E23 0	Watt 1		3	4	H0004	UInt32	0.1	Watt	W
SH2RE16A2E23 0	6: Root - Relay module K90 Ampere 1	IR	3	10	H000A	UInt32	0.001	Ampere	А

module K90 is addressed using Modbus ID 3.

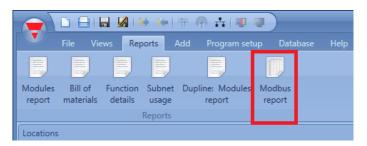
#### 15.1.3 How to save the Modbus map

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* in *Program setup* menu.

This Modbus map file can be directly read by the configuration software of the BTM-Tx-24 display.



All the Modbus addresses are also reported in *Modbus report* pdf file, in the *Reports* menu (it shows the same info as the .csv file but in pdf format).



By clicking on the icon *Modbus report*, the Modbus table with all the mapped values is shown (see picture below).

# **CARLO GAVAZZI** Automation Components



Туре	Function name		Id	Address	Address (hex)	Туре	Mult.	System name	Туре
Dimmable light	(Fx) Studio - Studio Light	HR	1	152	H0098	UInt16	1	Status	
Dimmable light	(Fx) Studio - Studio Light	HR	1	154	H009A	UInt32	1	Energy save delay (s)	s
Dimmable light	(Fx) Studio - Studio Light	HR	1	156	H009C	UInt16	1	Light threshold (Lux)	Lux
Dimmable light	(Fx) Studio - Studio Light	HR	1	157	H009D	UInt16	1	Cloud filter (s)	s
Dimmable light	(Fx) Studio - Studio Light	HR	1	160	H00A0	Int16	1	Scenario when the light gets belowthe threshold (%)	
Dimmable light	(Fx) Studio - Studio Light	HR	1	161	H00A1	Int16	1	Scenario when the light gets above the threshold (%)	
Dimmable light	(Fx) Studio - Studio Light	HR	1	163	H00A3	Int16	0.1	Action when the light gets below the threshold	%
Dimmable light	(Fx) Studio - Studio Light	HR	1	164	H00A4	Int16	0.1	Action when the light gets above the threshold	%
Dimmable light	(Fx) Studio - Studio Light	HR	1	170	H00AA	UInt16	0.1	S2(%)	%
Dimmable light	(Fx) Studio - Studio Light	HR	1	171	H00AB	UInt16	0.1	S3(%)	%
Dimmable light	(Fx) Studio - Studio Light	HR	1	172	H00AC	UInt16	0.1	S4(%)	%
Dimmable light	(Fx) Studio - Studio Light	HR	1	173	H00AD	UInt16	0.1	S5(%)	%
Light function	(Fx) Living room - Wall light	IR	1	196	H00C4	UInt16	1	Diagnostic flag	
Light function	(Fx) Living room - Wall light	HR	1	229	H00E5	UInt16	1	Status	
Light function	(Fx) Living room - Corridor	IR	1	230	H00E6	UInt16	1	Diagnostic flag	
Light function	(Fx) Living room - Corridor	IR	1	233	H00E9	UInt16	0.001	Lux interval name	Number
Light function	(Fx) Living room - Corridor	IR	1	234	H00EA	UInt32	1	Energy save timer	s

If all the addresses have to be reset and a new map is needed, the user has to click on the *Modbus management* icon and press *Regenerate Modbus map*, as shown in the picture below.

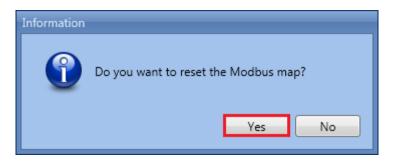
			Name	Part number	Use different Id	Id	Туре	Address	Address (Hex)	Length (word)	
3		6	(Fx) Bathroom - Washing machine	Light function	×	1	туре	Address	Address (nex)	Lengar (word)	
0		U C	(Fx) Kitchen - Oven		×	1					
	00	No.		Light function		-					
			(Fx) Kitchen - Cooker light	Light function	*	1					
	<b>V</b> 関	V	(Fx) Bedroom - Bedside light	Light function	×	1					
	M 🗶	Ŷ	(Fx) Studio - Studio Light	Dimmable light	×	1					
•	M 🐹	0	(Fx) Living room - Wall light	Light function	×	1					
۵	💌 🕱	0	(Fx) Living room - Corridor	Light function	×	1					
•	💌 🕱	0	(Fx) Bathroom - Mirror light	Light function	×	1					
	<b>()</b>	1	(Fx) Kitchen - climate control	Zone temperatu	*	1					
۵	<b>V X</b>	0	(Fx) Garden - Garden light	Light function	×	1					
	<b>V</b>	1	(Fx) Bathroom - climate control	Zone temperatu	×	1					
	<b>V X</b>	1	(Fx) Studio - climate control	Zone temperatu	×	1					
•	<b>()</b>	1	(Fx) Bedroom - climate control	Zone temperatu	×	1					
		11	(Fx) Living room - Living room climat	Zone temperatu	*	1					
		12	(Fx) House -Good morning	Sequence	×	1					
Ī		12	(Fx) House - Good night	Sequence	*	1					
0		12	(Fx) House -Good bye	Sequence	*	1					
		1,	(Fx) House - Wellcome	Sequence	*	1					
Ī		3	(FX) House - Wellcome	Sequence		1					

Sx tool manual





A window is shown and the user has to click on Yes to generate a new Modbus map.







# 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.

	Smart House Configurator	[ C:\Documents and Setting	gs\userut\Documenti\cc	vrifigurazioni/example.shweb ] - 0.1.30.2 문 2
File Venn Ropots Add Setup Help	Image: Colorador         Image: Colorador<	lated Sms Car ation setup heating		
Locazioni			# X	Funzioni # ×
🖻 🐺 Root				Filter options 🕑
				(Fx) living room - Light function
• Eving room				living room
- 🐼 kitchen				○ Light off
Cabinet				Used signals
Cabillet				1: living room Pir 1 Off:Pre
				A tiving toom 1 and a state of the state
			I	1: living room Switch K6 Push 1 Off
			I	5: living room Switch K6 Led 1 Off
			I	9: Cabinet Relay module K7 Re 1 Off
Location   Segnali Find text	7) Only used signals 📄 Only signals in highlighted modules	Group by module	Filter options	
			26.90	Parameters
1: living room Temperature 1     3: Cabinet Dimmer module K4 Watt 1			2,6 ℃	Available output status
Gabinet Dimmer module K4 Watt 1     Gebinet Dimmer module K4 Volt 1			10.5 V	(Fx) living room - Analog Comparator
1: living room Pir 1			)ff:Pre	Living room
4: living room Luxmeter 1			082 Lux	
1: living room Switch K6 Push 1			off	Used signals
5: living room Switch K6 Led 1			off	1: living room Temperature 1 22,6 °C
9: Cabinet Relay module K7 Re 1			off	
· · ·			•	•
Moduli Segnali Debug				Funzioni
Ocontroller IP: 192.168.3.126 Disconnect 🗎 (1 🔎 C	Controller time: 03.41 02/01/2012:			Project name:

