Configuration of Sequences (Menu item: Config. Sequence)

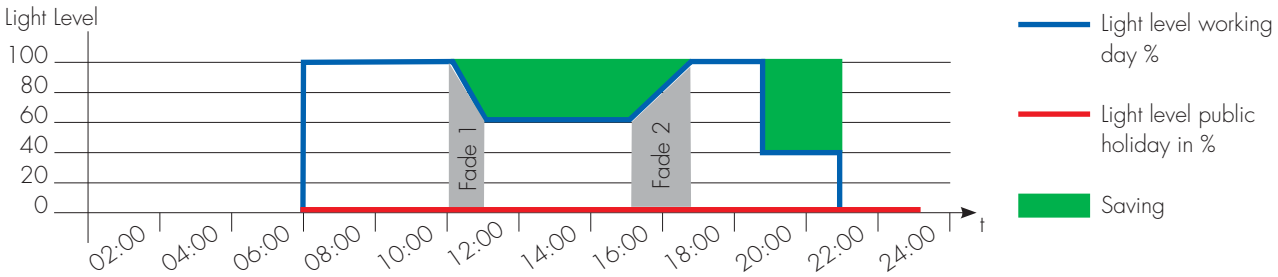
Various light sequences can be configured with the help of defined light fades for weekdays, public holidays and special days for each luminaire group. Up to 16 light sequences can be called up, each of which consists of up to 16 switching times along with the respective luminance values and fade times.

- Convenient: less need to switch the system on manually
- Smooth transitions thanks to configurable fade times (see table).

Fade (DALI)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time (s)	0	0.7	1	1.4	2	2.8	4	5.7	8	11.3	16	22.6	32	45.3	64	90.5

- Hardcoded data concerning public holidays in many countries
- Changing the clocks (standard to daylight-saving time and vice versa) stored for each country
- See table in the appendix for a list of countries and their public holidays
- Can be personalised by adding special days
- Ability to call up an individual overview of the current assignment of sequences to the respective days for each group
- After a power failure, the system will restart and the time-dependent light level will be activated.

Example of an Application



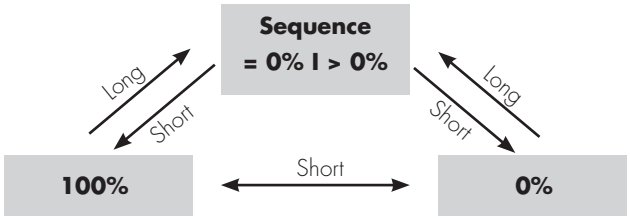
IMPORTANT

Any group of luminaires with a sequence function cannot be assigned to any sensor (regardless of its function).

If a group of luminaires with a sequence function is assigned to a push button, pressing the button will interrupt the sequence and perform the desired push button function.

COMBINATION OF SEQUENCE AND PUSH BUTTON

If a group is saved with a sequence, this can be combined with a push button defined to work with this group. Giving the push button a "short" press (<500 ms) will switch to ON/OFF mode (0% or 100%), dependent on the last dim setting ("=0%" or ">0%") of the sequence. Further short presses of the button (<500 ms) will then switch between the two states. A "long" press of the push button (>500 ms) is needed to return to the sequence. Both a wired (230 V) and a radio (EnOcean) push button can be integrated for this purpose. See status diagram on the right.



COMBINATIONS OF PUSH BUTTONS AND SENSORS IN A GROUP

The controller lets you use a combination of push buttons and sensors for a luminaire, a group or for all. This considerably extends the possible uses in various applications.

To ensure the Light Controller behaves in a comprehensible and defined manner, the controller was designed to respond to combined sensor/push button inputs.

This is based on the following underlying reasoning: as soon as a person consciously intervenes in the system (by pressing a push button), all automatically controlled processes will stop. Automatic operation (sensors) will only resume after further conscious intervention (pressing the push button)

Possible Combinations:

1. Push Button with Sensor (Movement)

System status before pressing the button	**Sensor active**		**Sensor inactive**	
	Light on	Light off	Light on	Light off
Status after 1x short press	Sensor inactive Light off	Sensor active Light on	Sensor inactive Light off	Sensor active Light on
Status after 1x long press	Sensor inactive Light on	Sensor inactive Light on	Sensor inactive Light on	Sensor inactive Light on

2. Push Button with Sensor (Light)

System status before pressing the button	**Sensor active**		**Sensor inactive**	
	Light on	Light off	Light on	Light off
Status after 1x short press	Sensor inactive Light off	Sensor inactive Light off	Sensor inactive Light off	Sensor active Light on
Status after 1x long press	Sensor inactive Light on	Sensor inactive Light on	Sensor inactive Light on	Sensor inactive Light on

3. ON/OFF Push Button with Sensor
Same as for Push Button with Sensor; a long press of the button will be treated the same as a short press.

4. Timer Button with Sensor (Movement) or with Sensor (Light)

System status before pressing the button	**Sensor active**		**Sensor inactive**	
	Light on	Light off	Light on	Light off
Status after 1x press	Sensor active Light on for Time A	Sensor active Light on for Time A	Sensor inactive Light on for Time A	Sensor inactive Light on for Time A

5. "Sensor Activation" Push Button with Sensor (Movement) or with Sensor (Light)

System status before pressing the button	**Sensor active**		**Sensor inactive**	
	Light on	Light off	Light on	Light off
Status after 1x press	Sensor active Light on	Sensor active Light off	Sensor active Light on	Sensor active Light off

USING THE INTEGRATED RELAY CONTACT TO MINIMISE STANDBY LOSSES

Every DALI ballast loses energy, even when the connected lamp is switched off. These standby losses can amount to 1 W/h.

To minimise these so-called standby losses, the LS/LSW Light Controllers both feature a relay contact that is wired to the outside at terminals a1/a2 to enable connection at the customer's premises if required. If necessary, this relay contact can be activated under the "2.2.7 Standby Relay" menu item. Please note that the contact can be configured as "Normally Open (NO)" or as "Normally Closed (NC)". A relay contact that has not been activated is always open. As soon as all the luminaires in the system have received a "light off" command, the controller will close the relay contact after a delay of approx. 40 seconds. The connected contactor then disconnects system luminaires from mains power.

Contact status of the integrated standby relay:

	Normally Open, NO	Normally Closed, NC
Normal operation, at least 1 luminaire still on	a1 a2	a1 a2
40 sec. after the last luminaire has been switched off	a1 a2	a1 a2
Relay not activated	a1 a2	a1 a2

As soon as the controller receives a signal from the sensors or push buttons, which remain active throughout, the relay contact is opened again and system luminaires are reconnected to mains power. Subsequently, the controller transmits the signal to the respective luminaires.

Some older generations of DALI control gear, in particular, need several 100 ms to restart and to correctly process DALI commands after being switched on. For this reason and because of the contactor's switching delay, the DALI command to switch on is only triggered after a delay of approx. 1 second once the relay has been switched on.

USING THE INTEGRATED RELAY CONTACT TO SWITCH OFF/CONTROL BUILDING FACILITIES (HVAC...)

As described above, a connected contactor can also be used to automatically control other building facilities. Instead of disconnecting luminaires from the mains, a contactor can equally be used to disconnect other systems from the mains. See description above.

SETTING THE TIME AND DATE (MENU ITEM: CLOCK)

The correct time and date must be entered to use the sequencer function.

INFO

If an invalid time is detected when the system is powered up, "Clock Error" will appear and the date/time will have to be entered after pressing the rotary push key.

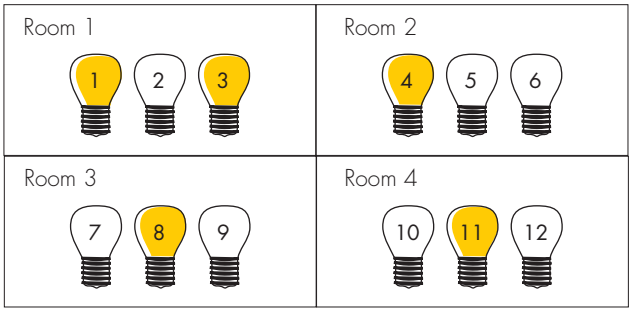
- The date and time are set using the rotary push key, during which process the respective weekday is also shown.
- As a safeguard in the event of a power failure, the time will be buffered for at least 1 hour.
- Given the most unfavourable operating conditions (temperature/humidity), the entered time will deviate by a maximum of 12 minutes over the course of a year. Given use under normal operating conditions, it is sufficient to adjust the time manually once a year.

SETTING THE BURGLAR STOP FUNCTION (MENU ITEM: BURGLAR STOP)

The burglar stop function increases the security of unguarded buildings by simulating human presence. To this end, the respective luminaires will first have to be selected, after which the light level and the period of time the selected luminaires are to remain switched on will have to be defined. Within this period of time, the LS/LSW Light Controllers will pick a luminaire at random (from those previously selected) and switch it on at a previously defined luminance and for an automatically defined period of time.

INFO

Just like the sequencer function, this function therefore also relies on the correct time having been entered.



1 Selected luminaire(s)

Each of the selected luminaires will stay switched on for a random period of time.

DEFINING SYSTEM RESPONSE ON RESTORATION OF MAINS POWER AFTER A POWER FAILURE (MENU ITEM: SYSTEM RESPONSE)

In the event of a power failure, the way a luminaire, a group or all luminaires will behave when mains power is restored can be exactly defined in the controller.

You can choose among the following three options:
1. Light off (default setting)
2. Light on (Active LL)
3. Light on (Active LL) for Time A

Compare example on page 13

CREATING PASSWORD PROTECTION (MENU ITEM: PASSWORD)

To protect the system from unauthorised access, a 4-digit password can be set that will then need to be entered prior to carrying out any configuration steps.

Access to the error analysis function remains unaffected by password protection.

If the password is lost, please contact your VS representative and specify the respective push button of the Light Controller. To this end, please use the rotary push key to select the following menu items on the screen:

Settings ➲ Info

Turn the rotary push key to the right 5x, then to the left 3x, then press the button. The details of the push button you will need to quote will now appear on the controller's display screen.

Default setting: 0000
➲ No password

USING THE ERROR ANALYSIS FUNCTION (MENU ITEM: SYSTEM CHECK)

The system check function can help to minimise maintenance work on the lighting system. The check analyses three possible error sources:

1. The Light Controller fails to recognise one or several luminaires.
2. The Light Controller fails to recognise one or several sensors.
3. The luminaire is recognised, but reports a lamp error.

Possible causes for errors 1 and 2:
- DALI control line to the affected luminaire or sensor is missing or interrupted.
- Mains power to the affected luminaire is missing or interrupted.
- The ballast of the affected luminaire or the sensor is defective or missing.

Possible causes for error 3:
- The lamp of the affected luminaire is missing.
- The lamp of the affected luminaire is defective.

Failure analysis can only be carried out after luminaires and sensors have been assigned an address (see "Luminaire/Sensor Search" starting on page 21).

LIGHT CONTROLLER LS / LSW

MANUAL VERSION 1.0
SOFTWARE VERSION 1.3 AND HIGHER

GENERAL INFORMATION

SYSTEM CONFIGURATION AFTER NEW INSTALLATION OF A LIGHTING SYSTEM

MODIFYING AN ALREADY INSTALLED SYSTEM

SYSTEM

GENERAL INFORMATION

EXPLANATION OF CONFIGURATION TOOLS

Rotary Push Key

The rotary push key (or rotary encoder) is the operating element of the LS and LSW Light Controllers. The rotary push key is located to the right of the display screen.

The rotary push key is used to navigate through the selection lists and dialogue windows of the menus (see "Menu Structure" on page 18).

