LIGHTING SOLUTIONS

LiCS INDOOR

Technical Manual Light Controller L/LW

Light Control Gear for Intelligent Indoor Lighting

Light Controller L/LW

Manual Version 1.2
For Software Version 1.3

LiCS

CONTENTS

GENERAL

Introduction

Thank you for purchasing the LiCS system made by Vossloh-Schwabe. Please familiarise yourself with the functions of this product by carefully reading the manual. This will also help you to make the most effective use of the product. When not in use, please keep the manual in a safe place for easy future reference. Anybody who is involved with setting up, commissioning, operating, maintaining and repairing the system must
- be suitably qualified,
- strictly observe the instructions contained in this manual.

Use of Symbols in the Manual

The following symbols are used in the manual to highlight procedures, limitations, precautionary measures and instructions that must be observed for safety reasons.

CAUTION

This symbol alerts you to a precautionary measure which, if ignored, can lead to fatalities, injuries and damage to property. These cautions must be strictly observed to ensure safe use of this product.

IMPORTANT

This symbol alerts you to important information and any limitations that must be observed. Please read these points carefully to ensure fault-free operation of the system or of individual components.

INFO

This symbol alerts you to additional information regarding the operation of the system or of individual components. It is recommended that you read these notes.

DA

This symbol alerts you to situations which will require running a check for duplicate addresses.

Use of Abbreviations in the Manual

- LiCS = Lighting Control Solutions
- DALI = Digital Addressable Lighting Interface
- LL = Light level
- t = Time

LEGAL NOTES

Trademarks

- The Vossloh-Schwabe and the LiCS logos are trademarks of Vossloh-Schwabe Deutschland GmbH.
- Other products and company names, e.g. EnOcean, can be trademarks of their respective owners.

LIGHT CONTROLLER L AND LW MODELS

INSTALLATION AND FUNCTIONS

GENERAL PRODUCT DESCRIPTION

The L and LW Light Controllers are light management systems that were developed as a means of controlling and adjusting light systems without needing a PC or a higher-level bus system.

Communication between the Light Controller and the luminaires is based on the standardised DALI protocol.
Both models of the light controller comply with all previously adopted parts of the IEC 62386 standard. This standard stipulates that a DALI system may have a maximum of 64 addresses. Both models of the Light Controller are designed to be mounted on a 35 mm, DIN-compliant mounting rail, both are fitted with a display screen as well as a rotary push key for easy, PC-free configuration of the entire lighting system. Any subsequently required system modifications can also be carried out in the same way.

Up to six independently configurable standard push buttons can be connected to a single L and LW Light Controller.
It is furthermore possible to connect up to 16 MultiSensors to the DALI bus, in which case the maximum 200 mA current load of the Light Controller's bus must not be exceeded (see DALI current consumption of the individual components). The LW Light Controller provides the additional option of integrating up to 16 wireless modules, each of which can be fitted with up to four independently configurable push buttons.

As a result, the Light Controller is an ideal tool to enable individual control of lighting systems comprising various luminaire groups.

The LW Light Controller provides additional advantages:

- Optional connection of radio buttons
- No need for heavy building work (e.g. when carrying out retrofitting, refurbishment or preservation work)
- Optional use of wall-mounted or hand-held wireless modules
- Reduction of thermal loads (fire prevention)

These product features make Vossloh-Schwabe's Light Controller (L/LW) perfect for a variety of applications, e.g.:

- Offices, industrial settings and storage areas
- Supermarkets
- Public buildings (e.g. schools and hospitals)
- Stairwells, corridors and hallways
- Sanitary facilities

Installation

IMPORTANT

Vossloh-Schwabe LiCS products must be installed and commissioned only by suitably qualified and trained staff.

INFO

Please read this manual carefully prior to installing and commissioning the system to ensure its safe and correct operation. Please keep the manual in a safe place for easy reference in the future.

Power Supply

CAUTION

All equipment must be disconnected from the power supply before any work is performed on it.

IMPORTANT

The installation instructions provided for the individual LiCS products must be strictly observed. All valid safety-relevant and accident-prevention directives and laws must also be observed.

CAUTION

Tampering with your LiCS products by opening them involves the risk of incurring a fatal electrical shock (live components) and is therefore prohibited! All repairs must be carried out by the manufacturer.

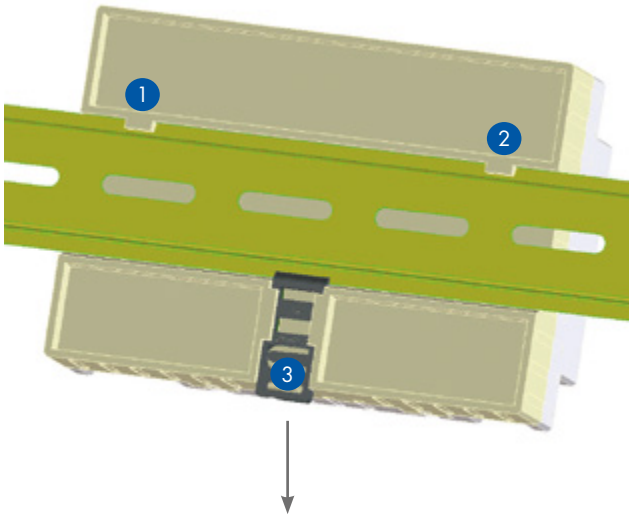
INSTALLATION OF THE LIGHT CONTROLLER

The VS Light Controller (L/LW) is exclusively designed for mounting on a 35 mm mounting rail that complies with DIN 43880, which in turn must be installed in a junction box. The required installation space amounts to 7 HP (125 mm).

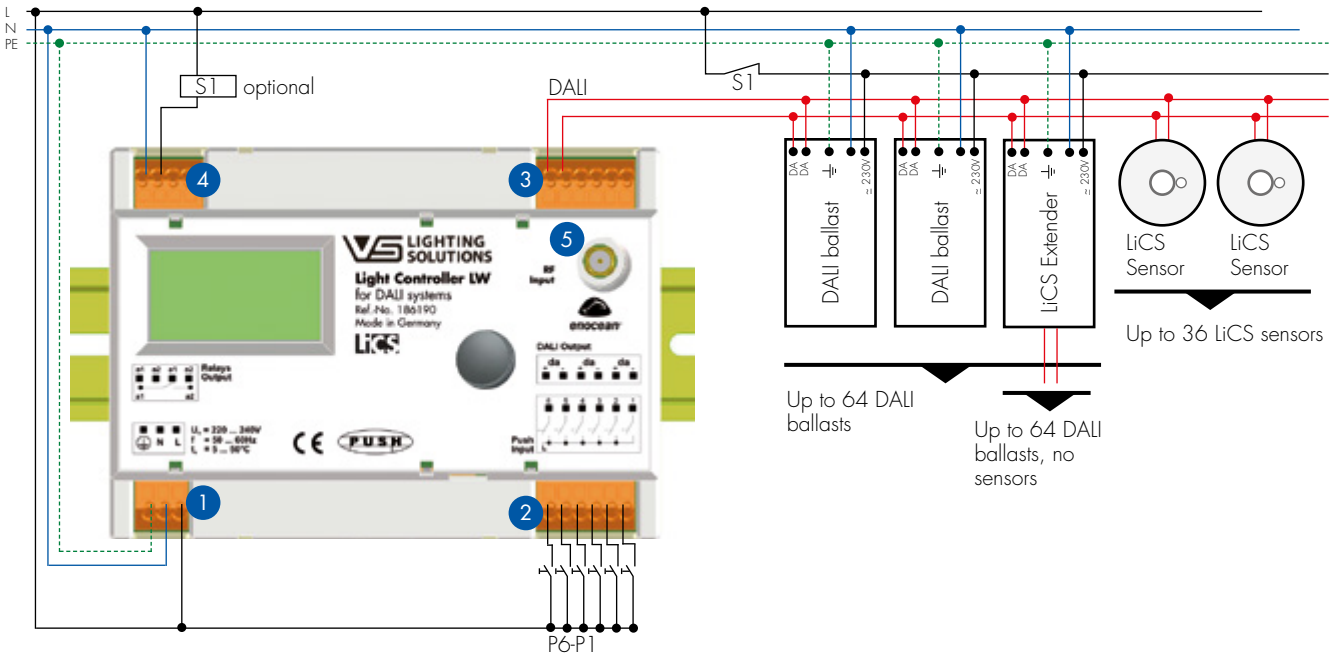
When mounting the VS Light Controller on the rail, the screen must be in the upper left corner.

First hook the Light Controller over the upper edge of the rail using the two mounting notches 1 and 2 to help you. Then carefully press the Light Controller onto the lower part of the rail until the mounting spring 3 on the Controller snaps into place over the rail. You may need to use a screwdriver to support the spring.

To remove the Light Controller from the rail, use a screwdriver to loosen the spring in the direction of the arrow and ease the Controller over the rail flange from the bottom.



CIRCUIT DIAGRAM



CONNECTION TERMINALS

1 – 4

The integrated connection terminals can be wired using rigid or flexible conductors with a cross-section of 0.5–1.5 mm² and a stripped length of 8.5–9.5 mm.

1

The Light Controller (L/LW) is a protection-class I device. It is therefore essential to ensure that the protective earth (PE) is correctly connected. Voltage connections are designed for use with 220–240 V, 50/60 Hz mains power. DC operation is not possible. The equipment should be protected by fitting a 10 A or 16 A, Type B automatic circuit breaker.

2

Conventional push buttons can be connected to terminals Push Button1 to Push Button6. Please note that these push buttons must be able to withstand mains voltage as they will also have to be connected to the power supply. If required, several push buttons can be connected to a terminal in parallel; these push buttons would then perform the same function once activated. A maximum cable length of 100 m per push button must not be exceeded.

3

By default, the DALI bus is delivered with basic insulation only. All DALI lines must therefore be capable of withstanding mains voltage, but may be wired to the individual devices together with the power supply cable, e.g. NYM 5x1.5 mm². The DALI bus input on the controller features three pairs of terminals, which make it easier to connect various components (e.g. DALI ballast, MultiSensor). In total, the requisite number of ballasts and MultiSensors can be connected to the three pairs of terminals. In this regard, the maximum 200 mA current load of the Light Controller bus must not be exceeded (see DALI current consumption of individual components).

Calculation formula: (x+y) x 2 mA + z x 10 mA ≤ 200 mA
x = No. of ballasts, y = No. of extenders, z = No. of sensors

The maximum cable length for the DALI bus must not be exceeded during installation. Total cable resistance must not exceed a value of 6.2 Ω.

Conductor cross-section	max. DALI-Bus
1.5 mm²	max. 300 m
1 mm²	max. 180 m
0.75 mm²	max. 130 m
0.5 mm²	max. 80 m

If the power supply and the DALI line are laid in a single cable, a maximum cable length of 100 m must not be exceeded regardless of the conductor cross-section.

IMPORTANT

DALI control gear and DALI bus supply units made by other manufacturers must not be connected to a LiCS DALI system. Only DALI ballasts (any manufacturer) and VS LiCS MultiSensors are permissible. On no account may the DALI control line be used to carry mains voltage or any other external voltage as this can destroy individual system components.

4

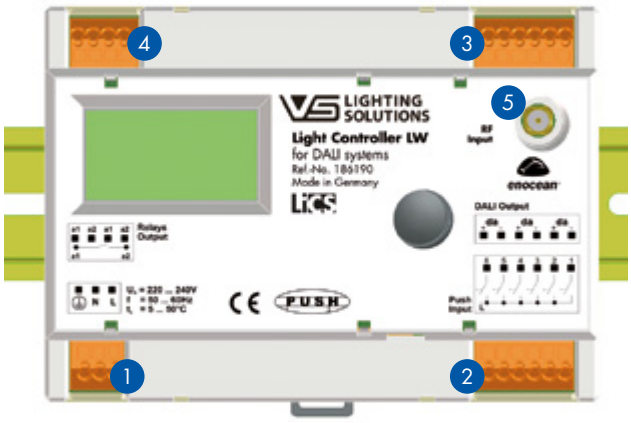
The relay contact is a potential-free closing contact. The current load of the relay contact must not exceed an Ohmic load of I_{max} = 3 A. When using the relay contact to minimise stand-by losses, an additional external contactor must be used.

5

Although both models of the Light Controller (L/LW) feature an antenna-connection jack (located top right on the front), only the jack on the LW model is functional. Connecting an antenna then enables full use to be made of the range provided by wireless components.
Depending on the type of junction box and the given application, VS provides two models of this antenna: one with a magnet and one with a screw base. This antenna is not included in the scope of delivery (for more details please refer to "Antenna for the LW Light Controller" on page 10).

