TRILUX
SIMPLIFY YOUR LIGHT.

SYSTEM MANUAL

LIVELINK WIFI

CONTENTS

SAFETY INSTRUCTIONS

- Commissioning (electrical) must be carried out by an electrician.
- Work on electric devices may only be carried out when they are disconnected from mains power.
- Applicable safety and accident prevention regulations must be adhered to.

- Regarding installation, please adhere to the corresponding installation steps from the installation instructions of the luminaire to be installed.

LiveLink is not intended for any application other than the one listed here. Other applications are considered to be in violation of the intended use. If LiveLink is used improperly, safe operation cannot be guaranteed.

1 INTRODUCTION

1.1 BASIC FUNCTIONS

LiveLink is a light control system which offers automatic and/or semi-automatic control for optimal quality and efficiency of illumination. The innovative operation via tables or smart phones provides maximum comfort for setup and operation.

LiveLink can be configured to meet all the client's requirements with a demand-oriented operation of luminaires. All luminaires and sensors which are connected must be equipped with a DALI interface (Digital Addressable Lighting Interface). Luminaires, sensors and push-buttons are connected per room to a LiveLink control device, whereby a room does not necessarily have to correspond to a physical room.

The system is set up with a tablet using an app with an innovative graphical interface. It can then be operated using the push-buttons provided and alternatively with a tablet or smartphone. The highest safety standards are adhered to (see also chapter 2.9.3 "Wi-Fi security" on page 25).

Integration into an existing network structure is possible.

Use Cases containing application-specific pre-configurations of the control functions are available for setup purposes. If required, these can be adapted to individual requirements (see chapter 2.8 "What is a Use Case?", page 18).

1.2 APP-DOWNLOAD

App „LiveLink Control"
The "LiveLink Control" app provides for a comfortable operation of the room lighting. The system prerequisite is a tablet or smartphone with iOS 10 (or higher) or Android 5.0 (or higher).

www.trilux.com/livelink-app

App „LiveLink Install"
The system is set up with the "LiveLink Install" app. The system prerequisite is a tablet with iOS 10 (or higher) or Android 5.0 (or higher).

1.3 FAQ

As well as this manual, the latest frequently asked questions (FAQs) and their answers are available at:

www.trilux.com/livelink-faq

1.4 SYSTEM OVERVIEW

The central hardware component of the LiveLink system is the control unit. Sensors and push-button couplers are integrated into the system together with the luminaires via the DALI connection. With the control unit LiveLink WiFi + RC, a wireless network for the additional integration of non-wired components can be formed.

Up to four operating functions can be implemented per installation push-button and per push-button coupler. A further operating function is available via the direct push-button connection to the control unit.

The LiveLink system also includes two software components: the "LiveLink Install" tablet app for setting up the system by qualified personnel, and the optionally usable "LiveLink Control" tablet or smartphone app for operating the lighting control by the end user.

The tablet or smartphone communicate directly with the control unit, which provides an own Wi-Fi (access point) for this purpose. Alternatively, the LiveLink control unit can also be integrated into an existing network structure.
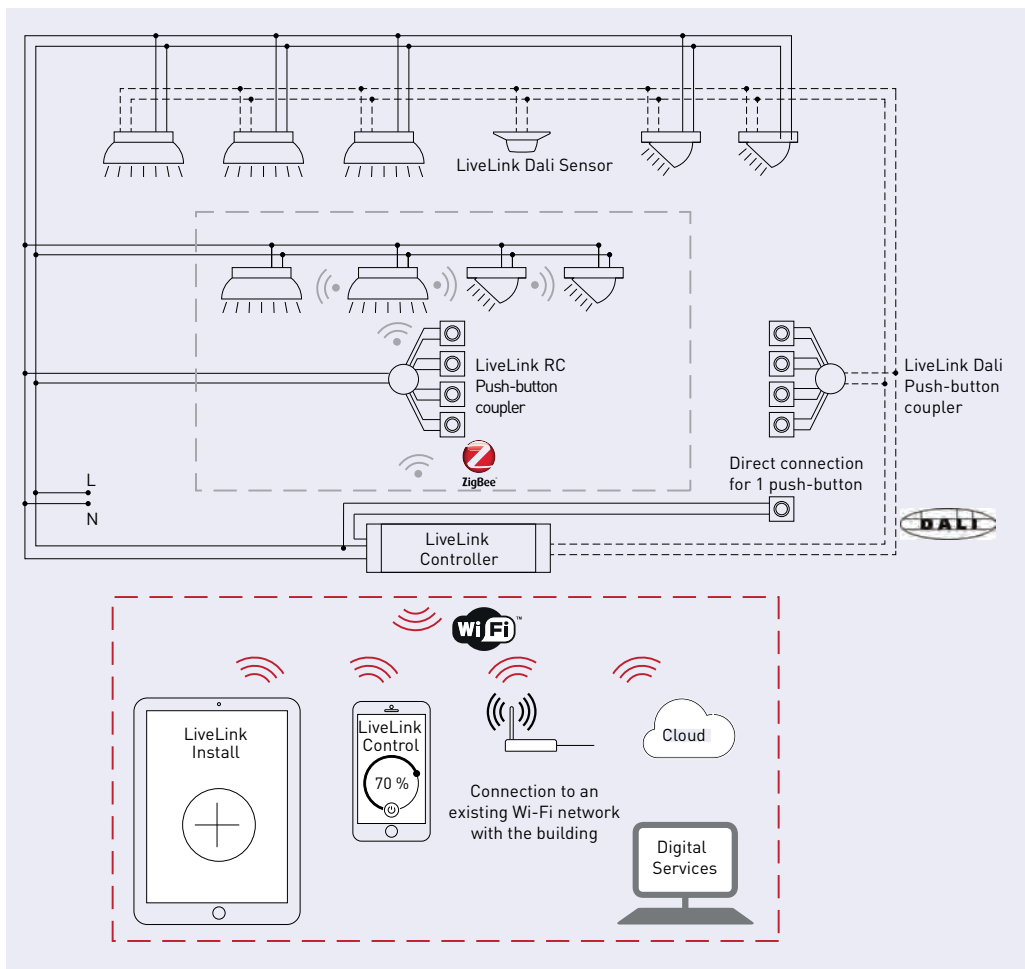

Figure 1.1: Overview of the components of the LiveLink system

2 SYSTEM AND FUNCTIONS

2.1 LIVELINK WIFI

The control device – the intelligent command centre.
The core element of the LiveLink control device is a Linux-based high-performance mini-computer which processes the incoming data streams and issues control commands to the system components. To make the communication with the installer as simple as possible, the control device is equipped with an integrated Wi-Fi module which can be controlled via tablet or smart phone.

Compact design – great flexibility
Thanks to its compact dimensions with a construction depth of just 22 millimetres, the control device can fit into shallow suspended ceilings without any problems. Also suitable for mounting on a DIN cap rail (TS35) with extra accessory. Upon request the control device can be integrated directly into a luminaire (master luminaire).

DALI interface for clever light management.
With the universal DALI interface, DALI-capable luminaires, sensors and push-buttons can be integrated, configured and controlled effort-lessly. Each control device can individually address up to 16 luminaire groups. The maximum number of DALI members is 64. DALI gears DT6 and DT8 can be controlled together.

Comfortable control via push-button, tablet or smart phone.
The luminaires and/or groups of luminaires can be controlled ei-ther with a commercial installation push-button or via the app on a tablet or smart phone. Additional push-buttons can be connected via an optional LiveLink DALI push-button coupler that can be simply in-tegrated into the DALI control circuit. The push-button can be config-ured freely – this way, "offline" groups of luminaires can be controlled too, or light scenarios called up. [1]

Autarkic encryption for increased security.
To protect against external access, the control device is equipped with a Wi-Fi network with autarkic encryption. This way, the system remains unaffected by cyber attacks against the general computer network.

Technical Data

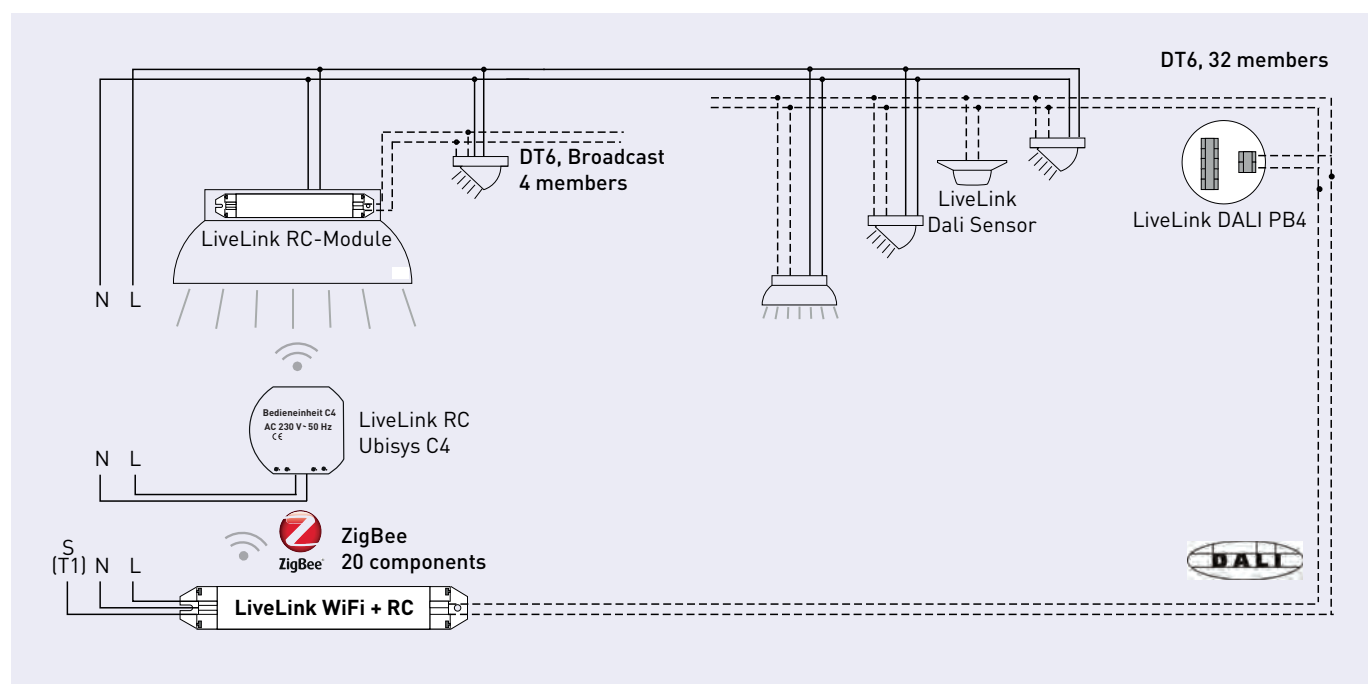|	
Weight	76g
Input voltage	230-240V
Input current	max. 50mA
Input frequency	50/60Hz
Standby power consumption	<2W
Dimensions	
DALI members	max. 64 (DT6 and DT8)
DALI output current	max. 128mA
DALI groups	max. 16
Number of light scenes	max. 50
WiFi	IEEE 802.11b
WiFi encryption	WPA2
WiFi range	max. 25m
Protection rating	IP20
Temperature of case tc max.	0-85°C
Ambient temperature ta max.	0-65°C
Standards:	IEC 61347-2-11
	EN 55015
	EN 61000-32
	EN 61000-33
	EN 61000-547
	IEC 62386
Cable length for DALI	max. 300m
Cable length for push-button	max. 25m
Permissible cable cross-section	0,5 bis 1,5mm²
TOC	6565400

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[1]The configuration is retained in the case of a power failure.
No reprogramming is necessary after a power failure, the system configuration is stored in the control unit.

2.2 LIVELINK WiFi + RC

The controller for control without control lines.

The controller LiveLink WiFi + RC is based on the controller LiveLink WiFi, but is equipped with an additional radio unit. It enables the combined operation of wired DALI components and non-wired radio components. Based on the ZigBee wireless standard, they communicate with the controller. For the integration of luminaires, DALI DT6 control gears can be controlled by an additional built-in radio receiver LiveLink RC module.

The maximum number of line-operated DALI devices is limited to 32 and for luminaires to the device type DT6.

All radio components are fully integrated into the LiveLink system. All luminaires can be grouped freely.

Technical Data

|	
Weight	<100g
Input voltage	230-240V
Input current	max. 50mA
Input frequency	50/60Hz
Standby power consumption	<2W
Dimensions	integrated in luminaire
DALI members	max. 32 (DT6)
DALI output current	max. 64mA
Radio components	max. 20
Luminaire groups	max. 16
Number of light scenes	max. 50
WiFi	IEEE 802.11b
WiFi encryption	WPA2
WiFi range	max. 25m
ZigBee	IEEE 802.15.4
ZigBee range	max. 100m
Protection rating	IP20
Temperature of case tc max.	0-85°C
Ambient temperature ta max.	0-65°C
Standards:	IEC 61347-2-11
	EN 55015
	EN 61000-32
	EN 61000-33
	EN 61000-547
	IEC 62386
Cable length for DALI	max. 300m
Cable length for push-button	max. 25m
Permissible cable cross-section	0,5 bis 1,5mm²
TOC	On request, integrated in luminaire

2.3 LIVELINK RC-MODULE

Technical Data

Weight	<100g
Input voltage	230-240V
Input frequency	50/60Hz
Standby power consumption	<0,5W
DALI members	max. 4 (DT6, Broadcast)
Dimensions	integrated in luminaire
ZigBee	IEEE 802.15.4
ZigBee range	max. 100m
Protection rating	IP20
Temperature of case tc max.	0-85°C
Ambient temperature ta max.	0-65°C
Cable length for DALI	max. 300m
Permissible cable cross-section	0,5 bis 1,5mm²
TOC	On request, integrated in luminaire

The radio converter inside the luminaire.
The radio receiver LiveLink RC Module allows the integration of wireless controlled luminaires into a LiveLink system. The radio receiver is suitable for luminaire installation and can be offered on request with almost all TRILUX luminaires. It communicates with the LiveLink WiFi + RC controller based on the ZigBee wireless standard.

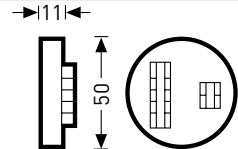Up to 4 DALI devices can be wired to a LiveLink RC module in broadcast mode (DT6).
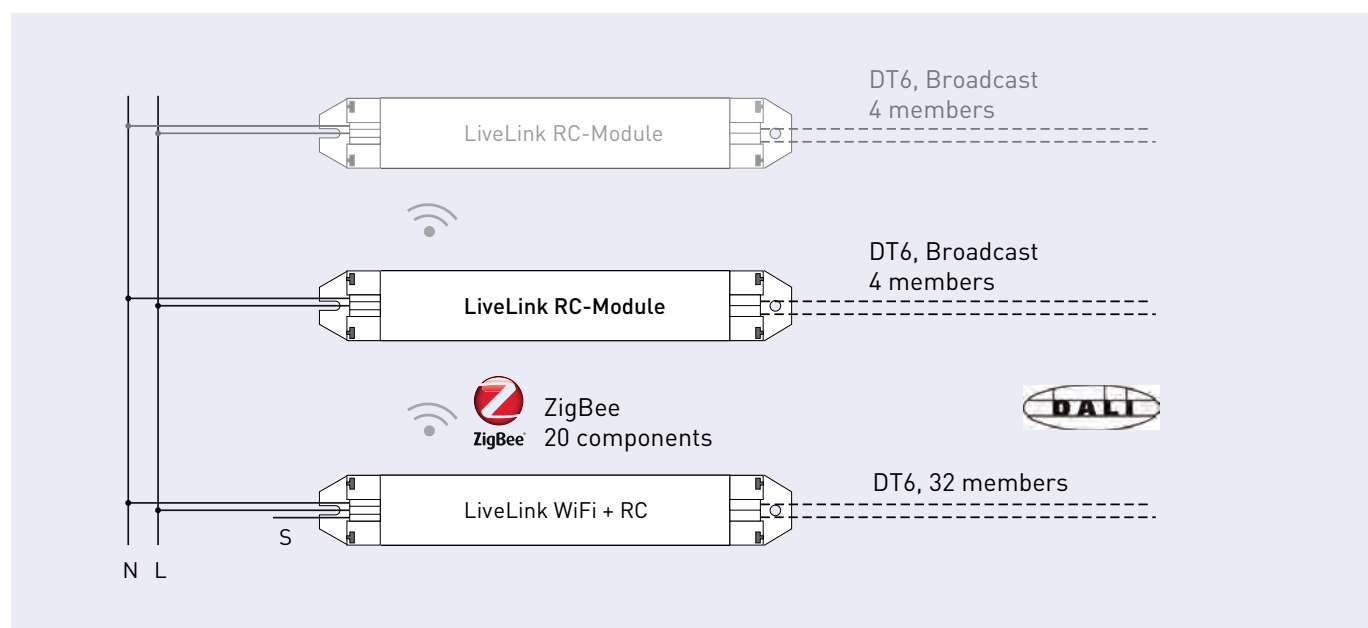
2.4 PUSH-BUTTON COUPLER

Technical Data

|	
Number of push-buttons	
Cable length for push-button	max. 25m
Number of DALI members	1
Dimensions	→|11|←
	50
TOC	6565200

Interface for commercial installation push-buttons
The push-button coupler integrates additional push-buttons into a LiveLink system. For this, up to 4 commercial installation push-buttons can be connected to each push-button coupler. The push-button coupler passes the signals on to the LiveLink control device via DALI. The function of the push-buttons is freely programmable during commissioning.

Fits into the flush device box
The compact dimensions allow for an installation in flush device boxes with a minimum depth of 60 mm. The push-button cables may have a maximum length of 25 m and must be installed in a separate plastic-sheathed cable. The connections at the push-button coupler are not suitable for mains voltage.