Selections are made by turning the key; subsequently pressing it will then confirm, select, activate or call up the selected item. The current menu item or selection can be identified on the display screen by the black background of the text.

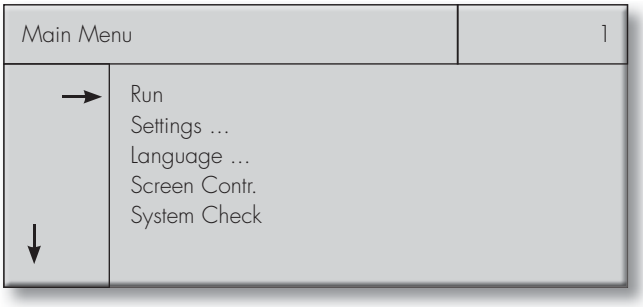
Screen

The resolution of the black-and-white LCD screen is 128 x 64 pixels. Additional LED backlighting makes the screen convenient to work with, even if there is little light in the distribution board.

The first press of the rotary push key switches the backlighting of the display screen on, the second press of the key then switches the controller to configuration mode and the individual menu items can be called up. If the key is not activated within approx. 90 seconds, the LED lighting will switch off. Pressing the key again will switch the light back on and you can continue with the configuration where you left off.

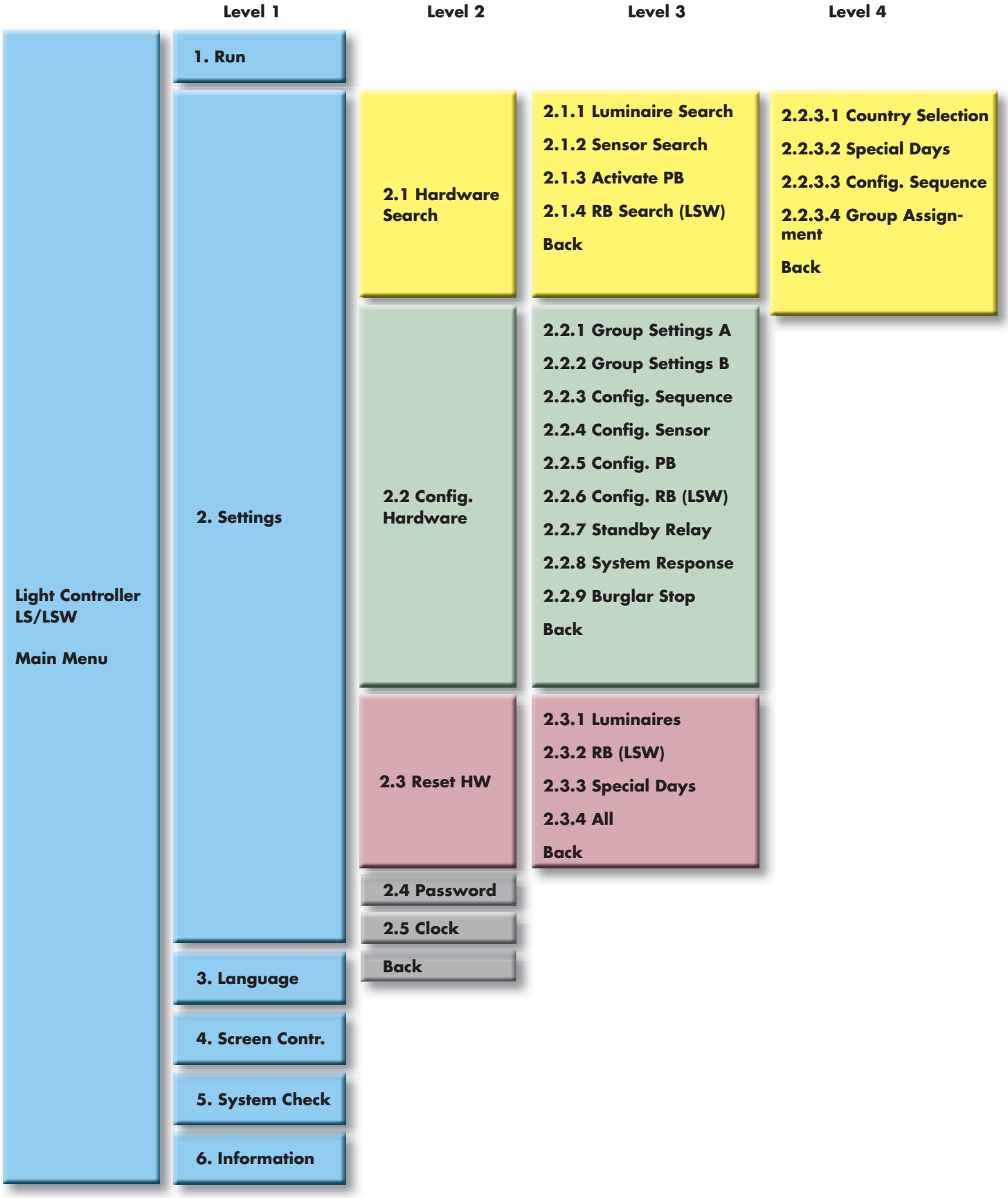
If the rotary push key is not pressed for at least 10 minutes, the controller will automatically switch to normal mode and begin to carry out the configuration settings made up to that point. To continue the configuration process, the respective menu item will have to be called up again.

The "Screen Contr." item in the main menu can be used to adjust the screen contrast.



MENU STRUCTURE OF THE LS/LSW LIGHT CONTROLLERS

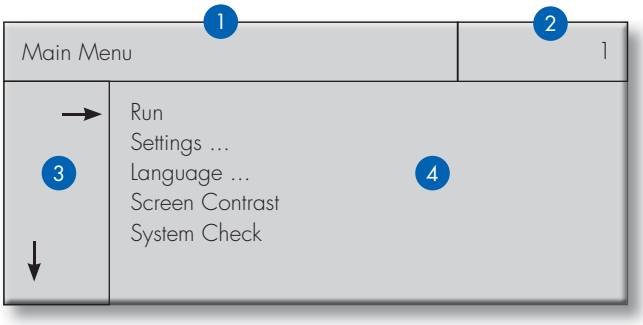
General Menu Structure



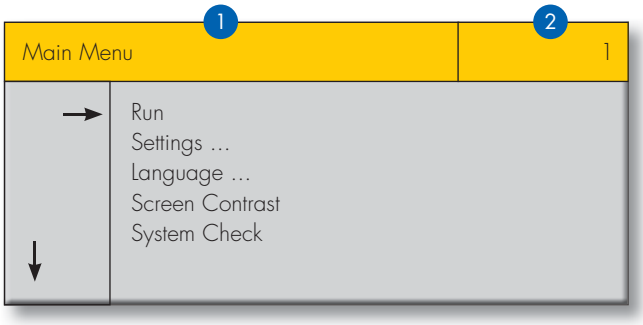
Screen Layout

The menu consists of four segments:

1. Menu Level
2. Menu Number
3. Navigation Aid
4. Selection List



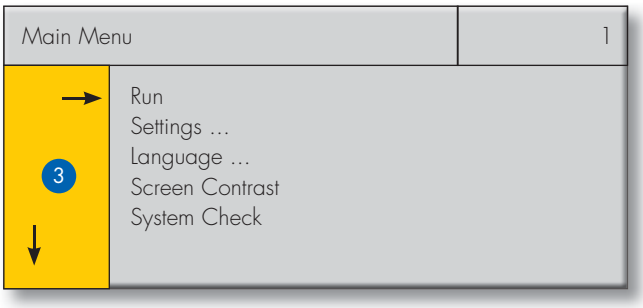
Segments 1 and 2 as well as the level name and its number form the heading (marked in yellow here), which is clearly set apart from the other segments.



The arrows in segment 3 indicate how many options there are.

Vertical arrows indicate that further menu items will become visible by turning the rotary push key.

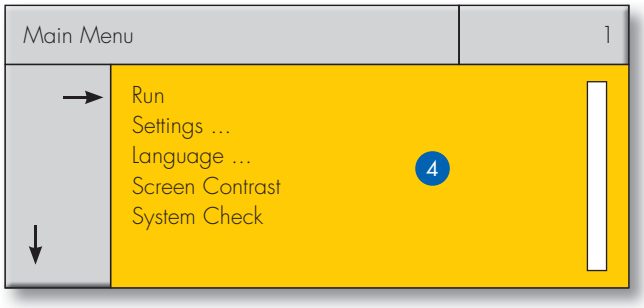
Horizontal arrows point to the selected menu item, which can be activated by pressing the rotary push key.



Segment 4 can be chosen as required by pressing the rotary push key. Three dots (...) after a menu item indicate that there are further levels/menu items under this item.

The scroll bar on the right in the dialogue window indicates that further menu items will become visible if the key is rotated above or below the shown menu items.

The menu structure consists of a maximum of 4 levels (see page 18). Selecting a menu item will take you down a level, while selecting "Return" will take you up a level.



Testing the System

The lighting system should be installed in accordance with the installation instructions and tested prior to system configuration.

Errors or problems can occur during configuration if the installation was not properly carried out.

SYSTEM CONFIGURATION AFTER NEW INSTALLATION OF A LIGHTING SYSTEM

PREPARATION

Resetting the Lighting System

Select the following menu items:
Settings ➲ Reset Hardware ➲ All

After confirming "All" any pre-existing/former configurations will be deleted and the system, along with all components, will be reset to its default settings.

Result:
The system will respond as described under "Controller Behaviour during Commissioning (Default Settings)" on page 8.

IMPORTANT

Screenshots are used in the following to explain the various configuration steps. Any numeric values shown are merely examples and can be changed as required.

HARDWARE SEARCH 2.1

Luminaire search (2.1.1)

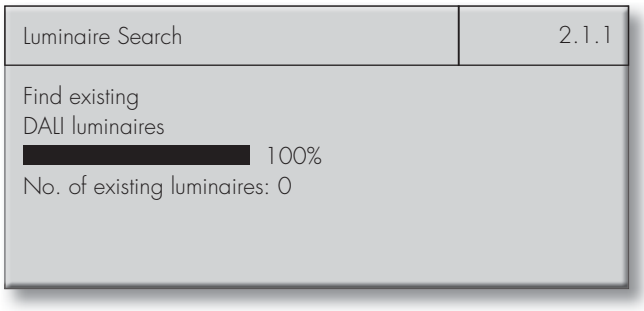
Action/Aim:
Integrating installed luminaires into the system.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search

Two consecutive searches will be carried out, both of which will start automatically.

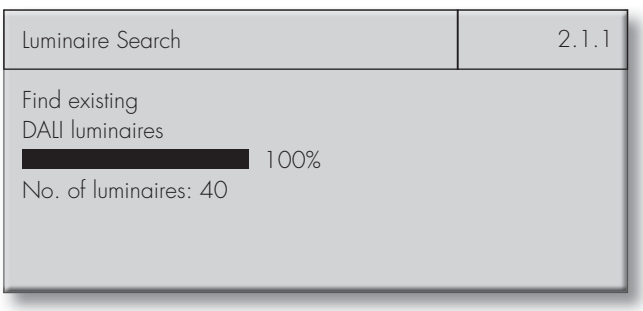
Part 1 is a search for already existing DALI luminaires. Since the system will just have been reset and this will now equate to a new installation, no DALI luminaires will be found.

System response:
All luminaires connected to the system will be switched to a light level of 3%.



Part 2 then automatically searches for new DALI luminaires. The screen shows a running total of the number of DALI luminaires that are found.

System response:
DALI luminaires that are recognised and addressed by the system will be switched off.