IMPORTANT

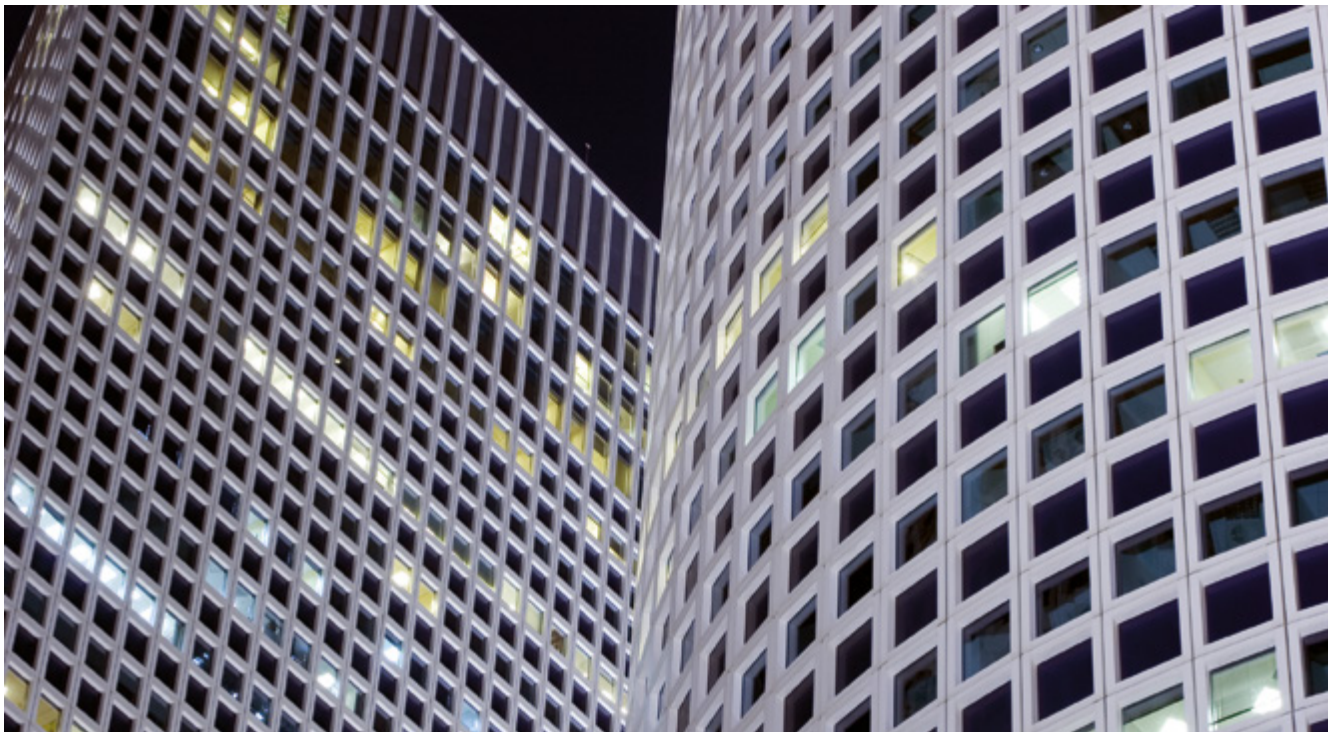
Wireless components connected to the LiCS system use EnOcean technology to communicate at a frequency of 868 MHz. Given unfavourable conditions (e.g. interference from other overlapping wireless networks), no guarantee can be given that the EnOcean equipment will not be affected. Similarly, no guarantee can be given that the EnOcean technology will not affect other systems, either.



INFO

The integrated EnOcean technology is approved for use in the European Union, Switzerland, Norway and Iceland. Please contact your Vossloh-Schwabe representative before making use of this technology in any other countries.

enocean®



ANTENNA FOR THE LW LIGHT CONTROLLER

Problem-free wireless operation requires the connection of an antenna that has been set to the respective frequency. The requisite antenna is provided by Vossloh-Schwabe in two models.

The screw-base model comes with a detachable connection cable (2 m), while the magnetic-base model is fitted with a non-detachable connection cable (2.5 m).

When fitting the antenna, care must be taken that it is not shielded by metal objects, e.g. steel cabinets, radiators, ventilation shafts etc., to ensure optimum signal reception.

Please see the data sheet of the manufacturer for installation information and technical data.

- Magnetic base antenna with connecting cable
  Ref. No.: 186211
- Screw-base antenna
  Ref. No.: 186212
- Connection cable for screw-base antenna
  Ref. No.: 186213

RADIO BUTTON FEAT. ENOCEAN TECHNOLOGY FOR THE LW LIGHT CONTROLLER

In addition, VS offers a number of different radio buttons. For more information, see page 45. Various manufacturers also currently produce radio buttons featuring EnOcean technology and retail these on the market. To install such components, please follow the respective manufacturer's installation instructions and data sheets.
Whichever radio button you connect, please ensure it operates with a frequency of 868 MHz.

For further assistance, please also refer to the EnOcean Range Planning Guide, available for download at:
www.enocean.com/fileadmin/redaktion/pdf/app_notes/AN001_RANGE_PLANNING_Sep10_en.pdf

DESCRIPTION OF FUNCTIONS

CONTROLLER BEHAVIOUR DURING COMMISSIONING (DEFAULT SETTINGS)

Upon first connection to the power supply after the system has been fully installed, the Light Controller will – after a brief warm-up time of < 5 sec. – initially turn all devices connected to the system "OFF" (zero light level).

INFO

Even without immediately configuring the system, all connected luminaires can be jointly switched ON and OFF, for which a push button must be connected to button input No. 1 – which has been pre-configured for push button connection, as shown in the circuit diagram on page 6.

Once the system has been configured, this push button can be set to perform a different function.

The system can also be switched on and off via the Controller's power supply (disconnection from the mains).

If the power supply to the Controller is cut, the status of all devices connected to the DALI system will be shown as "System Failure Level", which is preset to a default light level of 100%.

COMPONENT INTEGRATION AND ASSIGNMENT

This section is designed to explain the various functions of the system. The exact configuration procedure can be found under "System Configuration" starting on page 18.

Integrating Components into the System (Menu item: "Hardware search")

After the system has first been switched on, but prior to configuration, the Light Controller needs to know which devices (luminaires, sensors, buttons) are connected to the system, for which purpose the Light Controller (L/LW) features a "Hardware search…" menu item. This option is used to integrate devices (luminaires, sensors, buttons) into the system using either the automatic search function or a menu for enabling standard push buttons. An additional manual search will have to be conducted to find wireless modules when using the LW Light Controller.

The Controller will recognise all devices within the system and assign a short address to each component:

- Luminaire 1 to Luminaire 64
- Sensor 1 to Sensor 16
- Push Button 1 to Push Button 6 (push button)

In addition, for the LW Light Controller:

- Radio Button 1/1–1/4 to Radio Button 16/1–16/4

INFO

The assignment of addresses for the luminaires and sensors is aRadio Buttonitrary and carried out in random order. It is therefore recommended to annotate the lighting plan with the addresses shown in each case when forming groups or configuring sensors.

The remaining system components can only be configured after the above-mentioned steps have been carried out.

Forming Luminaire Groups (Menu items: "Groups settings A" and "Group settings B")

If you want various luminaires to collectively respond to a certain control signal, it makes sense to assign these luminaires to a group. A single Light Controller can be used to manage up to 16 groups. The number of luminaires per group can be freely chosen, provided that the total sum of all luminaires within the entire system does not exceed 64.

It is also possible to assign a single luminaire to several groups. However, please note that this can lead to overlapping signals and result in contradictory circuit and dimming responses.

If an individual luminaire is to be addressed by a control element, this luminaire can also be assigned using its short address (Luminaire 1 … Luminaire 64) without forming a group.

When configuring the control elements, it is equally possible to address all the luminaires in the system at once. This does not require group formation either.

Group settings A

This menu item lets you select each luminaire individually and assign it to a group by turning the rotary push key.

INFO

You should now annotate the lighting plan with the displayed luminaire address to ensure correct assignment of luminaire addresses and locations.

Pushing the rotary push key will then integrate the displayed luminaire into the selected group.

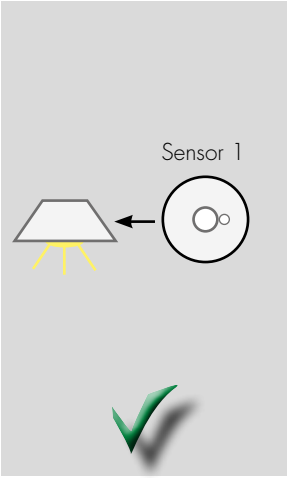
Group settings B

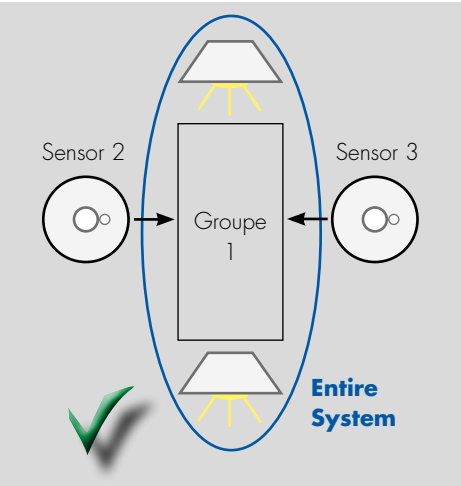
This menu item is used to assign a luminaire to several groups and will also immediately display the group to which the luminaire has been assigned.

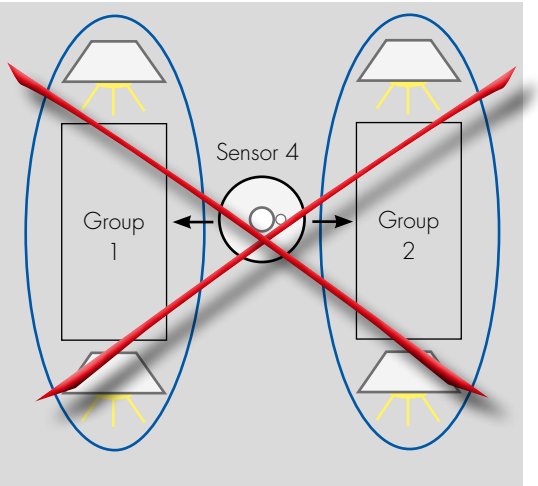
Assigning Control Elements (Sensors, Push Buttons) to Luminaires (Menu items: Config. Sensor, Config. Push Button, Config. Radio Button)

The process of configuring the sensors and push buttons begins with defining the system segment you want to work on. Every control element is assigned an individual address, a group or the entire system.

Although it is not possibe to assign a single control element to more than one group, you can use two control elements to manage a single group.







PUSH BUTTON AND SENSOR FUNCTIONS

With the help of the Light Controller, different functions can be assigned to the control elements, for which purpose the respective menu items will have to be opened on the screen.

Push Buttons (Menu items: "Config. Push Button" and "Config. Radio Button")

After selecting menu item Config. Push Button or Config. Radio Button, the activated button can be assigned to to perform one of four functions:

1. Push
The push function is a combined ON-OFF-DIM function. A short push of the button switches the respective luminaires ON or OFF. A longer push activates the luminance control (dimmer) function.

➲ Short push of the button (80 ms < t < 460 ms)
Alternately switches the lighting on or off.
The last-saved light level will be restored when the system is switched on.

➲ Long push of the button (t > 460 ms)
A long push of the button changes the current light level. Every push of the button will reverse the direction of luminance control (dimming direction). Upon reaching the highest or lowest light level, the "dimming" process stops. After switching the system on, a long push of the button will always increase the light level of the luminaires. If the system is switched off, a long push of the button switches the luminaires to their lowest light level and then increases their luminance.

2. DIM-Up/DIM-Down
The push function is a combined ON/OFF/DIM-Up or ON/OFF/DIM-Down function. A short push of the button switches the corresponding lights on or off. At a continuous push of the button the lights with the DIM-Up function will dim up and the lights with the DIM-Down function will dim down.

3. On/Off
When the system is in ON/OFF mode, pushing the button will alternately switch the system on and off, but will not let you change the light level.

4. Scene Retrieval
A light scene either describes a luminaire's pre-set light level or the various light levels of individual luminaires that are assigned to the same luminaire group. In accordance with the DALI standard, up to 16 light scenes can be saved per luminaire. If the button is configured to perform the "Scene" function, a push of the button

will call up one of these pre-set scenes for a single address or a group of luminaires or all system devices.

5. Timer
After configuring the button to act as a timer, a push of the button will switch the lighting system on at its highest light level (100%). A previously defined countdown (which can range between 10 seconds and 90 minutes) is activated in the Light Controller. At the end of the selected countdown, the light will be switched off. Should the button be pushed again while the countdown is activated, the countdown will restart from the beginning.

➲ Additional Timer Functions

INFO

The simple "100% ON/OFF" mode is not sufficient for certain applications. The "Light Level" menu item can be used to set the light levels for switching the system on and off. An additional countdown can also be activated (for more details, see "Configuring Light Levels" on pages 12 and 13).

6. Sensor Activation
Given a sensor/button combination in a group, the sensor will be deactivated by performing the push, on/off and scene functions. With the help of the "Sensor" button function, the sensor of the respective group can then be activated again, irrespective of the previous status of the group and the sensor.

7. Central Button
Upon pressing the button, all lights, whether grouped or not, will be switched off (dimmed to 0%). Only when re-pressing it, all functions of the lights are activated.

WICHTIG

By assigning a light sensor to a group, this group will be activated on a minimum dimmer level. After that, the sensor takes over the control.

Sensors (Menu item "Config. Sensor")

The VS MultiSensors contain both a motion sensor and a light sensor. After you have integrated the sensors into the system, you will need to activate these functions independently of one another in the Light Controller. The default setting for both sensors is "inactive".

INFO

The sensor shown on the Controller screen can be identified within the system by the flashing red LED light. The displayed address should be entered in the lighting plan to enable clear assignement of the sensor address and location.

Motion Sensor
The sensor can be activated in one of two modes.

➲ ON/OFF Mode (Automatic)
Upon detecting movement, the sensor will switch the system on at 100% light level and start a countdown. Every new detection of movement will restart the countdown from the beginning. Once the countdown has ended (time can be set between 10 seconds and 90 minutes), the lighting system will switch itself off.

➲ OFF Mode (Semi-automatic)
As the sensor does not switch the system on when detecting any movement in this mode, the lighting system has to switched on manually, e.g. by using a push button. After the system has been switched on, the countdown will only be activated if the sensor detects motion. Every further detection within this period will restart the countdown from the beginning. After the countdown has come to an end (times can be set between 10 seconds and 90 minutes), the lighting system will switch itself off.

➲ Additional Timer Functions

INFO

The simple "100% ON/OFF" mode is not sufficient for certain applications. The "Light Level" menu item can be used to set the light levels for switching the system on and off. An additional countdown can also be activated (for more details, see "Configuring Light Levels" on pages 12 and 13).