T2   T3   T4   T5   **LiveLink DALI PB4**

L= max. 25 m

**S
(T1)** N L

LiveLink WiFi

DALI 2

DALI 1
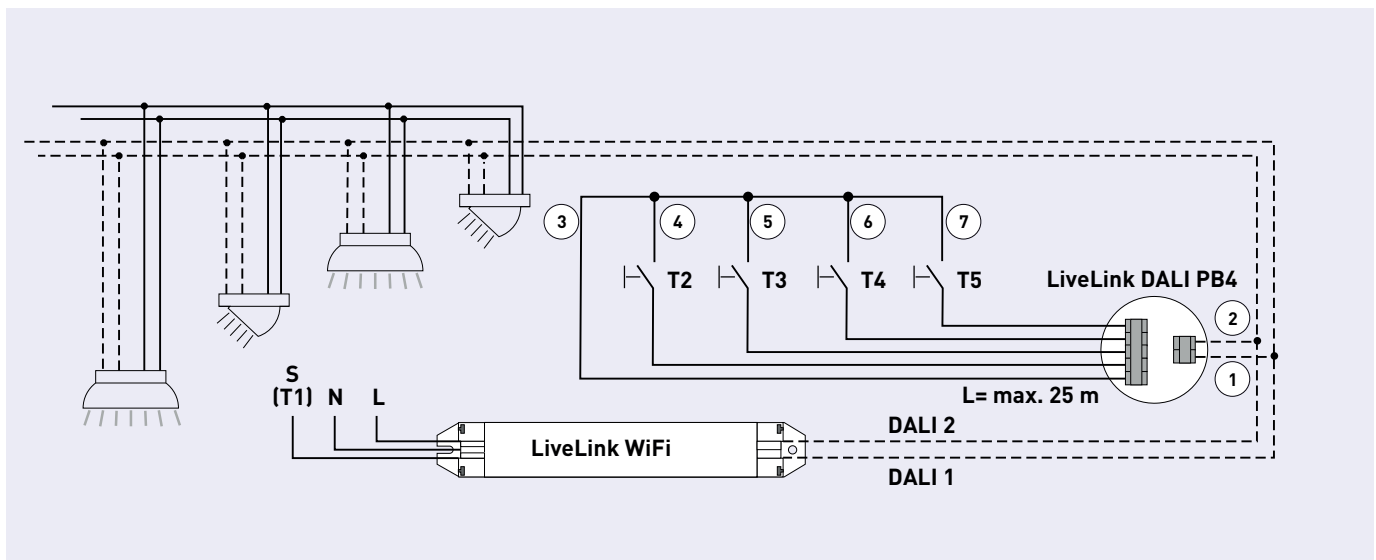
2.5 SENSORS

**Any brain needs its sensory organs – and
any light management system its sensors.**
Light only when and where it is wanted and as bright as necessary.
For a lighting control system to meet all the client's requirements, the
framework conditions must be detected precisely. This task is handled
by STEINEL's intelligent sensor technology.

IR Quattro HD
TOC: 6565500

**Detects the most minute of movements all the way into any
corner.** The infra-red presence detector IR Quattro HD is ideal
for medium to large offices, conference rooms and meet-
ing rooms as well as classrooms and lecture halls. Its high
resolution detection is ideal in the case of sitting activities.
Equipment and functions:
- Highest quality of detection due to 4 pyro sensors with 4,800 switching
  zones per 64 m².
- Straight-forward planning with square detection area
- Quick setting due to patented mechanical scalability without loss of
  quality
- 8 m x 8 m presence detection, 8 m x 8 m radial detections and 20 m x
  20 m tangential detection
- Suitable for ceiling heights from 2,5 m up to 10 m.

Dual HF
TOC: 6565600

Doubly convincing across the board.. The high frequency corridor sen-
sor Dual HF, with its detection area of 20 m x 3 m is suitable for long
corridors. Decisive for a corridor sensor is how well radial movements
are detected. This refers to the frontal direction of walking towards the
sensor. The STEINEL high frequency technology masters this perfectly.
Equipment and functions:
- Two integrated HF sensors with dual directional characteristic for up to
  20 m of radial detection.
- Detects equally well from any direction of walking
- Continuously variable, electronic setting
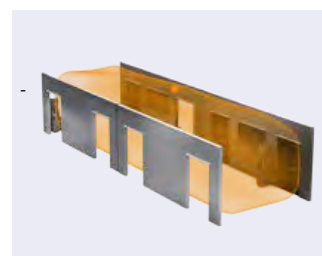
**IR Quattro Slim XS**
TOC: 6906200

Compact dimensions and high performance – IR Quattro Slim XS.
Sensor technology is a must-have in many buildings today. Presence sen-
sors, especially in offices and prestigious areas, should blend as discreetly
as possible into the room. This is the ideal application for the IR Quattro
Slim XS infrared presence sensor. With a construction height of just 4 mm
the sensor installs almost flush to the ceiling, and is practically invisible
for observers. A genuine highlight is the globally unique retina lens, en-
abling a square detection range of an astounding 16 square metres at an
installation height of up to 4 metres, despite its flat construction design.
The presence sensor even responds to motion hardly perceptible for the
human eye thanks to its extremely high resolution and absolutely precise
sensor technology.
Features and functions:
- Sensor blends discreetly into the room with a construction height of only 4 mm.
- Suitable for ceiling heights of 2.5 to 4 metres.
- PIR with retina lens and hexagonal Fresnel structure for large detection range.
- Square detection zone (presence, radial, tangential) consists of 16 square metres.
- High resolution, precise detection.
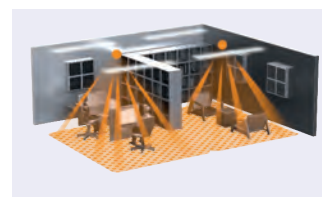
**IR Micro em-
bedded sensor**
TOC: 6906300

**Compact, integrated and with high-performance.**
The IR Micro embedded sensor bundles outstanding sensor tech-
nology in a highly compact space. Equipped with a high-sensitivity
pyrosensor and special lens, the miniature sensor quickly and reli-
ably detects even the minutest movements. The sensor is so com-
pact that it can be assembled into almost all TRILUX luminaires – and
blends harmoniously into the luminaire design thanks to its discreet
appearance. With a mounting height of up to 4 m and a square detec-
tion range of 36 m² the IR Micro embedded sensor is ideal for use in
offices and classrooms. A further benefit: because it is already in-
tegrated in the luminaire, no extra installation effort is necessary.
Features and functions:
- Miniature sensor for assembling in luminaires with almost all TRILUX
  product ranges
- High-sensitivity pyro-sensor with special lens for detecting the smallest
  of movements
- Mounting height of up to 4 m
- Square detection range of up to 36 m²
- No additional installation effort because the sensor is already built in to
 the luminaire

IS 3360 MX Highbay
TOC: 6781000
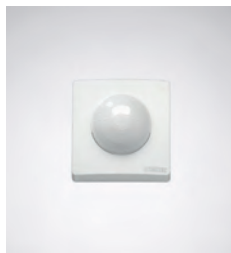
Higher, further, quicker.
The IS 3360 MX Highbay infrared motion sensor indoor and outdoor
applications with a mounting height of up to 14 metres is ideal for detect-
ing movement in high rooms and wide areas such as parking garages,
underground garages, production or storage areas and dispatch halls. The
IS 3360 MX Highbay infrared motion sensor achieves seamless all-round
detection in rooms thanks to a 360° detection angle and aperture angle of
180°. It is equipped with three high-sensitivity pyro-sensors which register
movements in a radius up to 18 m .Installation is very simple thanks to the
generous connection space.
Features and functions:
- Sensor for ceiling mounting at heights of 3 m to 14 m
- Three pyro-sensors with a detection radius of max. 18 m
- All-round detection via 360° detection angle and 180° aperture angle
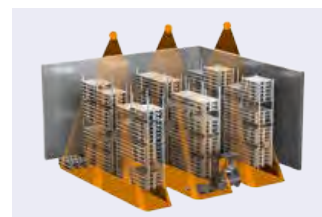- Simple installation thanks to generous connection space
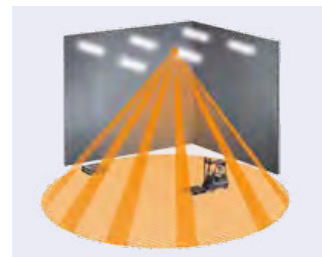
IIS 345 MX Highbay
TOC: 6781100

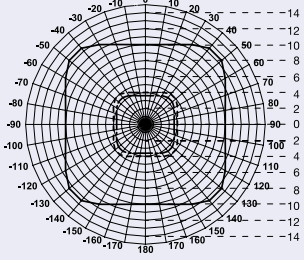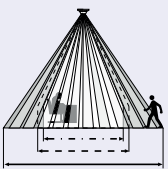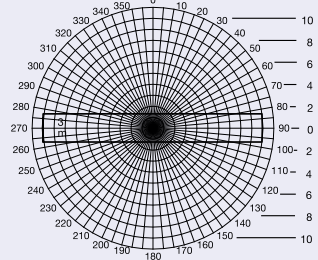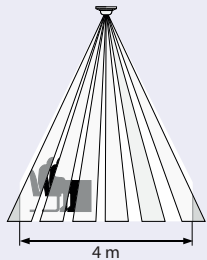

Monitoring at the highest levels.
The IS 345 MX Highbay infrared motion sensor for indoor and out-
door applications is ideal for high heights in e.g. warehouses, logistics
halls and highbay racking areas. The sensor has a detection angle of
180°, a detection field of 30 m x 4 m (radial) and is equipped with a special
optical system designed for high mounting heights of up to 14 m. The
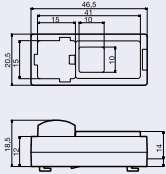generous connection space enables simple mounting.
Features and functions:
- Special optical system enables mounting to ceiling heights of 4 m to 14 m
- Two pyro-sensors for radial detection of up to 30 m x 4 m at at 180° detection angle
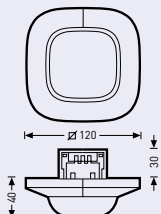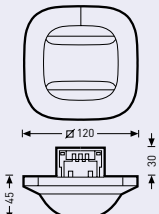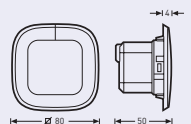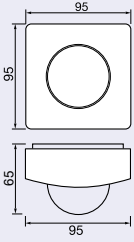
2.5.1 TECHNICAL DATA

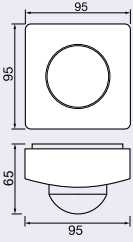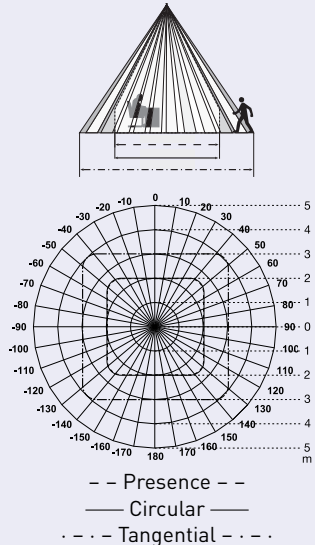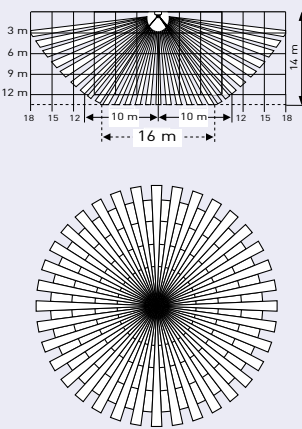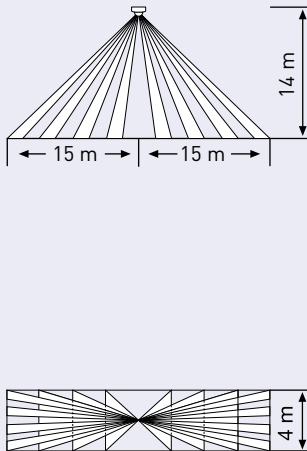| Typ	Quattro HD	Dual HF	Quattro Slim
Characteristics	- Square detection area typical for a room - Particularly high sensitivity and range	- Dual directional characteristic for targeted detection of hallways and corridors - Temperature-independent detection	- Room-typical square detection range - Flat design for almost ceiling-flush installation
Function	- Presence - Constant light	- Presence - Constant light	- Presence - Constant light
Sensor type	Passive infrared (PIR)	High frequency	Passive infrared (PIR)
Dimensions (H x W x D)			
Site of operation	In the interior area of buildings	In the interior area of buildings	In the interior area of buildings
Sensor system	4 pyro sensors with 13 detection levels, 4800 switching zones	High frequency 5.8 GHz, transmitting power < 1 mW	High resolution pyro-sensor with special retina lens
Light value setting	10 lx to 1.000 lx	10 lx to 1.000 lx	10 lx to 1.000 lx
Protection rating	IP 20 (IP54 with AP Box)	IP 20 (IP 54 with AP Box)	IP 20
Protection class	II	II	II
Temperature range	-20 °C to +55 °C	-20 °C to +55 °C	0 °C to +40 °C
Number of DALI members	3	8	2
Height of installation (ceiling mount)	2,5 m to 10 m	2,5 m to 3,5 m	2,5 m to 4,0 m
Detection angle/square	Presence: max. 8 m x 8 m (64 m²) Circular: max. 8 m x 8 m (64 m²) Tangential: max. 20 m x 20 m (400 m²)	see diagram; range max. 20 m x 3 m (max. 10 m x 3m in each direction), infinitely variable electronic setting	Presence: max. 4 m x 4 m (16 m²) Circular: max. 4 m x 4 m (16 m²) Tangential: max. 4 m x 4 m (16 m²)
Detection ranges	at an installation height of 2.8 m to 3.0 m - - - - - Presence - - - - - - - - - - Circular - - - - - ———— Tangential ————	at an installation height of 2.8 m to 3.0 m through glass, wood and lightweight partition walls as the case may be, infinitely variable electronic setting	at an installation height of 2.8 m Tangential / Circular / Presence ——— · ———

Typ	IR Micro	IS 3360 MX Highbay	IS 345 MX Highbay
Characteristics		- For industry, production halls, warehouses - For high installation heights	- For industry, production halls, warehouses - For high installation heights
Function	- Presence - Constant light	- Presence	- Presence
Sensor type	Passive infrared (PIR)	Passive infrared (PIR)	Passive infrared (PIR)
Dimensions (H x W x D)			
Site of operation	In the interior area of buildings	In the interior area of buildings	In the interior area of buildings
Sensor system	High-sensitivity pyro sensor with special lens	Three high-sensitivity pyro sensors with 360° detection angle and 180° aperture angle	Two pyro sensors with 180° detection angle
Light value setting	10 lx to 1.000 lx	-	-
Protection rating	IP 20	IP 54	IP 54
Protection class	II	II	II
Temperature range	0 °C to +40 °C	-20 °C to +50 °C	-20 °C to +50 °C
Number of DALI members	2	3	3
Height of installation (ceiling mount)	2,5 m to 4 m	3 m to 14 m	4 m to 14 m
Detection angle/square	Presence: max. 4 m x 4 m (16 m²) Circular: max. 4 m x 4 m (16 m²) Tangential: max. 6 m x 6 m (36 m²)	Ø max. 36 m	max. 30 m x 4 m
Detection ranges	at an installation height of 2.8 m to 3.0 m – – Presence – – —— Circular —— · – · – Tangential – · – ·	at an installation height of 14 m 	at an installation height of 14 m

2.5.2 SENSOR PLACEMENT

Presence detection

- The detection range of the sensor must be considered (see the sensor data sheet). On the one hand, the sensor should detect working and movement areas in the room, but in the case of an automatic switch-on (fully automatic, see chapter 2.6 "Behaviour in operation", page 15) it should also detect the input if possible so that the light is switched on early. If the detection range of a sensors is not sufficient, further sensors must be planned in.
- If high frequency sensors or radar sensors are used it must be considered that the detection may pass through thin walls. Also, the narrow detection range (see product data sheet) must be taken into account.
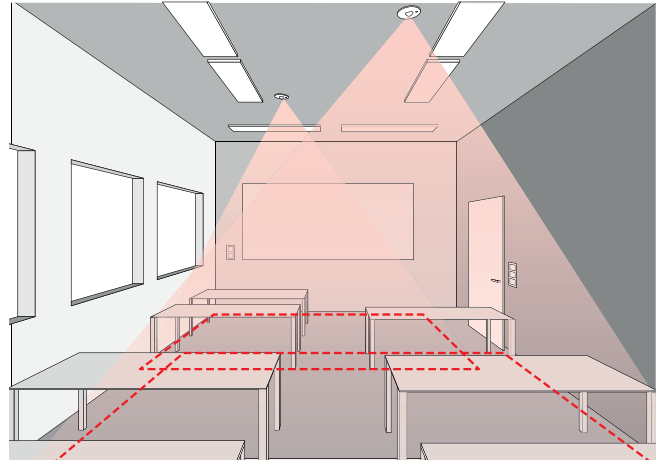
Daylight-dependent control

It is important for the function of daylight-dependent control that light sensors or combined presence and light sensors are positioned at a suitable place. It should be positioned in the area of the visual task.