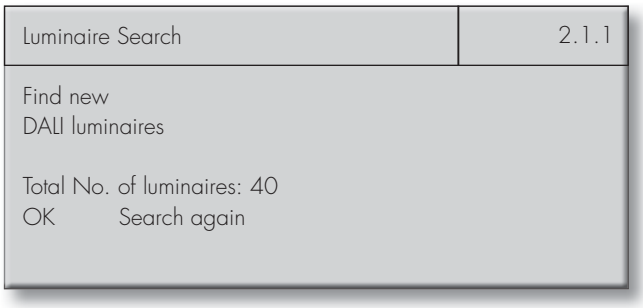


Once the search has ended, the number of DALI luminaires the system has found will be displayed on the screen.

System response:
All luminaires connected to the system will be switched on at the lowest dimmer setting.

Confirming "OK" will take you back to the menu and if necessary, a new search can be started with "Search again".

Result:
Once the search for luminaires has come to an end, all luminaires will have been integrated and will have been assigned a unique address.



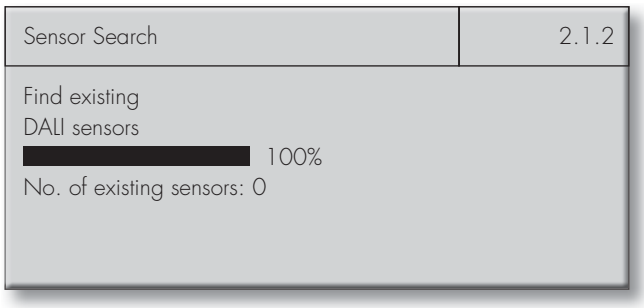
Find Sensor (2.1.2)

Action/Aim:
Integrating installed sensors into the system.

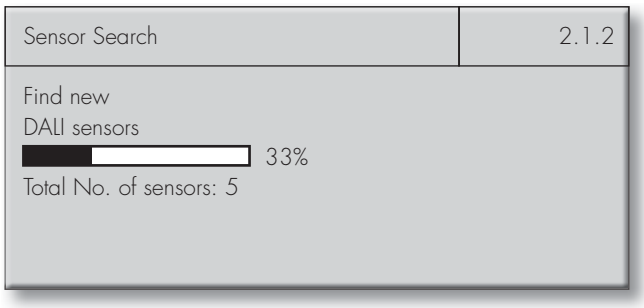
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Sensor Search

Two consecutive searches will be carried out, both of which will start automatically.

Part 1 searches for **already existing** DALI sensors. As the system will just have been reset and this equates to a new installation, no DALI sensors will be found.



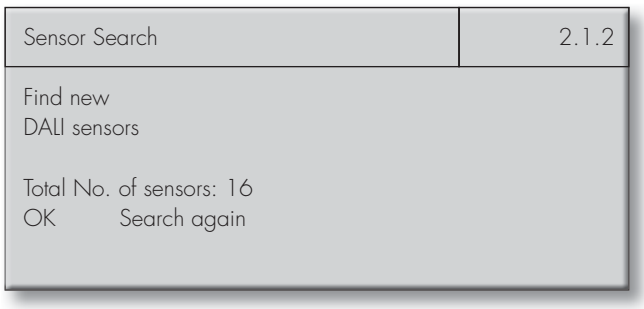
Part 2 then automatically searches for new DALI sensors. The screen shows a running total of the number of new DALI sensors that are found.



Once the search has come to an end, the number of DALI sensors recognised by the system will be displayed on the screen.

Confirming "OK" will take you back to the menu and, if necessary, a new search can be started with "Search again".

Result:
Once the search for sensors has come to an end, all sensors will have been integrated and will have been assigned a unique address.



Activate PB (2.1.3)

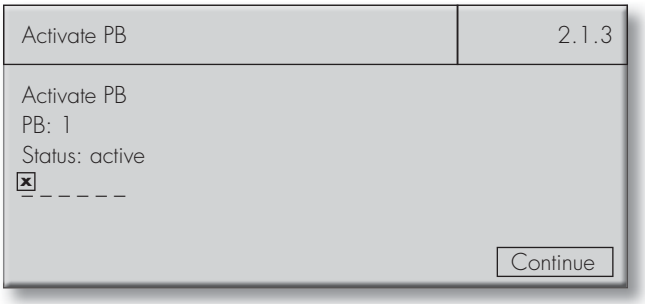
Action/Aim:
Activating the required push button inputs for the system.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware search ➲ Activate PB

IMPORTANT

Push button inputs must first be activated before they can be configured. Only activated push button inputs can be configured.

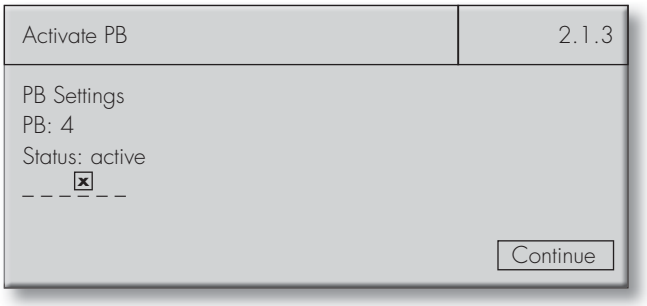
Each of the push button inputs is represented on the screen by an underscore (_). The input is activated by selecting the respective PB input and then pressing the rotary push key to confirm. Pressing the rotary push key again will deactivate the input. PB input 1 is active by default, but can be deactivated again if necessary.



IMPORTANT

The on-screen message "PB input: 1 active" corresponds to the default setting.

In the example on the right, input 4 is now active (marked with an x).



Result:
The system will have recognised all installed push buttons.

Only for the LSW Light Controller: RB Search (2.1.4)

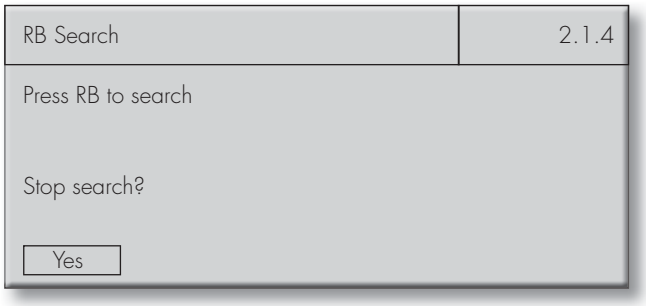
Action/Aim:
Integrating the required wireless modules into the system.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ RB Search

System response:
The wireless module must be activated to establish a wireless connection to the controller.

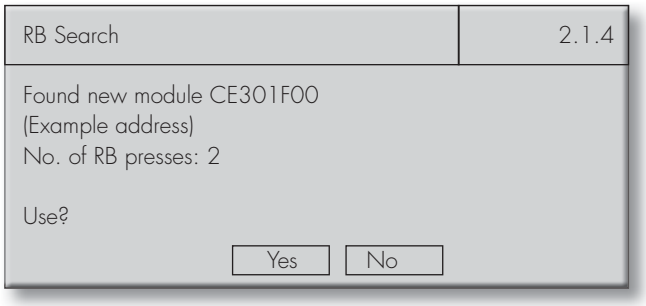
IMPORTANT

Briefly pressing any module button will tell you the Light Controller's module address.



The wireless address will be displayed on the screen after pressing the radio button.

Repeated presses of the radio button will ensure that the right module is integrated. The number of radio button presses is displayed on the screen. To integrate the module, please confirm "Yes" on the screen.

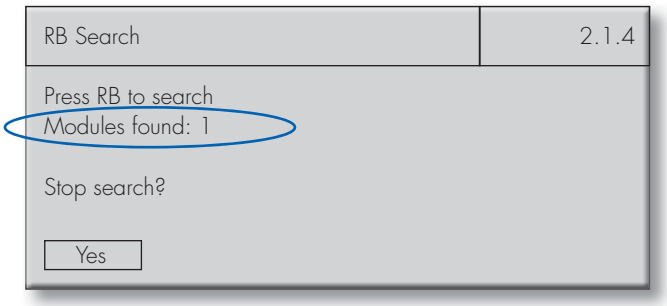


The total number of integrated wireless modules will be displayed on the screen. Repeat the procedure to integrate further wireless modules.

Result:
The system will have recognised all installed wireless modules

IMPORTANT

Any buttons pressed on already integrated wireless modules will be ignored to prevent duplicate integration.



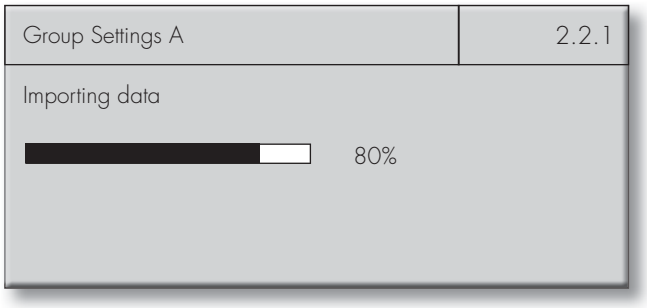
HARDWARE CONFIGURATION

Group Settings (2.2.1 & 2.2.2)

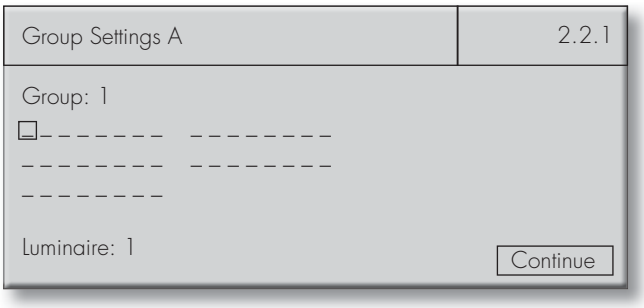
Action/Aim:
Creating luminaire groups.

1. Method for Group Settings A
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ Group Settings A

The following data-importing process can take several seconds.



Each of the luminaires integrated in step 2.1.1 will be represented by an underscore (_). Individual luminaires can now be selected and assigned to the group you are creating using the rotary push key. Your current selection will be marked with a square (☐). The address of the selected luminaire will also be displayed.

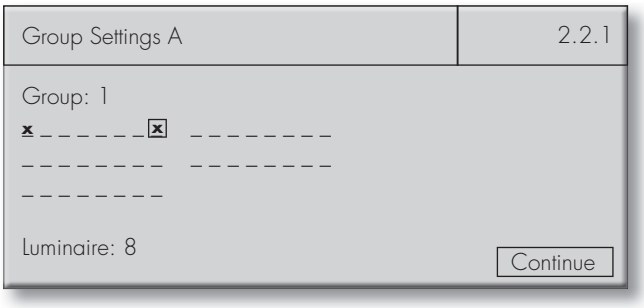


System response:
For easy identification during installation, the selected luminaire will be switched on at a light level of 100%.

IMPORTANT

It is recommended to enter the luminaire address in the lighting plan to enable clear allocation of the address to the installation location at a later date.

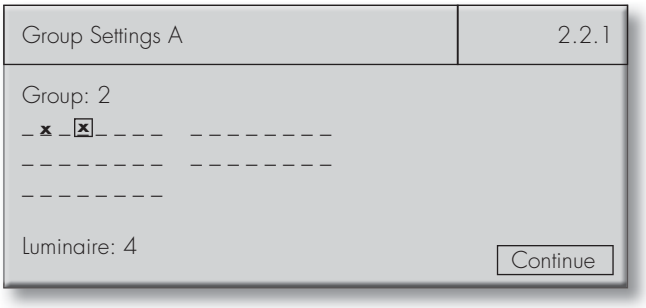
Pressing the key will then assign the selected luminaire to the above-mentioned group., marked on the screen with an x. Pressing the key again will reverse this assignment..
x = Group device
_ = Non-group device



System response:
As soon as a luminaire has been assigned to a group it will, even if it is no longer selected, remain switched on at a light level of 3%.