#### 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 noise level, as shown in the picture below.





File Views Reports Add Setup Help				b]-0.1.30.2
Bus Module Location Upt & Upt & Upt and down Temperature Modules Locations		s Car heating		
ocazioni			4 × Funzioni	
🗉 🐺 Root				Filter option
Ilving room     Skitchen     Cabinet	Net 2           In Of used (Matt Of used (Matters Consumption (sea))           6/119         1/111           10         User Consumption           Voltage (N)         Owner (sea)           0         0			(Fx) living room       Light function         Light off       Image: State
seation			• • •	[Wing room (Fx) living room - Analog Comparator Iwng room
		Filter	options (V)	
K3 BSI-TEMANA-U 001.010.135			â	
1: living room Temperature 1		001.010.135 22,3 °C		
K4 SH2D500WE230 011.022.033			U	
3: Cabinet Dimmer module K4 Watt 1		011.022.033 0 W		
Cabinet Dimmer module K4 Volt 1		011.022.033 210,5 V		
K5 SHA4XP90L 011.012.013				
1: living room Pir 1		011.012.013 Off:Off		
4: living room Luxmeter 1		011.012.013 838 Lux	<b>T</b>	
			Funzion	N I I I I I I I I I I I I I I I I I I I
oduli Segnali Debug	Controller time: 03.53 02/01/2012			

#### 16.1.4 How the quality index works

The quality index of the bus signals is shown in the Sx tool for each Smart Dupline and WiDup modules, when the live signals are enabled. The quality index is represented by a percentage number between 0 (Low quality) and 100 (High quality) and it shows the communication quality between a module and the relevant master generator, such as SH2MCG24 or SH2WBU230x.

#### 16.1.4.1 Checking the quality index for a Smart Dupline wired network

The quality index for a Smart Dupline network is represented by the ratio between signals without noise and signals with noise. Usually the noise is generated by the activation or deactivation of inductive loads and contactors. In such situations we recommend to use shielded cables and keep the wire away from contactors, relays, motors and other inductive noise sources. (Please refer to the Hardware manual for instructions).

As concerning the quality index shown in the *Live signals* field for each module, the higher the number the better the communication quality to the master. When one or more Smart Dupline modules are affected by noise, the quality index value is immediately updated by the tool.

The value slowly goes back to 100 only when no channels are noisy. A quality index below 100 occurs when a Smart Dupline network is affected by critical conditions and it anticipates the evidence of network issues. Thanks to this, the installer will be informed in order to make the fault-finding much easier.





## 16.1.4.2 How to check the quality index of a Smart Dupline master generator

The quality index level shown for the SH2MCG24 master generator represents the "healthy" status of all the input channels managed. This parameter is calculated by the Sx2WEB24 controller and it is shown in the Sx tool with a percentage number between 0 and 100. The picture below shows the quality index for a SH2MCG24 module.

Locations				0		# ×
🗉 🗹 🧒 House	2			0	<b>)</b>	•
Modules						<b></b> т ×
						Filter options 😔
Part number	Subnet	Name	SIN	Location	Quality Ind	Diagnostic
• SH2MCG24	Net 1	K2 SH2MCG	001.047.203	<u>Cabinet</u>	100	

#### 16.1.4.3 How to check the quality index of a Smart Dupline module

The quality index level shown for a Smart Dupline module represents the "healthy" status of its Smart Dupline output channels. This parameter is calculated by the Sx2WEB24 controller and it is shown in the Sx tool with a percentage number between 0 and 100. The picture below shows the quality index of the Smart Dupline modules that are part of the *Net1* network.

Location	IS						д	×
	Root				0	P 🕘		
• •	🛛 🕢 🕡 House				0			•
Module	5							×
							Filter options (	•
	Part number	Subnet	Name	SIN	Location	Quality Index	Diagnostic	
	SH2MCG24	Net 1	K2 SH2M	001.047.203	<u>Cabinet</u>	100	1	Â
	SH2RE16A2E230	Net 1	K5 SH2RE1	001.023.236	<u>Cabinet</u>	100	ve 🖳 😹	U
	SH2RE16A4	Net 1	K6 SH2RE1	001.205.086	<u>Cabinet</u>	100	<u>. </u>	
	SH2D500WE230	Net 1	K8 SH2D50	001.229.051	<u>Cabinet</u>	100	<u>.                                    </u>	
	SH2ROAC224	Net 1	K9 SH2RO	001.030.156	<u>Cabinet</u>	100	<u>.</u>	
	B4X-LS4-U	Net 1	K13 B4X-LS	001.020.175	<u>Studio</u>	100	<u>.</u>	
	SHA4XTEMDIS	Net 1	K11 SHA4X	001.018.117	<u>Kitchen</u>	100	<b>E</b>	v





## 16.1.4.4 How to check the quality index of a wireless module

The quality index for a wireless module is calculated considering the distance between the SH2WBU230x and a wireless module and the power ratio for the radio communication from the receiver to the transmitter.

For the wireless modules the quality index is represented by two different values: the transmission quality index, as shown in the picture below, in the TX field and the receiver quality index, as shown in the picture below, in the RX field.

Onderdeel n	Subnet	Naam	SIN	Plaats	Diagnostic	Quality Index
SHJWEM16A23	draadloos 2	Kwh WCD	020.132.173	<u>App. 206</u>		TX:77 RX:100
SHJWEM16A23	draadloos 2	KWh badkamer	020.132.178	<u>App. 206</u>		TX:29 RX:74
SHJWEM16A23	draadloos 2	KWh keuken	020.133.014	<u>App. 206</u>		TX:61 RX:77
SHJWEM16A23	draadloos 2	KWh koof	020.130.174	<u>App. 206</u>		TX:96 RX:77
SHJWEM16A23	draadloos 2	KWh woonkamer	020.132.185	App. 207		TX:100 RX:100
SHJWEM16A23	draadloos 2	KWh WCD	020.133.012	App. 207		TX:100 RX:100
SHJWEM16A23	draadloos 2	KWh badkamer	020.132.253	App. 207		TX:90 RX:100

#### 16.1.4.4.1 Rx value for a wireless module

The RX quality index is calculated directly by each wireless module, analysing the received radio frames sent from the SH2WBU230x: if all the frames sent are received correctly, the RX value is 100 (high quality). A value below 100, indicates that some frames are not received by the wireless module. Anyway the protocol is designed to repeat not received commands.

A SHJWD200WExxxx, a SHJWEM16Axxx or a SHJWRE10AExxx should be used as a router/repeater when the RX value is below 50.

## 16.1.4.4.2 TX value for a wireless module

The TX quality index of a wireless module is calculated by the SH2WBU230x, analysing the radio frames received by the wireless module. If all the frames sent are received correctly, the TX value is 100 (high quality). A value below 100, indicates that some frames are not received by the wireless base unit. If a wireless module is connected to the SH2WBU230x via a router, the TX value is referred to the quality index of the wireless module used as a router in the configuration.





When the *RX/TX* index is below 50, we suggest to extend the operating distance using a SHJWD200WExxxx, a SHJWEM16Axxx or a SHJWRE10AExxx as router/repeater.

In the example shown below, a router/repeater should be used for the wireless module marked in red to extend the operating distance.