Light Sensor
The light sensor can be used to keep lighting at a constant level in a room or at the workplace. The sensor thus measures the intensity of the light and, in the event of overly bright or dim levels of natural light, regulates the artificial lighting to suit within the limits provided by the maximum and mimimum light levels of the system. If the measured luminance is still too high upon reaching the minimum light level, the luminaires of the respective group will be switched off after a delay of about 1 minute. The required light level should be checked using a luxmeter at relevant spots in the room. The desired light level (consisting of natural and artificial light) is then achieved by decreasing or increasing the luminance of the artificial light (dimmer function).

INFO

If at all possible, the light value (luminance value) should be configured without the influence of external light (after sundown) to ensure the reference value is reliable.

Light Level Setting (System Response menu item)

Some applications demand more than simply switching the lighting system on or off. Using the "Light Level" menu item, you can therefore define light levels other than just 100% or 0%. Furthermore, a further countdown (t_B) can also be activated.

Light Level – Function and Configuration Options

In general, there are three different options:

➲ Active Light Level
The light level of "Luminaire", "Group" or "All" will remain active as long as neither t_A nor t_B has been activated and during the countdown of t_A. It the button is pushed or the sensor is activated during this countdown, t_A will start again from the beginning and the light level will remain unchanged. After t_A has counted down, the system will switch to the "Passive Light Level".

➲ Passive Light Level
This describes the light level after completion of t_A and up to the completion of the second countdown (t_B). No further events are expected to occur (short-term) during this period. However, if an event does occur during this period, t_B will be aborted and t_A will restart from the beginning. The light level will be set back to "Active Light level". t_B cannot be restarted.

➲ Basic Light Level
This describes the light level after tB has counted down. No further events are expected to occur during this period (rest mode). If an event does occur during this period, tA will be restarted and the light level will again be set to "Active Light Level".

Possible settings for all light levels:
0%, 3–100%

Possible settings for t_A:
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

Possible settings for tB:
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 Settings:

INFO

Active Light Level = 100%
t_A = 30 s

Passive Light Level = 0%
t_B = 0 s

Basic Light Level = 0%

A so-called "t_A Start Event" can be triggered in various ways:

1. Using the Sensor

1. ON/OFF Mode:
Motion detection by the sensor.

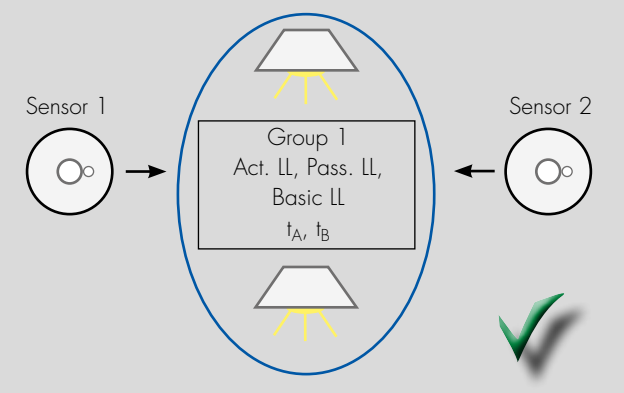
2. OFF Mode:
A push of the button if in "Push" or "ON/OFF" mode, followed by motion detection by the sensor.

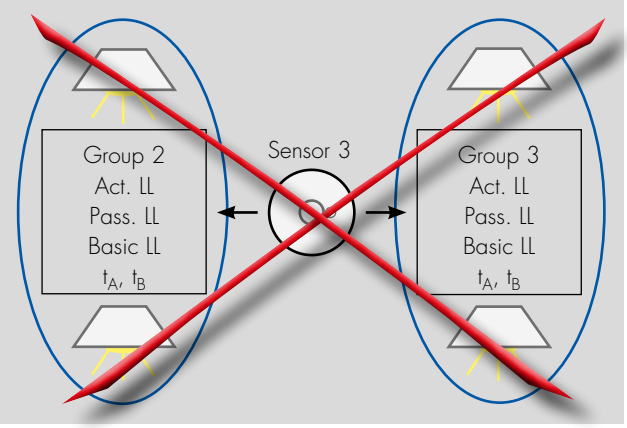
2. Using the Push Button

Timer Mode
A push of the button

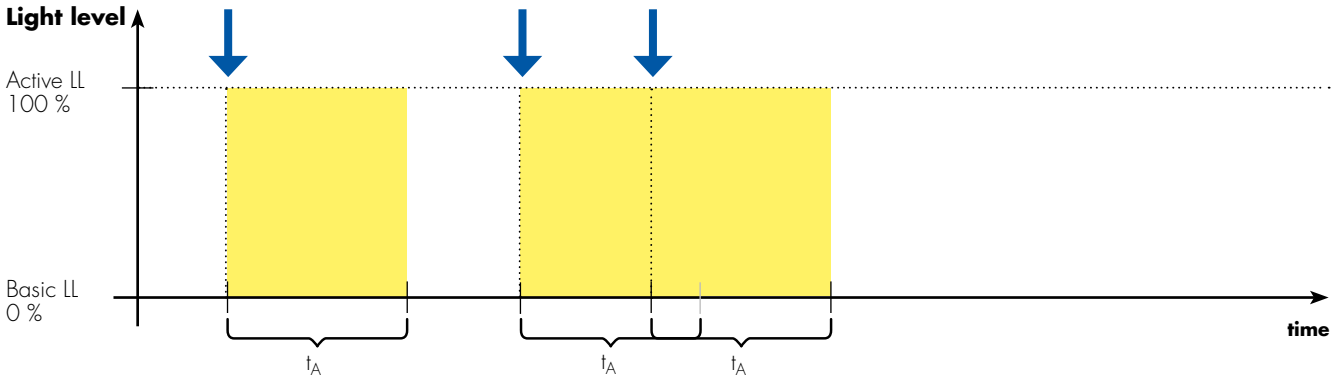
INFO

The light level (LL) and time (t) parameters mentioned in the text to the left are not sensor- or push button-specific. These parameters are rather saved as group values, individual address values or values for all sensors/push buttons. This means that, should several sensors and/or timer buttons be configured for a group/individual address or for all addresses, all sensors and/or timer buttons will activate the same light levels and for the same periods of time.

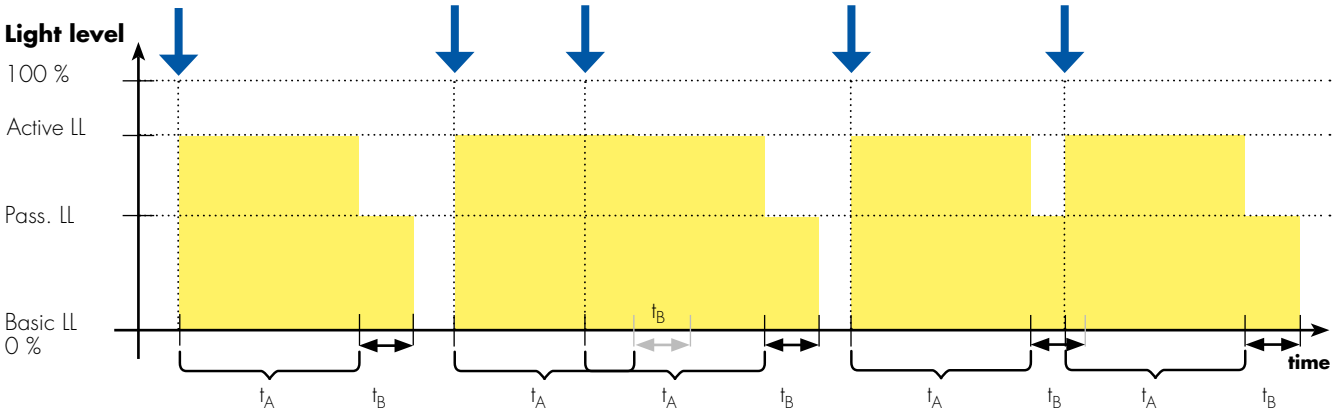




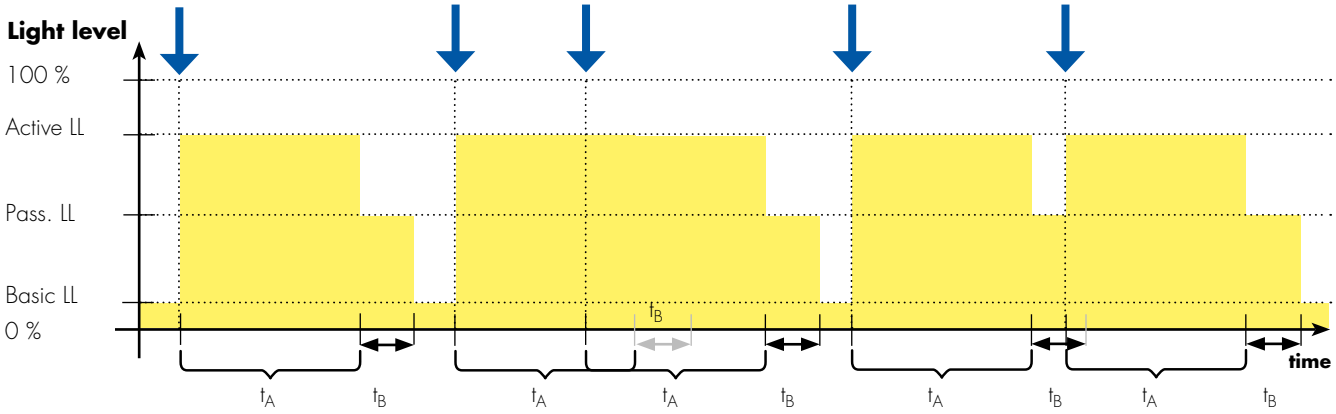
Example using default settings



Example with Active LL, Passive LL, Basic LL=0, t_A and t_B



Example with Active LL, Passive LL, Basic LL, t_A and t_B



= t_A, start event triggered by sensor or push button

Scene Configuration (Config. Scene menu item)

A scene is defined as a pre-set light level for a luminaire. In accordance with the DALI standard, each luminaire can store up to 16 scenes.

A scene created within a luminaire group can contain luminaires with differing light levels.
To configure a scene, at least one push button has to be activated as a scene button (see "Config. Push Button" and "Config. Radio Button" starting on page 27).

A scene can be programmed for a single luminaire, a group of luminaires or all luminaires. However, programming a scene for a "Group" or "All" (luminaires) only makes sense if the scene for each luminaire within such a group is set to the same light level.

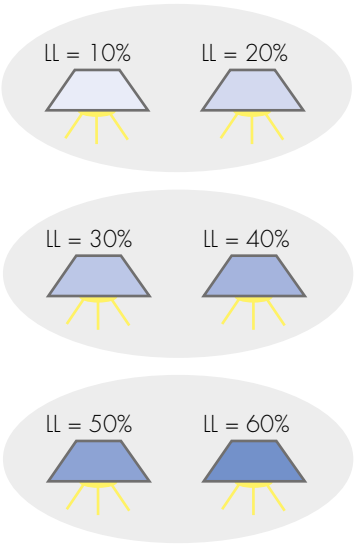
INFO

Please note:
Whichever scene (1–16) a luminaire was last configured to have will be valid in each case.

For instance, if – after configuring Scene 1 for "Luminaire 5" – another "All" configuration is carried out for Scene 1, the original Scene 1 set for "Luminaire 5" will be overwritten.

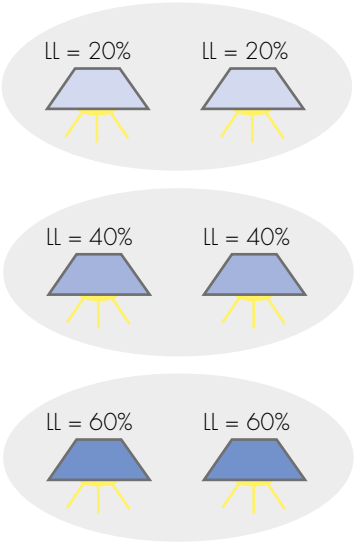
Three examples of possible scene configurations:

Example 1



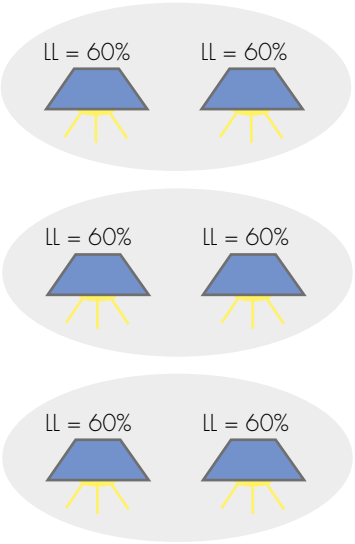
Scene configuration (Scene 1) for one or **several luminaires**:
The light level (LL) can be set individually for each separate luminaire. This requires each luminaire to be configured on an individual basis.

Example 2



Scene configuration (Scene 1) for one or **several groups**:
An individual light level (LL) can be configured for each group. The same scene is set for all luminaires within the same group.

Example 3



Scene configuration (Scene 1) for **all** luminaires:
The same scene is simultaneously set for all luminaires.

BUTTON/SENSOR COMBINATIONS WITHIN A GROUP

The Controller makes it possible to use a button/sensor combinations for a luminaire, a group or for all, which considerably extends its suitability for use in various applications.

In order to ensure documented and defined Light Controller behaviour, the responses of the Controller were defined for combined sensor/button inputs.

In this regard, the following reasoning was applied:
As soon as any system action is performed (by pushing the button), all automatic processes will be stopped. Automatic functions (sensors) will only be reactivated by when another conscious action is performed.

Possible Combinations:

1. Push Button plus Sensor (Motion)

System status prior to pressing the button	Sensor active		Sensor inactive	
	Light on	Light off	Licht an	Light off
Status after 1x brief push	Sensor inactive	Sensor active	Sensor inactive	Sensor active
	Light off	Light on	Light off	Light on
Status after 1x long push	Sensor nicht aktiv	Sensor nicht aktiv	Sensor nicht aktiv	Sensor nicht aktiv
	Light on	Light on	Light on	Light on

2. Push Button plus Sensor (Light)

System status prior to pushing the button	Sensor active		Sensor inactive	
	Light on	Light off	Light on	Light off
Status after 1x brief push	Sensor inactive	Sensor inactive	Sensor inactive	Sensor active
	Light off	Light off	Light off	Light on
Status after 1x long push	Sensor inactive	Sensor inactive	Sensor inactive	Sensor inactive
	Light on	Light on	Light on	Light on

3. On/Off Button plus Sensor
System responds as for Push Button plus Sensor: a long push of the button is treated the same as a short push.