Luminaire Status in the System	Meaning
100 % Licht	Luminaire marked with the cursor on the screen
min. Dimmlevel	Part of the current group
OFF	Does not belong to the current group

To define further groups, select the next group and repeat the process.

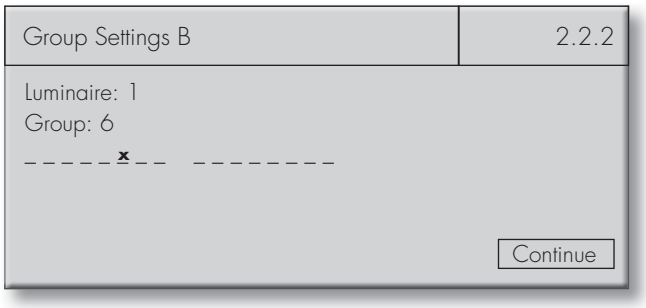


IMPORTANT

A luminaire can also be assigned to more than one group, e.g. assignment of luminaire 1 to group 1 and group 2.

2. Method for Group Settings B
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ Group Settings B

Each of the luminaires integrated in step 2.1.1 can now be assigned to the various groups. To this end, use the rotary push key to select the respective group(s) and press to confirm.



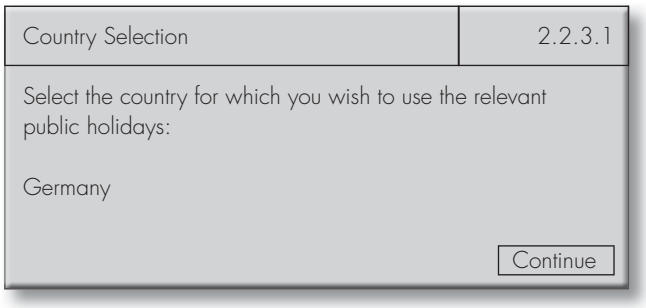
Sequence Configuration (2.2.3)

Action/Aim:
The term sequences refers to timed sequences of different light levels that can be called up on fixed weekdays, public holidays or other special days.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ Config. Sequence

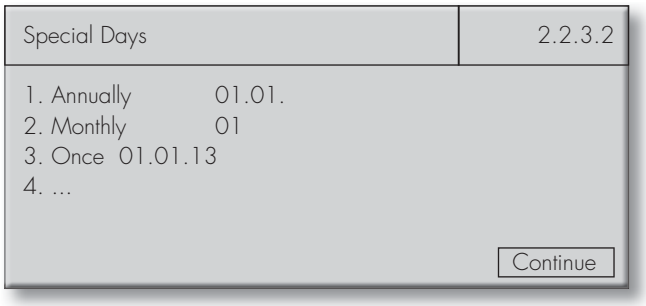
Country Selection (2.2.3.1)

You can choose from a list of countries for which information on public holidays has been stored (see table in the Appendix) and will become useful later.



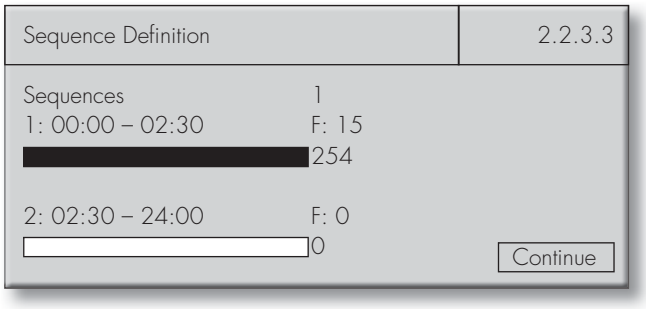
Special Days (2.2.3.2)

Should different sequences be required for additional days (special days) other than fixed public holidays, the dates of these days can be entered manually, for which three categories are available: annually, monthly and once.



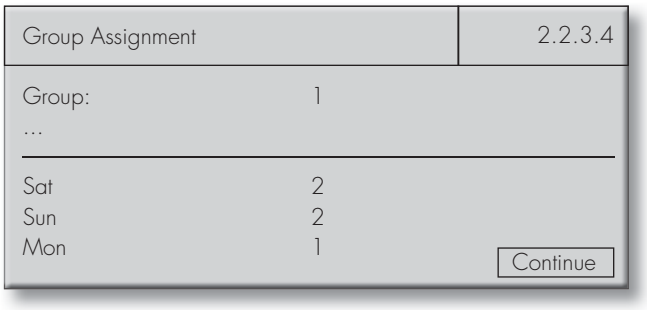
Sequence Definition (2.2.3.3)

Up to 16 different sequences (24-hour sequences) can be defined for groups (2.3.3.4). To this end, time periods (times) are sequenced, which together cover the whole day (24 hours). A respective light level is specified for each of these time periods (DALI value 0 = OFF, 126 = 3% and 254 = 100%) as well as a fading time (F) (see page 14, Sequence Configuration).



Group Assignment (2.2.3.4)

As a final step, an individual profile (consisting of different sequences for different days) can be defined for each group (max. 16). After switching "Sequences inactive" to "active", selecting "..."will let you assign a pre-set sequence (2.2.3.3) to each day (Sat, Sun, Mon, Tues, Wed, Thurs, Fri, Public Holiday, Special Day, daily, weekdays, and weekends). The resulting assignments of days and sequences will be displayed underneath the separating line and can be processed if necessary.

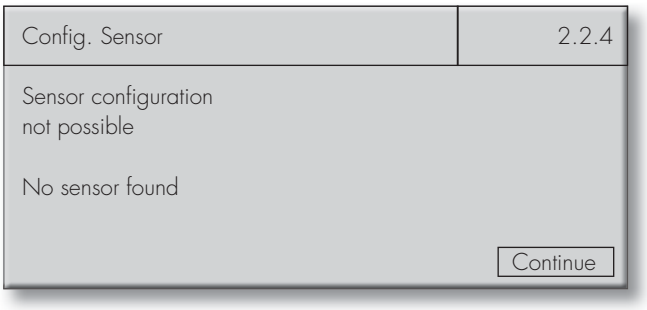


Config. Sensor (2.2.4)

Action/Aim:
Assigning functions and luminaires to VS MultiSensors.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ Config. Sensor

The information on the right will appear after these steps have been carried out if no sensors have been integrated into the system (see "Sensor Search" on page 21).



➲ 1st Case
Movement Detection Only

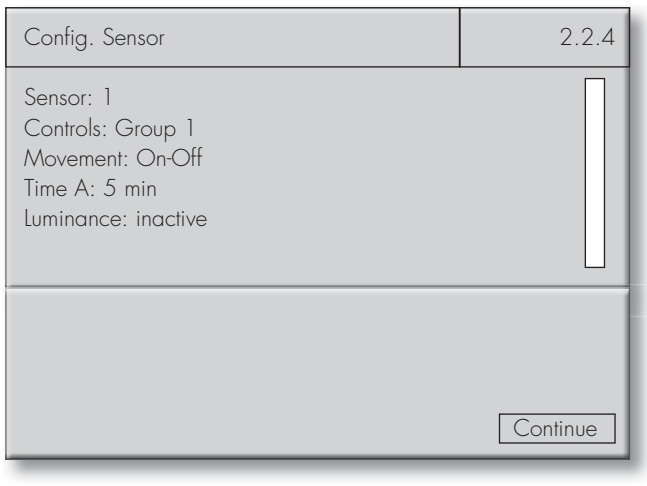
- Select the sensor you want to configure by turning and pressing the rotary push key.

  System response:
  The red LED of the selected sensor will begin to flash.

- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item.

  System response:
  The selected luminaires are addressed and will light up.

- After selecting the "Movement" menu item, you can set the mode of the movement sensor:
  On-Off = automatic
  Off = semi-automatic
- Now set Time A in the same way.
  Options: 10 s, 15 s, 30 s, 45 s, 1 min, 2 min, 5 min, 8 min, 10 min, 15 min, 20 min, 30 min, 60 min, 90 min
  Default setting: 30 s
- Confirming "Continue" will close the dialogue field and save all settings.



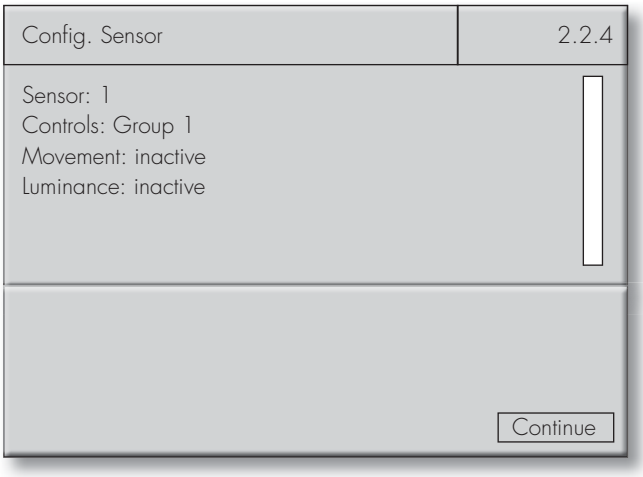
➲ 2nd Case
Luminance Control Only

IMPORTANT

If the sensor is to be used solely for luminance control, at least one additional button will have to be configured for the same luminaires to activate the system and switch it off (see "Config. PB/ Config. PB" starting on page 29.). If control is to be effected without a push button, the system's switching-on behaviour after a power failure must be set to "Light on" in the "System Response" menu item.

Select the sensor you want to configure by turning and pressing the rotary push key. System response: The sensor's red Led will begin to flash.
- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item. System response: The selected luminaires are addressed and will light up.
- After selecting the "Luminance" menu item, the light sensor can be activated. Once activated, further menu items for lighting control will appear on the screen.
- Under the DALI menu item, the constant light level can be set using the rotary push key.

Default setting: 100% light level.
For orientation purposes, the DALI bar on the screen will tell you which light level setting is currently active. The precise dimming value is shown next to the bar as a DALI value between 126 (3% light) and 254 (100% light)



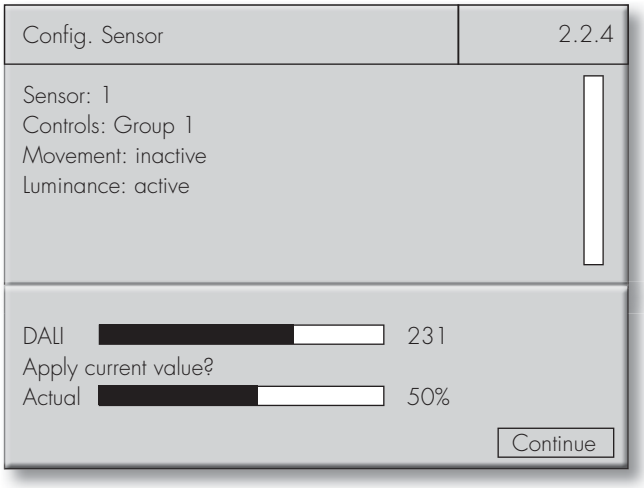
If there is a need to set the system to a certain lux value, readings will have to be taken on site using a suitable gauge (i.e. lux meter) and the DALI value (target value) then adjusted until the desired luminance has been reached.

Check your settings using the second bar on the screen. This will tell you the current measured value (actual value) of the selected light sensor in %. The actual value will also change in response to any changes to the DALI value (target). Changing the actual % value on the screen is not carried out analogously to changing the DALI target value.

IMPORTANT

A lighting control test can be carried out by using the rotary push key to dim the DALI value (target) up or down. If no change of the actual value is seen over the entire process during this step, the position of the sensor and the gauging method should be rechecked:

- Shielding due to walls, objects
- Distance from the group you want to control
- External light source



By subsequently confirming the "Apply current value?" menu item, the light value will be used for control purposes.