Location	IS						д
• 🗆 🗸	Root			0	•		
E	🖅 🕡 House			0	$\bigcirc$		
Module	;						д
							Filter options (
	Part number	Subnet	Name	SIN	Location	Diagnostic	Quality Index
	SH2WBU230	Wireless 1	K1 SH2WBU230	001.190.117	<u>Cabinet</u>		100
	SHDWRE16AE230	Wireless 1	K3 SHDWRE16AE230	001.206.130	<u>House</u>		TX:89 RX:89
	SHA4XWLS4	Wireless 1	K4 SHA4XWLS4	001.208.145	<u>Kitchen</u>	🏊 🔛 🧵 2.71 V	TX:80 RX:40

#### 16.1.5 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.

Modules							車 :
			-				Filter options (
	Part number	Subnet	Name	SIN	Location	Quality Index	Diagnostic
	SH2WBU230	Wireless 1	K1 SH2WBU230	001.190.117	<u>Cabinet</u>	100	2
	SH2MCG24	Net 1	K2 SH2MCG24	001.047.203	Cabinet	100	
	SHDWRE16A	Wireless 1	K3 SHDWRE16AE230	001.207.179	<u>House</u>	96	<b>2</b>
	SHA4XWLS4	Wireless 1	K4 SHA4XWLS4	001.208.145	<u>Kitchen</u>	40	🎦 🔛 🥼 3.05 V
	SH2RE16A2E	Net 1	K5 SH2RE16A2E230	001.023.236	<u>Cabinet</u>	100	
	SH2RE16A4	Net 1	K6 SH2RE16A4	001.205.086	<u>Cabinet</u>	100	
	SH2D500WE2	Net 1	K8 SH2D500WE230	001.229.051	Cabinet	100	æ ¥,
Modules	Signals					· · · · · · · · · · · · · · · · · · ·	





# 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.

	📻 🗋 🔒 📓 🐌 🗯 📅 🏟 🕂 🖉 🔳 Smart House Configurator * [ D:\Documents\democase\Democaseshweb ] - 1.1.2												
	File	Views	Reports A	dd Program se	tup	Database	Help						
			6	Wired download Wireless download	√ v be		<b>(</b>	Ť	P	+	4	<u> </u>	
New	Open	Save	Save as new configuration	Reprogram mod		Send to controller	Read from controller	Modules	Orphans modules	Controllers	Enable live signals		
		Project			Config	uration			Discovery	/	Live s	signals	
Locat	ions												
• 🖻	Roc	ot					0						
	⊡- 🕡	House					0						

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.

	DE		<b>X   D   D  </b>	Ŧ 🖗 ±   🖷 🖉 🔵	Sm	art House Co	nfigurator *	[D:\Docume	ents\democase	e\Democase.sl	1.1.2 ] - 1.1.2	
	File	Views	Reports /	dd Program setup [	Database	Help						
			6	Wired download 🗸 Wireless download			-	P	-	4	<b>1</b>	
New		Save	Save as new configuration	Reprogram modules							Disable live signals	
		Project		Configu	uration			Discovery		Live s	ignals	
Locatio	ns											
• 8-	Roc	ot				0						
	<b>-</b>	House										

## 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

	) 🔒 🔒 💋	🗈 🌾   午	🖗 👬 🖳		Smart Ho	ouse Configurator * [	D:\Doci
F	ile Views	Reports Add	Program set	up Database	Help		
	1	Save history				۲	
Database managemer	Regenerate database	Save history				Open web report page	
			Database				
Locations							
• =- 🐺	Root					0	
	👩 House					0	





2) Select *Values on TCP/IP and live signals* and double click anywhere in the window to enter the list of available signals

Wizard		
Edit funct	tion Database management	
	Webserver, live signals	
Wizard Steps	Function name: (Fx) Root - Database	
Data history	Signals Notes	
Data event	+1: Plug energy consumption	•
Webserver, live signals	🐵 1: Oven energy consumption	
<u>Options</u>	💷 1: Root - House - Cabinet - Gas consumption	
<ul> <li>Advanced</li> </ul>	2: Root - House - Cabinet - Water consumption	
	3: Root - House - Cabinet - Energy consumption	
	4: Root - House - Cabinet - Energy consumption 2	
	5: Root - House - Bedroom - Humidity	
	1: Root - Environmental sensor K104 Analogue CO2 1	
	2: Root - Environmental sensor K104 Temperature 2	
	3: Root - Environmental sensor K104 Humidity 3	
	<<< >>>>	onfirm

3) Select the signals to add and press Confirm

Add signal		Location		
		General		
✓ Signals	V Functions	Group by func	tions and modules	Group by subnet
	6: Root Relay module K4 Ampere 1	Root	Net 1	001.013.240
	7: Root Relay module K4 Volt 1	Root	Net 1	001.013.240
	8: Root Relay module K4 PF 1	Root	Net 1	001.013.240
	1: Root Temdis display K5 TRoom 1	Root	Net 1	001.097.017
	2: Root Temdis display K5 TAuxiliary 1	Root	Net 1	001.097.017
	1: Root Temperatures K6 Temperature 1	Root	Net 1	001.010.135
☑ -₩-	1: Root Energy meter EM21 VInsys 1	Root	COM 2	
☑ •	2: Root Energy meter EM21 Vl1n 2	Root	COM 2	
☑ •	3: Root Energy meter EM21 VI2n 3	Root	COM 2	
• 🔽 - 🔍 •	4: Root Energy meter EM21 Vl3n 4	Root	COM 2	
	5: Root Energy meter EM21 Vllsys 5	Root	COM 2	
	6: Root Energy meter EM21 VI1I2 6	Root	COM 2	
Input channels u	used Output channels used Address Consumption (mA)			Cancel Confirm

4) Confirm and write the configuration to the Sx2WEB24





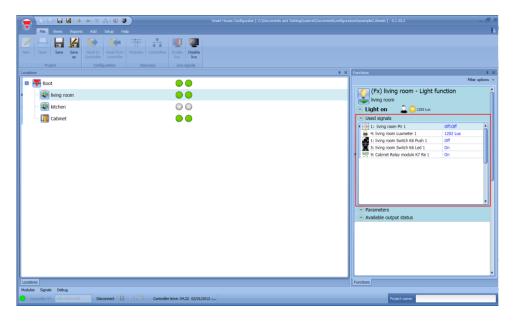
# 16.3 How to see values and status of the functions

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 tool 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.

	Smart House Configurator [ C:\Documents and Settings\userut\Documenti\configurazioni\example.shweb ] - 0.1.30.2	_ & ×
File Views Reports Add Setup Help		1
New Core Save Save Control of Con		
Signals		Filter options
Find last	♥ Only used signals	
B 🐺 K3 BSI-TEMANA-U 001.010.135		ĥ
1: living room Temperature 1	001.010.135 24 9	C
• 🛙 🧃 K4 SH2D500WE230 011.022.033		
3: Cabinet Dimmer module K4 Watt 1	011.022.033 64,6	i W
Cabinet Dimmer module K4 Volt 1	011.022.033 211	,1 V
E K5 SHA4XP90L 011.012.013		
1: living room Pir 1	011.012.013 Off:	
4: living room Luxmeter 1	011.012.013 135	/ Lux
B K6 B4X-LS4-U 001.013.046		
1: living room Switch K6 Push 1	001.013.046 Off	
5: living room Switch K6 Led 1	001.013.046 Off	
B 🙀 K7 SH2RE16A2E230 001.013.240		
9: Cabinet Relay module K7 Re 1	001.013.240 Off	
Modules Signals Debug		
Controller IP: 192.168.3.126 Disconnect 📙 👔 🔊 Controller time: 04.15 02/01/201	2 Project name:	

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.

Functions	д
	Filter options
(Fx) living room - Light functi	on
<ul> <li>Light off</li> <li>U Light off</li> </ul>	
✓ Used signals	
Parameters	
Energy Save Timeout	20 🕄 0
Cloud filter (s)	60 🕄 0
Light level at the beginning of the night tim	e 100 🕄 0
Event on night begin	-1 🕄 0
	No action
Event on night end	-1 🖶 0
	No action
Enable Pir modules during day time	✓ X
Disable timeout (min)	0 🕄 0
Allow pir to switch on	✓ X

# 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.

Functions	т ×
	Filter options 📀
(Fx) livi	ing room - Light function
living roo	m
0→1 Toggle	🕐 🔔 🧭 🌞 1851 Lux
0→1 Turn on	
1→0 Turn off	
🖌 🖌 Enable	:put status
Disable	ng room - Dimmable light
	m
$\odot$	

When the menu is open, the user can select the action to be performed.