- For extensive visual task areas, the sensor should be positioned in such a way as to take into account the part of the area least supplied with daylight.
- If there are several work areas in the room with very different daylight supply levels, the work area with the worst daylight supply should be allowed for. For higher energy savings, independent control areas can be set up with separate light sensors.
- The measured area below the sensor should have a medium reflectance value and should reflect diffusely (not specular).
- The sensor must be positioned so that no interfering light falls on the measuring surface (e.g. direct light on windowsill, see figure).
- No objects should be placed on the measuring surface that impair the measurement, such as pallets, tall pieces of furniture or large objects with varying reflectance values.
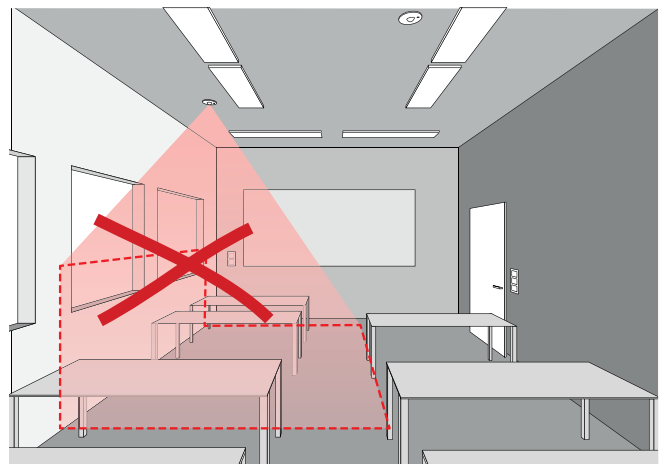
Sources of interference

Positioning near the following sources of interference should be avoided:

- Heat sources influence measurement by the passive infrared sensors (PIR). Maintain sufficient distance to the heat sources. Typical examples are fan heaters, open doors and windows, pets, light bulbs/halogen spotlights and moving objects.
- Interference sources of light such as luminaires the indirect light component of which radiates directly onto the sensor
- Daylight reflections, e.g. by mirrors
- Radio and/or Wi-Fi transmitters at a distance of approx. one metre
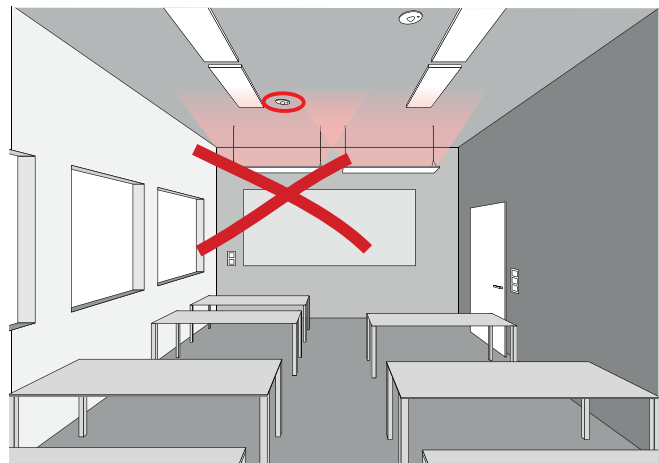
2.6 BEHAVIOUR OF LIGHT CONTROL

BEHAVIOUR IN DELIVERY CONDITION

If the control device and the luminaires were already installed, but the light control was not installed yet, the lighting can be switched and dimmed nevertheless (touch/dim function). Operation can be performed via any push-button connected to the control device:

- Short push of button: Turns all luminaires on or off
- Long push of button: Dimming all luminaires

The touch/dim function allows for a quick testing of the installation with all push-buttons and luminaires.

Caution: Initially, the touch/dim function is only available in delivery condition. During the configuration process, the function is not available, but can be re-assigned to select push-buttons.

BEHAVIOUR IN OPERATION

The behavior of the light control during operation is determined during commissioning with the Install app. The factory default settings of the app are selected so that an optimized, energy-saving operation of the lighting results when one of the public use cases is used. That means:

- The **daylight-dependent control** of the lighting is activated for the lighting groups, provided in the use case.
- The **presence-dependent switching on** of the lighting is activated or deactivated depending on the application (siehe tables in chapter 2.8.1 PUBLIC USE CASES).
- The **presence-dependent switching off** of the lighting is activated for all luminaire groups.
- When switching on lighting groups with group pushbuttons (one-button operation), daylight-dependent control and presence detection remain active.
- When **dimming** with a group push-button, the daylight-dependent control of affected lighting groups may be deactivated. The presence detection remains active.
- After switching off with a group button, the automatic restarting of the luminaires remains deactivated until no presence in the respective detection area has been recorded for the time span of the switch-off delay or inverse time (see chapter 4.7.3 ADVANCED SENSOR SETTINGS).
- By calling up lighting groups with a LiveLink app (see chapter 3), the daylight-dependent lighting control of the relevant lighting group is deactivated. The presence detection remains unchanged.

The switching and control behavior described above is defined in the use cases in the respective **default light scene**, which is called "automatic" in all use cases.

Furthermore, note:

- The switching and control behavior of the lighting is basically determined individually in each light scene and lighting sequence (see chapter 4.5.6 SETTING SCENES and 4.5.7 SETTING UP SEQUENCES).
- When a light scene or light sequence is called, the switching and control behavior of the selected light scene becomes active.
- By automatically switching off all luminaire groups through the presence detection (expiry of the switch-off delay or inverse time), a **automatic call of the default light scene** occurs.
- In all public use cases the presence detection is deactivated in the scene "Nightlight". It must therefore always be ended by manually calling another scene (e.g. of the default light scene).

Note:

The switching and control behavior of the lighting can be adapted to the individual needs of the users for all light scenes in all use cases (see chapter 4.5.5 MANAGING SCENES).

- However, in order to achieve energy-saving operation, it is recommended to equip the default lighting scene with an automatic shutdown of the overall lighting and, if necessary, the daylight-dependent control of suitable lighting groups.
- For the "Off" light scene, a switch-off delay must be set to ensure a fallback to the default lighting scene (see also chapter 2.8.3 UNIVERSAL USE CASE).
- Light scenes and sequences in which not all luminaire groups are switched off by the presence detection do not allow a fallback to the default light scene and must be ended manually.
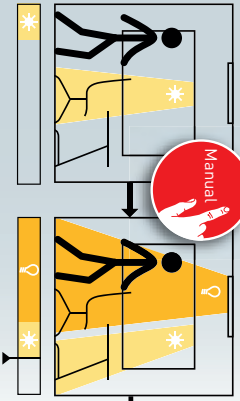
• CONSTANT LIGHT CONTROL
• PRESENCE DETECTION
(AUTOMATIC OPERATION)
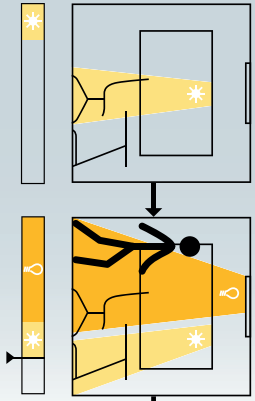
If the default scene contains presence detection with fully automatic operation, the lighting starts with the default scene upon entering the room.[1]

If the scene additionally contains constant light control, the overall illumination (from daylight and artificial light) is continuously adjusted to the pre-set target value.

• CONSTANT LIGHT CONTROL
## • PRESENCE DETECTION
(SEMI-AUTOMATIC OPERATION)

If the default scene contains presence detection with semi-automatic, the lighting is switched on manually with a push-button or with a tablet or smartphone.

If the active scene also contains constant light control, the overall lighting (consisting of daylight and artificial light) is constantly controlled to the preset setpoint.

1) After manual switch-off an automatic restart occurs only after expiry of the inverse time (= switch-off time)
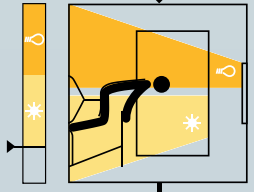
The illumination adjusts itself to the changing daylight.
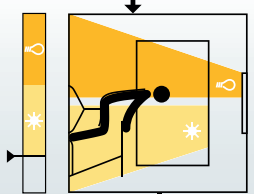
In case of strong ingress of sunlight, the illumination initially dims to a minimum. If the overall illumination exceeds the target value by 25 % for more than 5 minutes, the lighting turns itself off.
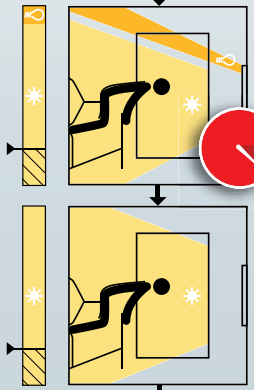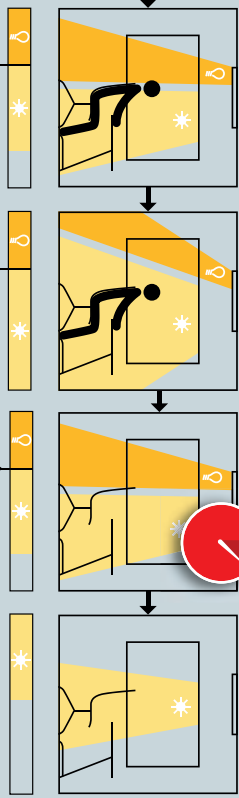
If the amount of daylight decreases, the lighting switches itself on again and adjusts to the target value.

After a subsequent holding time, the lighting turns itself off after the room has been vacated.
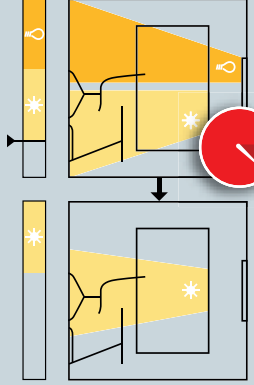
MANUAL CHANGES TO THE LIGHTING

In the case of a manual intervention, the dimming and switching of luminaire groups, the constant light control is deactivated for these luminaire groups. During the stay in the room, the changed dimming levels of the lighting scene are retained.

The presence detection remains active even after a manual change of the lighting. After a subsequent holding time, it turns the lighting off after the room has been vacated.

CALLING UP OF A LIGHT SCENE

If a light scene is called up, the operating behaviour of the activated scene adapts (see previous page in this chapter).

ADVANCED SETTINGS

Through advanced settings in the default scene, a switching on again of the lighting upon dropping below the target value can be prevented.

2.7 WHAT IS HUMAN CENTRIC LIGHTING (HCL)?

Current scientific findings demonstrate that all forms of lighting (artificial and natural), in addition to their visual impact, also have a biological effect on people. The benefits of this effect can only be optimally used and the risks avoided with correct and responsible use.

The reference for TRILUX is always natural daylight with its colour temperature, dynamism and intensity. Our aim is to supplement daylight with needs-based artificial light if the latter is not available or only insufficiently available.

In combination with Active luminaires with variable colour temperature, the TRILUX LiveLink light control system enables such colour temperature control (see also chapter 4.5.1 "Device management" on page 36) . The system already has an optimised, factory-set daytime sequence. If the HCL function is activated in a light scene (see also chapter 4.5.6 "Set up scene" on page 51), this "circadian" sequence is automatically called up when the lighting is switched on. The preset daily schedule can be customized as needed.

With this automatic circadian light, the TRILUX Active luminaire becomes a powerful, customised system that supports people in their visual tasks and daily rhythm.
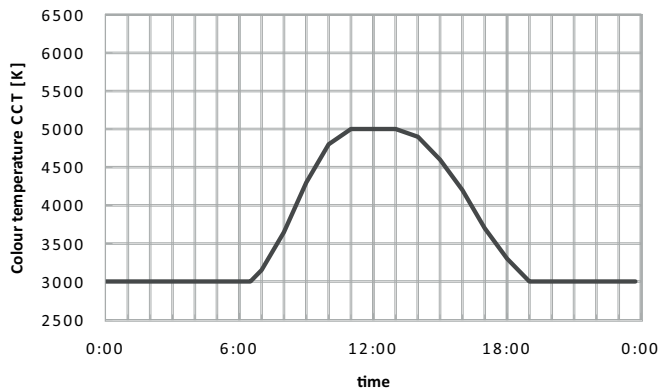
Figure 2.1: The TRILUX HCL curve

2.8 WHAT IS A USE CASE?

Each LiveLink room is set up using a Use Case. A Use Case is a pre-configuration that simplifies detailed room setups. A Use Case defines:

- application-related light scenes (which can of course be supplemented with self-created scenes),
- the default light scene,

- predefined luminaire groups (display of a sketch matching the room type),
- the assignment between sensors and luminaire groups.

If required, individual Use Cases can also be created together with TRILUX lighting designers and loaded for use as "Private Use Cases".

2.8.1 PUBLIC USE CASES

The public Use Cases are included in the scope of delivery and can be updated in the Use Case managements (see chapter 4.2 "Use Case management", page 30).

After completion of the steps for commissioning, the scenes pre-set in the Use Cases can be adjusted or additional ones added. You can, for

example, change the switch-off delays, switch from fully automatic to semi-automatic operation, or change the dimming level. The daylight-dependent control requires an initial calibration with the help of an light meter (see chapter 4.5.5 "Scene management", page 49).

The following Use Cases will be covered on the next pages.

Office	Industry	Education	Health & Care	General
Small Office	Manufacturing Hall	Classroom	Patients' room	Corridor
Large Office	Manufacturing Hall,	Sports Hall		Universal (See chapter "Universal Use Case", page 23)
Conference Room	expanded			

Use Case "Small Office"
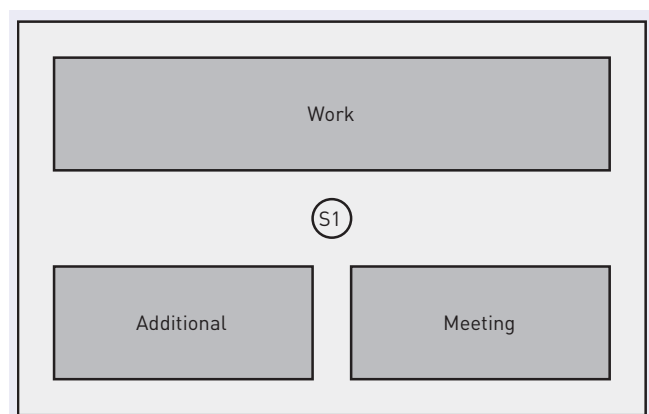
Luminaire group	Sensor function	
	Control	Presence
Work	S1	S1
Meeting	-	S1
Additional	-	S1

Default scene "Automatic"	Group	Value
Light level	Work	controlled
	Meeting	0 %
	Additional	0 %
Presence detection	Work/ Meeting/ Additional	Fully automatic (not switching on, because set to 0 %)
Switch-off delay		5 min.

Scene "Meeting"	Group	Value
Light level	Work	50 %
	Meeting	100 %
	Additional	20 %
Presence detection	all	Fully automatic
Switch-off delay		5 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		5 min.

Scene "Night light"	Group	Value
Light level	all	20 %
Presence detection	all	-

Scene "Off"	Group	Value
Light level	all	0 %
Presence detection	all	Fully automatic
Switch-off delay		5 min.

The "Small Office" Use Case contains the luminaire groups "Work", "Meeting" and "Additional". There is also a combined sensor for daylight-dependent light control and presence detection.

Use Case „Large Office"

also four combined sensors for daylight-dependent light control and presence detection.

Default scene "Automatic"	Group	Value
Light level	Work 1	controlled
	Work 2	controlled
	Work 3	controlled
	Work 4	controlled
	Additional	0 %
Presence detection	Work 1...4	Fully automatic (all groups common)
	Additional	(not switching on, because set to 0)
Switch-off delay		5 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		5 min.

Scene "Night light"	Group	Value
Light level	all	20 %
Presence detection	all	-

Scene "Off"	Group	Value
Light level	all	0 %
Presence detection	all	Fully automatic
Switch-off delay		5 min.

Luminaire group	Sensor function	
	Control	Presence
Work 1	S1	S1 ... S4
Work 2	S2	S1 ... S4
Work 3	S3	S1 ... S4
Work 4	S4	S1 ... S4
Additional	-	S1 ... S4

The luminaire groups "Work 1", "Work 2", "Work 3", "Work 4" and "Additional" are created in the "Large Office" Use Case. There are

Use Case „Conference Room"

Default scene "Automatic"	Group	Value
Light level	Meeting	controlled
	Presentation	
	Additional	0 %
Presence detection	all	Fully automatic
Switch-off delay		10 min.

Scene "Projection"	Group	Value
Light level	Meeting	20 %
	Presentation	0 %
	Additional	20 %
Presence detection	all	Fully automatic
Switch-off delay		10 min.

Scene "Lecture"	Group	Value
Light level	Meeting	50 %
	Presentation	100 %
	Additional	20 %
Presence detection	all	Fully automatic
Switch-off delay		10 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		10 min.

Scene "Night light"	Group	Value
Light level	all	20 %
Presence detection	all	-

Scene "Off"	Group	Value
Light level	all	0 %

Luminaire group	Sensor function	
	Control	Presence
Meeting	S1	S1
Presentation	S1	S1
Additional	-	S1

In the "Conference Room" Use Case, the "Meeting", "Presentation" and "Additional" luminaire groups are created. There is also a combined sensor for daylight-dependent light control and presence detection.

Use Case "Manufacturing Hall"

Luminaire group	Sensor function	
	Control	Presence
Work 1	SA1	-
Work 2	SA2	-
Work 3	SA3	-
Circulation path	-	SV1 ... SV3

The luminaire groups "Circulation path", "Work 1", "Work 2" and "Work 3" are created in the "Manufacturing Hall" Use Case. There are also three sensors for daylight-dependent light control and presence detection (SA1 – 3) and three sensors for presence detection (SV1 – 3).

Default scene "Automatic"	Group	Value
Light level	Work 1 - 3	controlled
	Circulation path	100,%
Presence detection	Work 1 - 3	semi-automatic
	Circulation path	Fully automatic
Switch-off delay		10 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	Work 1 - 3	Fully automatic
	Circulation path	Semi-automatic
Switch-off delay		10 min.

Scene "Night light"	Group	Value
Light level	all	20 %
Presence detection	all	-

Scene "Off"	Group	Value
Light level	all	0 %

Use Case "Manufacturing Hall, expanded"
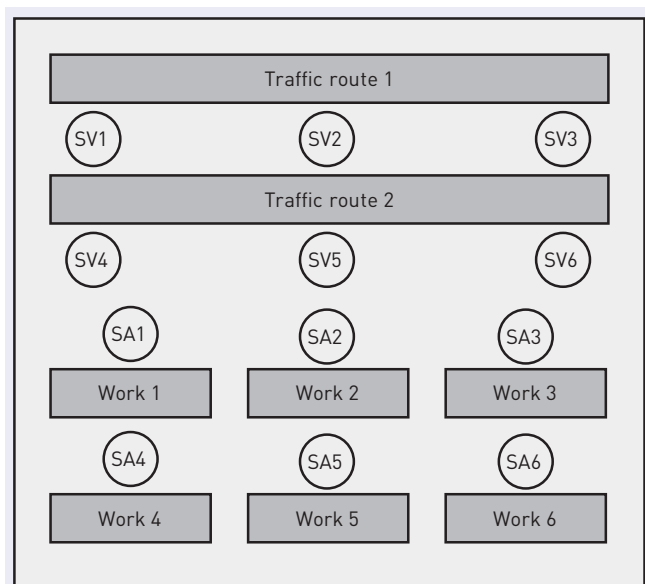
Luminaire group	Sensor function	
	Control	Presence
Work 1	SA1	-
:	:	:
Work 6	SA6	-
Circulation path 1	-	SV1 ... SV3
Circulation path 2	-	SV4 ... SV6

The luminaire groups "Circulation path 1", "Circulation path 2", "Work 1", "Work 2", "Work 3", "Work 4", "Work 5" and "Work 6" are created in the "Expanded manufacturing hall" Use Case. There are also six sensors for the daylight-dependent light control (SA1 – 6) and six sensors for the presence detection (SV1 – 6).