4. Scene Button plus Sensor (Motion) or plus Sensor (Light)

System status prior to pushing the button	Sensor active	Sensor inactive
	Scene inactive	Scene active
Status after 1x push	Sensor inactive	Sensor active
	Scene active	Scene inactive

5. Timer Button plus Sensor (Motion) or plus Sensor (Light)

System status prior to pushing the button	Sensor active		Sensor inactive	
	Light on	Light off	Light on	Light off
Status after 1x push	Sensor active	Sensor active	Sensor nicht aktiv	Sensor nicht aktiv
	Light on for period t_A	Light on for period t_A	Light on for period t_A	Light on for period t_A

6. "Sensor Activation" button function plus Sensor (Motion) or plus Sensor (Light)

System status prior to pushing the button	Sensor aktiv		Sensor nicht aktiv	
	Light on	Light off	Light on	Light off
Status after 1x push	Sensor active	Sensor active	Sensor active	Sensor active
	Light on	Light off	Light on	Light off

USING THE INTEGRATED RELAY CONTACT TO MINIMISE STAND-BY LOSSES

Every DALI ballast loses energy, even when a lamp is switched off. This energy loss can amount to 1 W.

To minimise these so-called stand-by losses, the Light Controller (L/LW) is fitted with a relay contact that is wired to the outside at terminals a1/a2 to enable connection at the customer's premises if required. This contact can be activated under the "2.2.7 Stand-by Relay" menu item, if required. In this regard, please note that the contact can be configured as "Normally Open" (NO) or as "Normally Closed" (NC). A non-activated relay contact is always open. As soon as all luminaires in the system have received their "lights off" command from the Controller, the Controller closes the relay contact after a delay of about 40 seconds. The main contactor then disconnects the system luminaires from the mains.

Status of the Contact of the integrated Stand-by Relay

	Normally Open, NO	Normally Closed, NC
Normal operation, at least 1 luminaire not switched off	a1 a2	a1 a2
40 seconds after the last luminaire is switched off	a1 a2	a1 a2
Non-activated relay	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 the luminaires are reconnected to the power supply. The Controller subsequently transmits the respective signals to the luminaires.

After reconnection to the power supply, some older generations of DALI operating gear in particular require several 100 ms to perform this restart and to properly process DALI commands. For that reason and because of the delay in switching the main contactor, the DALI command to switch the system on will only be given after a delay of about 1 second once the relay is triggered. This delay can be deactivated if it is not needed.

SYSTEM RESPONSE FOLLOWING A POWER FAILURE (MENU ITEM: SYSTEM RESPONSE)

The behaviour of a luminaire, a group or "all" upon being re-supplied with power after a power failure can be defined in the Controller.

You can choose between the following three settings:
- Light off (default setting)
- Light on (active light level)
- Light on (active light level) for the period t_A

CREATING PASSWORD PROTECTION (MENU ITEM: PASSWORD)

A four-digit password can be set to protect the system from unauthorised access. This password has to be entered prior to every configuration (see "System Configuration" on page 33).

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

Please contact your VS sales representative if you lose this password.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Info

Turn the rotary push key 5 times to the right, 3 times to the left and press it once. Notify us of the key which now appears on the display.

Default setting 0000
➲ No password

RUNNING AN ERROR ANALYSIS (MENU ITEM: SYSTEM CHECK)

A system check can be run to reduce the amount of maintenance required by the lighting system. This function checks the system for 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:
- The DALI control line to the affected luminaire or to the sensor is missing or has been interrupted.
- The power supply line to the affected luminaire is missing or has been interrupted.
- The sensor or the ballast of the affected luminaire is defective or missing.

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

An error analysis can only be run after the luminaires and sensors have been assigned an address (see "Luminaire/Sensor Search" starting on page 22).

LIGHT CONTROL-LER L AND LW

MANUAL VERSION 1.2
SOFTWARE VERSION 1.3

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 (aka rotary encoder) is the operating element of the Light Controller (L/LW). The button is located to the right of the controller 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).

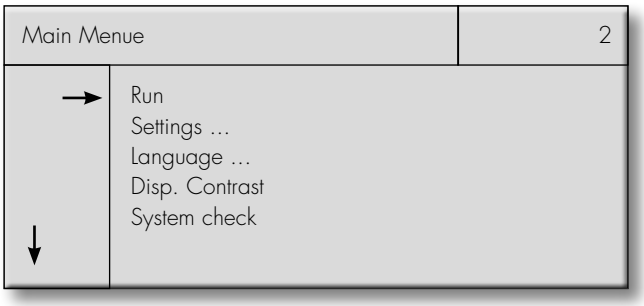
The key is rotated to make a selection and the selected menu item is then confirmed, fixed, activated or called up by pushing the key. The current menu item or the selection is shown on the screen against a black background.

Screen

The resolution of the black-and-white LCD screen is 128 x 64 pixels. The screen also features LED backlighting, which is highly convenient when working in the junction box with little light.

Pushing the rotary key will switch the screen light on. The second push of the key will set the Controller to configuration mode, after which individual menu items can be called up. If the key is not pushed a second time, the LED light will switch off after about 90 seconds. A further push of the key will then reactivate the LED light and enable configuration to be resumed where you left off.

If the rotary key is not pushed for at least 10 minutes, the Controller will automatically switch to normal mode and then implement all settings completed up to that point. The aborted menu item will have to be called up again to continue the configuration process. The "Screen Contr." item in the main menu can be used to adjust the contrast of the screen.



MENU STRUCTURE OF THE LIGHT CONTROLLER (L/LW)

General Menu Structure

	Level 1	Level 2	Level 3
Light Controller L and LW Main Menu	1. Run		
	2. Settings	2.1 Hardware Search	2.1.1 Luminaire Search 2.1.2 Sensor Search 2.1.3 Activate Push Button 2.1.4 Radio Button Search (LW) Back
		2.2 Config. Hard-ware	2.2.1 Group Settings A 2.2.2 Group Settings B 2.2.3 Config. Sensor 2.2.4 Push Button Config. 2.2.5 Radio Button Config. (LW) 2.2.6 Config. Scene 2.2.7 Stand-by Relay 2.2.8 Light Level 2.2.9 Random Adressing Back
		2.3 Reset Hardware	2.3.1 Luminaires 2.3.2 Radio Button (LW) 2.3.3 All Back
		2.4 Password	
		back	
	3. Language		
	4. Screen Contr.		
	5. System Check		
	6. Information		

Screen Layout

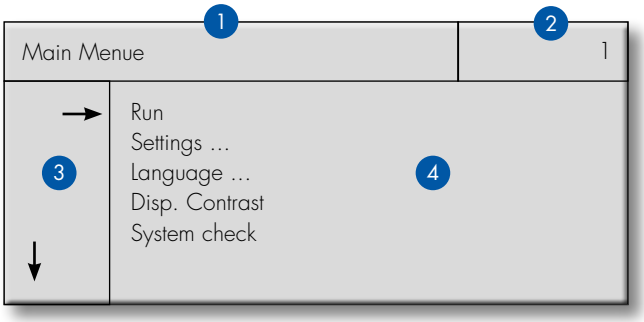
The menu consists of four segments:

1 Menu Level

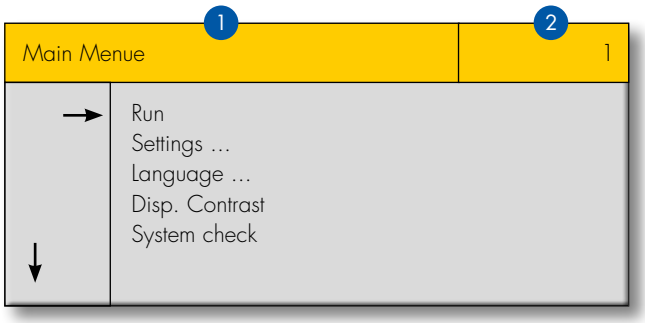
2 Menu Number

3 Navigation Aid

4 Selection List



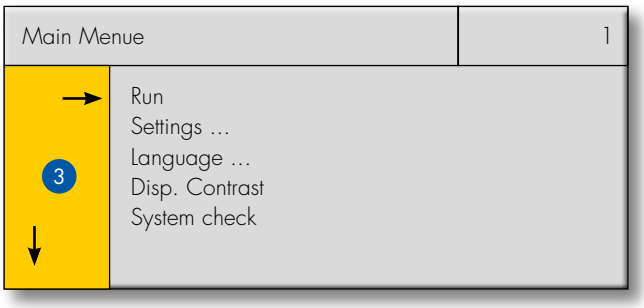
Segments 1 and 2 as well as the level name and its number form the heading (marked in yellow here), which is clearly set apart from the other segments.



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

A vertical arrow indicates that further menu items will become visible upon rotating the key.

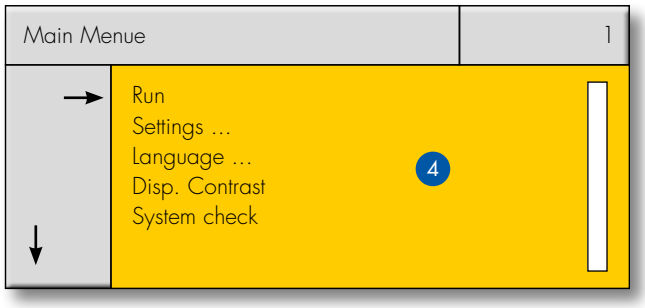
The horizontal arrow points to the selected menu item, which can be activated by pushing the key.



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

The scroll bar on the right-hand side of 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 is structured to have a maximum of three levels (see page 18). Selecting a menu item will take you a level deeper; selecting "Back" will return you to the next-higher 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

Follow the following menu steps:
Settings ➲ Reset Hardware ➲ All

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

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

INFO

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)

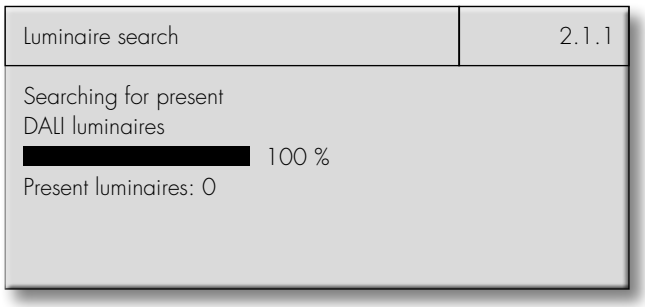
Action/aim:
Integrating installed luminaires into the system.

Please use the rotary key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search

Two consecutive searches will run automatically:

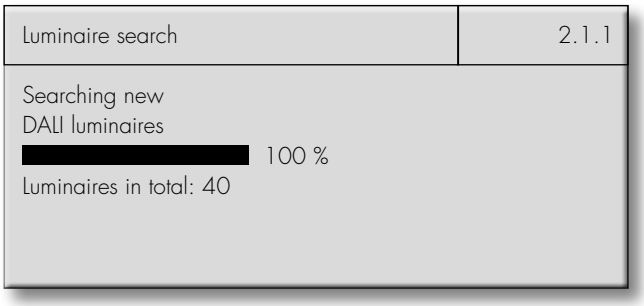
The first of these looks for any existing DALI luminaires. As the system will just have been reset, which equates to a new installation, no DALI luminaires will be found.

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



The second part will conduct an automatic search for new DALI luminaires. The number of DALI luminaires found will be displayed and counted up on the screen.

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



Upon completion of the search, the number of DALI luminaires recognised by the system will be displayed on the screen.

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

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

Result:
Upon completion of the luminaire search, all luminaires will have been integrated into the system and will have been assigned a unique address.

Luminaire search	2.1.1
Searching new DALI luminaires Luminaires in total: 40 OK Search again	

Sensor Search (2.1.2)

Action/aim:
Integrating installed sensors into the system.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Sensor Search

Two consecutive searches will run automatically:

The first of these looks for any existing DALI sensors. As the system will just have been reset, which equates to a new installation, no DALI sensors will be found.

Sensor search	2.1.2
Searching for present DALI sensors 100 % Present sensors: 0	

The second part will conduct an automatic search for new DALI sensors. The number of new DALI sensors found will be displayed and counted up on the screen.

Sensor search	2.1.2
Searching new DALI sensors 33 % Sensors in total: 5	

Upon completion of the search, the number of DALI sensors recognised by the system will be displayed on the screen.

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

Result:
Upon completion of the search, all sensors will have been integrated into the system and will have been assigned a unique address.

Sensor search	2.1.2
Searching new DALI sensors Sensors in total: 16 OK Search again	

Activate Push Button (2.1.3)

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

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Activate Push Button

INFO

Prior to configuration, Push Button inputs first have to be activated. Only activated push button inputs can be configured.

Each of the push button inputs is represented by an underscore on the screen. Selecting the respective Push Button input and then pushing the rotary key will activate the input. A further push of the key will deactivate the input again. Push Button input 1 is pre-activated (default setting), but can be deactivated if required.

Push Button activate	2.1.3
Please, set Push Button inputs Push Button input: 1 Status: active ☒ _ _ _ _ _ next	

INFO

The on-screen display „Push Button input: 1 active" is a default setting.

Input 4, shown in the example on the right, has now been activated (x marks the spot).

Result:
Installed push buttons are recognised by the system.