INFO

Only one light sensor can be active per group/ luminaire to avoid contradictory information. Selecting "Continue" will close the dialogue window and save all settings.

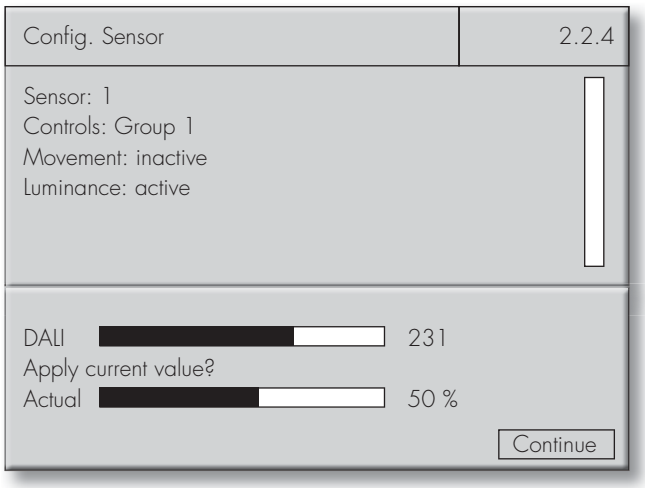
You can check your settings in the second bar on the screen. The bar displays the current measured value (actual) of the selected light sensor in %. The actual value will also change in response to any changes to the DALI value (target). Changing the actual % value on the screen is not carried out analogously to changing the DALI target value.

IMPORTANT

A lighting control test can be carried out by using the rotary push key to dim the DALI value (target) up or down. If no change of the actual value is seen over the entire process during this step, the position of the sensor and the gauging method should be rechecked:

- Shielding due to walls or objects
- Distance from the group you want to control
- External light source

By subsequently confirming the menu item "Apply current value?" menu item, the light value will be used for control purposes.



IMPORTANT

Only one light sensor can be active per group/ luminaire to avoid contradictory information. Selecting "Continue" will close the dialogue window and save all settings.

➲ **3rd Case**
Movement Detection and Luminance Control

- Sensor configuration as described starting on page 25.
- Please note the following:
  Light control active only during the "Active Light Level" countdown of the movement sensor.
  When switched on as a result of movement detection or the press of a push button, the luminaires will light up at the same luminance they had when switched off.

Config. PB and Config. RB (2.2.5 & 2.2.6)

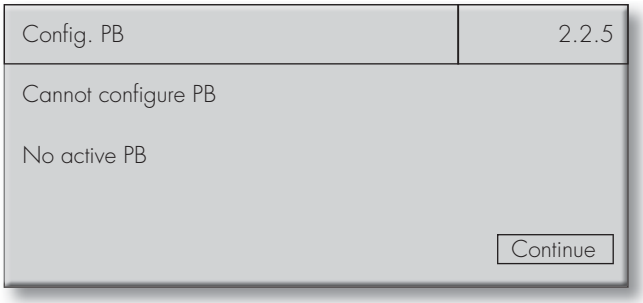
Action/Aim:
Assigning functions and luminaires to push buttons.

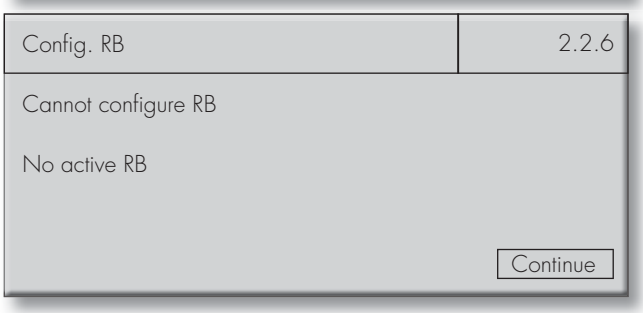
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ Config. push buttons/radio buttons

The information shown on the right will only appear after performing the various steps if no push buttons/radio buttons have been integrated into the system (see "PB Search/RB Search" on page 23).

Standard push buttons just as radio buttons are configured in the same way; only the addresses differ:

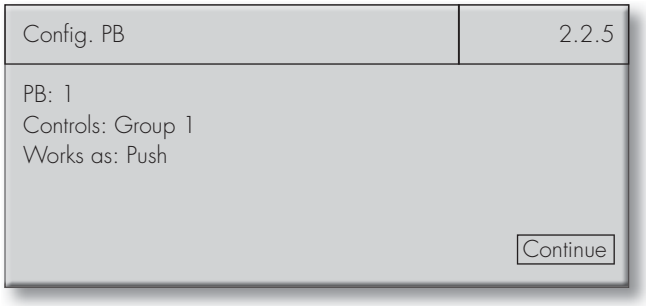
- Standard push button: 1 (von 1–6)
- Radio buttons: Radio button 1/1 (von 1/1–1/4 bis 16/1–16/4)





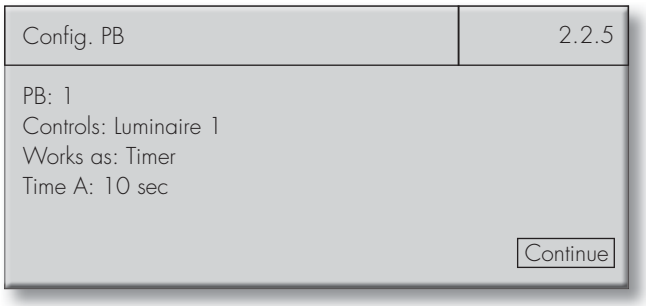
➲ 1st Case
Push button

- Select the push button by turning and pressing the rotary push key or, if selecting a radio button, by pressing the respective button on the wireless module.
- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item, for instance Group 1, by turning and pressing the rotary push key.
- System response:
- The selected luminaires will then be controlled by the selected push or radio button.



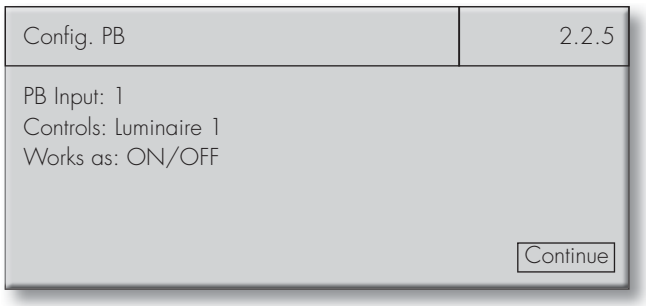
➲ 2nd Case
As a timer

- Select the desired timer by "turning and pressing" the rotary push key or (if using a radio button) by pressing the respective key on the module.
- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item, for instance Luminaire 1, by turning and pressing the rotary push key.The respective device will then be controlled by the selected button.
- Select "Timer" under "Works as" by turning and pressing the rotary push key.The selected push or radio button will then be in timer mode.
- Set "Time A" to the minimum time; options: 10 s, 15 s, 30 s, 45 s, 1 min, 2 min, 5 min, 8 min, 10 min, 15 min, 20 min, 30 min, 60 min, 90 min; Default setting = 30 s
- Selecting "Continue" will close the dialogue window and save all settings.



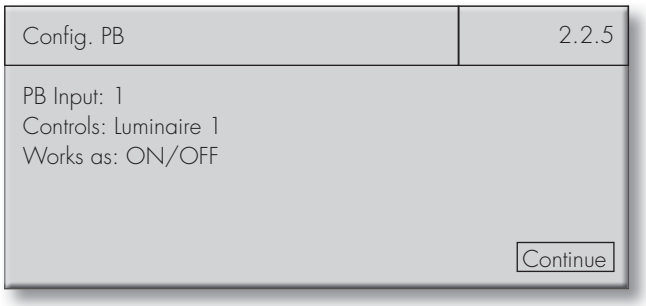
➲ 3rd Case
As an ON/OFF button

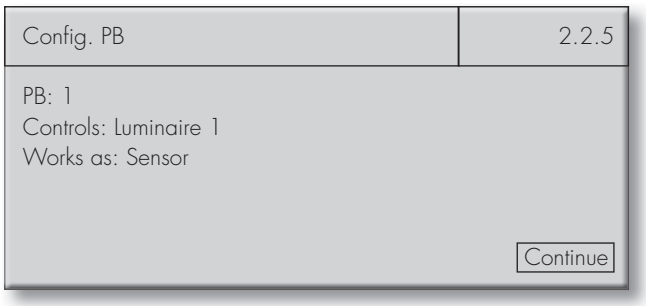
- Select the activated and desired button by "pressing and turning" the rotary push key or (given a radio button) by pressing the respective button on the module.
- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item, for instance Luminaire 1, by turning and pressing the rotary push key. The respective device will then be controlled by the selected button.
- Select "ON/OFF" under "Works as:" by "turning and pressing" the rotary push key. The selected button will now be in ON/OFF mode.
- Selecting "Continue" will close the dialogue window and save all settings.



➲ 4th Case
As a "Sensor-Activation"Button

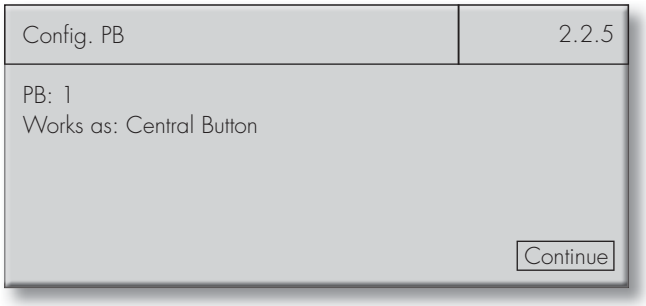
- Select the desired push button by "turning and pressing" the rotary push key or (given a radio button) by pressing the respective button on the wireless module.
- Select what you want to control among All, Group X or Luminaire X under the "Controls" menu item, for instance Luminaire 1, by turning and pressing the rotary push key. The selected device will then be controlled by the selected button.
- Select "Sensor" under "Works as:" by "turning and pressing" the rotary push key. The selected button will then be in sensor mode.
- Selecting "Continue" will close the dialogue window and save all settings.





➲ 5th Case
As a Central Button

- Select the desired button by "turning and pressing" the rotary push key or (given a radio button) by pressing the respective button on the module.
- Select "Central" under "Works as:" by "turning and pressing" the rotary push key. The selected button will then dim all devices to 0%.



Standby Relay (2.2.7)

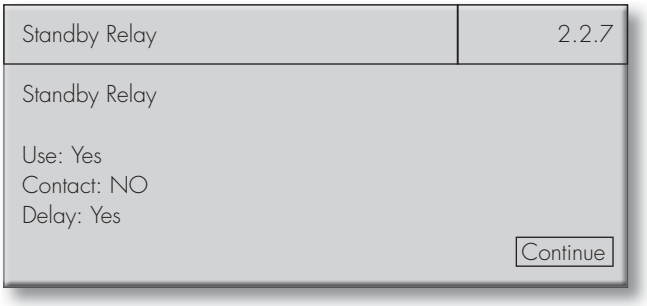
Action/Aim:
Activating the standby relay.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings➲ Config. Hardware➲ Standby Relay

Select the"Use" field by turning and pressing the rotary push key, then confirm with "Yes".

Two further menu items will now appear:
"Contact":
Turn the rotary push key to select the "NC" (normally closed) or "NO" (normally open) contact type

"Delay":
It is recommended to set "Delay" to "Yes" as some electronic ballast manufacturers define longer starting up times after reconnection to mains power.



System Response: Light Level (2.2.8)

Action/Aim:
Defining the light level.