Default scene "Automatic"	Group	Value
Light level	Work 1	controlled
	:	:
	Arbeit 6	controlled
	Circulation path 1	100,%
	Circulation path 2	100,%
Presence detection	Work 1 - 6	-
	Circulation path 1	Fully automatic
	Circulation path 2	Fully automatic
Switch-off delay		10 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		10 min.

Scene "Night light"	Group	Value
Light level	all	20 %
Presence detection	all	deactivated

Scene "Off"	Group	Value
Light level	all	0 %

Use Case "Class Room"
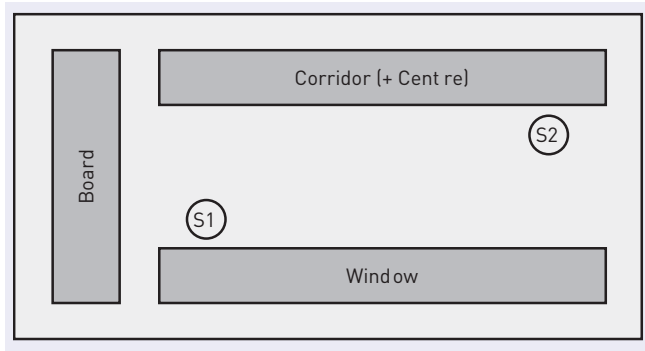
Luminaire group	Sensor function	
	Control	Presence
Window	S1	S1 + S2
Corridor (+ centre)	S2	S1 + S2
Blackboard	-	S1 + S2

The luminaire groups "Blackboard", "Window" and "Corridor (+ centre)" are created in the "Classroom" Use Case. There are also two combined sensors for the daylight-dependent light control and the presence detection.

Default scene "Automatic"	Group	Value
Light level	Window	controlled
	Corridor	controlled
	blackboard	100 %
Presence detection	all	Semi-automatic
Switch-off delay		10 min.

"Projection"	Group	Value
Light level	Window	20 %
	Corridor	20 %
	Blackboard	off
Presence detection	all	Semi-automatic
Switch-off delay		10 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		10 min.

"Night light"	Group	Value
Light level	all	20 %
Presence detection	all	deactivated

Scene "Off"	Group	Value
Light level	all	0 %

Use Case "Sports Hall"
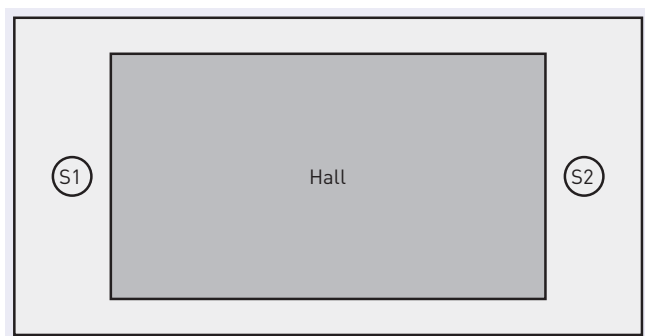
Luminaire group	Sensor function	
	Control	Presence
Hall	S1	S1 + S2

The luminaire group "Hall" is created in the "Single sports hall" Use Case. There is also one sensor (S1) for the daylight-dependent light control and presence detection and one sensor (S2) only for the presence detection.

Default scene "Automatic"	Group	Value
Light level	Hall	controlled
Presence detection	Hall	Fully automatic
Switch-off delay		15 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi-automatic
Switch-off delay		15 min.

"Night light"	Group	Value
Light level	all	20 %
Presence detection	all	deactivated

Scene "Off"	Group	Value
Light level	all	0 %

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Use Case "Patients' Room"
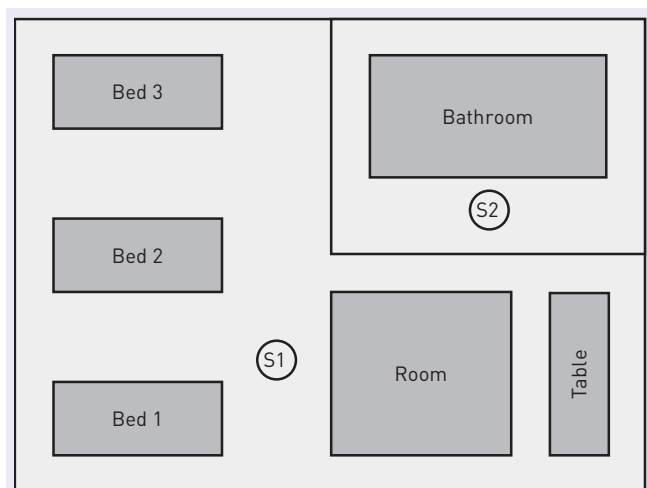
Luminaire group	Sensor function	
	Control	Presence
Bed 1 / Bed 2 / Bed 3 Room	S1	S1
Bathroom	-	S2
Table	S1	-

The "Room", "Table", "Bed 1", "Bed 2", "Bed 3" and "Bathroom" luminaire groups are created in the "Patient room" Use Case. There are also two sensors, one for the daylight-dependent light control and presence detection (S1) and one only for the presence detection in the bathroom (S2).

Default scene "Automatic"	Group	Value
Light level	Bed 1...3 + Room	controlled
	Table	0 %
	Bathroom	100 %
Presence detection	Bed 1	Semi–automatic
	Bed 2	Semi–automatic
	Bed 3	Semi–automatic
	Room	Semi–automatic
	Table	Semi–automatic
Switch-off delay		5 min.
Presence detection	Bathroom	Fully automatic
Switch-off delay		10 min.

"Examination"	Group	Value
Light level	Bed 1...3, Room, Table	100 %
	Bathroom	100 %
Presence detection	Bed 1...3, Room, Table	deactivated
	Bathroom	Fully automatic
Switch-off delay		10 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	Bed 1	Semi–automatic
	Bed 2	Semi–automatic
	Bed 3	Semi–automatic
	Room	Semi–automatic
	Table	Semi–automatic
Switch-off delay		5 min.
Presence detection	Bathroom	Fully automatic
Switch-off delay		10 min.

Scene "Off"	Group	Value
Light level	all	0 %

Use Case "Corridor"

Luminaire group	Sensor function	
	Control	Presence
Corridor	S1	S1 ... S3

The luminaire group "Corridor" is created in the "Corridor" Use Case. There are also three sensors for the daylight-dependent light control and the presence detection. Sensors 1-3 control the presence detection, and sensor 1 additionally the daylight-dependent control.

Default scene "Automatic"	Group	Value
Light level	Corridor	controlled
Presence detection	Corridor	Fully automatic
Switch-off delay		5 min.

Scene "Service"	Group	Value
Light level	all	100 %
Presence detection	all	Semi–automatic
Switch-off delay		5 min.

"Night light"	Group	Value
Light level	all	20 %
Presence detection	all	deactivated

Scene „Off"	Group	Value
Light level	all	0 %

2.8.2 PRIVATE USE CASES

Use Cases are always created together with TRILUX lighting design-ers on a project-by-project basis. The finished Use Cases are then made available in the customer account of the my-TRILUX portal (see chapter "Managing Use Cases").

2.8.3 UNIVERSAL USE CASE

Scene "On"	Group	Value
Light level	all	100 %
Scene "Off"	**Group**	**Value**
Light level	all	off

Further scenes must be created manually.

A switch-off delay must be set in the light scenes to be defined (also in the light scene "Off") to ensure that the system returns to the switch-ing behavior of the default light scene, which must also be defined (see chapter 4.5.6 SETTING UP SCENES).

In addition to the application-specific Use Cases (Public + Private), the "Universal" public Use Case is also available. The "Universal" Use Case contains nine freely assignable luminaire groups: "G1-G9". There are also nine freely assignable sensor locations for the daylight-dependent light control and presence detection.

2.9 WI-FI

The setup or control of the LiveLink system via tablet and/or smart phone app is only possible if a Wi-Fi connection with the LiveLink control device has been established.

In delivery condition, the LiveLink control device offers its own Wi-Fi for a direct connection (AdHoc connection). Each control device bears a Wi-Fi name of its own, starting with "LIVELINK", which is printed onto the control device. The Wi-Fi name can be changed later, see chapter 4.6.1 "Room setup: room name", page 62.

Optionally, the control device can be integrated into an existing Wi-Fi network and utilised from there.

2.9.1 CONNECT TO WI-FI

Selecting the Wi-Fi with an iOS device
All available Wi-Fi networks can be found in the Wi- Fi menu in the device settings screen. Upon tapping the "LIVELINK…" Wi-Fi the connection will be established. The exact name (SSID) of the respective Wi-Fi is located on the control device. The password is "livelink".
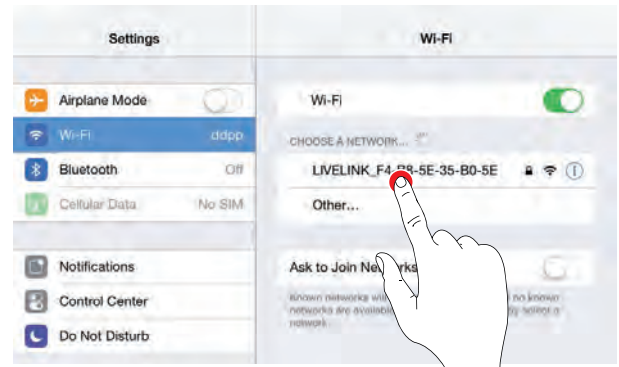
Selecting the Wi-Fi with an Android device
All available Wi-Fi networks can be found in the Wi- Fi menu in the device settings screen. Upon tapping the "LIVELINK…" Wi-Fi the connection will be established. The password is "livelink".
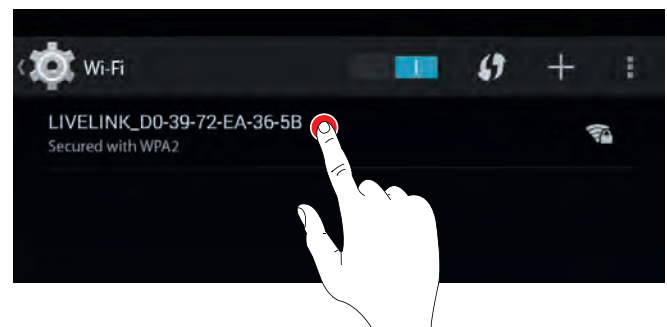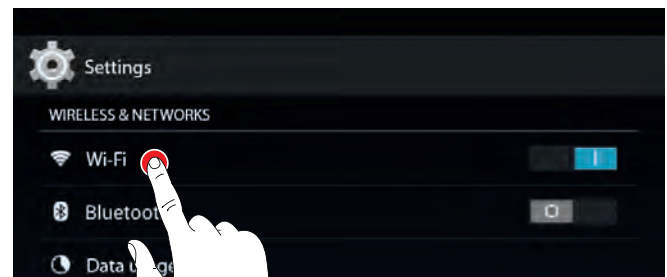
2.9.2 UTILISING AN EXISTING WI-FI NETWORK

Instead of a direct Wi-Fi connection between the iOS and/or Android device and the LiveLink control device, an existing network can also be utilised once the initial setup has been completed.

In order to do this, the control device needs to be connected to the existing local Wi-Fi network. The configuration is done via the administrator menu, see chapter 4.4 "Room administration", page 35.

The iOS and/or Android app can then also be used in the local Wi-Fi network. All LiveLink rooms which are integrated into the local Wi-Fi network in the building can then be controlled via the app.

2.9.3 WI-FI SECURITY

Wi-Fi access to the LiveLink control device is protected by a three-tiered security concept.

1 In the first step, a password for the Wi-Fi must be entered (WPA2 encryption).
2 In the second step, a connection is established via https. This is an asymmetrical encryption. Data that is transmitted from the app to the LiveLink system and vice versa, can not be read in transit.

3 In the third step, a user authentication ensures that only those who are in possession of the administrator and/or user password can connect to the system and make changes. This means that user access can be set up restrictively (via a separate app and separate password) they can operate the system, but cannot create new or change existing configurations.

2.10 ACCESS DATA

The LiveLink system provides different types of access for setup and operation. The access data should be changed upon initial setup and should be made available only to correspondingly authorised users.

	Description	Changing the data	Access data upon delivery
Wi-Fi name (SSID)	Name of the LiveLink Wi-Fi that is selected in case of a direct connection from the iOS and/or Android device.	See chapter "Room setup: room name"	LIVELINK_... *(see print on LiveLink control device)*
Wi-Fi password	Password for the direct Wi-Fi connection.	-	livelink
Administrator password	Password for using the administrator menu of the "Install" app. Each LiveLink room can be equipped with a separate administrator password.	Upon initial setup, the user is offered the option to change the administrator password. Subsequently, the password can be changed in the administrator menu under "Settings".	livelink
User password	Password for using the light control with the iOS and/or Android apps. Each LiveLink room can be equipped with a separate user password.	The user password is specified upon completion of the room setup. Subsequently, the password can be changed in the administrator menu under "Settings".	-
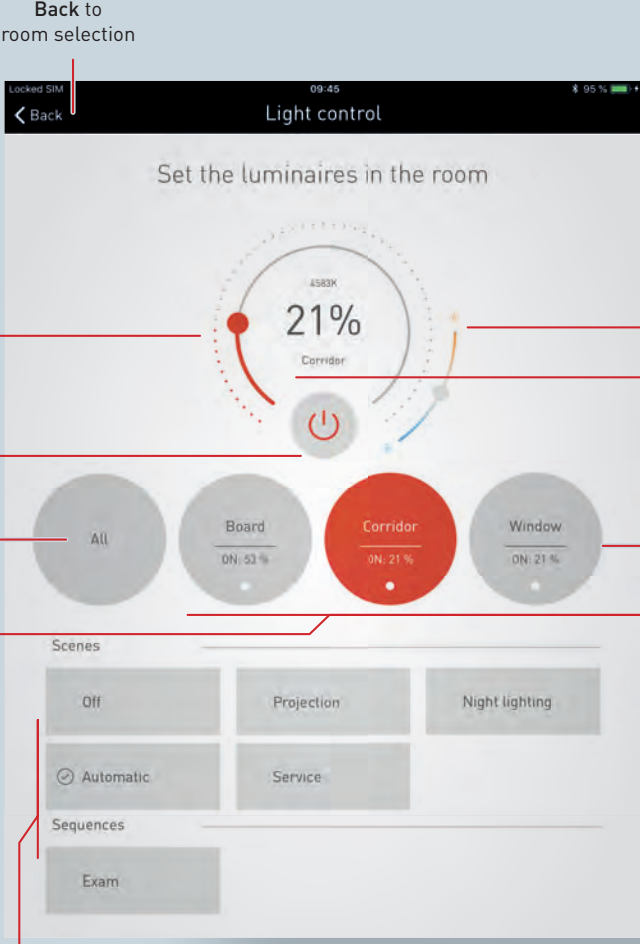
3 "LIVELINK CONTROL"-APP

3.1 OVERVIEW

Ready-to-use LiveLink systems based on one of the LiveLink WiFi ... controllers can be operated as LiveLink rooms using the LiveLink Control App. Versions for iOS and Android are available (see page 4). The user is able to dim, turn on or off individual luminaire groups or the entire system. Furthermore, previously created scenes can be selected.

The light control is commissioned with the app "LiveLink Install". This can also be used to operate the system and contains the identical operating functions described here.

Back to
room selection

Colour temperature
setting for the selected
luminaire group

Dimming
of the selected luminaire group

Selected luminaire
group

Switching on/off
of the selected luminaire group

Select all luminaires
Selects all luminaires for light control.

Current status
Displays the current
switching state and
dimming value.

Select individual luminaire groups
Allows individual luminaire groups to be selected and controlled separately.
In case of numerous luminaire groups, you can navigate to the desired luminaire group by swiping.

Light scenes and sequences
List of all light scenes and sequences.
Tapping on a scene activates the respective lighting setting.
In case of numerous scenes, you can navigate through the list by swiping.

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3.2 SELECT ROOM

When the app is started, the "Select room" view is already active. The app searches for LiveLink rooms on the network. The desired room can be located by swiping and can subsequently be selected. **Caution: The tablet and/or smart phone must be connected to the LiveLink control device via Wi-Fi Either directly to the control device's Wi-Fi or to an existing Wi-Fi network (see chapter 2.9 "Wi-Fi")**
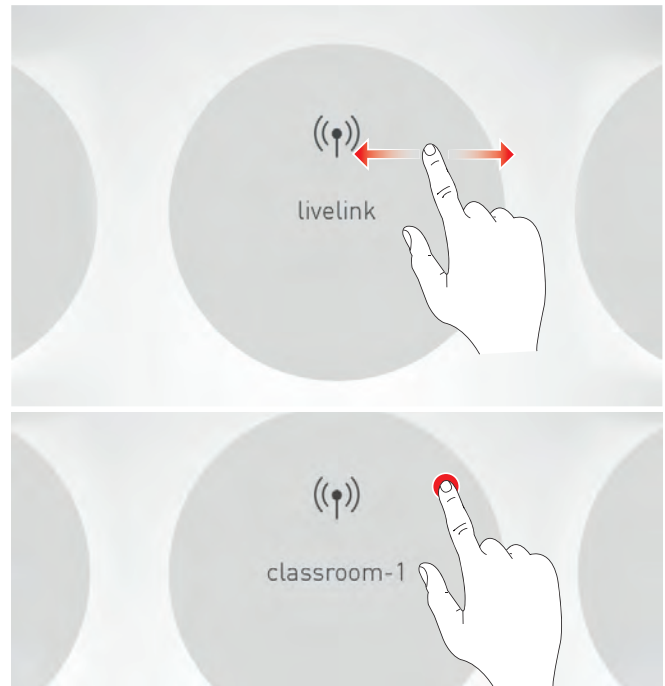
3.3 ACTIVATING LIGHT SCENES AND SEQUENCES

Previously created lighting scenes and sequences can be activated from the list in the lower area of the view. The scene is activated by tapping on the respective button It is then highlighted in red and marked with a tick. The light scene marked with a dot is the default light scene (see chapter 2.6 "BEHAVIOR IN OPERATION" page 15).
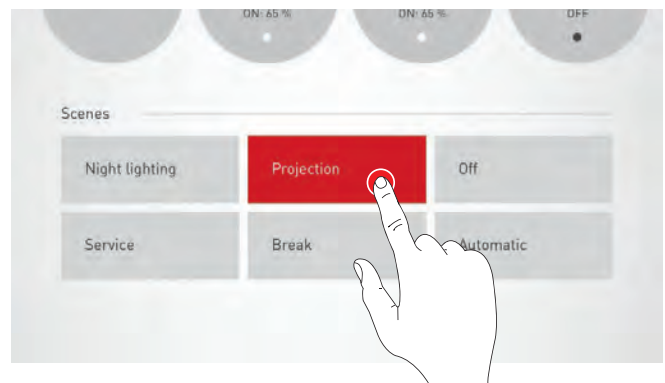
The current state of illumination is displayed; however, the operating fields of the manual light control are depicted grey. Once the lighting scene or sequence has been activated, a manual intervention can be carried out immediately; for this, see the chapter 2.6 "Manual setting of the room lighting".
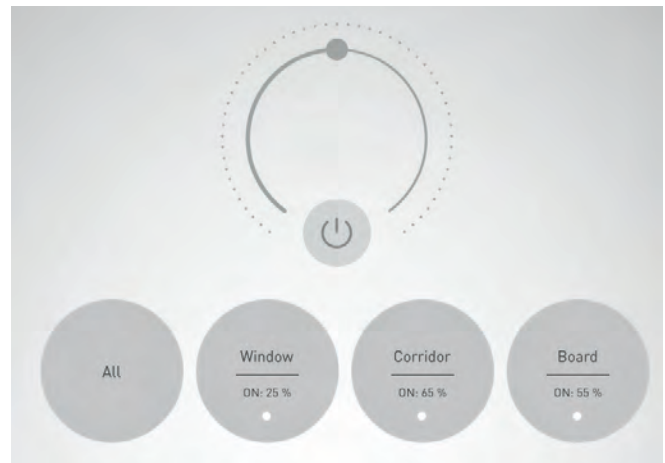
3.4 MANUAL SETTING OF THE ROOM LIGHTING

Select a luminaire group
First, a luminaire group should be selected for which the light-
ing settings are to be changed. In case of numerous lumi-
naire groups, you can navigate by swiping. For each lumi-
naire group the current state and dimming level are displayed.