Push Button activate	2.1.3
Please, set Push Button inputs Push Button inputs: 4 Status: active _ _ _ ☒ _ _ next	

Only for Light Controller LW: Radio Button Search (2.1.4)

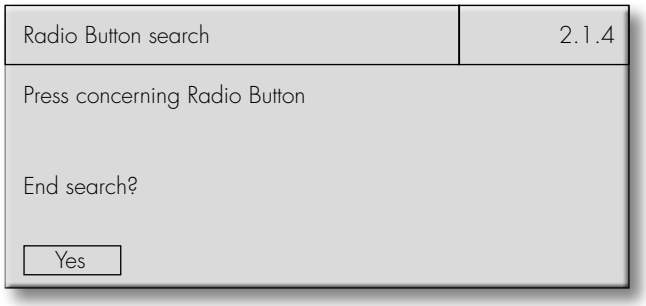
Action/aim:
Integrating the required wireless modules into the system.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Radio Button Search

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

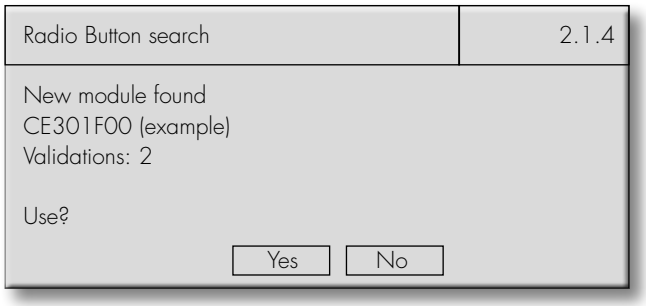
INFO

A short push of any module button will tell you the Light Controller's module address.



After pushing the radio button, the wireless address will be displayed on the screen.

You can make sure the correct module is being integrated by pushing the radio button several times. The number of validations is shown on the screen. To integrate the module, please confirm "Yes" on the screen.



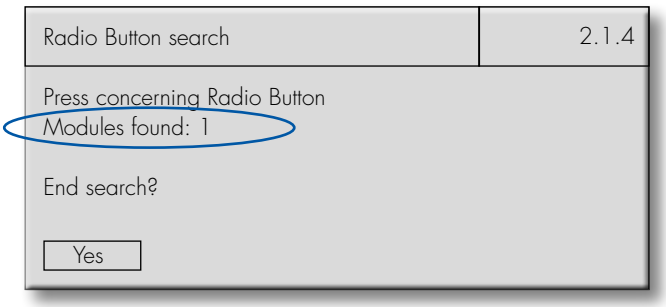
The total number of integrated wireless modules is shown on the screen.

Please repeat the procedure for further wireless modules.

Result:
Installed wireless modules are recognised by the system.

INFO

Any already integrated wireless modules will be ignored during this process, which prevents the creation of duplicate entries.



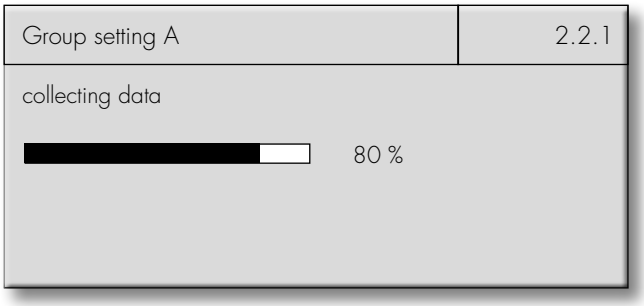
HARDWARE CONFIGURATION

Group Settings (2.2.1 & 2.2.2)

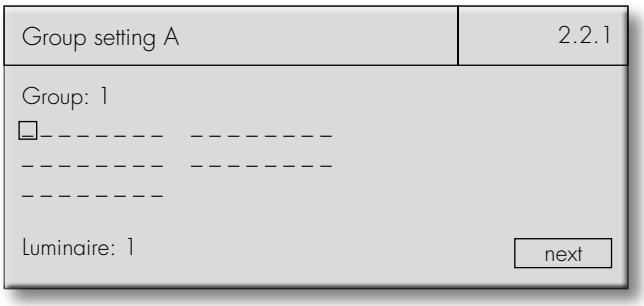
Action/aim:
Creating luminaire groups.

1. Method for Group Settings A
Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Group Settings A

Data are then imported, which can take several seconds.



Every luminaire that was integrated under 2.1.1 is shown as an underscore (_) on the screen. The rotary push key can now be used to select individual luminaires to assign to the group you are creating. Your current selection will be marked with a square (☐). The address of the selected luminaire will also be displayed on the screen.

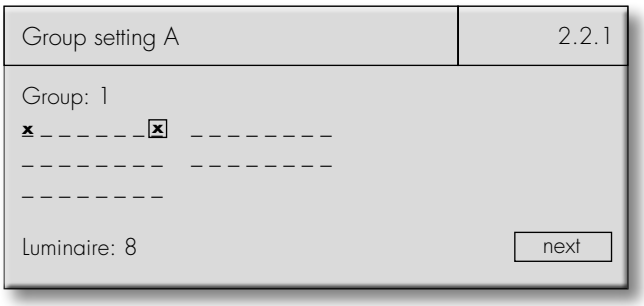


System response:
For easy identification during installation, the selected luminaire will be switched to 100% luminance.

INFO

We recommend the luminaire address is entered in the lighting plan to keep track of the assigned address and its location.

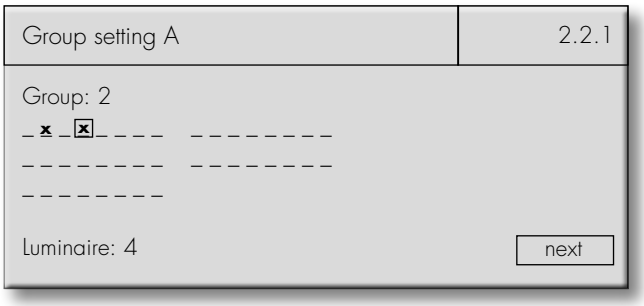
A push of the key will assign the current luminaire to the above-mentioned group, marked on the screen with an x. Pushing the key again will reverse this assignment again.
x = Group device
_ = Non-group device



System response:
As soon as a luminaire is assigned to the group you are currently working on, it will stay on at 3% of its luminance, even if the luminaire in question is no longer selected.

Luminaire Status in the System	Meaning
100% Light	Indicated on the screen by the cursor marking the luminaire
Min. dimming level	Part of the current group
OFF	Does not belong to the current group

To define further groups, the next group is selected and the procedure is repeated.

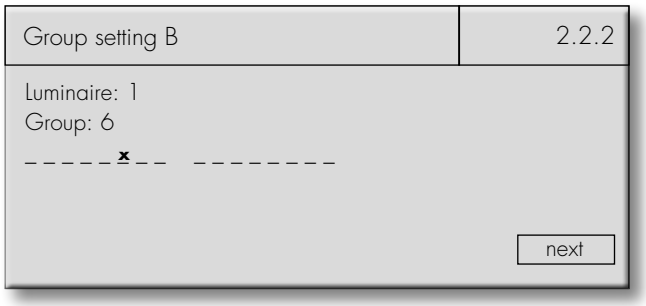


INFO

A single luminaire can also be assigned to several groups (e.g. assigning Luminaire 1 to Group 1 and to Group 2). If this is not desirable please disable it by choosing the menu item "2.2.9 Individual addressing".
No = no group overlap possible
Yes = Group overlap possible

2. Method for Group Settings B
Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Group Settings B

Every luminaire that was integrated under 2.1.1 can now be assigned to the various groups. Select the respective group(s) with the rotary key and push it to confirm.



Config. Sensor (2.2.3)

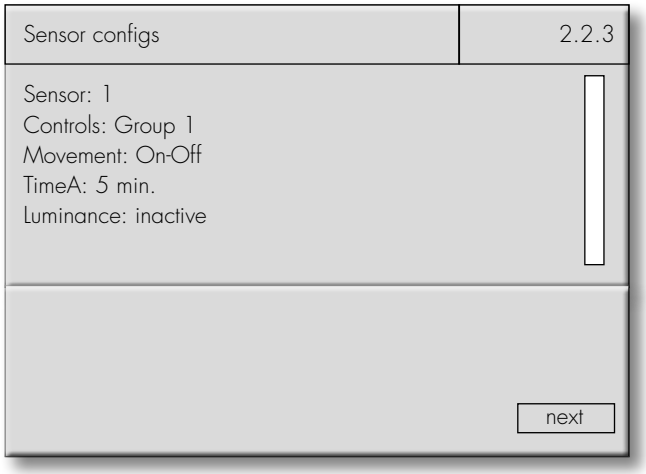
Action/aim:
Assigning functions and luminaires to the VS MultiSensors.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Config. Sensor

If the above-mentioned steps are carried out without there being any integrated sensors (see "Sensor Search" on page 21), the message shown on the right will appear.

➲ 1st Case
Motion Detection Only

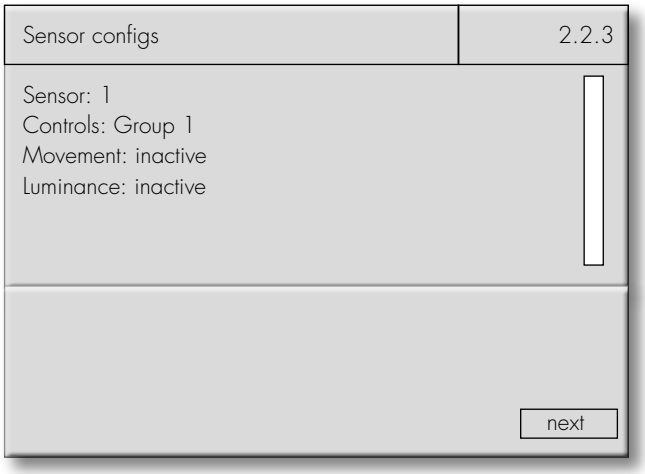
- Select the sensor you want to configure by turning and pushing the rotary key.
- System response:
  The red LED of the selected sensor will start to flash.
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item.
- System response:
  The selected luminaires are addressed and will light up.
- The motion sensor mode can be set after selecting "Movement" in the menu.
  On-Off = automatic
  Off = semi-automatic
- Time A is set in the same manner.
  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
- "Continue" will close the dialogue and save all settings.



➲ 2nd Case
Luminance Control Only

INFO

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 as there will otherwise be no way to activate the system or switch it off (see "Config. Radio Button and Config. Push Button" starting on page 29).



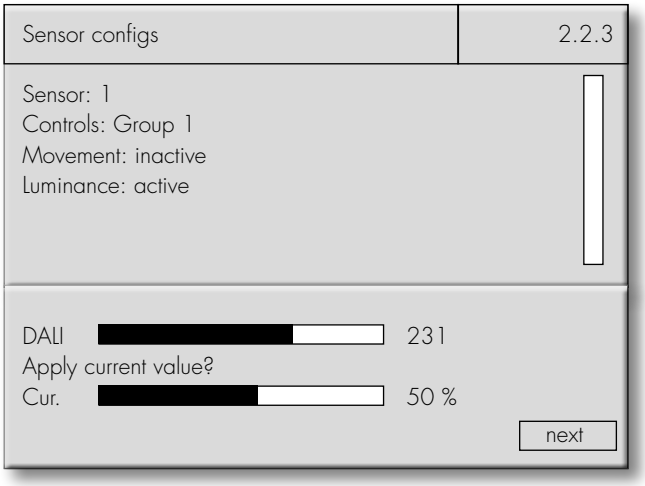
- Select the sensor you want to configure by turning and pushing the rotary key. System response: The red LED of the selected sensor will start to flash.
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item. System response: The selected luminaires are addressed and will light up.
- The light sensor can be activated after selecting the "Luminance" menu item. Once the sensor has been activated, further menu items for lighting control will appear on the screen.
- Using the DALI menu item, the constant light level can be set with the help of the rotary push key:
  default setting: 100% light level.
  For your orientation, the screen shows a DALI bar that tells you the current light level. The precise dimming value can be found in the DALI values behind the bar and can range between 126 (3% light) and 254 (100% light).

If there is a need to set the system to a certain lux value, a suitable gauge (Lux meter) will have to be used on site and the DALI value adjusted until the required luminance has been reached.

You will find a second horizontal information bar on the screen with which you can check your settings. This bar shows the current measured value (actual value) of the selected light sensor. Changing the DALI value (target) will automatically change the actual value. This change in the actual value (in %) is not analogous to the change of the DALI value.

INFO

To test if the function is working properly, the DALI value (target) can be increased or decreased using the rotary push key. Should performing this process not result in any kind of change of the actual value, the position of the sensor and the entire measuring process should be rechecked whether it is being shielding by walls or objects or being influenced by external light. It can also be removed from the respective group.



By selecting and confirming (push the key) "Apply current value?" on the screen, the light value will be used for control purposes.

Only one light sensor is permitted to be activated per group/luminaire to avoid contradictory information.

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

➲ 3rd Case
Motion Detection and Luminance Control

- The sensors must be configured as described starting on page 25.
- Please observe the following:
    - Lighting control is only active during the "Active Light level" countdown of the motion sensor.
    - When the system is switched on by movement or a push of the button, it will restore the luminance level of the luminaires at the point when they were switched off.

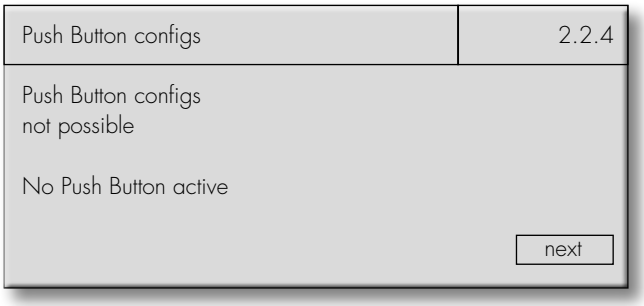
Config. Push Button and Config. Radio Button (2.2.4 & 2.2.5)

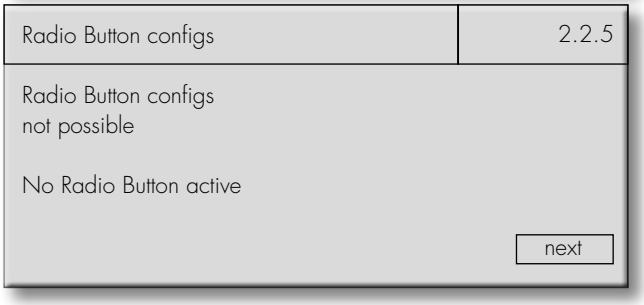
Action/aim:
Assigning functions and luminaires to the push buttons.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Config. Push Button/Config. Radio Button

If the above-mentioned steps are carried out without there being any integrated Push Buttons/Radio Buttons (see "Radio Button Search" on page 23), the message shown on the right will appear.