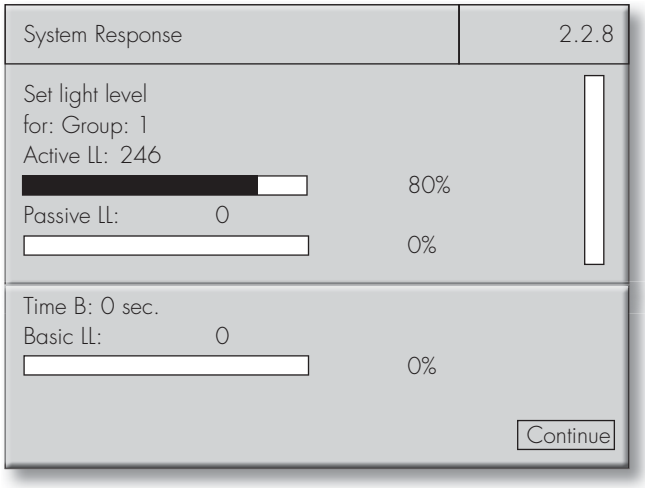
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ System Response

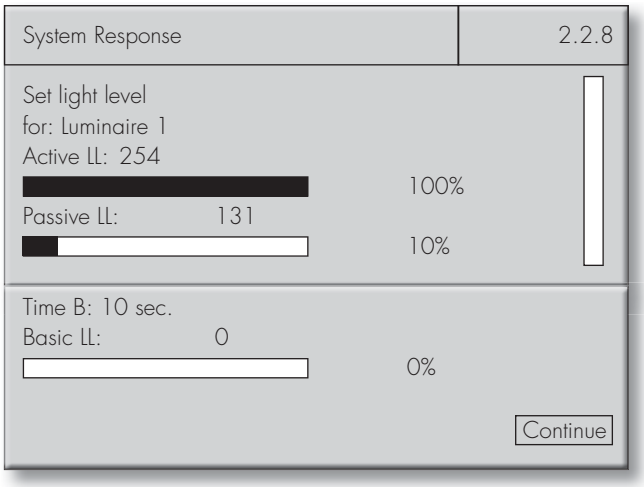
IMPORTANT

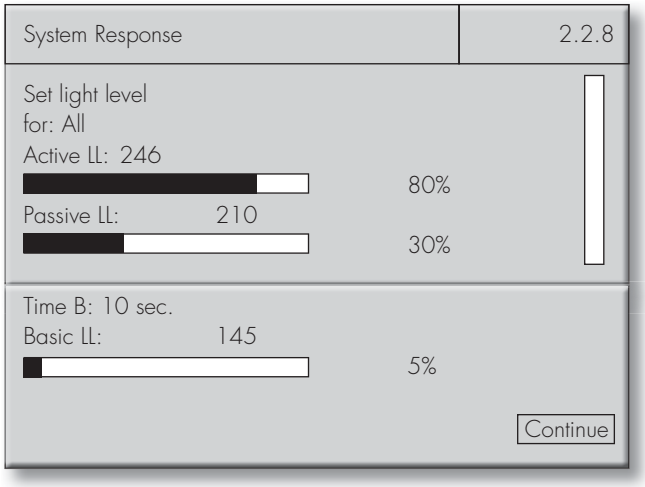
Please observe the information regarding light level configuration on pages 12 and 13.

➲ Defining Light Levels for Luminaires, Groups or All

- Select the unit (All, Group X, Luminaire X) you want to configure by turning and pressing the rotary push key under "For:",e.g. Group 1.
- The respective device will now be addressed.
- "Active LL:", "Passive LL:" or "Basic LL:" can now be selected by "turning and pressing" the rotary push key.
- Every light level is shown in % and as a DALI value (0–254).
- Set "Time B" to the desired time period.
- Selecting "Continue" will close the dialogue window and save all settings.



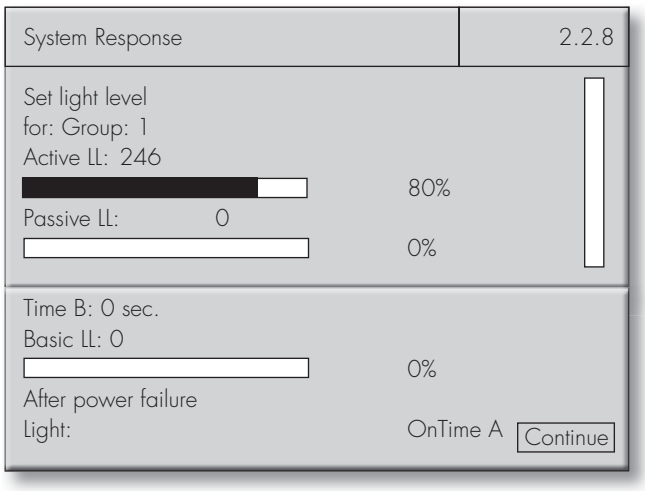




System Response on Restoration of Mains Power (2.2.8)

Action/Aim:
Defining switching-on behaviour on restoration of mains power after a power failure.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Config. Hardware ➲ System Response



➲ Defining Start Behaviour for Luminaires, Groups or for All.

- Select the unit (All, Group X, Luminaire X) you want to configure by "turning and pressing" the rotary push key under "For:", e.g. "Group 1".
- The respective unit will now be addressed.
- Now turn the button to its lowest point, after which you can define the system's switching-on behaviour after a power failure has ended under the "Light" menu item:
  - Light On
  - Light Off
  - Light On for Time A

INFO

If Time A was not defined during sensor or PB configuration for the unit in question, the default setting of 30 s will apply.

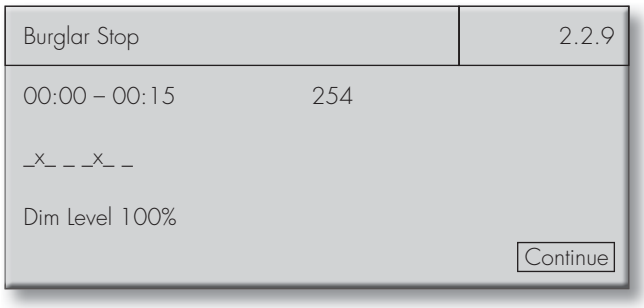
- Selecting "Continue" will close the dialogue window and save all settings.

Burglar Stop (2.2.9)

Action/Aim:
Defining light levels for certain time periods to simulate intervention in the system (human presence).

To this end, please use the rotary push key to select the following menu items on the screen:
Settings➲ Config. Hardware ➲ Burglar Stop

- The desired time period can then be defined using the 24-hour clock system (pre-set to: 00:00 – 00:15).
- Then define the light level in DALI format (0 = off, 126 = 3% and 254 = 100%).
- An overview of available luminaires will then be displayed. You can define from which luminaires the Light Controller is to make a random choice within the defined time period. The luminaire marked in each case is shown at the bottom end of the screen with "Luminaire: …".



INFO

Only already integrated luminaires can be selected.

Selecting "Continue" will close the dialogue window and save all settings.

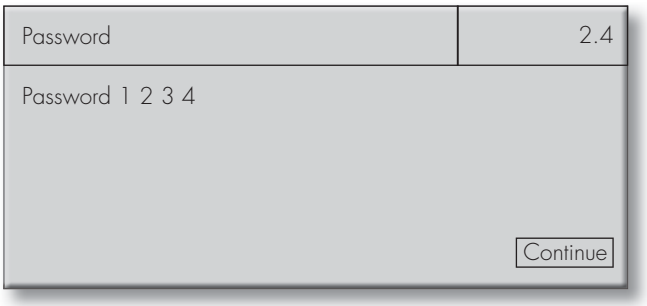
Creating a Password (2.4)

Action/Aim:
Activating a password to protect the controller from unauthorised access.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings➲ Password

Default setting: 0000 (no password)

In the example on the right, a password has been created that will need to be entered every time the settings are changed.



NOTE

After entering the password, return to "Run" mode to validate the password.

Should you forget the password, please contact your VS representative.

MODIFYING AN EXISTING INSTALLATION

DUPLICATE ADDRESSES

Modifying an existing installation means having to make alterations to a system in which connected devices will normally already have been assigned an address. If further components are added to the system, there is a risk of luminaires and sensors being assigned a duplicate address.

For this reason, **an automatic search** for duplicate addresses will be carried out once you have finished the modification process.

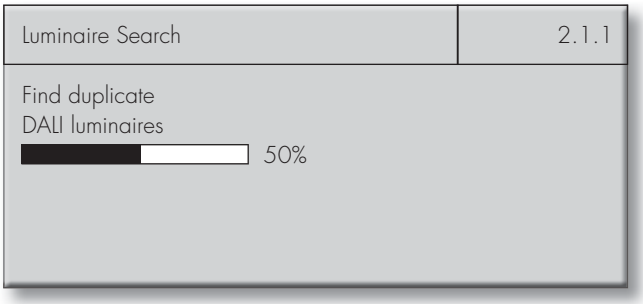
Duplicate Addresses: Luminaires

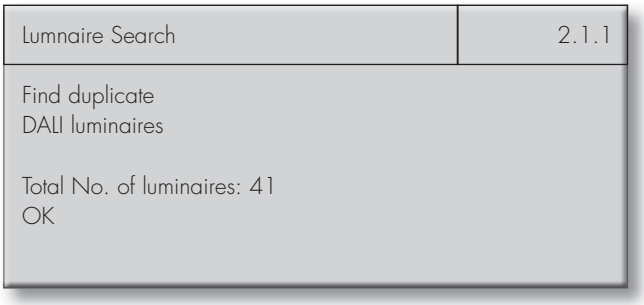
Should a duplicate address be found, the controller will delete one of the luminaire addresses and will assign the next free address to the device instead.

Running this menu item will remove any duplicate addresses.

Afterwards, please check your group settings to ensure luminaires are assigned to their correct groups.

If group assignment is not required, please assign the luminaire to the respective sensor, PB or RB with which you want to control the luminaire (see "Config. Sensor" on pages 25–27 or "Config. PB/ Config. RB" on pages 27–29).



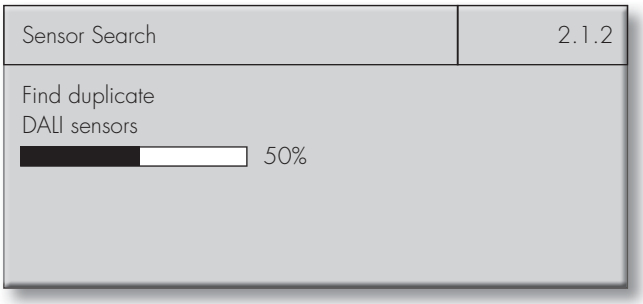


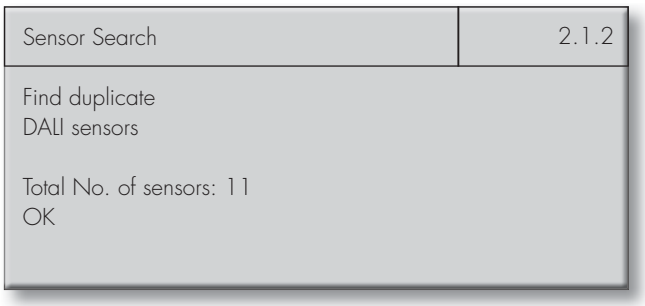
Duplicate Addresses: Sensors

Should a duplicate address be found, the controller will delete one of the two sensor addresses and assign the next free address to the device instead.

Running this menu item will remove any duplicate sensor addresses.

Afterwards, please check your sensor settings and adjust as necessary.