# 16.5.1 On/off light

Icons	Action
	By clicking on the icon next to the name of the function, the light is turned on/off in toggle mode.
0→1 1→0	Turn the light on/off in toggle mode
<mark>0→1</mark>	Turn the light on
1→0	Turn the light off
<b>V</b>	Enable automations
₩	Disable automations

The available actions with *Live signals* are listed in the table below:

## 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	ن م 💥	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	<mark>ار</mark>	The blue icon is active when the PIR detects presence, otherwise the black icon is shown.
Disable automation	0	The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled.
Force signal on	9D	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.		
<b>S</b> 1	Switch the light on at scenario 1 (S1)		
1→0	Turn the light off		
52	Switch the light on at scenario 2 (S2)		
53	Switch the light on at scenario 3 (S3)		
<b>S</b> 4	Switch the light on at scenario 4 (S4)		
<b>S</b> 5	Switch the light on at scenario 5 (S5)		
%	Set the light percentage using the slider		
A	Start sequence A		
В	Start sequence B		
$\checkmark$	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	<u>;</u> " "	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	ت <b>ا</b>	The blue icon is active when the PIR detects presence, otherwise the black icon is shown.
Disable automation	0	The black icon is shown when the automation is enabled, the red icon is shown when the automation is disabled.
Force signal	d d	The padlock is closed when the light is forced on, otherwise it is
on	ON	open.
Force signal		The padlock is closed when the light is forced off, otherwise it is
off	OFF OFF	open.





## 16.5.3 Zone intruder alarm

The actions that the user can carry out using *Live signals* are shown in the table below:

lcons	Action
<mark>0→1</mark>	Remove override reset
1→0	override reset

In the table below, the list of available icons for the zone alarm function is shown:

Object	lcons	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
<b>V</b>	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:

lcons	Action
0→1 1→0	Activate/deactivate the reset condition
<b>V</b>	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	ک ا	The grey icon indicates that no alarm is detected, the coloured icon indicates that an alarm is detected.
Disable automation	0	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	C <mark>FF</mark>	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
0→1 1→0	Activate/deactivate the reset condition
<b>V</b>	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	0	The grey icon indicates that no alarm is detected, the coloured icon indicates that an alarm is detected.
Disable automation	0	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:

lcons	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:

lcons	Action
0→1	Start sequence
1→0	Stop sequence
<b>V</b>	Enable automations
×	Disable automations

In the table below, the list of available icons for the sequence function is shown:

Object	lcons	Icon description
Fx status	$\frac{1}{2}$ $\frac{1}{3}$ $\frac{2}{3}$	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
$\checkmark$	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	0	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:

lcons	Action
0→1	Fully open
1→0	Fully closed
×	Stop movement
%	Set the movement/tilting position value
<b>V</b>	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	0	According to the wind speed the icon changes, indicating weak, average and strong wind.
Force signal on	( <mark>8</mark> )	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:

lcons	Action		
	Switch heating off		
L Constant	Switch cooling off		
	Select heating set point1		
📕 🗰 🖉 🖉 🖉 🖉 🖉	Select cooling set point1		
	Select heating set point2		
📕 🗰 🖉 🖉 🖉 🖉 🖉	Select cooling set point2		
	Select heating set point3		
li in e se	Select cooling set point3		
<b>V</b>	Enable automations		
×	Disable automations		

In the table below, the list of available icons for the zone temperature function is shown:

Object	lcons	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
0→1 1→0	Turn the heating system on/off in toggle mode
<mark>0→1</mark>	Turn the heating system on
1→0	Turn the heating system off
<b>V</b>	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
<b>V</b>	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:

lcons	Action
<mark>0→1</mark>	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	lcons	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:

lcons	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	lcons	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	lcons	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	lcons	Icon description
Fx status	$\bigwedge$	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.

Smart House Configurator [File not saved] - 0.3.18.1														
File Views Reports Add Program setup Help														
	<b>(19)</b>	(iii)			Į	7	14	1 <sub>2</sub> 3	1 <sub>2</sub> 3	Š	٣		SMS	email
Bus extension +	Module	Location	Light & scenario <del>+</del>	Up and down control <del>+</del>	Temperature	Alarm	Calendar	Sequence	Dimmer sequence	Timers	Basic	Simulated habitation	Sms setup	Mail
Master	Modules	Locations	Functions											

# 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).

Wizard			×
(email) Add funct	tion Mail function		
		Add addresses	
Wizard Steps Add addresses Triggering signals Configure email	Function name: (Fx) Kitchen - Email function Mail address test@gmail.com		
Schedule report	Add Remove		

To delete an address, select it in the addresses list and then click on the *Remove* button as shown below.





Wizard	×
(email) Add funct	tion Mail function
	Add addresses
Wizard Steps	Function name: (Fx) Kitchen - Email function
Add addresses	
Triggering signals	Mail address
Configure email	test@gmail.com
Schedule report	Add
<ul> <li>Advanced</li> </ul>	

# 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.

Wizard		×
(email) Add fun	ction Mail function	
		Triggering signals
Wizard Steps	Function name: (Fx) Kitchen - Email function	
Add addresses	Signals Notes	
Triggering signals	(Fx) Luce-presa.Status	Modo disponibile
Configure email	(Fx) Kitchen - Forno.Status	
Schedule report	(Fx) Bedroom - Luce dimmer.Status	Mail options
<ul> <li>Advanced</li> </ul>		Add Edit Delete
		test@gmail.com Light off

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 :

Add outgoing mail	×
(Fx) light 1.Status	
Send mail to address	
All mail address	
Mail text for event	
light On	
Send when signal	
Value 1 🔂 Light on	
	Cancel Confirm

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).

Wizard		×
(email) Add funct	ion Mail function	
		Configure email
Wizard Steps	Function name: (Fx) Kitchen - Email function	
Add addresses       Triggering signals       Configure email       Schedule report	History     Events       Report mail subject	
	~~~ >>>	Cancel Confirm

# **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.

Wizard			×
(email) Add func	tion Mail function		
		Schedule report	
Wizard Steps	Function name: (Fx) Kitchen - Email function		
Add addresses	History Events		
Triggering signals Configure email	Report type CSV XISX		Î
Schedule report	Send daily		
V Advanced	Send weekly		=
	Send monthly		

First, the type of report has to be selected (CSV or XLSX).



# **CARLO GAVAZZI** Automation Components

Wizard Edit funct	tion Mail function
Criticali	Schedule report
Wizard Steps	Function name: (Fx) Kitchen - Email function
Add addresses	History Events
Triggering signals Configure email	Send monthly
Schedule report	Send yearly
Advanced	Send the full report
	Customized mail
	Upload time interval 0 🕃 hh 30 🕃 mm
	First delivery date 9/12/2013
	10 🕃 hh 30 🚼 mm 🗸 🗸
	Confirm

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 1<sup>st</sup> 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.

	3 <b>8</b> 11	a 🔏 🛙	🕨 🦛 🛉	÷ 🛡 🦉		Sm	art House Co	onfigurator *	[ C:\Docume	nts and Se	ttings\use	erut\Document	i\configura	azioni\test.
, V	File Vie	ws Repo	rts Add	Program setu	p Help									
	<b>(19)</b>	(iii)			l	7	14	1 <sub>2</sub> 3	1 <sub>2</sub> 3	Š			SMS	email
Bus extension +	Module	Location	Light & scenario +	Up and down control +	Temperature	Alarm	Calendar	Sequence	Dimmer sequence	Timers	Basic	Simulated habitation	Sms setup	Mail
Master	Modules	Locations	Functions											

# **18.1 GSM configuration**

In the first step of the function, the user has to set up the GSM configuration.

Wizard			×
Edit func	tion SMS setup		
		GSM configuration	
Wizard Steps	Function name: (Fx) Root - SMS		
Send sms	Check inbound sms for password 🖌 🔛		
Receive sms	Password ****	Sms lead text my controller	]
	+ 3394630862 +333843102	26	
	~~~~ <b>&gt;&gt;&gt;</b>	Confirm	Í