The standard button (Push Button) as well as the radio button (Radio Button) are configured in the same way, with only the addresses of the buttons differing:
Standard button (Push Button): Push Button input: 1 (of 1–6)
Radio button (Radio Button): 1/1 (of 1/1-1/4 to 16/1-16/4)



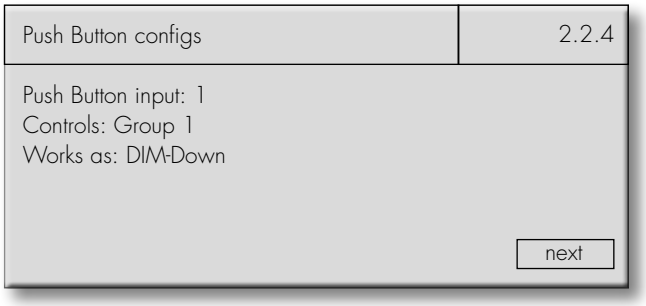


➲ 1st Case
Push Button

- Select the desired button by turning and pushing the rotary key or by pushing the respective key on the wireless module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "Group 1". The selected luminaires will now be controlled by the chosen push button.
- Select the "Push" function under the "Works as" menu item by turning and pushing the rotary key.
- The selected button will then be in push mode.
- "Continue" will close the dialogue window and save all settings.

➲ 2nd Case
DIM-Up or DIM-Down Button

- Select the desired button by turning and pushing the rotary key or by pushing the respective key on the wireless module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "Group 1". The selected luminaires will now be controlled by the chosen push button.
- Select the "DIM-Up" or "DIM-Down" function under the "Works as" menu item by turning and pushing the rotary key.
- The selected button will then be in DIM-Up/DIM-Down mode.
- "Continue" will close the dialogue window and save all settings.



➲ 3rd Case
Scene Button

- Turn and push the rotary key to select the required active Push Button or push the respective key on the module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "All". The selected unit will now be controlled by the chosen push button.
- Select the "Scene X (1-16)" function under the "Works as" menu item by turning and pushing the rotary key. The selected push button then calls up scene X (1-16).
- "Continue" will close the dialogue window and save all settings.

INFO

16 scenes can be configured per group and per luminaire. The associated light values must be set separately (see "Config. Scene" starting on page 30).

It is advisable to mark each scene button with the respective scene number.

➲ 4th Case
Timer

- Turn and push the rotary key to select the required active Push Button or push the respective key on the module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "Luminaire 1". The selected unit will now be controlled by the chosen push button.
- Select the "Timer" function under the "Works as" menu item by turning and pushing the rotary key. The selected push button will now be in timer mode.
- Set "TimeA" to the required 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
- "Continue" will close the dialogue window and save all settings.

INFO

If a Push Button (push button) has not been activated, it will not be shown (see "Activate Push Button" on page 22).

Push Button configs	2.2.4
Push Button input: 1 Controls: Luminaire 1 Works as: Time-Button TimeA: 10 sec next	

➲ 5th Case
ON/OFF

- Turn and push the rotary key to select the required active Push Button or push the respective key on the module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "Luminaire 1". The selected unit will now be controlled by the chosen push button.
- Select the "ON/OFF" function under the "Works as" menu item by turning and pushing the rotary key. The selected push button will now be in ON/OFF mode.

Push Button configs	2.2.4
Push Button input: 1 Controls: Luminaire 1 Works as: On-Off next	

➲ 6th Case
Sensor Active Button

- Turn and push the rotary key to select the required active Push Button or push the respective key on the module (for Radio Button).
- Turn and push the rotary key to make your selection (All, Group X, Luminaire X) via the "Controls" menu item, e.g. "Luminaire 1". The selected unit will now be controlled by the chosen push button.
- Select the "Sensor" function under the "Works as" menu item by turning and pushing the rotary key. The selected push button will now be in Sensor mode.

Push Button configs	2.2.4
Push Button input: 1 Controls: Luminaire 1 Works as: Sensor next	

Config. Scene (2.2.6)

Action/aim:
Defining and saving light scenes for luminaires.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Config. Scene

The message on the right will only appear if no Push Button or Radio Button was previously configured as a scene button (see "Config. Radio Button/Config. Push Button" starting on page 27).

INFO

Please read and observe the information regarding scene configuration on page 14 prior to configuration.

Scene configs	2.2.6
Scene configs not possible No scene used next	

➲ Configuring Scenes for Individual Luminaires, Groups or All

- Turn and push the rotary key to select the luminaire or group for which you want to define a scene via the "For:" menu item.

System response:
- The selected group or luminaire will switch to 100% light level.
- Call up a scene (1-16) via the "Scene" menu item. Then turn and push the rotary key to set the desired light level via the "Value" menu item.
- A horizontal bar displays the light value both in % and as a DALI value.
- Any other scenes you require will be defined and configured in the same manner.

Scene configs	2.2.6
Set scenes For: Luminaire 1 Scene: 1 Value: ▬▬▬▬▬▬▬▬ 80% DALI 246 next	

➲ Warning: "Overwriting"

This warning appears whenever a scene is to be set for a group or for all luminaires as this will result in overwriting any previously set scenes for individual luminaires.

INFO

It can be advantageous to configure scenes in the following order:
1. Scenes for "All"
2. Scenes for Groups
3. Scenes for Luminaires

Scene configs.	2.2.6
Attention: Accesses to multiple devices overwrites single settings OK	

Stand-by Relay (2.2.7)

Action/aim:
Activating the stand-by relay.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ Stand-by Relay

Turn and push the rotary key to select "Use" and confirm with "Yes".

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

A further menu item, "Delay Time", will then appear.
It is advisable to confirm the delay time with "Yes" because some manufacturers of electronic ballasts specify longer start-up times upon reconnection to the power supply.

Stand-by-relay	2.2.7
Stand-by-Relay Use: Yes Contact: NO Delay-time: Yes next	

System Response: Light Level (2.2.8)

Action/aim:
Defining the light level.

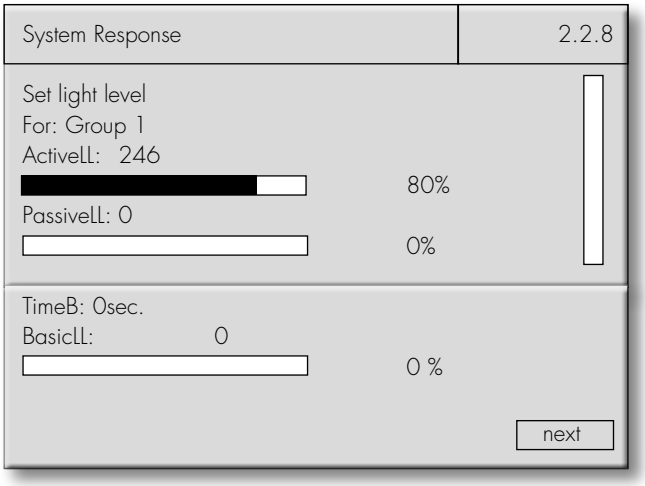
Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ System Response

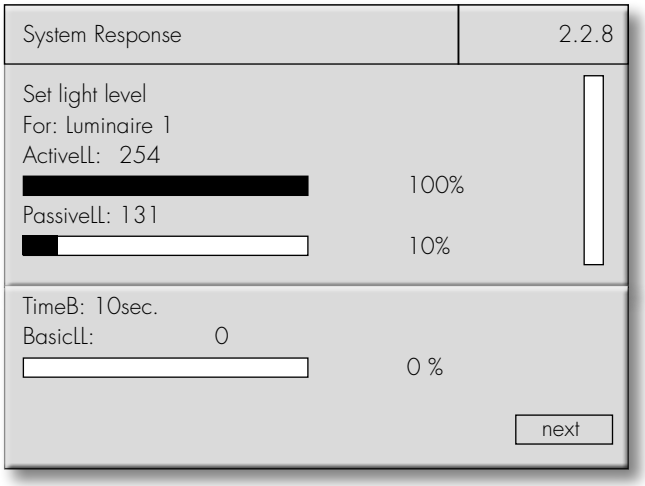
INFO

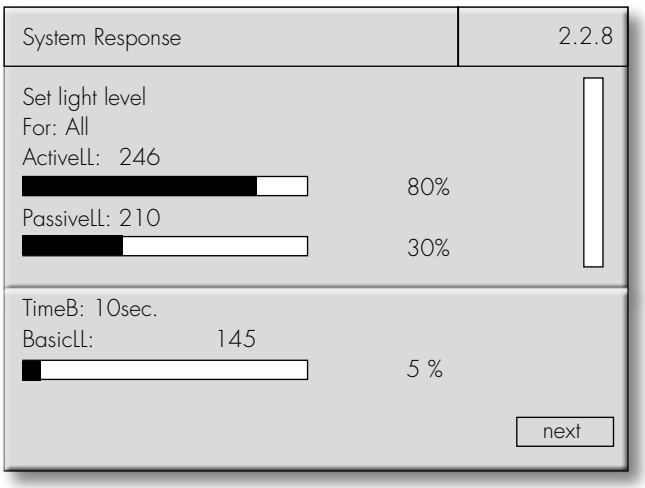
Please observe the information regarding light level configuration on pages 12 and 13 prior to configuration.

➲ Defining the Light Level for Luminaires, Groups or All

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







System Response following a Power Failure (2.2.8)

Action/aim:
Define system response on being switched back on after a power failure

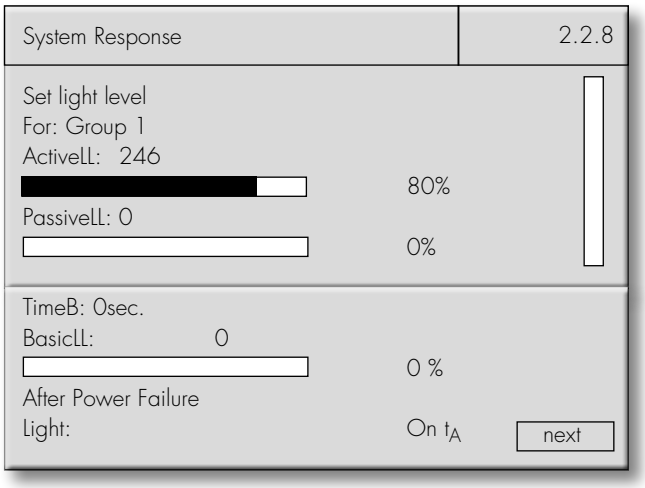
Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ System Response

INFO

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

➲ Defining the Light Level for Luminaires, Groups or All

- Turn and push the rotary key to select the unit (All, Group X, Luminaire X) you want to set via "For:", e.g. "Luminaire 1".
- The respective unit is now being addressed.
- Now turn the rotary push key until the cursor is at the bottom. The system response on being switched back on after a power failure can now be defined under the "Light" menu item:
  - Light on
  - Light off
  - Light on for the period t_A
- The default setting of 30 s will apply if no period t_A was defined in the "Config. Sensor" or "Config. Button" menu items for the unit.
- "Continue" will close the dialogue window and save all settings.



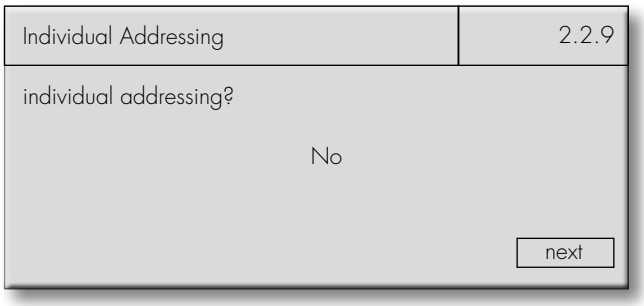
Selection of individual addressing (2.2.9)

Action/aim:
Deactivate (No), activate (Yes) group overlaps of individual luminaires

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Config. Hardware ➲ System Response

➲ Disable or Enable group overlaps

- Select "individual addressing"
- Select the desired function:
  No = no group overlap possible
  Yes = Group overlap possible



Create Password (2.4)

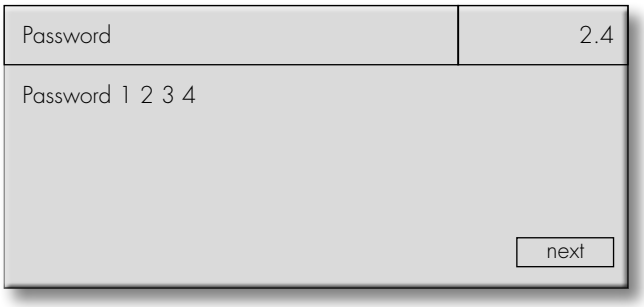
Action/aim:
Activating a password to protect the Controller from unauthorised access.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Password

Default setting: 0000 (no password)

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

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



INFO

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

MODIFYING AN ALREADY INSTALLED SYSTEM

DUPLICATE ADDRESSES

Modifying an already installed system means having to alter an existing system, in which case all devices will normally already have been assigned an address. If further components are added to the system, there is a danger of luminaires and sensors being assigned a duplicate address.

For this reason, a search for duplicate addresses is carried out once the respective procedures have been completed.