Pressing the "All" button, will select all the luminaire groups.
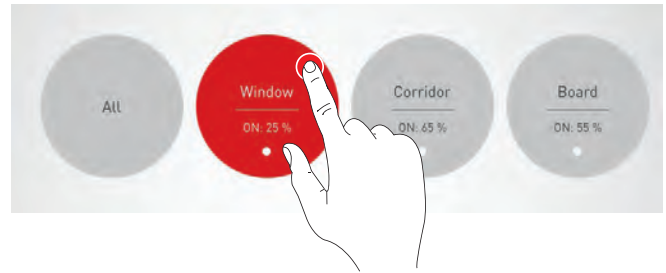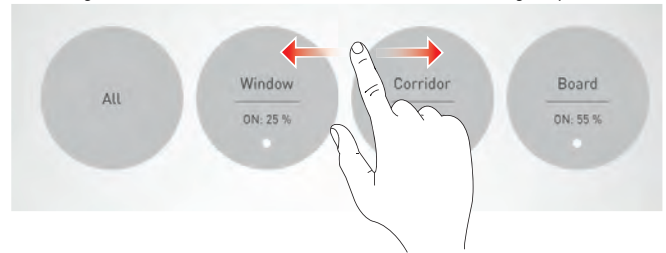
Switching a luminaire group on/off
The currently selected luminaire group and the dimming value are
displayed in the control wheel. By tapping the on/off button, the
luminaire group is switched on (red symbol) or switched off (grey
symbol).
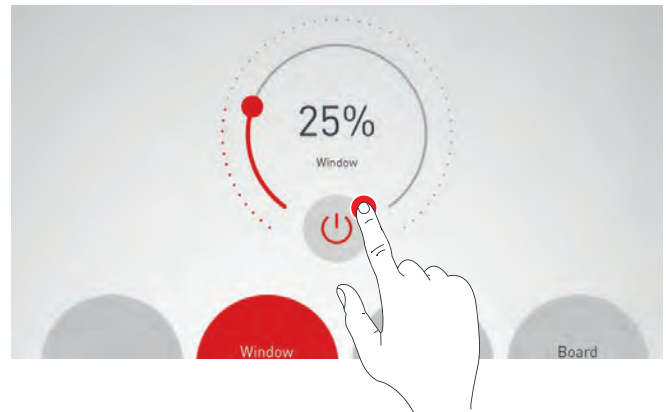
Dimming a luminaire group
A dimming value for the active luminaire group is specified via the
control wheel.
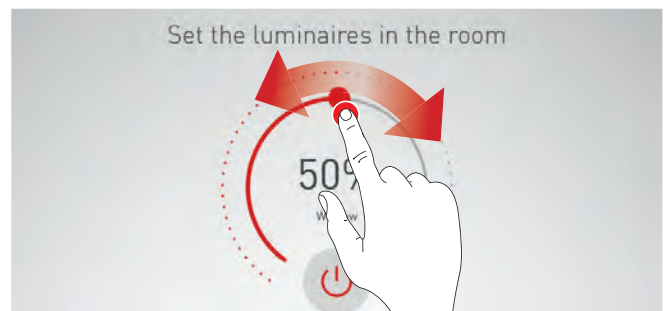
Setting the colour temperature
If the active luminaire group contains at least one Active luminaire, a
slider is displayed which is used to set the colour temperature of the
appropriate luminaires.

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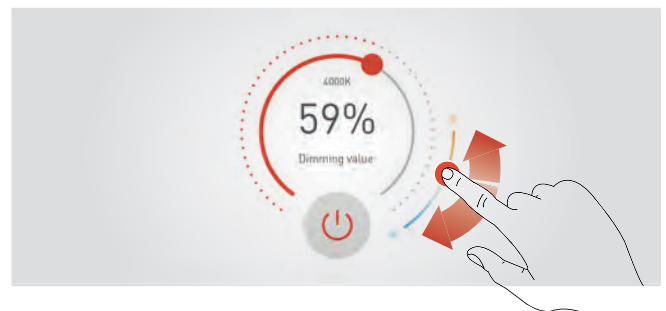
4 „LIVELINK INSTALL"-APP

4.1 OVERVIEW

For the commissioning of the LveLink WiFi ... systems, apps are available on iOS and Android basis. Their functionality is the same, although there may be minor differences in how certain options appear on the screen.

The screenshots in this manual are taken from the the iOS app. Any differences in the operation of the Android app are pointed out where applicable.

The following screenshots show the basic elements of the app operation that are available for a comfortable operation throughout the whole app. Descriptions of these elements will not be repeated in the remainder of these instructions.

Open main menu

Close main menu

Start screen

Main menu

Use Case management

Administrator
Administrator menu for the setup and administration of rooms

Setup steps

Help

Back to last step

Current
Setup step / current menu

Continue to next step /
Save and continue to next step

Show stage number and circle
Progress of room setup

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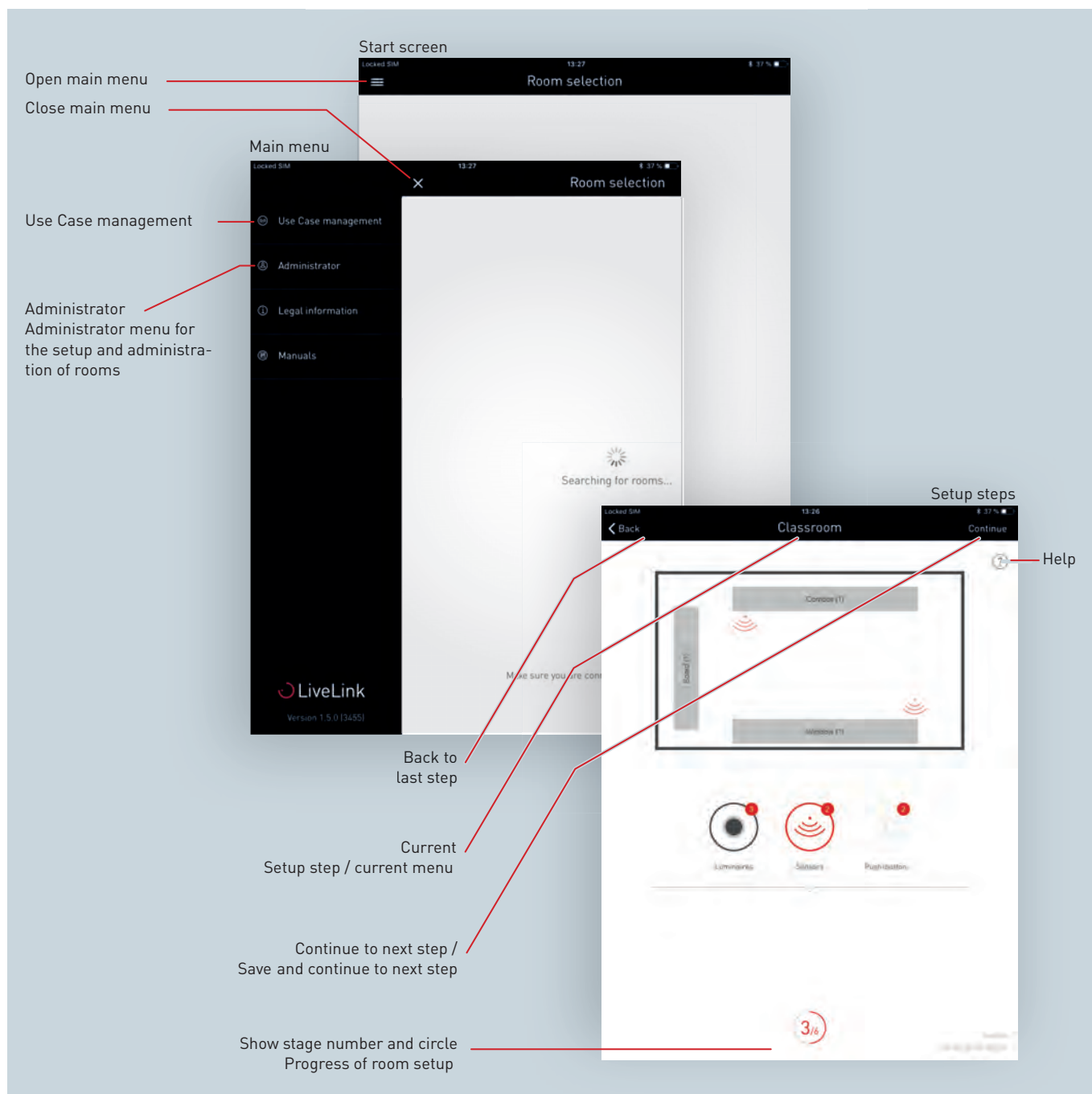
4.2 USE CASE MANAGEMENT

In this screen, Use Cases can be managed.
Public Use Cases can be updated and deleted. Private Use Cases
can be downloaded from the myTRILUX Portal and managed.

Updating
Updating the public Use Cases from
the TRILUX portal.

Public Use Cases
All available Use Cases are
listed.
After a long tap, there is the
option to delete selected Use
Cases.

Private Use Cases
Access to the TRILUX portal,
from which private Use Cases
can be loaded at this point.

Use Case name

Version number
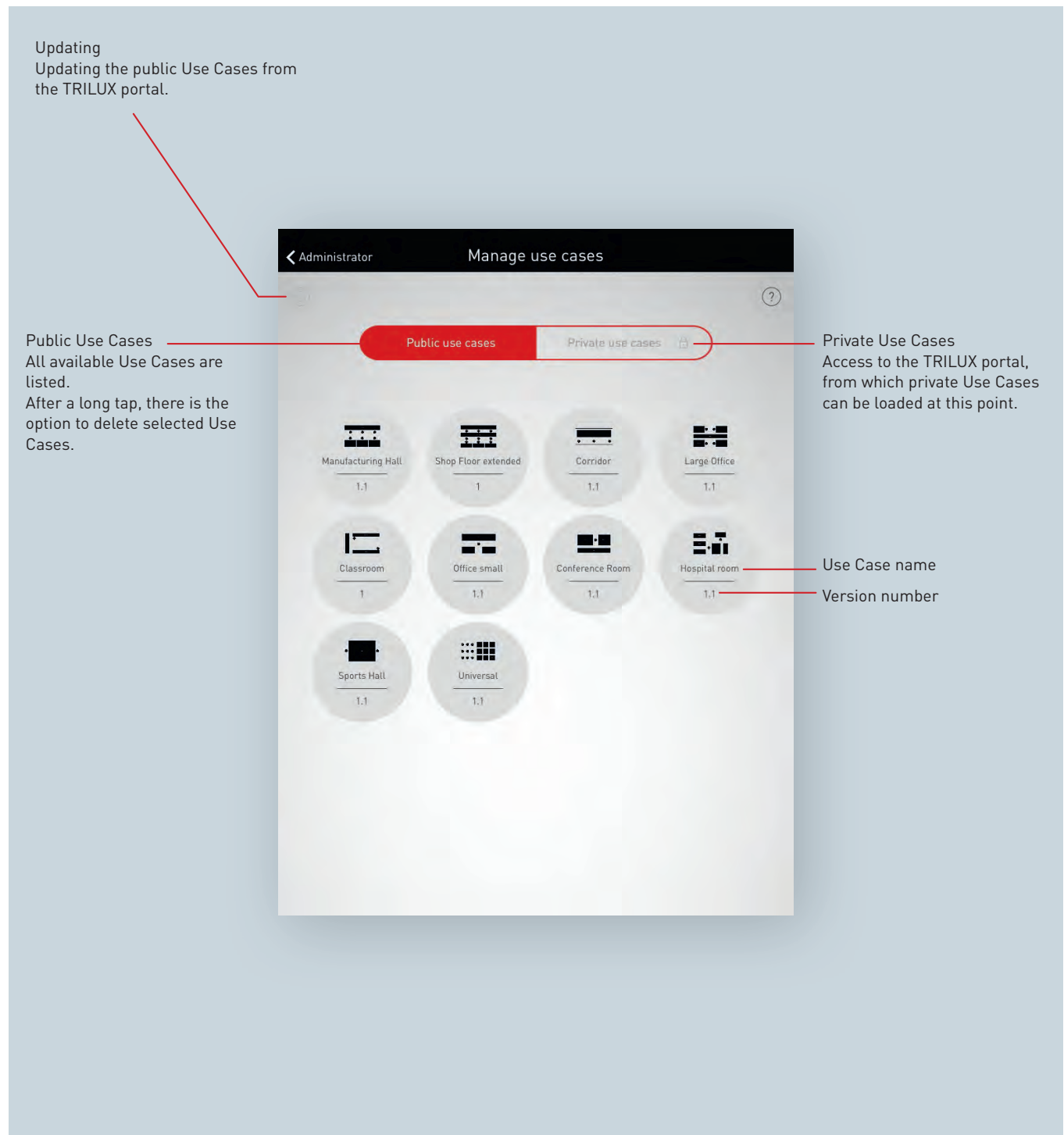
4.2.1 MANAGING PUBLIC USE CASES

Updating Use Cases
The menu "Manage Use Cases" starts with a listing of all public Use Cases that are available in the app for the configuration of rooms. The Use Cases listed here can be updated by tapping the refresh button. **Caution: Updating requires an Internet connection as the data is retrieved from a TRILUX server via the Internet. Where applicable, the Wi-Fi must be switched on, or a mobile data connection must be utilised.**

Deleting Use Cases
After an update, Use Cases may be listed multiple times with different version numbers. Superfluous Use Cases can be deleted: After a long tap on the Use Case button, the Use case can be deleted.
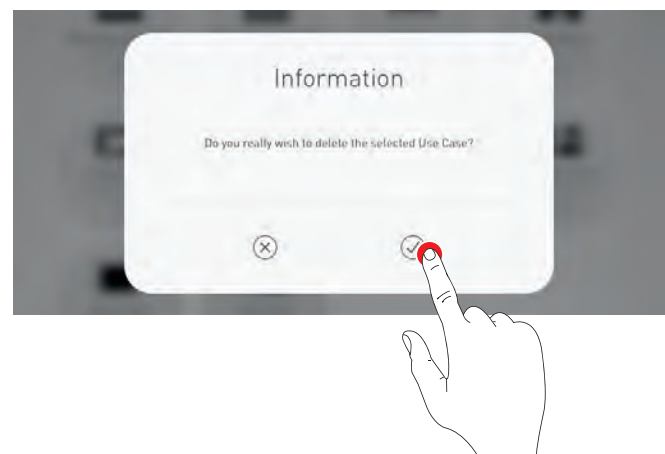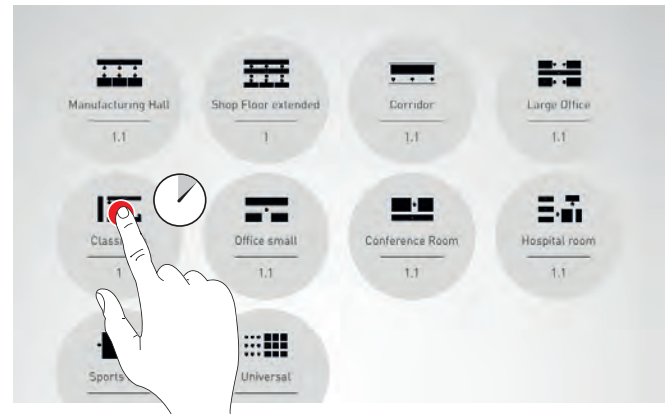
4.2.2 MANAGING PRIVATE USE CASES

Selecting private Use Cases
With a tap on "Private Use Cases", the screen switches to "Manage private Use Cases".

Managing private Use Cases
The input screen allows access to the customer's account on the myTRILUX portal. Here, the customised Use Cases previously created are available.
Caution: Access to the myTRILUX portal requires an Internet connection. Where applicable, the Wi-Fi must be switched on, or a mobile data connection must be utilised.
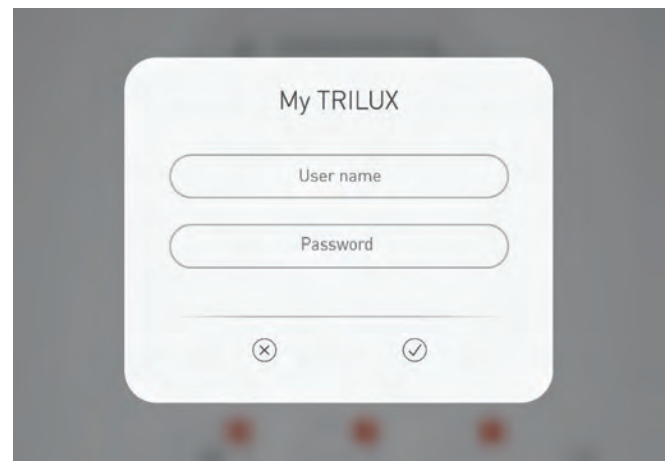
4.3 ROOM SELECTION

Before a room can be managed, a connection must first be established
to the relevant LiveLink system that is to control the room.