## 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).

Wizard		×
Edit func	tion SMS setup	
		Send sms
Wizard Steps	Function name: (Fx) Root - SMS	
Send sms Receive sms	Signals Notes  (Fx) Root - Light function.Status  (Fx) Root - Water alarm.Status	Available mode
√ Advanced	(Fx) Root - Zone intruder alarm.Status	SMS options Add Edit Delete +3338431026 Light off Ligh
		Signal settings Signal properties
	<	Confirm

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 :

Add outgoing SMS	×
(Fx) Root - Light function.Status	
+3338431026	
L	
SMS text for event	
My light on	
Send when signal Value 1 🛃 Light on	
	Cancel Confirm

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).

Wizard	×
Edit function SMS setup	Receive sms
Wizard Steps         GSM configuration         Send sms         Receive sms <ul> <li>Advanced</li> <li>Function name: (Fx) Root - SMS</li> <li>Signals</li> <li>Notes</li> <li>Notes</li> <li>(Fx) Root - Light function.Status</li> </ul>	Add Edit Delate +3338431026 Turn on swi Signal settings Signal properties
<b>~~~</b>	Confirm

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).

Wizard		
Add func	tion SMS setup	
		Receive sms
Wizard Steps	Function name: (Fx) Root - SMS	
GSM configuration Send sms	Signals Notes (Fx) Kitchen- Light function.Status	Available mode
Receive sms		
Advanced		Add Edit Delete

By selecting the function and by clicking on the Add pushbutton, the following window will appear.

Add incoming SMS	×
(Fx) Kitchen- Light function.Status	
Accept SMS from number	
All numbers	
All numbers	
+3394630862	

Select the phone number from which you want to control the function.

Then, fill in the text to be used to activate the function.

Add incoming SMS	×
(Fx) Kitchen- Light function.Status	
Accept SMS from number	
+3394630862	
With this text	
Light On	





Select the required action of the SMS, e.g. "Turn on".

Add incoming SMS
(Fx) Kitchen- Light function.Status
Accept SMS from number
+3394630862
With this text
Light On
With this action
Turn on
Cancel Confirm

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.

Wizard		×
Add func	tion SMS setup	
		GSM configuration
Wizard Steps	Function name: (Fx) Root - SMS	
GSM configuration Send sms	Check inbound sms for password 🖌 🔛	
Receive sms	Password 1234	Sms lead text Insert lead text

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.

Smart House Configurator * [File not saved] - 5.0.2								5.0.2				
	File Views Reports Add Program setup Database Help											
·	-	ß	ß				IP	Dyn DNS	õ	::: :::	-	🜮
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	Gene	eral settings			Creat	e	Netwo	rk settings	Cont	roller	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.

	1 🔒 🔒 🕺 🍽 🏦	🦚 🕂 🜉 💷 🔵	)							
	File Views Reports Add	Program setup	Database	Help						
-					IP	Dyn DNS	õ	:= :=	<b>*</b>	🤣
Project setup	System Webserver Password		Modbus I nagement	Modbus TCP connections editor		ynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	General settings		Create		Network s		Cont		2	settings
Locatio	ns									
• 🖻	Wizard									I ×
	🚳 Setup sys	tem prope	rties	Edit system properti	es					
		•••			Sv	stem i	nformati	on		
P L	777									
	Wizard Steps	Project description								
	Communication settings	Name								
	Advanced settings	Address								
Modu	Module tags	Postal			City					
	Customised locations	Country			Phor	ne				
	FTP push/pull	E-mail								
	E-mail / sms setup	Web page								ī
		Contact person								i l
		Order information								
				when The information of						-'
		configuration for s		umber. The information ma	iy be used to	contact	you, if Carlo	o davazzi rec	erves a	
• 122										
		<<<	>>>						Confirm	





## 19.1.1 E-mail /sms setup

In *Properties,* the user should configure the parameters of the email account so that the system can send emails.

Wizard							
🍇 👞 Setup systg	ram propert	ies Edit program	properties				
				Properties			
Wizard Steps	Project description						
System information	Democase						
Communication settings	Outgoing mail server cor	figuration					
Advanced settings	Sender name	Myhome					
Module tags	SMTP server	smtp.gmail.com:587					
Customised locations	SMTP server username	shdemocase@gmail.co	om				
FTP push/pull	SMTP server password	****					
E-mail / sms setup	Subject	My home info					
	Reports options						
	Device name first 💓 🔛						
	Time stamp first	$\mathbf{x}$					
	<<<	>>			Confirm		

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.

Wizard				×		
Setup sys	tem prope	Edit system properties	_			
			Syst	tem information		
Wizard Steps	Name	Name of the customer				
System information Communication settings	Address	Address of the customer				
Advanced settings	Postal	Customer postal	City	Customer city		
Module tags	Country	Customer country	Phone	Customer phone		
Customised locations FTP push/pull	E-mail	Customer mail				
E-mail / sms setup	Web page	Customer web page				
	Contact person	Customer contact person				
	Order information	Customer order info				
	Please enter name and phone number. The information may be used to contact you, if Carlo Gavazzi receives a configuration for support.					
	<<<	>>>		Cancel Confirm		





## 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.

Setup system properties       Edit system properties         Communication settings         System information         Communication settings         Advanced settings         Module tags         Customised locations	Wizard		
System information     Enable Modbus TCP/IP       Communication settings     Enable Modbus TCP/IP       Advanced settings     Enable MSWord - LSWord modality       Module tags     TCP Port	Setup sy		
Ermail / sms setup     Modules are automatically added to the Modbus map       Functions are automatically added to the Modbus map     Image: Configure of the modbus map       Modbus ID     1       Data connection in progress     Image: Configure of the modbus map	System information Communication settings Advanced settings Module tags Customised locations ETP push/pull	Enable Modbus TCP/IP Enable MSWord - LSWord modality TCP Port Modules are automatically added to the Modbus map Functions are automatically added to the Modbus map Modbus ID 1 Data connection in progress	

### 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).

#### Modules are automatically added to the Modbus map

If this option is enabled, each module added to the configuration will be automatically added to the Modbus map. By default this option is disable, the user has to add each module manually.

#### Functions are automatically added to the Modbus map

If this option is enabled, each function in the configuration will be automatically added to the Modbus map. By default this option is disable, the user has to add each function manually.

### Modbus ID

The user can select the Modbus ID of the controller. The ID can be from 0 to 250.

#### Data connection in progress

The user can set three types of action when the SH2UMMF124 modem is connected to the Sx2WEB24

- 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 How to set Modbus RTU properties

In the *Communication settings* the user can define the communication parameter relevant to Modbus RTU Com 1 port - slave.