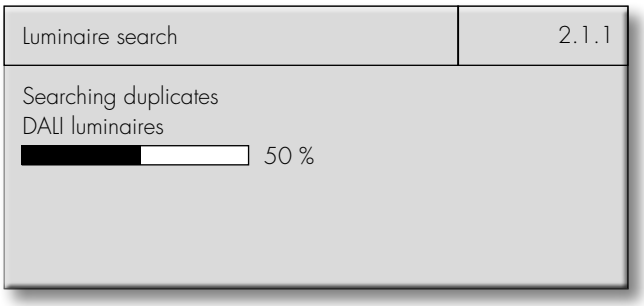
Duplicate Luminaire Addresses

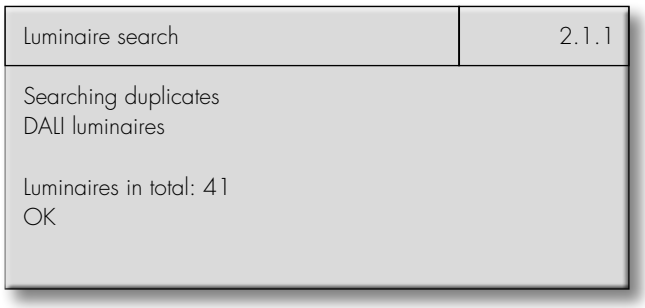
Should a duplicate address be found, the Controller will delete the addresses of both luminaires and will then assign these luminaires the next two free addresses.

Running this menu item will remove any duplicate luminaire addresses.

Afterwards, please check if the luminaires are assigned to their correct groups under "Group Settings".

If you do not want to assign the respective luminaire to a group, please assign the luminaire to the respective sensor, Push Button or Radio Button with which you want to control the luminaire (see "Config. Sensor" on pages 25-27 or "Config. Radio Button/Config. Push Button" on pages 27-29).



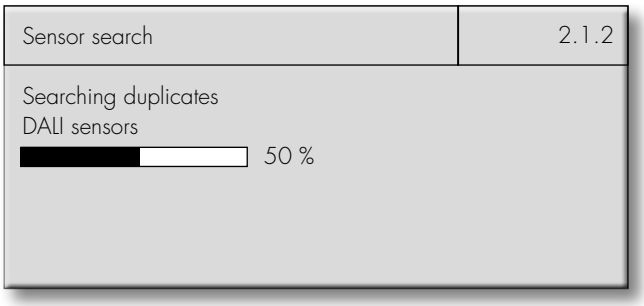


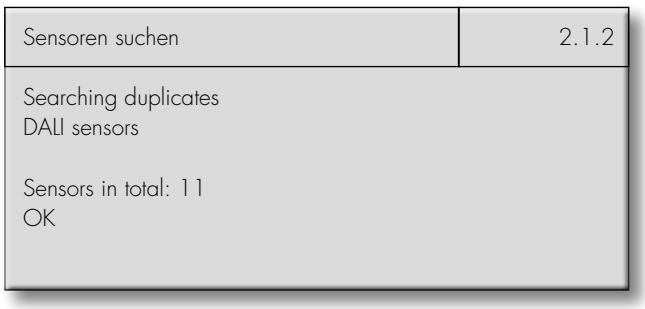
Duplicate Sensor Addresses

Should a duplicate address be found, the Controller will delete the addresses of both sensors and will then assign these sensors the next two free addresses.

Running this menu item will remove any duplicate sensor addresses.

Afterwards, please check your sensor settings and modify these as required.





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

DA

REPLACING COMPONENTS

Defective Luminaire or Ballast

1. After disconnecting the respective luminaire from the power supply and the DALI supply line, please remove the defective component.

2. Afterwards, please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search

The defective luminaire/ballast will thus be removed from the system in the software. The address will then be available again.

DA

3. Install the new luminaire/new ballast as instructed and then reconnect the luminaire to the power supply.

4. Then rerun the "Luminaire Search", after which the new luminaire will have been given the address of the previously removed luminaire.

DA

5. Finally, please insert the luminaire address in the respective group under "Config. Group" in the menu. You can then, if required, define the scene of the luminaire under "Config. Scene".

Replacing a Sensor

Repeat points 1-4 above ("Defective Luminaire")
Settings ➲ Hardware Search ➲ Sensor Search
The configuration of the new sensor will then be identical to that of the old sensor.

DA

EXTENDING AN ALREADY INSTALLED SYSTEM

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

Add Luminaires

Action/aim:
Integrating luminaires into an existing system.

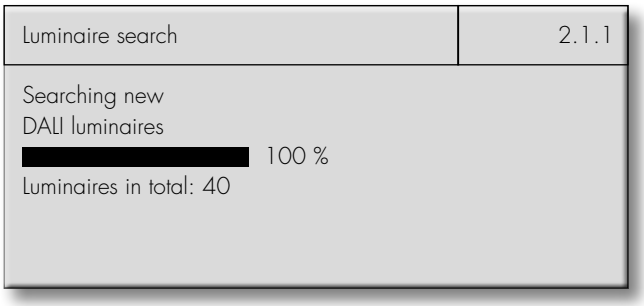
➲ Search for new luminaires (2.1.1)

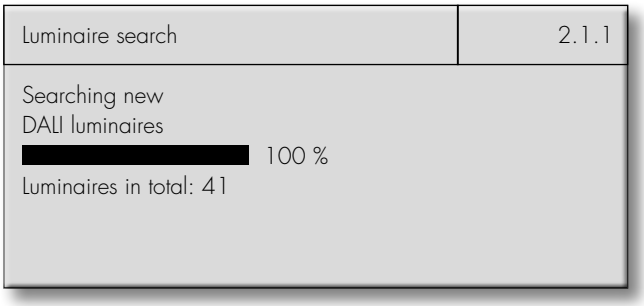
Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Luminaire Search

The number of existing luminaire addresses is displayed on the screen.

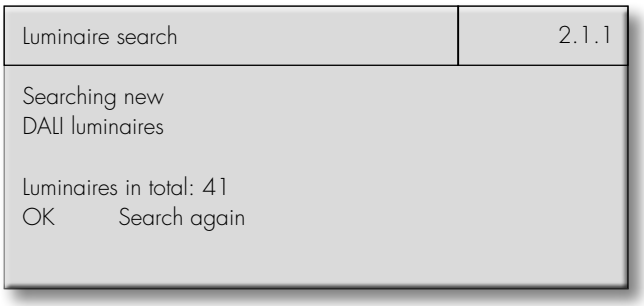
DA

An automatic search is then run for luminaires without an address and these are then assigned one.





The new number of DALI addresses is then shown. The next menu step is activated with "OK" (search for duplicate addresses) or the search for luminaires is repeated with "Search again".



Add Sensors

Action/aim:
Integrating sensors into an existing system.

➲ Search for new sensors (2.1.2)

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Sensor Search

The number of existing sensors is displayed on the screen. DA

Sensor search	2.1.2
Searching for present DALI sensors 100 % Present sensors: 10	

An automatic search is then run for sensors without an address and these are then assigned one.

Sensor search	2.1.2
Searching new DALI sensors 100 % Sensors in total: 11	

The new number of sensor addresses is then shown. The next menu step is activated with "OK" (search for duplicate addresses) or the search for luminaires is repeated with "Search again".

Sensor search	2.1.2
Searching new DALI sensors Sensors in total: 11 OK Search again	

Add Push Button (2.1.3)

Action/aim:
Integrating a Push Button (push button) into an existing system.

➲ Activate Push Button

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Activate Push Button

- Activate the connected Push Button.
- In the example on the right: Push Button input 1 has already been activated. – Push Button input 2 is now to be activated by a push of the rotary key (cursor). The activated Push Button input is now ready for configuration (see "Config. Radio Button/Config. Push Button" on page 29).

INFO Please ensure the cable is connected to the correct Push Button input.

Push Button activate	2.1.3
Please set Push Button inputs Push Button inputs: 2 Status: active x☐_ _ _ _ _ next	

Add Radio Button

Action/aim:
Integrating an Radio Button (radio button) into an existing system.

➲ Radio Button Search (2.1.4)

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Hardware Search ➲ Radio Button Search

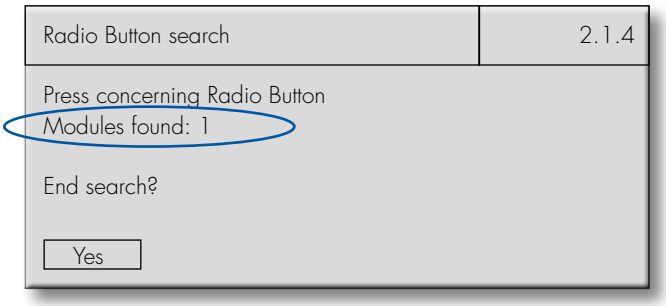
1. The number of integrated modules is shown under "Modules found: 1" (circled in blue on the right).

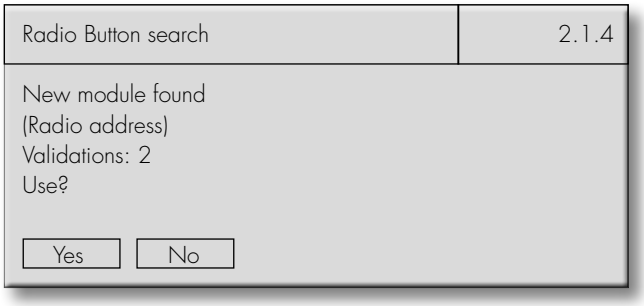
2. Please push the rotary key repeatedly to clearly identify the Radio Button that you want to integrate into the system. These "pushes" will be counted up on the screen. By confirming "Yes" you will integrate the Radio Button into the system.

3. You will need to repeat the above-mentioned steps to integrate further Radio Buttons into the system.

4. Confirming "Yes" will conclude the search.

The Radio Button will then be ready for further configuration.





REDUCING AN ALREADY INSTALLED SYSTEM

Removing Luminaires

Action/aim:
Removing luminaires from an existing system.

Luminaires that are no longer required 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 to the Controller marking these (missing) luminaires as "defective" when running a system check.

DA

Removing Sensors

Action/aim:
Removing sensors from an existing system.

Sensors that are no longer required 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 to the Controller marking these (missing) sensors as "defective" when running a system check.

DA

The address will then be available again.

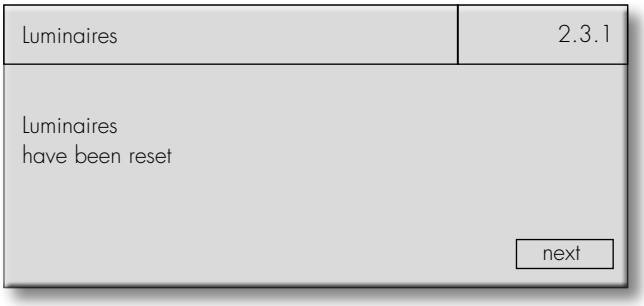
RESETTING THE SYSTEM AND INDIVIDUAL COMPONENTS

Resetting Luminaires (2.3.1)

Action/aim:
Deleting luminaire settings (group assignments, scenes).

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Reset Hardware ➲ Luminaires

Result:
The luminaires have been reset, but their addresses have been kept.

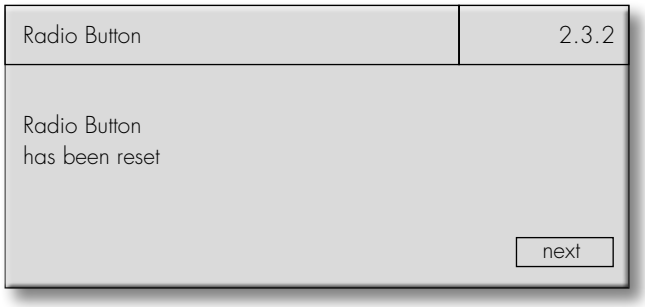


Resetting Radio Button (2.3.2)

Action/aim:
Removing Radio Buttons from the system.

Please use the rotary push key to undertake the following settings:
Settings ➲ Reset Hardware ➲ Radio Button

All Radio Buttons have been successfully removed from the system.

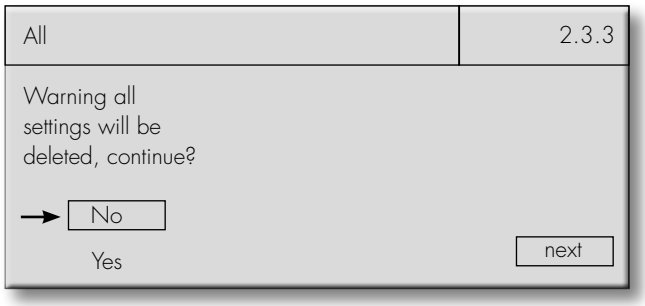


Resetting the System (All) (2.3.3)

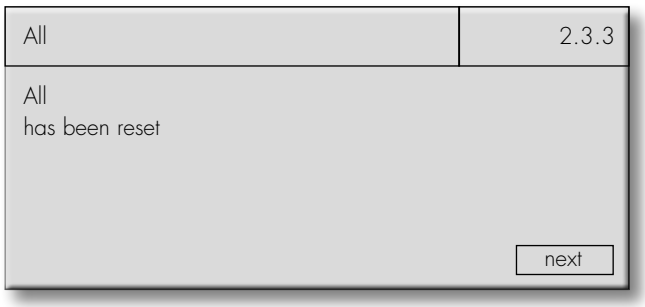
Action/aim:
Returning the system to its default settings.

Please use the rotary push key to undertake the following settings on the screen:
Settings ➲ Reset Hardware ➲ All

A dialogue window appears asking if you want to delete all system settings. The cursor is automatically set to "No". If you do want to delete all system settings, confirm with "Yes".



Result:
The system has been reset successfully.



SYSTEM

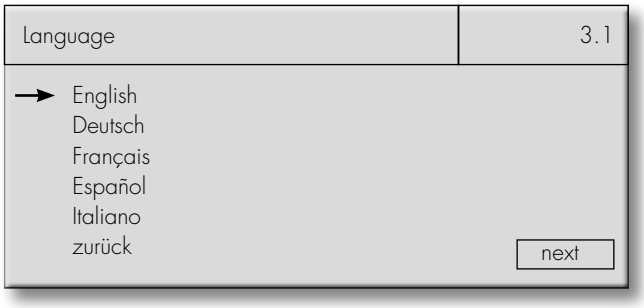
LANGUAGE (3)

Action/aim:
Selecting your preferred language.