In the following, any situations that make it necessary to run a check for duplicate addresses will be marked as follows:

DA

REPLACING COMPONENTS

Luminaire/Ballast Defect

1. First disconnect the respective luminaire/ballast from the mans and the DALI supply line, and remove the defective component.

2. Then use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search
This will now delete the defective luminaire or ballast in the system software and make the address available again. DA

3. Now install the new luminaire or ballast in accordance with the respective instructions and then reconnect the device to the mains power.

4. Re-running the "Luminaire Search" menu item will assign the old (removed) luminaire's address to the new luminaire. DA

5. Then add the luminaire address to the respective group under the "Group Settings" menu item.

Replacing a Sensor

Repeat steps 1–4 as for "Luminaire Defect".
Settings ➲ Hardware Search ➲ Sensor Search
The new sensor will then have been configured in the same manner as the one replaced. DA

EXTENDING AN EXISTING INSTALLATION

Any new components must be installed before the system configuration can be modified.

Add Luminaires

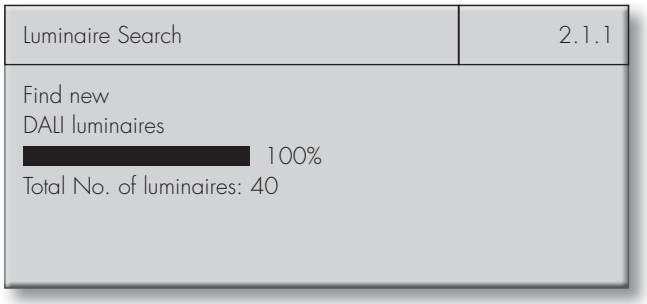
Action/Aim:
Integrating luminaires into an existing system.

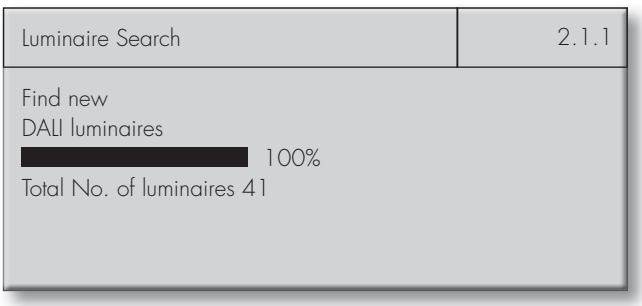
➲ Search for new luminaires (2.1.1)

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search

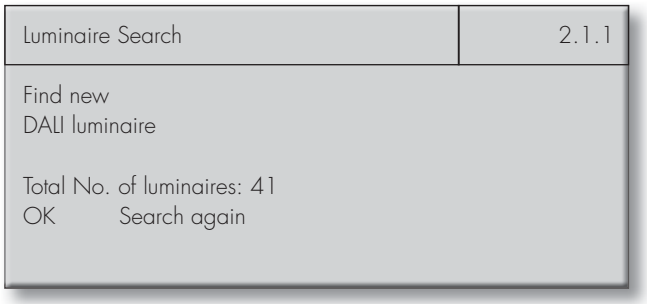
The number of existing luminaire addresses will be displayed on the screen. DA

An automatic search for new luminaires without an address will then begin and addresses assigned to any new luminaires.





The new number of DALI addresses will then be displayed on the screen. Confirming "OK" will activate the next menu item (Search for Duplicate Addresses), while confirming "Search again" will repeat the luminaire search.



Add Sensors

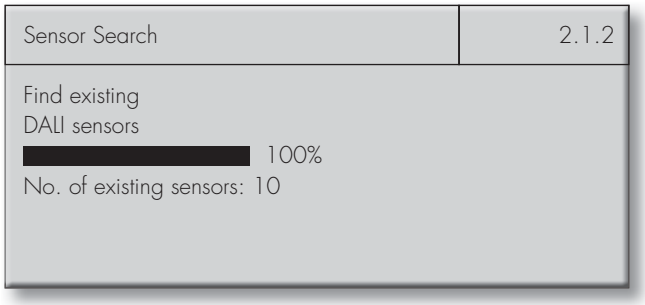
Action/Aim:
Integrating sensors into an existing system.

➲ Search for New Sensors (2.1.2)

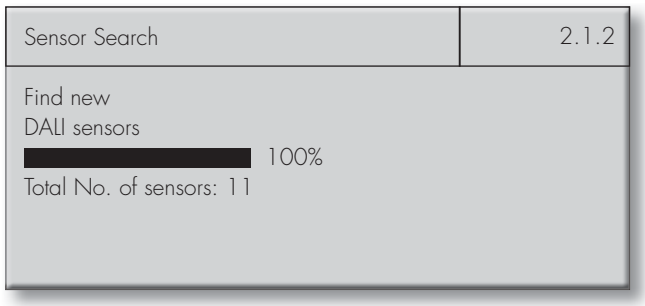
To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Sensor Search

The number of existing sensor addresses will be displayed on the screen.

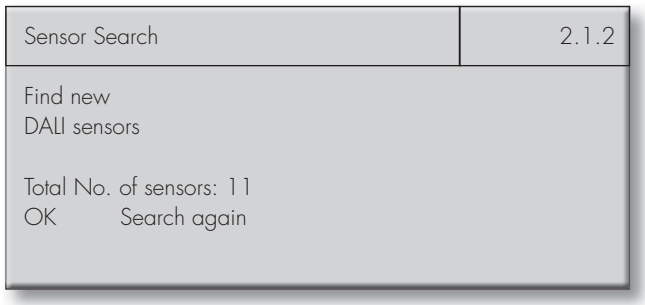
DA



An automatic search for new sensors without an address will then begin and an address will be assigned to any new sensors.



The new number of sensor addresses will then be displayed on the screen. Confirming "OK" will activate the next menu item (Search for Duplicate Addresses), while confirming "Search again" will repeat the sensor search.



Add PB (2.1.3)

Action/Aim:
Integrating a PB (push button) into an existing system.

➲ Activate PB

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ Activate PB

- Activate the connected PB input.
- In the example on the right: PB input 1 is already active. – PB 2 will now be activated with a press of the rotary push key (cursor position). The activated PB is now ready for configuration (see "Config. PB/Config. RB" on pages 27–29).

INFO

Please ensure that the cable is connected to the correct PB input.

Add RB

Action/Aim:
Integrating an RB (radio button) into an existing system.

➲ RB Search (2.1.4)

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Hardware Search ➲ RB Search

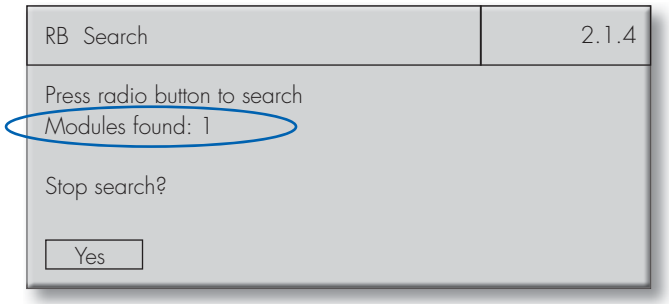
1. The number of integrated modules will be displayed under "Modules found: 1" (marked in blue on the right).

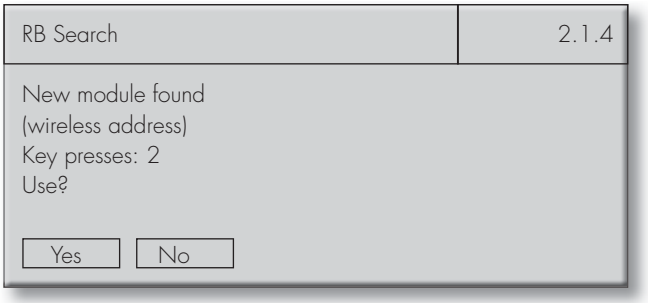
2. Press the rotary push key several times to clearly identify the radio button that you wish you integrate into the system. These "key presses" will be counted up on the screen. Confirming "Yes" will then integrate the RB into the system.

3. Repeat the above-mentioned process to integrate further RBs into the system.

4. Confirming "Yes" will conclude the search.

The RB will then be ready for further configuration.





REDUCING AN EXISTING INSTALLATION

Removing Luminaires

Action/Aim:
Removing luminaires from an existing system.

Luminaires that are no longer needed can be removed from the system by disconnecting them from the DALI bus.

Then run the
Settings ➲ Hardware Search ➲ Luminaire Search
menu item to inform the controller that these luminaires have been removed from the system. Failing to run this menu item will lead the controller to identify any removed luminaires as "defective" when performing a system check.

DA

Removing Sensors

Action/Aim:
Removing sensors from an existing system.

Sensors that are no longer needed can be removed from the system by disconnecting them from the DALI bus.

Then run the
Settings ➲ Hardware Search ➲ Sensor Search
menu item to inform the controller that these sensors have been removed from the system. Failing to run this menu item will lead the controller to identify any removed sensors as "defective" when performing a system check.

DA

The respective device addresses will then be available again.

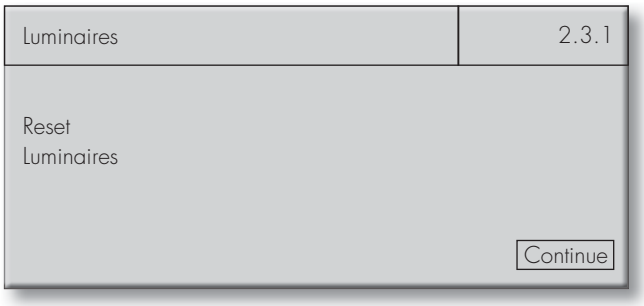
RESETTING THE SYSTEM AND INDIVIDUAL COMPONENTS

Resetting Luminaires (2.3.1)

Action/Aim:
Deleting luminaire settings (group assignments).

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Reset Hardware ➲ Luminaires

Luminaire settings will be reset, but luminaire addresses will be retained.

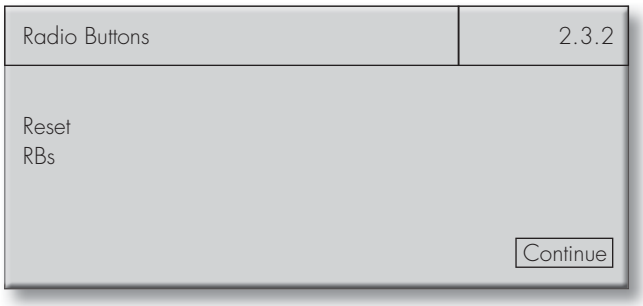


Resetting RBs (2.3.2)

Action/Aim:
Removing RBs (radio buttons) from the system.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Reset Hardware ➲ RB

All radio buttons will then be removed from the system.

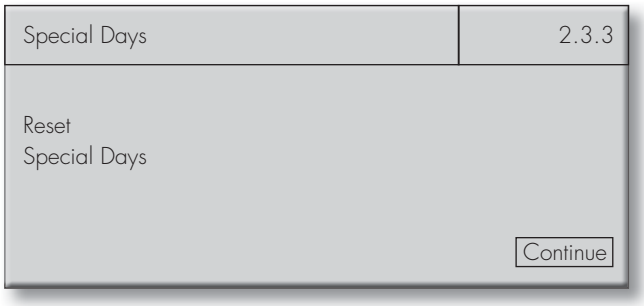


Reset Special Days (2.3.3)

Action/Aim:
Removing manually defined special days under sequence settings.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Reset Hardware ➲ Special Days

All special days will then be deleted and the dates affected treated like normal days.