Wizard		l ×
🚳 🙀 Setup syst	tem properties Edit system properties	
	Communication settings	
Wizard Steps	Modbus TCP/IP slave Modbus RTU Com 1 slave	<b>^</b>
System information Communication settings	Enable Modbus RTU	
Advanced settings	Enable MSWord - LSWord modality	
Module tags Customised locations	Baud rate 9600	
ETP push/pull	Parity 🚺 2	
E-mail / sms setup	Stop bit 1 2	
	Modules are automatically added to the Modbus map	
	Functions are automatically added to the Modbus map	
		•
	< Cor	nfirm

### Enable Modbus RTU

When the green V is selected, the option is enabled and the system will answer the Modbus RTU 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.

#### Baud rate

The user can select the baud rate for Com1 port (default is 9600).

Parity

The user can select the parity bit for Com1 port (default is 0).

Stop bit

The user can select the stop bit for Com1 port (default is 1).

Sx tool manual





# 19.1.5 Advanced setting

In Advanced settings the user can set:

Wizard				⊐ ×
🚳 🙀 Setup sys	tem properties Edit	t system properties	;	
			Advanced settings	
Wizard Steps	Data logging time interval (min)	5		<u>م</u>
System information Communication settings	Shutdown restore interval (min)	240 🗧		
Advanced settings	Analog output update (min)	Off		
Module tags	Unit of measure for temperature	° <b>F</b>		
Customised locations	Language	English 💽		
FTP push/pull	Delay time for SH2RE16A4 relays (s)	0 🗦		
E-mail / sms setup	Update date and time over internet at tool start-up	<b>~</b>		
	Disable live signals	<b>~</b>		
	Enable Dupline compatibility	<b>~</b>		
	<<< >>>>			Confirm

### 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

### Analogue output update (min)

All the Analogue outputs are updated according to the time set.

### 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 over 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.

### Enable Dupline compatibility

When the green V is selected, the feature is enable. Once selected, the Sx tool starts running with the standard Dupline support: new functions will be available that can manage those modules not powered by smart-Dupline.





## 19.1.6 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.

Wizard				
🚳 👞 🛛 Setup sys	tem prop	erties Edit system pro	perties	
			Module tags	
Wizard Steps	Bus generator		Analogue output	
System information	Switch	SW	Input module	
Communication settings Advanced settings	Pir		Relay module	
Module tags	Analogue inputs		IO module	
Customised locations	Temp. display		Rollerblinds	
FTP push/pull	Temp. sensor		Dimmer	
E-mail / sms setup	Humidity sensor		Triac	
	Luxsensor		Wireless	
	Keypad		Wind sensor	
	Smoke sensor			
	<<<	>>>	Confirm	

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).

Modules	;			
	Part number	Subnet	Name	SIN
•	SH2MCG24	Net 1	K2 SH2MCG24	000
	B4X-LS4-U	Net 1	K3 SW1 B4X-LS4-U	000
	B4X-LS4-U	Net 1	K4 SW2 34X-LS4-U	000

The same name tag will also be used in the module list 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





## 19.1.7 How to create customized locations

In the menu Customized locations, the user can define his customised locations.

Wizard			
🍇 👞 Setup syst	em properties Edit system prop	erties	
		Customised locations	
Wizard Steps	Define new location	Customised location list	
System information	Office	Shop	
Communication settings Advanced settings	Office	Shop office	
Module tags	Add Remove		
Customised locations			
FTP push/pull			
E-mail / sms setup			
	<	Con	firm

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.

		8 🛛 Þ	🖌 🕂 (	🖗 🕂 🖳 🖷	Sm	art House Config	gurator *	D:\Docume	ents\democa	se\De
	File Vi	ews Repor	rts Add	Program setup	Database	Help				
	*	Þ	Þ				IP	Dyn DNS	õ	
Program setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Reset Modbus map	Modbus management	IP setup	DynDNS Setup	Set date and time	Upo
	Gene	ral settings			Create		Netwo	rk settings	Cont	roller
Locations										
- 🔫	Root						0			
	👩 Ho						<b>(</b>			
	- (#	Add loc	ation		ALT	+F5	<b>.</b>			
		🗘 Add cus	tom location	ı		• •	Shop			
						₽°`	Shop off	ice		
	- 🛋		ster generate		ALT	+F6	9			
		🗘 Add a w	ireless maste	er generator		Ľ	_			





## 19.1.8 How to configure the ftp push/pull feature

The ftp push/pull has to be configured from the menu FTP push/pull:

Wizard			
Setup sys	tem propert	Edit system properties	
		FTP push/pull	
Wizard Steps	C 11 575		
System information	Enable FTP service		
Communication settings	CSV file	csv	
Advanced settings Module tags	XML file	XML	
Customised locations	Server address		
FTP push/pull	Remote directory		
E-mail / sms setup	Server user		
	Server password		_
	Client user		
	Client password		
	Send the full report		
	Upload time interval	1 hh 0 🚼 mm	
	First delivery date	4/28/2015 0 hh 0 mm	
	Event file		
	Data file		•
	<<<	Conf	irm

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





## **19.1.9 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.

Wizard				
🚳 🙀 Setup sys	gram propertie	S Edit program	properties	
			FTP push/pull	
Wizard Steps	Settings Events log			
System information	Time stamp	Error code	Log string	
Communication settings				
Advanced settings				
Module tags				
Customised locations				
FTP push/pull				
E-mail / sms setup				
	4			<b>&gt;</b>
	Test ftp connection		Request log	
	<b>~~~</b>			Confirm

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.

### 19.2.1 How to test E-mail and SMS

If the user wants to test the E-Mail and SMS functionality regardless the presence of the *Mail* function and the *Sms* function in the configuration, he can do the test directly from the *Project settings* window. Moreover, any e-mail address and any mobile-phone number can be used to receive a test SMS.

### 19.2.1.1 E-mail test

- 1) In the *Project settings* menu, configure the settings of the e-mail account so that the system can send e-mails (Fill in the fields *Outgoing mail server configuration*)
- 2) Write the configuration into the Sx2WEB24
- 3) In the *Test E-Mail* field of the *Email / SMS setup* menu, add the e-mail address to which the email has to be sent and press the *Test* button: a verification e-mail will be sent to this address by the system. An example is shown in the picture below.
- 4) Check if you have received this email

Wizard		
Setup prog	ram properties Edit program properties	
	E-mail / SMS setup	
Wizard Steps	Subject test email	<b>A</b>
System information	Reports options	
Communication settings Bacnet Setup	Device name first 💓 🔛	
Advanced settings	Time stamp first 💓 🔀	
Module tags	Test SMS	
Customised locations	Phone number	
ETP push/pull E-mail / SMS setup	+ Test	
	Test E-Mail	
	E-mail address	
	user@gmail.com Test	Ų
	<<< >>>	nfirm

This is a fake e-mail used to test the e-mail sending from: SxWeb name: test SxWeb Ip Address: 192.168.2.76 SxWeb MAC Address: 00:19:EE:10:12:40 at Tue Sep 8 10:27:44 2015





If the settings parameters of the E-mail account are not correct, an error message will appear, as shown in the red rectangle in the picture below.

Setup pro	gram properties Edit program properties E-mail / SMS setup	
Wizard Steps System information Communication settings Bacnet Setup Advanced settings Module tags Customised locations ETP_push/pull E-mail / SMS setup	Subject test email Reports options Devi Fror Time Fror Test Fror sending mail CK	
	<<< >>>>	Confirm

Should this happen, the user has to check all the parameters and follow again the procedure described above.

### 19.2.1.2 SMS test

- 1) The SH2UMMF124 universal mobile module has to be connected to the Sx2WEB24. This has not to be configured for the SMS functionality
- 2) In the Test SMS field of the Email / SMS setup menu, add the mobile-phone number that has to start with the Country code (e.g. +39 for Italy). The user must be careful to review the mobile-phone number correctly, no error message will appear if the number is not correct.
- 3) Press the *Test* button: an SMS will be sent by the system to the mobile-phone. An example is shown in the picture below.