Please use the rotary push key to undertake the following settings:
Language

Default setting: English

Select and confirm your preferred language (out of 5) by turning and pushing the rotary key.



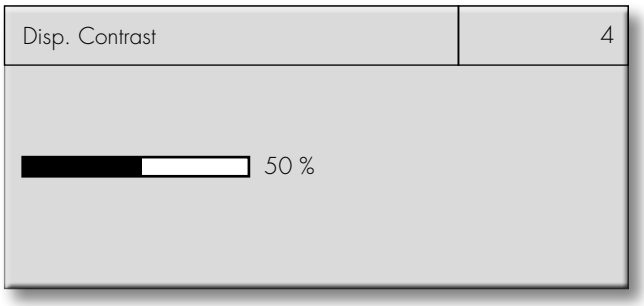
SCREEN CONTRAST (4)

Action/aim:
Setting the screen contrast.

Please use the rotary push key to undertake the following settings:
Screen Contr.

Default setting: 73%

Select and confirm the contrast you want by turning and pushing the rotary key.



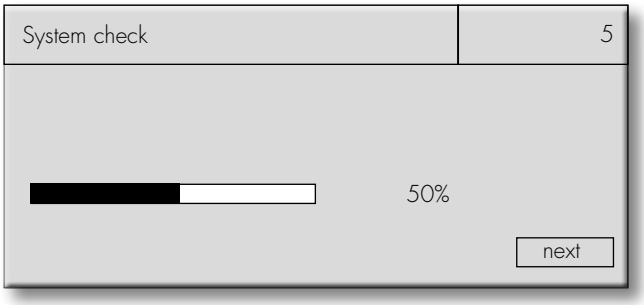
SYSTEM CHECK (5)

Action/aim:
Checking the system for errors.

Please use the rotary push key to undertake the following settings on the screen:
System Check

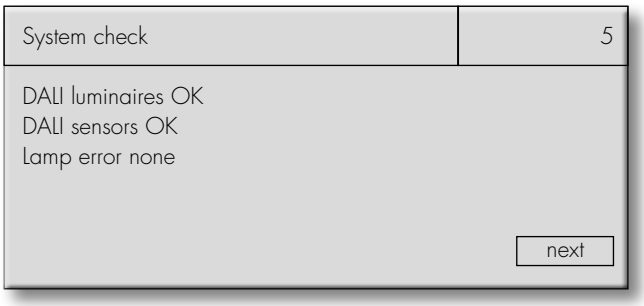
Automatic System Check

Result:
An automatic system check is run.



System OK

The Light Controller has found no system errors during the system check.



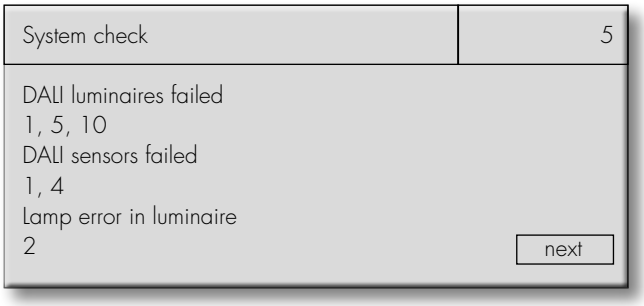
System Errors Found

In the example on the right, the Light Controller has found errors during the system check:

DALI luminaires failed 1, 5 and 10
DALI sensors failed 1 and 4
Lamp error in luminaire 2

After the system check, the identified components and their wiring should be checked. Depending on the type of problem, the components will have to be replaced and possibly reconfigured.

The Light Controller does not find any system errors during the system check.



INFORMATION

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

Please use the rotary push key to undertake the following settings on the screen:

Your VS representative will need this information should any problems arise with the Light Controller.

DOCUMENTATION

For documentary reasons and support during any subsequent changes, we recommend to enter and archive the system configuration in the tables below.

The complete table is available for download as an Excel file (.xls) at our website:
http://www.vossloh-schwabe.com/en/home/services/manuals-mounting-instructions/manuals.html

Group Assignment Table

	Hallway Ground Floor	Office 1st Floor	Restrooms 2nd Floor	…	…	…
	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6
Luminaire 1						
Luminaire 2						
Luminaire 3						
Luminaire 4						
Luminaire 5						

Table for Scene Configuration

Where do you want to define the scene?	Which light value in % do you want to define?		
Group/Luminaire	Scene 1	Scene 2	Scene 3

Table for Button and Sensor Assignment/Configuration

Example:

What do you want to control?	Which component do you want to use for control purposes?	How do you want the component to effect control?	Define the values governing control of the group/luminaire.						Switch-on performance after power failure
Group/Luminaire	Push Button/Radio Button/Sensor	Modus	Constant Light	Active LL	Passive LL	Basic LL	t_A	t_B	
Gr. 1	Push Button 1	Timer	–	100 %	50 %	0 %	10 min	30 s	
Luminaire 3	Radio Button 2/1	Push	–	–	–	–	–	–	
Luminaire 4	Radio Button 2/2	On-Off	–	90 %	–	–	–	–	

LIGHT CONTROLLER L AND LW

TECHNICAL DATA

Light Controller L/LW

Supply voltage ..... 220–240 V AC
Frequency ..... 50–60 Hz
Power input (max.) ..... 9,0 W
Ambient temperature t_a ..... 0–50 °C
Protection type IP20
Protection class I
DALI current supply ..... max. 200 mA
No. of DALI ballasts ..... max. 64
No. of VS MultiSensors ..... max. 16
Weight ..... 250 g
Dimensions (LxWxH) ..... 125 x 91 x 70 mm

Light Controller L
Order No.: 186189

Light Controller LW
No. of wireless modules (only LW) ..... max. 16
Order No.: 186190

Magnetic-base antenna with integrated cable

Cable length and diameter ..... 2500 mm, Ø = 6 mm
Minimum bending radius of the cable ..... 50 mm
Impedance ..... 50 Ω
Ambient temperature t_a ..... –40 °C to +80 °C
Storage temperature ..... –40 °C to +80 °C
Protection type IP66
Weight ..... 62 g
Dimensions ..... Ø 29 mm x 88 mm
Power rating ..... 10 W pulsed

Order No.: 186211

Screw-base antenna with separate cable

Cable length and diameter ..... 1500 mm, Ø = 6 mm
Minimum bending radius of the cable ..... 50 mm
Impedance ..... 50 Ω
Amient temperature t_a ..... –40 °C to +70 °C
Storage temperature ..... –40 °C to +80 °C
Protection type IP66

Screw-base antenna weight ..... 41 g
Cable weight ..... 66 g
Dimensions ..... Ø 33 mm x 89 mm
Power rating ..... 8 W pulsed

Order No. Antenna: 186212

Order No. Cable: 186213

WIRELESS PUSH BUTTON FT4F
Type: LiCS-LW-FT4F-1
Description: Wireless module, frame, 1 rocker and 1 double rocker
Frame dimensions: external 80x80 mm, internal 63x63 mm, Height 15 mm
Ref. No. / Colours: anthracite 551418, white 551416, white glossy 551417, aluminium lacquered) 551415
Weight: 30 g

WIRELESS PUSH BUTTON FT55
Type: LiCS-LW-FT55-1
Description: Wireless module, frame, 1 rocker and 1 double rocker
Frame dimensions: external 80x80 mm, internal 55x55 mm, Height 15 mm
Ref. No. / Colours: anthracite 5551414, white 551412, white glossy 551413, aluminium lacquered 551411
Weight: 30 g

WIRELESS PUSH BUTTON FFT55Q
Type: LiCS-LW-FFT55Q
Description: Wireless module, frame, 1 rocker
Frame dimensions: external 84x84 mm, internal 55x55 mm, Height 11 mm
Ref. No. / Colours: anthracite 551427, white 551425, white glossy 551426, aluminium lacquered 551424
Weight: 30 g

HAND-HELD TRANSMITTERS FMH2
Type: LiCS-LW-FMH2
Description: 1 Wippe
Dimensions: 43x43 mm
Height: 16 mm
Ref. No. / Colours: anthracite 551422, white 551420, white glossy 551421, aluminium lacquered 551419
Weight: 30 g

HAND-HELD TRANSMITTERS FMH4
Type: LiCS-LW-FMH4
Description: 1 Doppelwippe
Dimensions: 43x43mm
Height: 16
Ref. No. / Colours: anthracite 551410, white 551408, white glossy 551409, aluminium lacquered 551407
Weight: 30 g

REMOTE CONTROL FF8
Type: LiCS-LW-FF8
Description: 2 Doppelwippen
Dimensions: 185x50mm
Height: 17
Ref. No. / Colours: aluminium lacquered 551423
Weight: 140 g

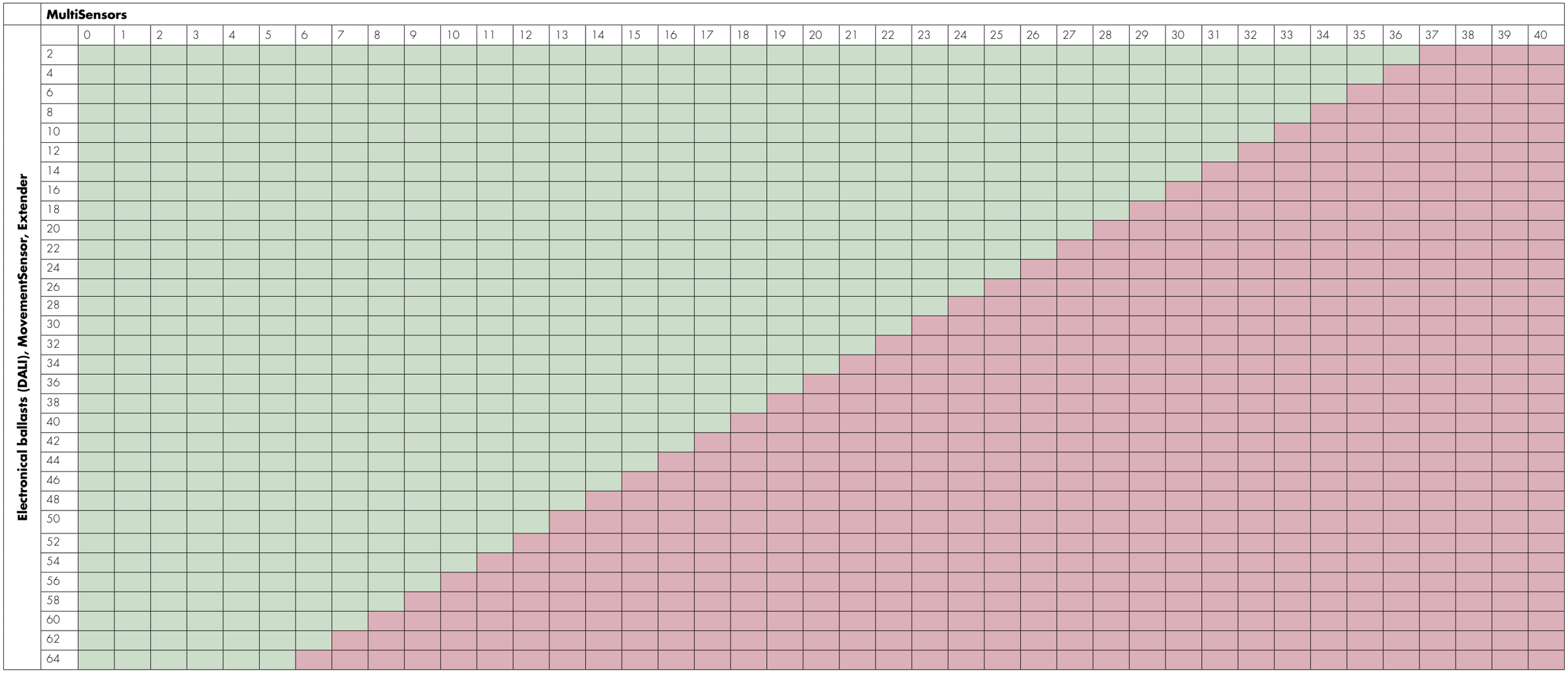
WIRELESS REPEATER FRP61-230 V
Type: LiCS-LW-FRP61-230V
Description: Für Unterputzinstallationen
Ref. No.: 551606
Voltage: 230 V
Standby loss: 0,8 W
Dimensions: 45x55x33 mm
Weight: 50 g

WIRELESS REPEATER FRP61/8–24 V UC
Type: LiCS-LW-FRP61/8-24V UC
Description: Für Unterputzinstallationen
Ref. No.: 551607
Voltage: 8–24 V UC
Standby loss: 0,3 (8 V), 0,5 (12 V), 1 (24 V)
Dimensions: 45x55x18 mm
Weight: 50 g

LIGHT CONTROLLER L AND LW

APPENDIX

Maximum quantity of DALI components for one Light Controller



save area **restricted area**

Whenever an electric light goes on around the world, Vossloh-Schwabe is likely to have made a key contribution to ensuring that everything works at the flick of a switch.

Headquartered in Germany, Vossloh-Schwabe has been a member of the global Panasonic group since 2002 and counts as a technology leader within the lighting sector. Top-quality, high-performance products form the basis of the company's success.

Whether cost-effective standard components or tailor-made product developments are needed, Vossloh-Schwabe can satisfy even the most diverse market and customer requirements. Vossloh-Schwabe's extensive product portfolio covers all lighting components: LED systems with matching control gear units, OLEDs and state-of-the-art control systems (LiCS) as well as electronic and magnetic ballasts and lampholders.

A member of the Panasonic group **Panasonic**

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LIGHTING SOLUTIONS

LiCS Light Controller L/LW EN 02/2014