There is a connection to a
LiveLink system
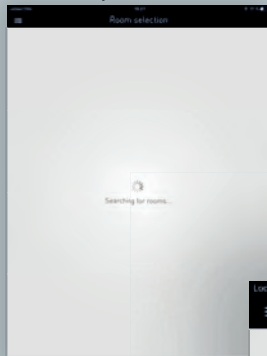
There is a connection
to a LiveLink system.
However, no room
is set up yet.

There is a connection
to an already set
up room.
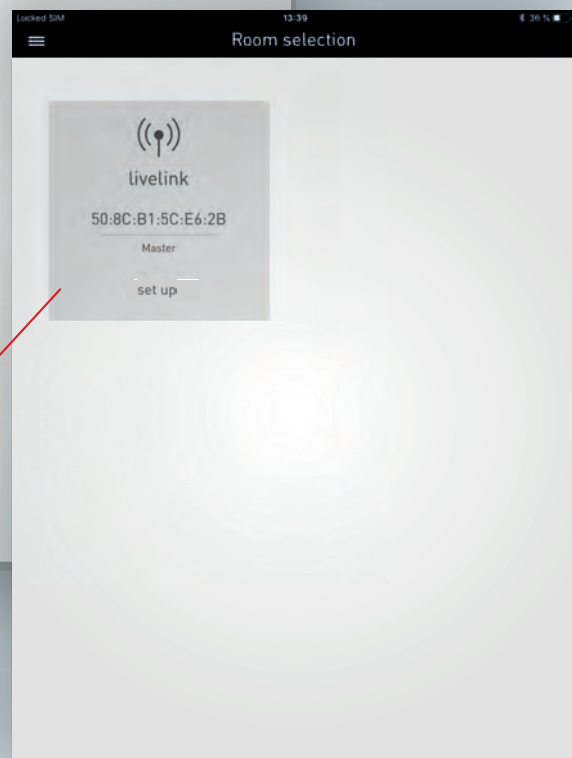
Initial connection to the Wi-Fi
The tablet is connected directly to the Wi-Fi network which is made available by the LiveLink control device.

At a later time, the LiveLink system can be integrated into an existing Wi-Fi network (see chapter 4.8 "WI-FI SETTINGS").
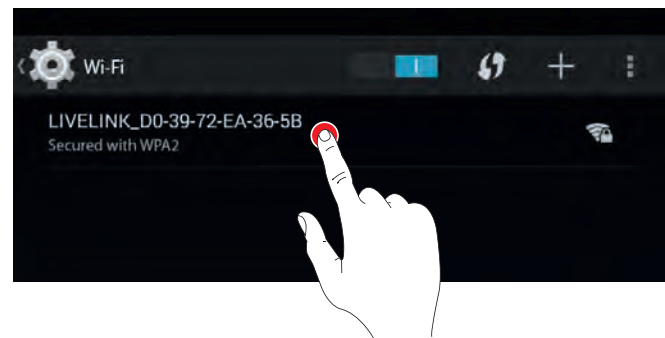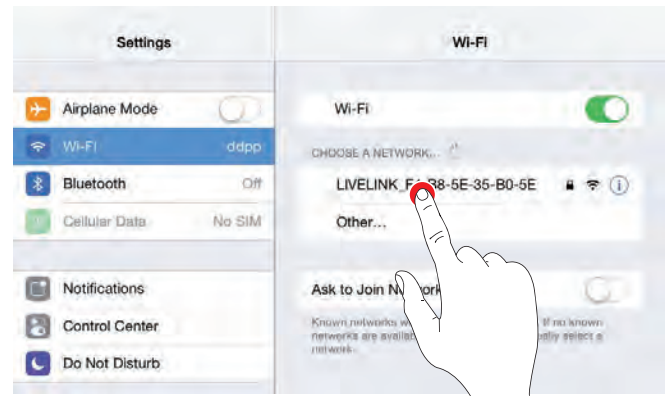
Start the app
To configure LiveLink, the "LiveLink Install" app is utilised which is available for iOS tablets at the Apple App Store and for Android tablets at the Google Play Store.
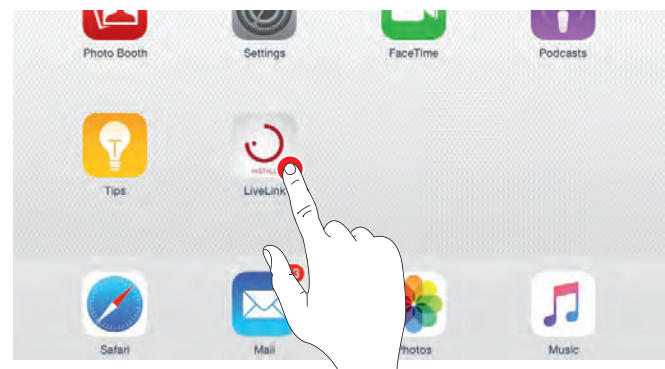
Select room
The app starts with the room selection for the management and searches for pre-connected LiveLink systems. Here you can select the system that has not yet been set up for the creation of a room. The name is initially a factory setting and can be changed later in the "Room name" menu. The default administrator password is: livelink.

A room that has already been set up is displayed in the same way. Several rooms integrated into an infrastructure may be displayed here (see chapter 4.8 "WI-FI SETTINGS").

After selecting the room, the management can be started.
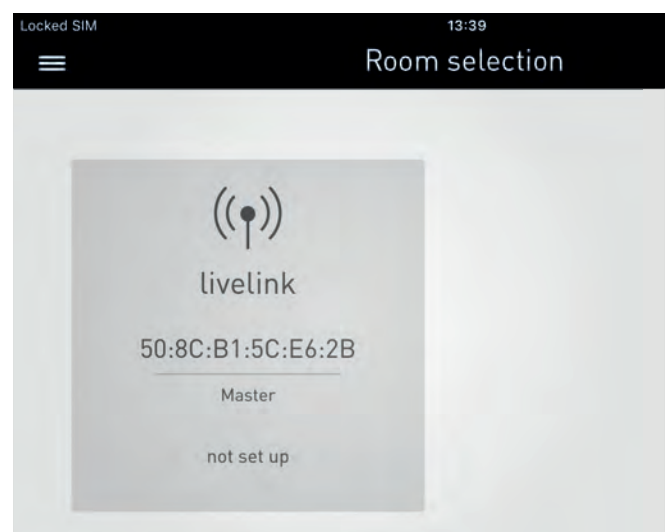
4.4 ROOM ADMINISTRATION

The Administrator menu includes the most important functions of the setup app: the setup and/or management of rooms as well as var- ious settings. The menu is protected with a separate administrator password.

Room name
All settings in this administrator menu refer to this room.

Light control
Access to the light control; function- ality as user app.

Create room
Guides the user through the individual steps of the initial setup of a new room.
If this room was previously created, its exist- ing configuration can be deleted at this point and a new room setup can be started.

Room management
After the initial setup, selected setup steps can be changed here:
• Use Case
• Assignment
• Manage push-buttons
• Rename room
• Manage scenes
• Setting up basic lighting
• Set up KNX

Settings
Accesses various additional settings.

Wi-Fi / Hotspot
Connecting the control device with an existing local Wi-Fi network.

4.5 ROOM CREATION

The initial setup establishes a connection with the system and preparation is made for further configuration.

Create room
A tap on "Create room" starts the configuration of a room. An existing configuration may be overwritten by a new configuration after a warning with query.

A configuration that was started earlier and not completed is continued at the point of its interruption.
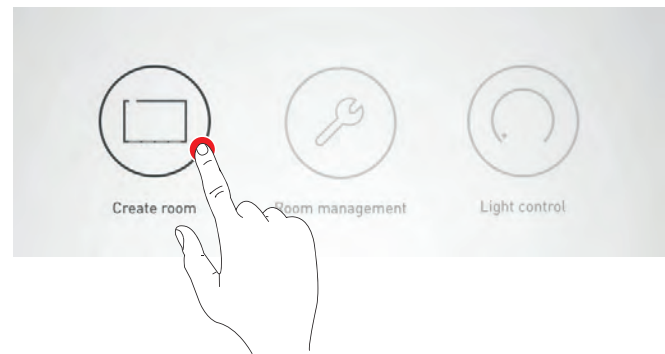
4.5.1 DEVICE MANAGEMENT (LIVELINK WIFI)

To create a room, the components connected to the LiveLink control unit must be detected.

- For the initial configuration of a room, "Search all devices" must be performed.
- A device search is not required to reconfigure an existing room if components have not been added or removed.
- "Search for new devices" can be performed if only new components have been added.
- "Search all devices" must be performed if components have been removed.

Caution: An update of the configuration is required after a new search scan. If "Search all devices" is performed, all existing component assignments are lost.
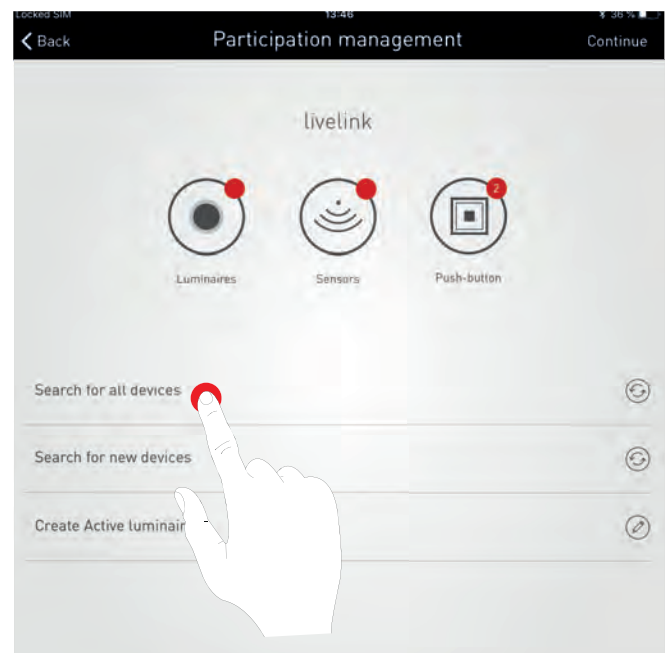

List of detected devices
Numbers on the icons of the device groups "Luminaires", "Sensors" and "Push-buttons" indicate the respective number of devices detected by the system. A push-button coupler is simply counted, although several push-buttons can be connected there.

If **Active luminaires** with variable colour temperature are to be operated in the room, they must be configured with "Create Active luminaires" after the devices have been detected. A distinction must be made between two cases:

- The warm white and daylight white lamps of the luminaire are each controlled by one DALI address (DT6 control gears).
- The warm white and daylight white lamps of the luminaire are controlled by a common DALI address (DT8 control gears).
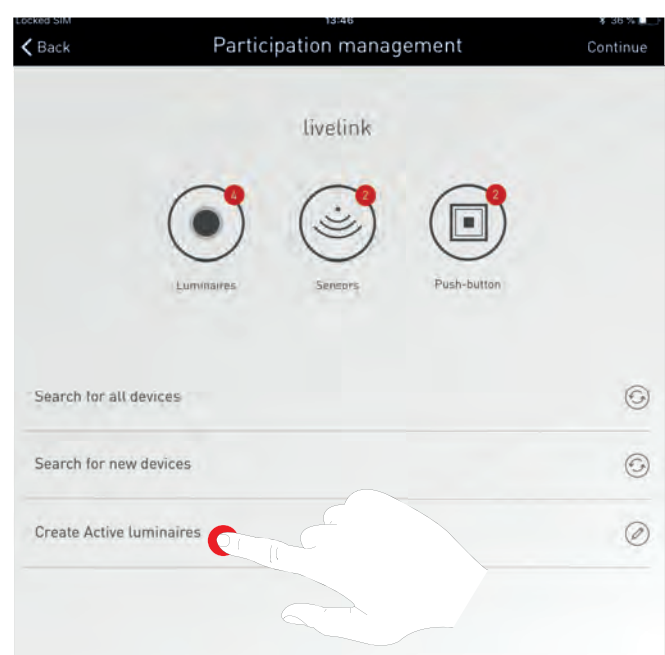
In the case of the DT6 control gears, the light sources of all Active luminaires are individually identified and then assigned to each other.

All DALI addresses are called individually for this purpose.

- If it belongs to a single light source of an Active luminaire (DT6), it is assigned its light colour by moving it on the screen. Then, by touching the remaining points, the light component belonging to the same luminaire is determined and assigned to the other light colour. The resulting Active luminaire is marked with an **A in the luminaire symbol** .
- Luminaires with DT8 control gears are automatically detected as Active luminaires and marked with an **A in the luminaire symbol** .
- Luminaires with a fixed colour temperature are assigned to "New luminaire".
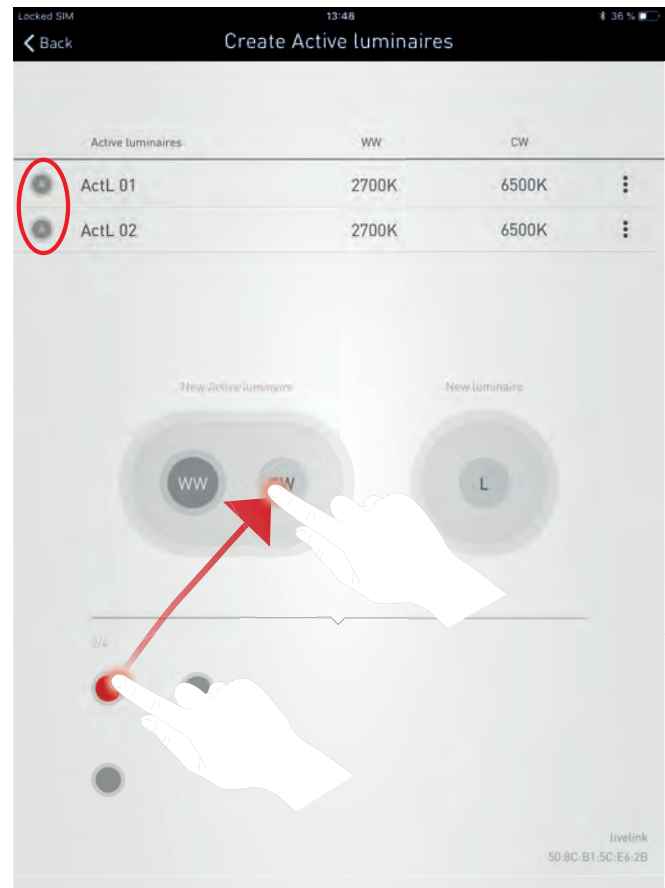
The colour temperatures of the light sources can be adjusted for each Active luminaire. Warm white 2,700 K and cool white 6,500 K are pre-set.

After confirmation, the light components can be assigned to the next luminaire until all luminaires have been configured.


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Identifying luminaires/sensors
Selecting the device group "Lights", "Sensors" or "Push buttons"
starts identification. The components of the selected device group
are displayed on the screen. They can be selected individually. The
selected lamp or the status lamp of the selected sensor flashes.
Another tip "back" ends the identification.
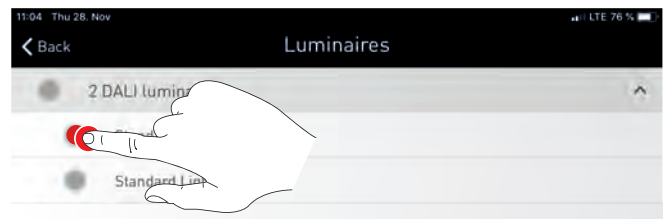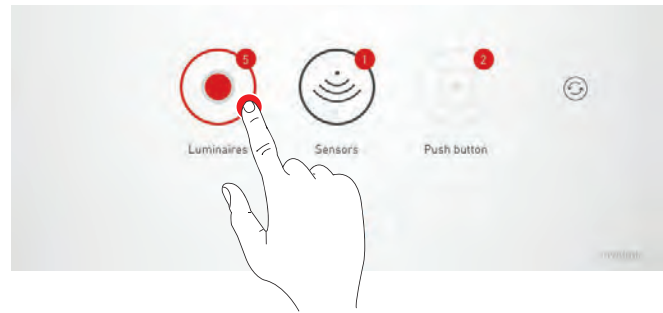
The device management can now be completed with "continue".

4.5.2 DEVICE MANAGEMENT (LIVELINK WIFI + RC)

To create a room, the components connected to the LiveLink con-
troller via the control line must first be detected and then the addi-
tional LiveLink radio components, that have to be included.

- For the initial configuration of a room, "Search All Participants"
  must be performed to capture the wired components.
- To reconfigure an existing room, a participants search is not re-
  quired unless wired components have been added or removed.
- "Search for new participants" can be carried out if only new compo-
  nents have been added.
- "Search All Participants" must be performed if wired components
  have been removed.

**Attention: After a new scan, a new configuration is required. By
"Search all participants", all existing assignments of the line-bound
components are lost.**
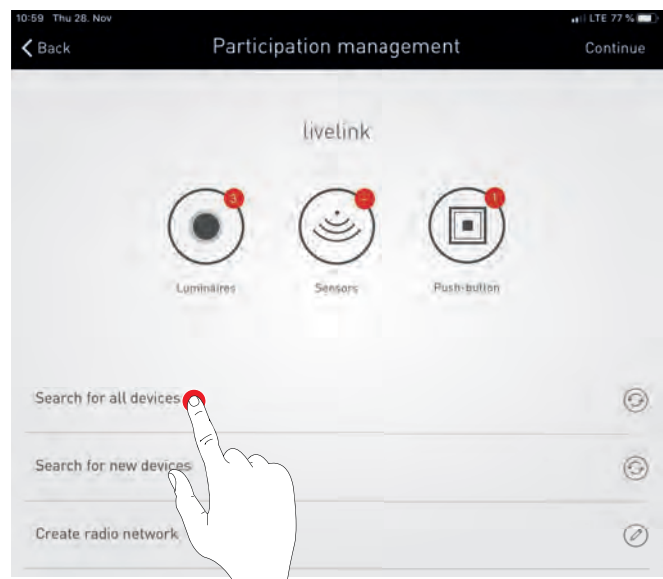
List of wired devices

Numbers on the device group icons "Luminaires", "Sensors" and "Push-button" indicate the respective number of devices detected by the system. A push-button coupler is simply counted, although several push-buttons can be connected there.