Setup program properties       Edit program properties         E-mail / SMS setup         Wizard Steps         System information         Communication settings         Bacnet Setup         Advanced settings         Module tags         Customised locations         ETP push/pull         E-mail / SMS setup         Test E-Mail         Phone number	Wizard		
Wizard Steps         System information         Communication settings         Bacnet Setup         Advanced settings         Module tags         Customised locations         EIP push/pull         E-mail / SMS setup         Test E-Mail         Phone number	🍇 🙀 Setup prog	ram properties Edit program properties	
System information     Reports options       Communication settings     Device name first       Bacnet Setup     Time stamp first       Advanced settings     Time stamp first       Module tags     Test SMS       Customised locations     E-mail address       FTP push/pull     Fest E-Mail       Phone number     Phone number		E-mail / SMS setup	
	System information Communication settings Bacnet Setup Advanced settings Module tags Customised locations FTP push/pull	Reports options Device name first Time stamp first E-mail address + 3211234567 Test	
		Test	Ţ





# 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.

								Smar	t House Cor	figurator * [	File not saved] - 5	5.0.2
File Views Reports Add Prog					p Database	Help						
9	-	ß					IP	Dyn DNS	õ	:::/ :::	<b>\$</b>	🜮
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	General settings			Create			Network settings		Controller		System settings	

The user can enable the controller DHCP client by selecting the green V icon Enable DHCP:

Network settings	×
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.

Network settings	Network settings									
Enable DHCP 😽										
IP address	000.000.000.000									
Netmask address	000.000.000.000									
Gateway address	192.168.002.018									
DNS address	192.168.002.002									
Password										
Create configuration file Close										

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.

_													
			8 🖌 1	+ 🔸 🕂	🦚 🕂 🖳 I					t House Con	figurator * [	File not saved] - 5	5.0.2
					Program setu	ip Database					_		
		<b>\$</b>						IP	Dyn DNS	õ		<b>*</b>	
I	Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup		Update firmware	Export system settings	Import system settings
I		Gene	eral settings			Creat	p.	Netwo	rk settings	Cont	roller	System	settings

Wizard			×
Set contro	oller date and time	Set controller date and tim	ne
		Controller	date and time
Wizard Steps	Date and Time setup Internet date time u	pdate	
Controller date and time	Syncronise with PC		
		•	marzo 2013 🕨
	and the second s		u ma me gi ve sa do
	S. 11 12 1		25 26 27 28 1 2 3
			4 5 6 7 8 9 10 11 12 13 14 15 16 17
	<u></u> = <sup>9</sup> <u>→</u> <sup>3</sup> =		18 19 20 21 22 23 24
	4		25 26 27 28 29 30 31 1 2 3 4 5 6 7
		Controller time: 1	2.51 19/03/2013
		Europe/Amsterdam	
	16 16 40 2	3	
	(GMT + 1.00 h) Amsterdam, Berlino, Berna,	Roma, Stoccolma, Vienna	✓
		Send to SH2WEB24	
	<<< >>>>		Confirm

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).

Modules Signals Debug				
Controller IP: 192.168.3.126	Disconnect 🗏 👔 🔎	atl	Controller time: 22.48 19/03/2013:.	

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).





Wizard				×
Set contr	oller date and time	Set controller date and tin	me	
		Controller	r date and time	
Wizard Steps	Date and Time setup Internet date time u	ipdate		
Controller date and time	Syncronise with PC			
			marzo 2013	•
	and the second s		lu ma me gi ve sa	do
	S 11 12 1		25 26 27 28 1 2 4 5 6 7 8 9	3
			4 5 6 7 8 9 11 12 13 14 15 16	
			18 19 20 21 22 23 25 26 27 28 29 30	
			1 2 3 4 5 6	
		Controller time:	12.51 19/03/2013	
	16 🗧 : 40 🗧 : 5	9 🕄 Europe/Amsterdan	n	
	(GMT + 1.00 h) Amsterdam, Berlino, Berna,	Roma, Stoccolma, Vienna		~
		Send to SH2WEB24		
	< >>>			Confirm

## 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.

			+ + +	🦚 🕂 🜉 I				Smar	t House Con	figurator * [	File not saved] - 5	5.0.2
File Views Reports Ad			orts Add	Program setu	p Database	Help						
-	-	ß	ß				IP	Dyn DNS	õ	111	<b>*</b>	
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	Gene	eral settings			Creat	e	Netwo	rk settings	Cont	roller	System	settings

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.

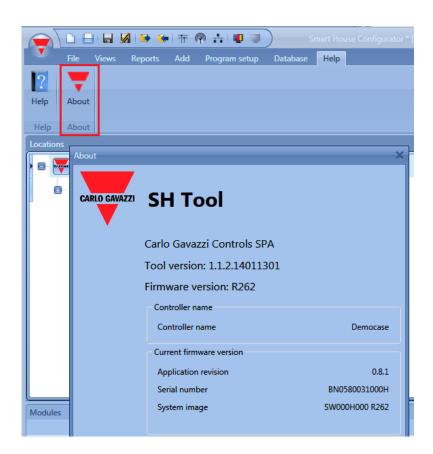
Organizza ▼       Nuova cartella	🔻 Apri	••			×
	💭 🗸 🕌 « Programmi (x8	6) 🕨 SH Tool 1.1.1 🕨 Firmware	<b>- 4</b> → C	erca Firmware	Q
	Organizza 🔻 Nuova cartella	1		!≡ ▼ 🗖	0
Download Sisorse recenti Raccolte Documenti Documenti Immagini Musica Video Video Sisco locale (C:) □ Disco locale (D:) ▼ <	🔶 Preferiti 🦰 No		Ultima modifica	Тіро	Dimensio
Imagini       Imagini         Imagini       Imagini <td< th=""><th></th><th>SW000H000R110.bin</th><th>11/09/2013 12:15</th><th>VLC media file (.bi</th><th>23.607</th></td<>		SW000H000R110.bin	11/09/2013 12:15	VLC media file (.bi	23.607
<ul> <li>Documenti</li> <li>Immagini</li> <li>Musica</li> <li>Video</li> <li>Immediate (C:)</li> <li>Disco locale (D:) ▼ &lt; </li> </ul>					
Isco locale (C:)       Disco locale (D:)	<ul> <li>Documenti</li> <li>Immagini</li> <li>Musica</li> </ul>				
Disco locale (D:)					
Nome file: SW000H000R106.bin			III		- F
Apri 🔽 Annulla	<u>N</u> ome file:	SW000H000R106.bin	✓ SH		▼ lla

After having selected the correct file, the Sx Tool automatically starts updating the Sx2WEB24: once this operation is finished, the Sx2WEB24 is automatically rebooted.

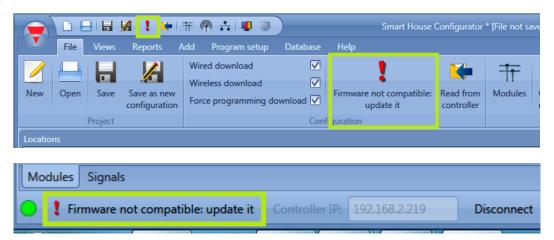




The current firmware version in the controller can be seen in the Help menu (see picture below).



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 a 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.