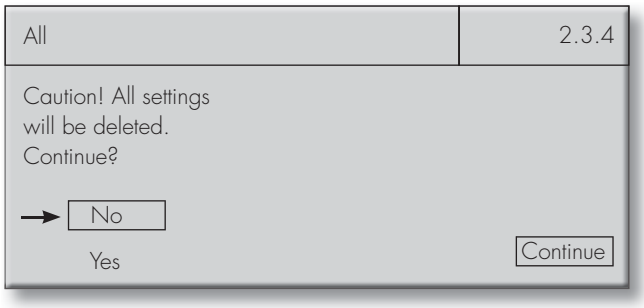


Resetting the System (All) (2.3.4)

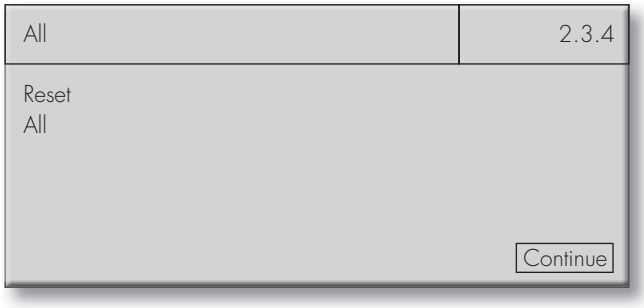
Action/Aim:
Restoring the system's default settings.

To this end, please use the rotary push key to select the following menu items on the screen:
Settings ➲ Reset Hardware ➲ All

The system will ask whether you want to delete all settings.
The default cursor position is on "No". Deleting all system settings must be confirmed with "Yes".



The system will now be reset.



SYSTEM

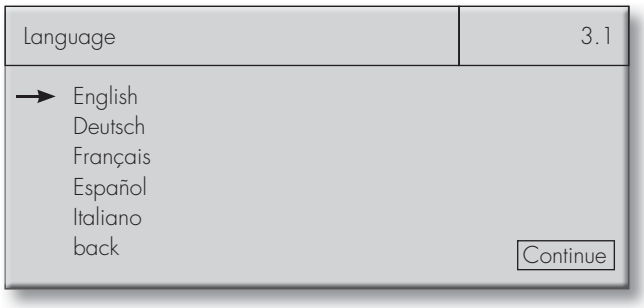
LANGUAGE (3)

Action/Aim:
Selecting your preferred language.

To this end, please use the rotary push key to select the following menu items on the screen:
Language

Default setting: English

Select the language you want by "turning and pressing" the rotary push key. Five languages are available.



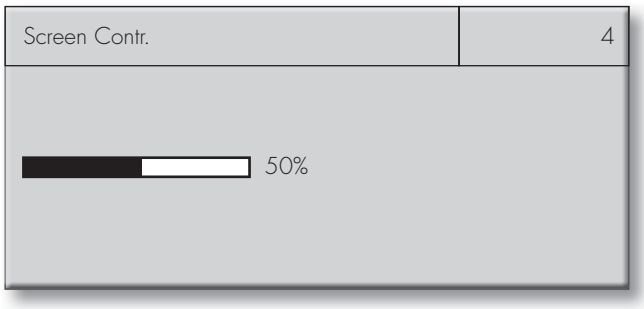
SCREEN CONTRAST (4)

Action/Aim:
Adjusting the screen contrast.

To this end, please use the rotary push key to select the following menu items on the screen:
Screen Contr.

Default setting: 70%

Select the contrast you want using the rotary push key and "press"to confirm the selected value.



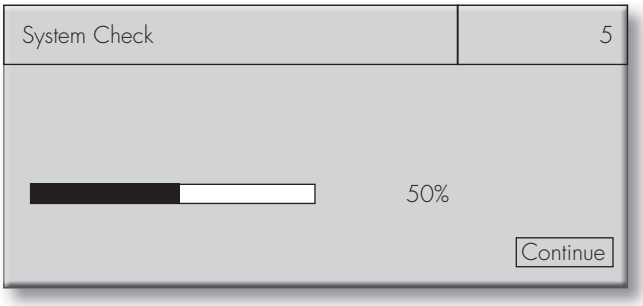
SYSTEM CHECK (5)

Action/Aim:
Checking the system for errors.

To this end, please use the rotary push key to select the following menu item:
System Check

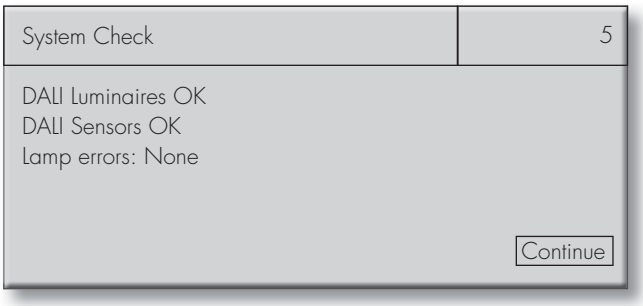
➲ Automatic System Check

An automatic system check will be run.



➲ System OK

No errors found during the system check.

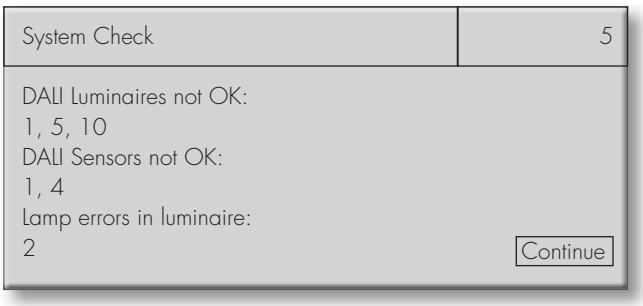


➲ System Errors Found

In the example on the right, the system has found detectable errors.

Errors found in DALI luminaires 1, 5, 10.
Errors found in DALI sensors 1, 4.
Error found in lamp 2.

After the system check, the identified components and their wiring should be checked. Depending on the kind of error, the component will have to be exchanged and possibly reconfigured.



INFORMATION (6)

Action/Aim:
Displaying system-relevant data regarding the software version.

To this end, please use the rotary push key to select the following menu item on the screen:
Information

Should you encounter any problems with your Light Controller, you will need to provide your VS representative with this information.

DOCUMENTATION

For documentation purposes and to track any later changes, you are recommended to enter your system configuration details in the tables below and to keep these safe for future reference.

The complete tables are available for download as Excel files (.xls) from our website at:
www.vossloh-schwabe.com/en/home/services/manuals.html

Group Assignment Table

	Ground Floor Hallway	Ground Floor Office 1	Ground Floor Men's WC	…	…	…
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Luminaire 1						
Luminaire 2						
Luminaire 3						
Luminaire 4						
Luminaire 5						

Table of PB and Sensor Assignments/Settings

Example table:

Which device do you want to control?	Which device do you want to use for control purposes?	How do you want the device to effect control?	Which values are to be used for controlling the group/luminaire?						Switching-on behaviour after a power failure.
Group/Luminaire	PB/RB/Sensor	Mode	Constant Light	Active LL	Passive LL	Basic LL	Time A	Time B	
Group 1	PB 1	Timer	–	100%	50%	0%	10 min	30 s	
Luminaire 3	RB 2/1	Push	–	–	–	–	–	–	
Luminaire 4	RB 2/2	ON/OFF	–	90%	–	–	–	–	

LIGHT CONTROLLER LS AND LSW

TECHNICAL DETAILS

LIGHT CONTROLLER LS/LSW

Supply voltage..... 220–240 V AC
Frequency..... 50–60 Hz
Power consumption..... 9.0 W
Ambient temperature t_a ..... 5–50 °C
Degree of Protection..... IP20
Protection Class..... I
DALI Output (da +–)..... max. 200 mA uptake
No. of DALI ballasts..... max. 64
No. of VS MultiSensors..... max. 36
Weight..... 250 g
Dimensions (L x W x H) ..... 126 x 90 x 68 mm

LIGHT CONTROLLER LS

Ref. No. 186276

LIGHT CONTROLLER LSW

No. of wireless modules (only LSW)..... max. 16
Ref. No. 186276

MAGNETIC-BASE ANTENNA WITH INTEGRATED CABLE

Cable length and diameter..... 2,500 mm, Ø = 6 mm
Min. cable bending radius..... 50 mm
Resistance..... 50 Ω
Ambient temperature t_a ..... –40 °C to +80 °C
Storage temperature..... –40 °C to +80 °C
Degree of Protection..... IP66
Weight..... 62 g
Dimensions..... Ø 29 mm x 88 mm
Power rating..... 10 W pulsed

Ref. No..... 186211

SCREW-BASE ANTENNA WITH SEPARATE CABLE

Cable length and diameter..... 1,500 mm, Ø = 6 mm
Min. cable bending radius ..... 50 mm
Resistance..... 50 Ω
Ambient temperature t_a..... –40 °C to +70 °C
Storage temperature..... –40 °C to +80 °C

Degree of Protection..... IP66
Weight of screw-base antenna..... 41 g
Weight of cable..... 66 g
Dimensions..... Ø 33 mm x 89 mm
Power rating..... 8 W pulsed

Ref. No. Antenna..... 186212

Ref. No. Cable 186213

RADIO BUTTON FT4F
Type: LiCS-LW-FT4F-1
Description: wireless module, frame, 1 rocker switch and 1 double rocker switch.
Frame dimensions: exterior: 80 mm x 80 mm, interior: 63 mm x 63 mm, height: 15 mm
Ref. No./Colours: anthracite 551418, pure white 551416, pure white glossy 551417, painted aluminium 551415
Weight: 30 g

RADIO BUTTON FT55
Type: LiCS-LW-FT55-1
Description: wireless module, frame, 1 rocker switch and 1 double rocker switch
Frame dimensions: exterior: 80 mm x 80 mm, interior: 55 x 55 mm, height: 15 mm
Ref. No./Colours: anthracite 5551414, pure white 551412, pure white glossy 551413, painted aluminium 551411
Weight: 30 g

RADIO BUTTON FFT55Q
Type: LiCS-LW-FFT55Q
Description: radio module, frame and 1 rocker switch
Frame dimensions: exterior: 84 mm x 84 mm, interior: 55 mm x 55 mm, height: 11 mm
Ref. No./Colours: anthracite 551427, pure white 551425, pure white glossy 551426, painted aluminium 551424
Weight: 30 g

MINI HAND-HELD TRANSMITTER FMH2
Type: LiCS-LW-FMH2
Description: 1 rocker switch
Dimensions: 43 mm x 43 mm
Height: 16 mm
Ref. No./Colours: anthracite 551422, pure white 551420, pure white glossy 551421, painted aluminium 551419
Weight: 30 g

MINI HAND-HELD TRANSMITTER FMH4
Type: LiCS-LW-FMH4
Description: 1 double rocker switch
Dimensions: 43 mm x 43 mm
Height: 16 mm
Ref. No./Colours: anthracite 551410, pure white 551408, pure white glossy 551409, painted aluminium 551407
Weight: 30 g

WIRELESS REMOTE CONTROL FF8
Type: LiCS-LW-FF8
Description: 2 double rocker switches
Dimensions: 185 mm x 50 mm
Height: 17 mm
Ref. No./Colour: painted aluminium 551423
Weight: 140 g

WIRELESS REPEATER FRP61-230 V
Type: LiCS-LW-FRP61-230V
Description: for flush-mounted installation
Ref. No.: 551606
Voltage: 230 V
Standby loss: 0.8 W
Dimensions: 45mm x 55mm x 33 mm
Weight: 50 g

WIRELESS REPEATER FRP61/8–24 V UC
Type: LiCS-LW-FRP61/8-24V UC
Description: for flush-mounted installation
Ref. No.: 551607
Voltage: 8–24 V UC
Standby loss: 0.3 (8 V), 0.5 (12 V), 1 (24 V)
Dimensions: 45 mm x 55 mm x 18 mm
Weight: 50 g