If **radio luminaires** are to be operated in the room, these must be recorded after the cable-bound participants have been registered with "Create wireless network". Recorded radio converters RC modules LiveLink are then displayed in the list as luminaires.

A configuration of active luminaires (see section 4.5.1) is not provided.
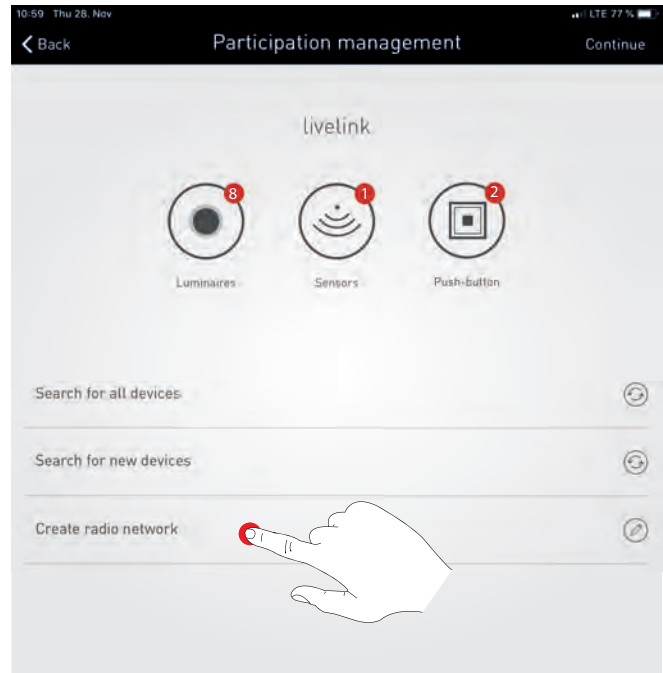
"Create Network" creates a configuration screen.

- Radio participants detected in the range of the LiveLink controller are displayed.
- Tapping the icon on the screen will cause the luminaires to blink.
- They can be added to the LiveLink system by touching the plus sign.
- With the minus sign added luminaires can be removed again.
- The finished configuration is then saved.
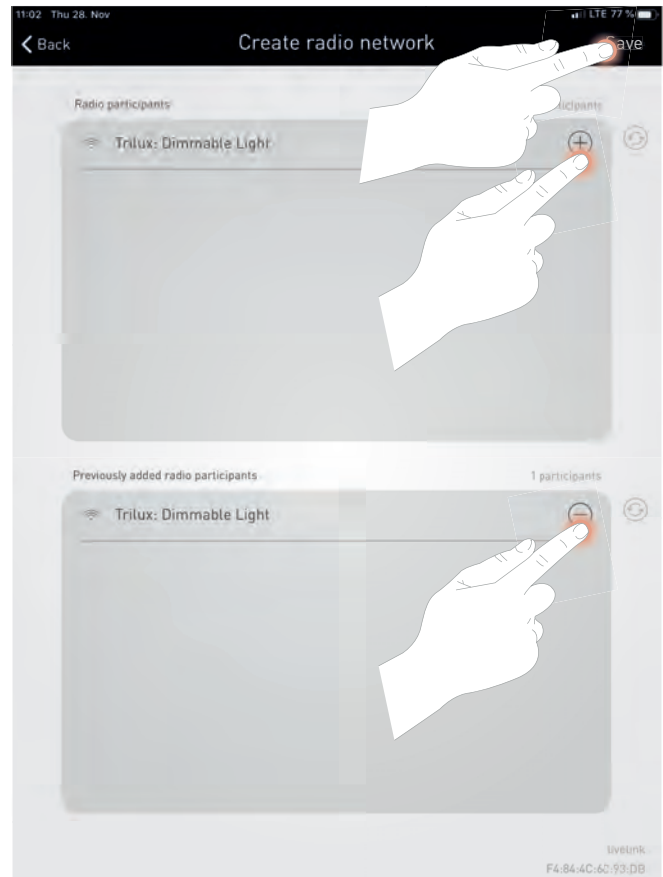
Identify luminaires/sensors
Selecting the device group "Luminaires", "Sensors" or "Push but-
tons" starts the identification. The components of the selected device
group are displayed on the screen. They can be selected individually.
The selected luminaire or the status lamp of the selected sensor
flashes.

Radio luminaires are marked in the further course with the ⌖ -
symbol.

A tip "back" ends the identification.
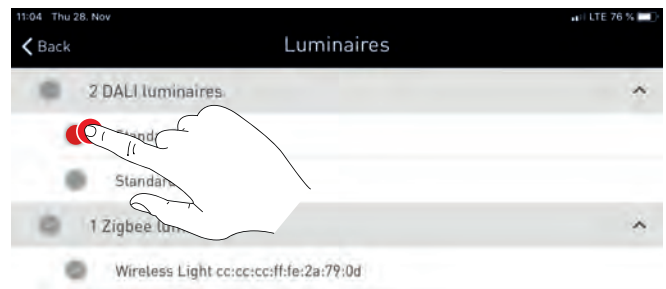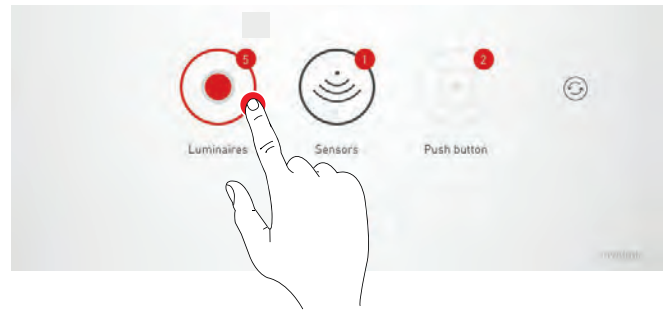
The participant management can now be completed with "continue".

4.5.3 SELECT USE CASE

In this view, a Use Case is selected and assigned to the room.
With a simplified room scheme, a Use Case contains an arrange-
ment of luminaire groups and sensors as well as preconfigured light
scenes.

Several "Public Use Cases" are available for typical room situations.
For special applications, individual "Private Use Cases" can be called
up here.

1 Select and confirm Use Case

Choose between public and private Use Cases.
Public Use Cases contain a pre-configuration for typical building situ-
ations. Private Use Cases can be created in cooperation with TRILUX
lighting designers and can subsequently be called up from the myTRI-
LUX portal.

Name and schematic of the
selected Use Case. The Use
Case can be selected via
swiping. A tap on this sche-
matic confirms the selection
and leads to the next step.

The dots serve for navigating
through the Use Cases. One
dot corresponds to one Use
Case. The currently selected
Use Case is displayed in red.

Public / private Use Cases

Initially, the corresponding Use Case collection is selected by tapping on "Public Use Cases" or "Private Use Cases". Additional information regarding this can be found in the chapter "Use Case management".

Selecting a Use Case

A matching Use Case is selected by swiping. A rough schematic and the naming help in the correct selection, whereby the schematic does not have to fit the room situation in all details.
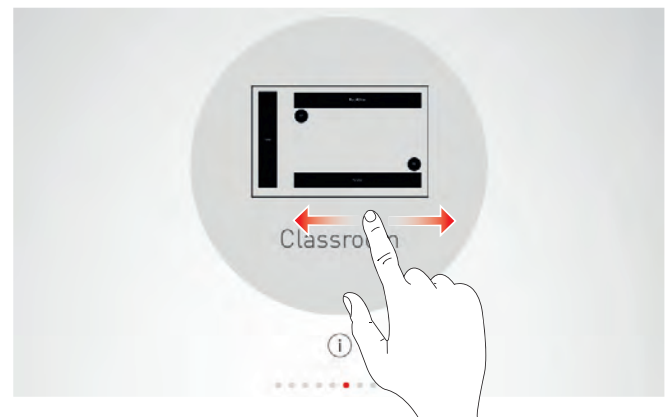
Confirming the selection

The selection is confirmed by tapping on the Use Case and this configuration step is completed.
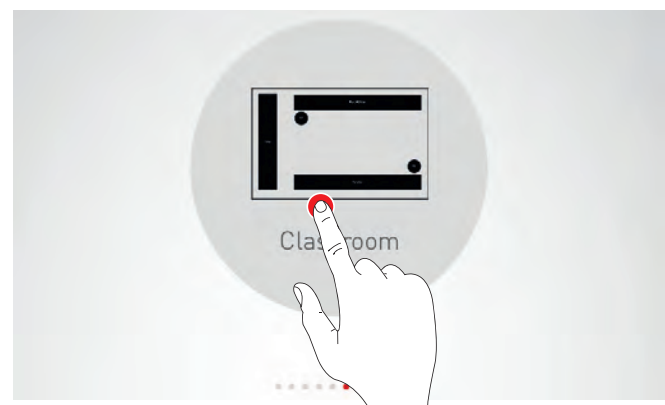
4.5.4 ASSIGNMENT

In this screen, the luminaires and sensors are assigned.

The individual luminaires and sensors can be identified and assigned to the luminaire groups and/or sensor locations.

A simplified schematic serves for orientation in the room and aids a comfortable assignment of the devices this way. The number and positions of the luminaire groups and sensors originate from the Use

Case. The schematic cannot be modified but can be utilised in a custom fashion, as such, not all luminaire groups and sensor locations have to be utilised.

1 Luminaire Group assignment
2 Sensor assignment

Pre-defined luminaire groups are included in each room. The available luminaires can be assigned via drag and drop. The number to the right of the group name indicates how many luminaires are in the group.

The room schematic shows all luminaire groups and sensor locations.

Pre-defined sensor The available sensors can be assigned via drag and drop. Subsequent to a long tap, additional functions can be reached.

Switching between the assignment of luminaires and sensors. The respective active devices are is shown in red. Additionally, the number of push-button couplers (plus the push-button on the control device) available is displayed for indication purposes. The push-button assignment is performed in a later step.

Overview of the luminaires and/or sensors already assigned in comparison to those available.

Symbolic depiction of the available lumi - naires and/or sensors. As soon as a device is selected, it is displayed in red and can then be assigned.

Selecting luminaires

Each dot in the lower area of this screen represents a luminaire.
The luminaire can be selected by tapping a dot. The dot is shown red
and the corresponding luminaire blinks for identification.
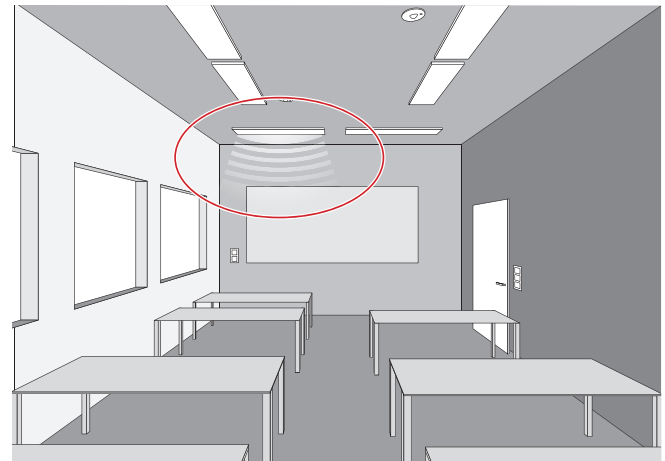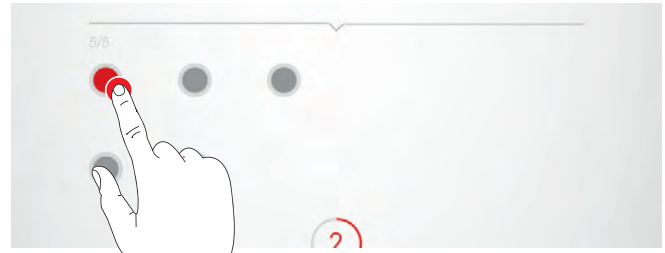
Multiple selection

Multiple luminaires can be selected one after another in order to
assign them collectively in the next step.
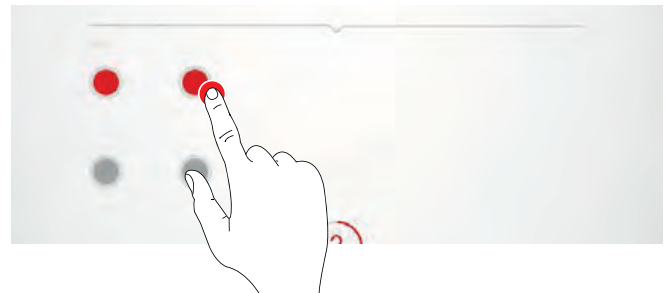
Assigning luminaires

The selected luminaires can now be pushed to a luminaire group
at the top of the screen.. If multiple luminaires were selected, any
one luminaire can be pushed in order to assign the whole selection.
The dots that symbolise the luminaires are no longer shown after the
assignment.
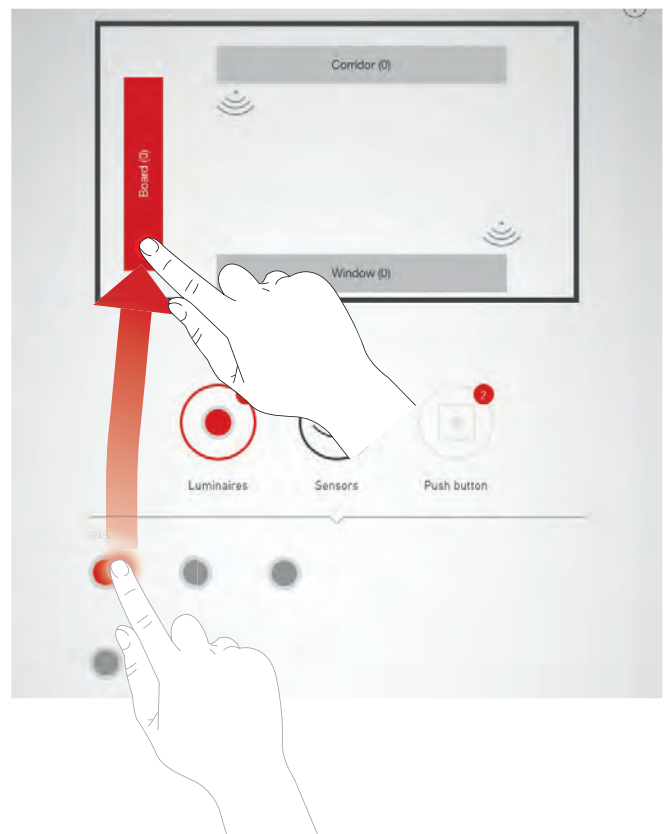
Navigation in case of more than 12 luminaires
If more luminaires are available, the luminaire selection is navigated
by swiping through the pages.
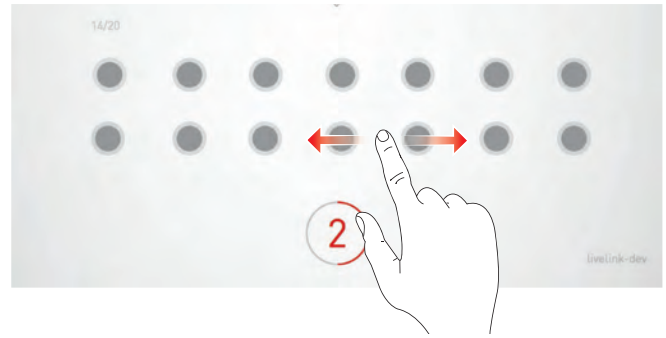
Checking the assignment
The number of already assigned luminaires can be read off the sym-
bols of the lighting groups. With a tip to a group this is selected. All of
the associated luminaires shine at 10 %, all other luminaires at 20 %.

With a long tap on the group, a menu can be called to rename the
group or remove lights from the group.
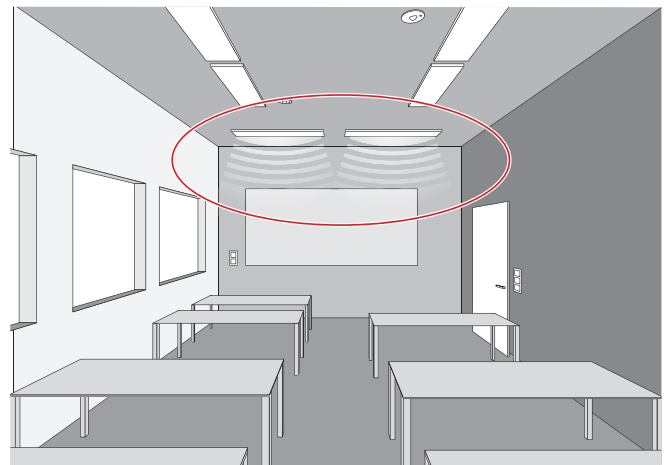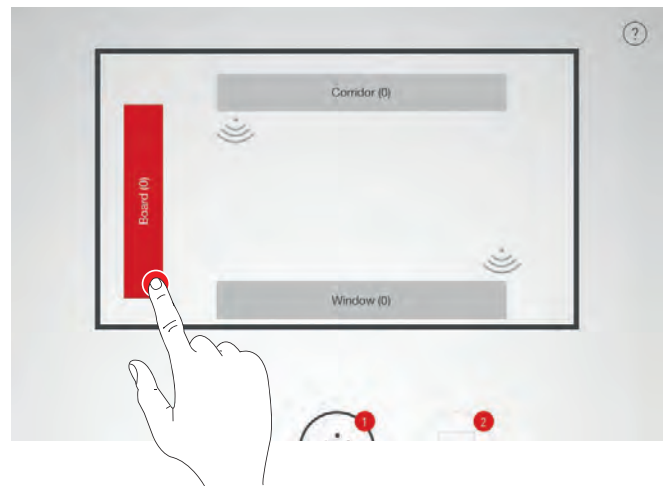
Removing luminaires from a group
A long tap opens a window that shows all luminaires which have been assigned to this group. The individual luminaires can be identified by tapping them and can be deleted by subsequently tapping the delete button.
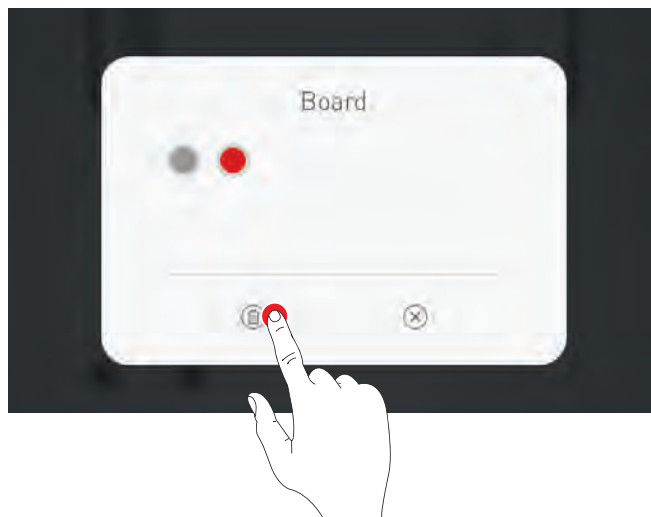
Concluding the luminaire assignment
Additional luminaires can be assigned, either individually or sev-

eral at a time. It should be noted that not all luminaires need to be assigned and not all luminaire groups need to be used.