			+ + +	🦚 🕂 📮				Smar	t House Con	nfigurator * [	File not saved] - !	5.0.2
File Views Reports Ad				Program setu	p Database	Help						
	-	ß					IP	Dyn DNS	6		<b>\$</b>	🜮
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	Gene	eral settings			Creat	e	Netwo	rk settings	Cont	roller	System	settings

By clicking on the *Password* icon, the Sx Tool opens the settings window (see picture below):

Controller password
Password
Confirm password
Old password
Super security password
Block the configuration writing 🧹 💢
Block the configuration reading 🧹 💢
Protect the controller name 🧹 💢
Protect IP settings
Protect date and time settings 🧹 💢
Set password protection
Change password protection
Change protection settings
Remove password protection
Close

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).

Impostazione di rete	×						
Abilita DHCP 🥪	$\mathbf{x}$						
Indirizzo IP	000.000.000.000						
Indirizzo net-mask	000.000.000.000						
Indirizzo gateway	192.168.003.018						
Indirizzo DNS	192.168.003.002						
Password	••••						
Crea file di configurazione Chiudi							

*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).







## 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.

	😑 🚺 🖶 🖬 🥻 🍽 🌾 👘 🏥 💷 🔍 Smart House Configurator * [File not saved] - 5.0.2									5.0.2		
				Program setu	ip Database							
							IP	Dyn DNS	ð		<b>*</b>	
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
	Gene	eral settings			Creat	P	Networ	rk settinas	Cont	roller	System	settings

The following window has to be compiled to enable the service in the Sx2WEB24:

Wizard		
Dyn DynDNS s	setup DynDNS setup	
DŃS		DynDns
Wizard Steps DynDns	Enable dynDNS 💓 🔛	
	DynDNS provider	
	DynDNS user	
	DynDNS password	
	DynDNS domain	
	DynDNS domain	

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.

Wizard			×
Dyn DynDNS setup Dyn DNS	DNS setup	DynDns	
Wizard Steps         Enable dynDNS			
DynDNS provide			
DurDNS user	dyndns.it		
DynDNS user	dyndns.org		
DynDNS passwo	d freedns.afraid.org		
	zoneedit.com		
DynDNS domain	no-ip.com		
	easydns.com		
	3322.org		
	sitelutions.com		
	dnsomatic.com		
	tunnelbroker.net		
	tzo.com		
	dynsip.org	roller	
	dhis.org		
	majimoto.net	Confirm	
	zerigo.com	Cohin	





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 noip.com.

Wizard	×
Dyn DynDNS	setup DynDNS setup
DŃS	DynDns
Wizard Steps DynDns	Enable dynDNS 🥪 🔛
	DynDNS provider no-ip.com
	DynDNS user smarthouse_bl
	DynDNS password
	DynDNS domain smarthousebl.no-ip.biz
	Set dynDNS settings to Controller
	Confirm

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.





### 19.7.1 How to see the dynamic IP address

The present dynamic IP address, assigned by the Internet Service Provider, can be seen in the *Help* menu in the *Sx2WEB24 network information* fields, as shown in the red rectangle in the picture below.

CARLO GAVAZZI	SH Tool	:
	Carlo Gavazzi Controls SPA	
	Tool version: 5.2.2.15090401	
	Firmware version: R475	
	Controller name	
	Controller name	prova
	Current firmware version	
	Application revision	0.8.1505
	Serial number	BN3120009000H
	System image	SW000H000 R475
	Sx2WEB24 network information	
	IP address	91.80.18.48
	Netmask address	255.255.255.255
	Gateway address	91.80.18.48
	DNS address	83.224.65.143
	MAC address	00:19:EE:10:12:40
Сору		Close





# 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.

-													
	👝 🗅 🗄 🖬 🖉 🛤 🗰 👘 👬 🖤 💭							Smart House Configurator * [File not saved] - 5.0.2					.0.2
			Views Rep	orts Add	Program setu	p Database	Help						
			Þ	Þ				IP	Dyn DNS	õ		<b>*</b>	
	Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
		Gene	eral settings			Creat	p.	Netwo	rk settings	Cont	roller	System	

To import the settings, click on the icon *Import system settings* and select the file saved during the "export" operation.

	🛅 🔒 🛃 🖼 🛸 🗯 📅 🏟 🚓 💵											
	File	/iews Rep	orts Add	Program setu	p Database	Help						
-		ß					IP	Dyn DNS	õ		<u>چ</u>	
Project setup	System setup	Webserver accounts	Password	Save modbus map as .csv	Modbus management	Modbus TCP connections editor	IP setup	DynDNS Setup	Set date and time	Update firmware	Export system settings	Import system settings
General settings				Creat	e	Netwo	rk settings	Cont	roller	System	settings	





# 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 two different writing options that can be selected:

*Program Wired module*: 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.

🔽 🕒 🔒 🕼 🗭 🐸 📅 🦚 👬 🛛		aart House Configurator * [ C:\User	s\lscopel\Desktop\democase_50	2.shweb ] -
	Program wired modules Wireless download Send to Read fro controller control			
Project	Configuration	Discovery	Live signals	
■ 🗹 🐺 Root				
🖪 🕢 👩 House	• 💿 🌑			

By clicking on the icon *Write to controller*, the software starts downloading the actual running project in the Sx2WEB24.

The software will configure all the modules present in the configuration, as shown in the *Download configuration* window. Only the changed feature and new modules added are updated.

Subn	et stat	us		_ 🗆 X	Download configuration
				Filter options 👻	
	V	Wireless 1	001.208.145	K4 SHA4XWLS4	100 % Subnets
	V	Wireless 1	001.207.179	K3 SHDWRE16AE230	
	V	Net 1	001.023.236	K5 SH2RE16A2E230	Activities Logs
	V	Net 1	001.024.014	K14 SH2INDI424	<ul> <li>Validating configuration</li> </ul>
	V	Net 1	001.205.086	K6 SH2RE16A4	<ul> <li>Downloading configuration</li> </ul>
	V	Net 1	001.030.156	K9 SH2ROAC224	<ul> <li>Network programming</li> </ul>
	V	Net 1	001.229.051	K8 SH2D500WE230	001.190.117 K1 SH2WBU230 All modules configured
	V	Net 1	001.020.175	K13 B4X-LS4-U	= 001 047 203 K2 SH2MCC24
	¥	Net 1	002.088.144	K57 SHA4XLS4P90L	Configured 9/11
	8	Net 1	001.018.117	K11 SHA4XTEMDIS	✓ Network started
	V	Net 1	001.226.068	K22 SHA4XLS4TH	
	V	Net 1	001.172.047	K58 SHA4XP150L	
				Program modules	Wireless network configuration Close





Subnet status	_ = ×	Download configuration
	Filter options 👻	
<ul> <li></li></ul>	O01.208.145         K4 SHA4XWLS4           O01.207.179         K3 SHDWRE16AE230           O01.023.236         K5 SH2RE16A2E230           O01.024.014         K14 SH2INDI424           O01.205.086         K6 SH2RE16A4           O01.030.156         K9 SH2ROAC224           O01.229.051         K8 SH2D500WE230           O01.020.175         K13 B4X-LS4-U           O02.088.144         K57 SHA4XLS4P90L           O01.018.117         K11 SHA4XTEMDIS           O01.226.068         K22 SHA4XLS4TH           O01.172.047         K58 SHA4XP150L	100 %     Subnets       Activities     Logs       ✓ Validating configuration       ✓ Downloading configuration       ✓ Network programming       ✓ 001.190.117 K1 SH2WBU230       All modules configured       ✓ 001.047.203 K2 SH2MCG24       All modules configured       ✓ Network started
	Program modules	Wired network configuration Close

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.