Assigning sensors
The assignment is performed analogue to the luminaire assignment. In this, the control lamp of the sensors serves for identification purposes.
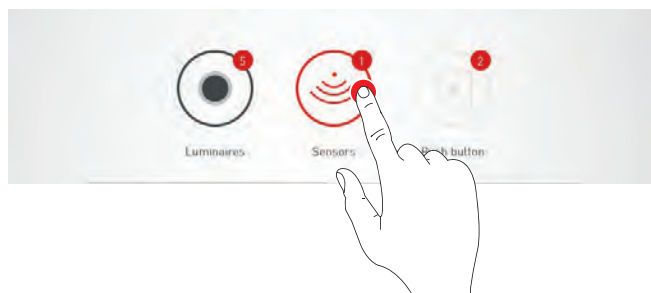
Sensor functions
Subsequent to a long tap on a positioned sensor, different functions can be called up.
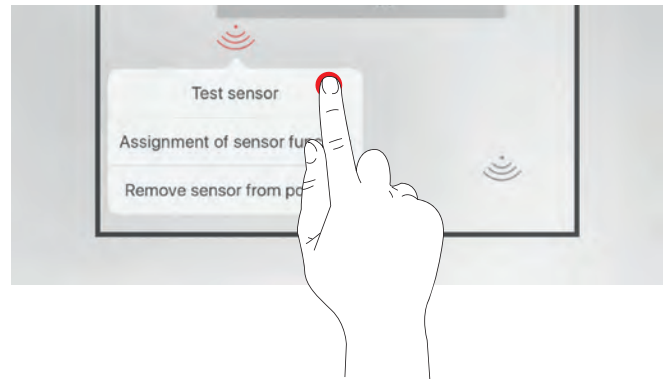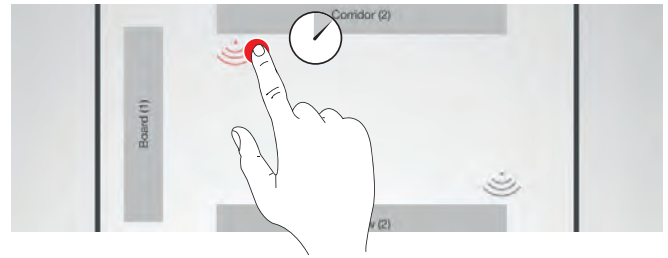
Testing the sensor
The function "Testing the sensor" shows detected movements. This way, the function of the sensor and its detection range can be tested.

Setting the "Dual HF" sensor
If a Dual HF sensor is utilised, the detection range can also be adjusted here.

Remove sensor from position
With this function, a sensor can be removed from the position. It is then available again in the bottom area of the screen for a renewed assignment.
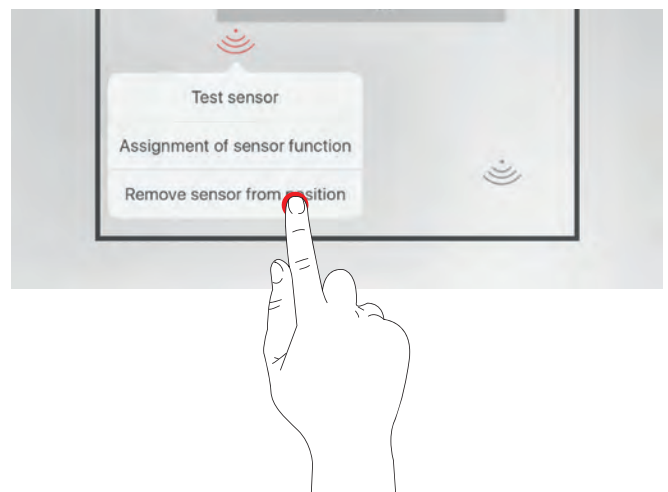
Assignment of sensor function
Here, the assignment of the presence or constant light detection of the selected sensor unit to the given lighting groups can be displayed for all predefined use cases.
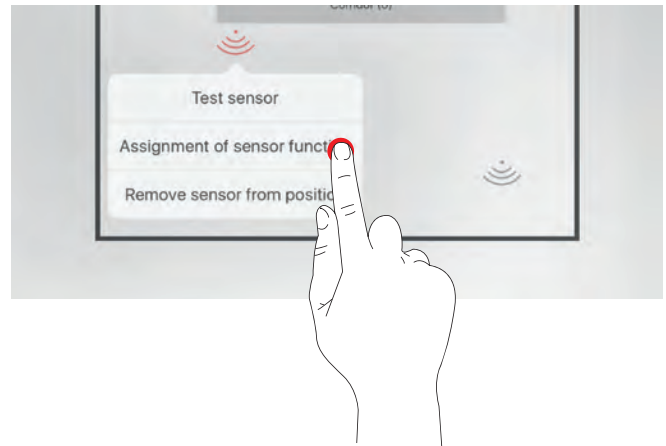
In the case of the "Universal" use case, the desired sensor functions must be assigned here. For predefined use cases, the sensor functions can be adapted here if required.
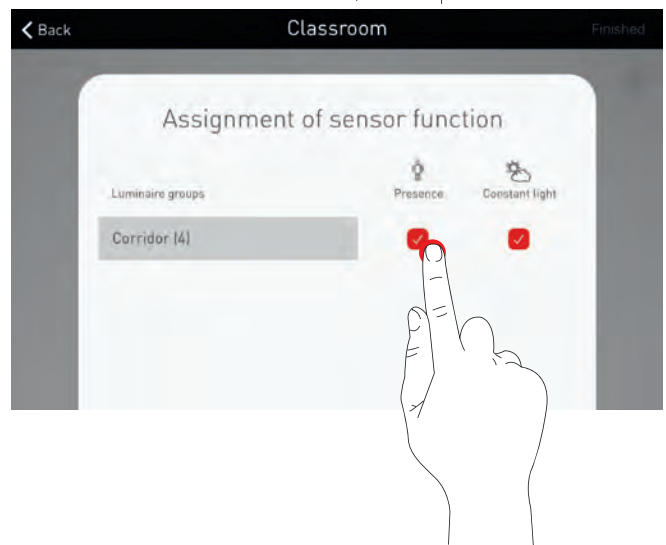
Push-buttons
The push-buttons are set up only in the next steps. Both the connected push-button couplers as well as the push-button on the control device are displayed. The number of all connected push-buttons is NOT displayed.

4.5.5 MANAGE SCENES

In this screen, light scenes can be set up and managed.

Typical scenes are included in the Use Case delivery. Additional scenes can be created completely from scratch or duplicated from existing scenes. Of course, all configuration options are available in either case.

A light scene consists of dimming settings for the individual luminaire groups as well as sensor options. Depending on the equipment, the sensors can be utilised for presence detection and/or constant light control. Different sensor settings are available for both modes of operation.

1 Creating the lighting settings for a scene

2 Setting the sensor system for a scene

New scenes can be created and configured by tapping on "New Scene".
Successions of scenes can be configured as sequences.

The dimming value of the individual groups is specified in percent.
A group is activated by tapping it and the value can be configured.

Enables access to the sensor options "presence detection" and "daylight-dependent control".

Selecting pre-defined scenes. Pre-defined scenes contain typical settings for light scenes. The default scene is marked with a red dot, for the behaviour e.g. upon switching mains power on.

Control wheel for the setting of the dimming values of the lu - minaire groups or of the control parameters for the sensors.
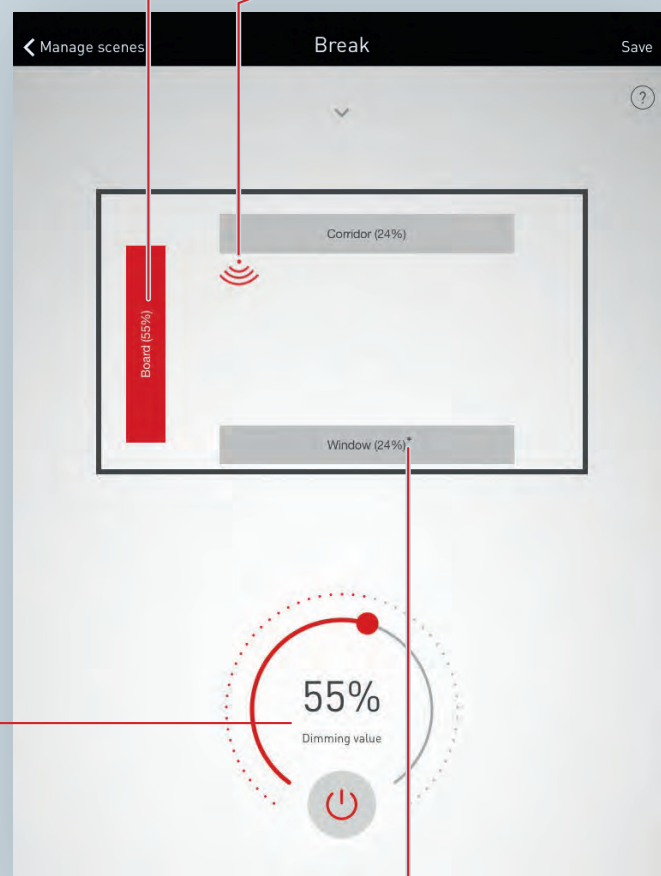
Control: an asterisk with the dimming level indicates that control is active for this group.

Listing all scenes
In this screen, all existing scenes are listed. With a long tap on a scene, a context menu is opened. Here, the scene can be deleted, edited, copied, or specified as the default scene.
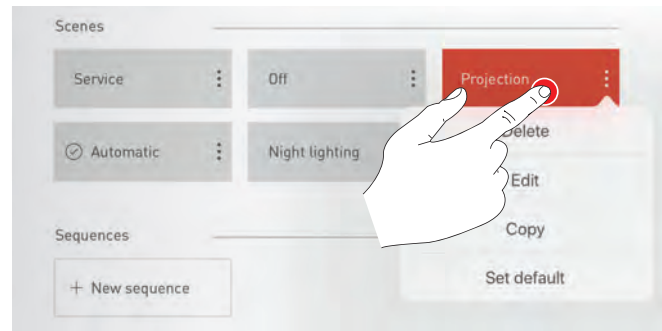
Copy scene
With a tap on "Copy", this scene can be copied with all its settings. In the next step, a new name is assigned. The subsequent steps guide through the setup of the new scene; they are identical to the standard setup steps for new scenes which are described on the following pages.
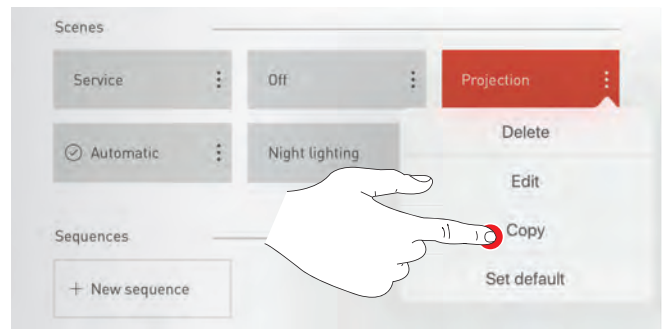
Edit scene
Tap on "Edit" to start editing the scene. The following steps are identical to setting up new scenes as described on the following pages.
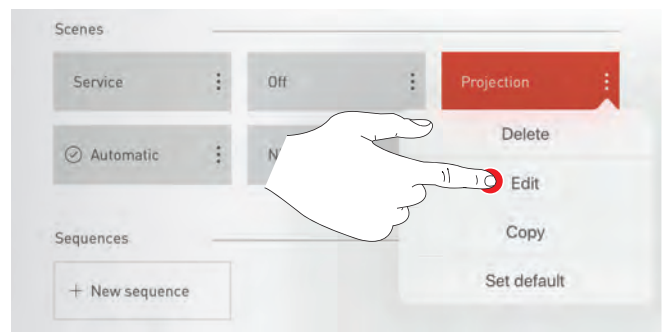
Create new scene
Tapping on "New scene" starts the setup of a new scene. The name is assigned in the next screen.
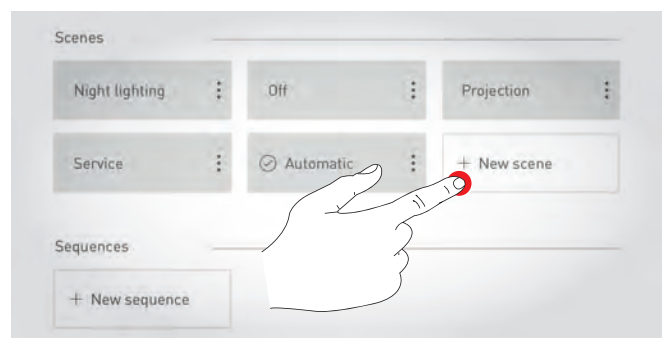
Set default scene
The default scene is activated automatically every time the system is switched on. By tapping "Set default", this scene can be specified as the default scene. A red dot in front of the scene names indicates that this is the default scene.
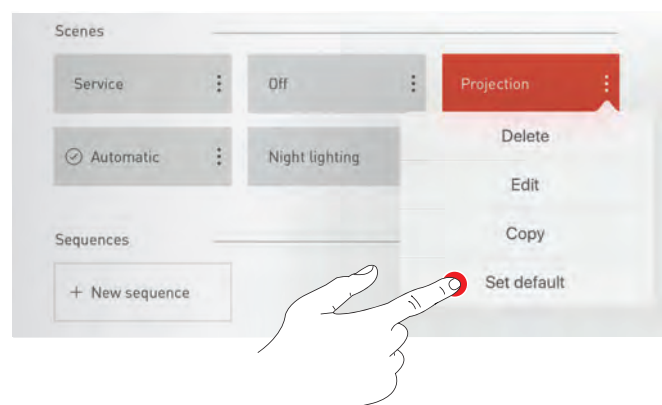
4.5.6 SETTING UP SCENES

When creating or editing a light scene, all luminaire groups are as-signed their functions.

If Active luminaires have been set up with the device management, the **HCL function** for the daytime sequence of the light colour of the Active luminaires can initially be activated (preset) or deactivated. This setting affects all luminaire groups.

If required, you can choose between different sequences under "HCL settings".
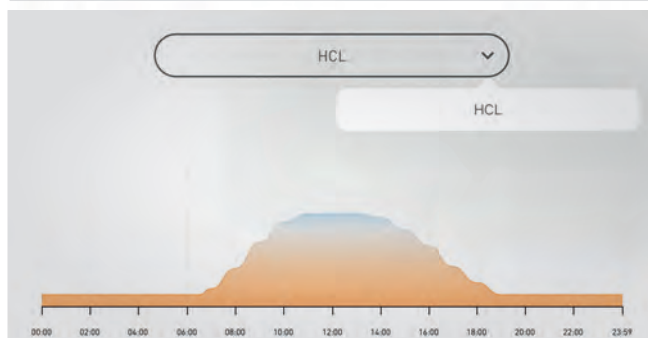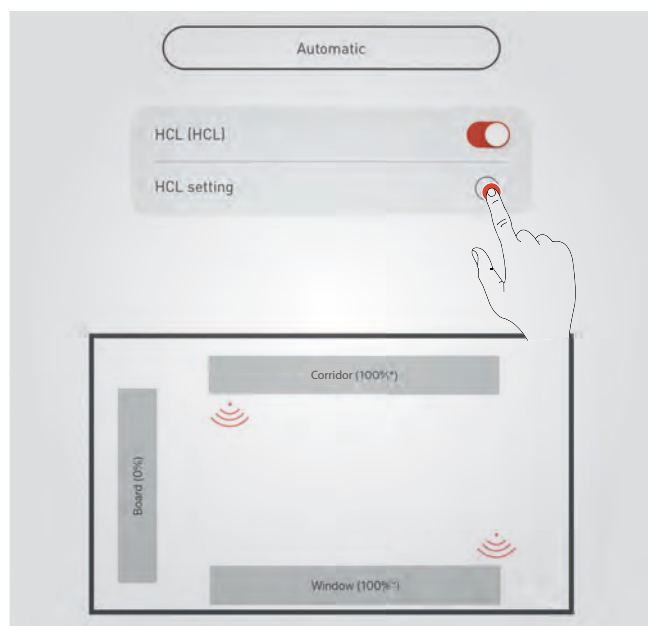
Selecting luminaire groups
A luminaire group is activated by tapping on it; an active luminaire group is shown in red. Multiple luminaire groups can be activated one after another in order to configure them at the same time.
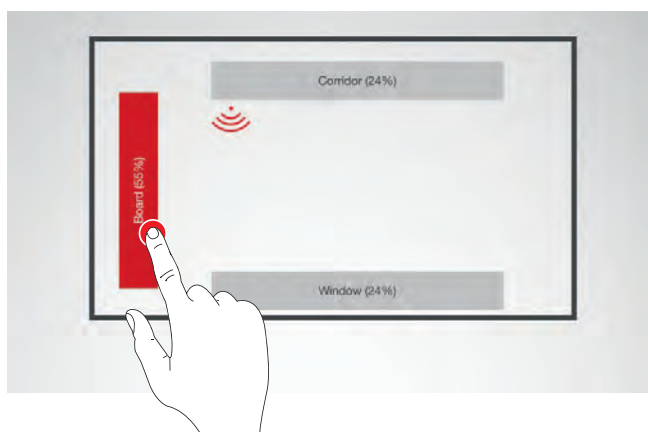
Specifying the dimming value
The activated luminaire groups can be dimmed to the desired level with the control wheel.
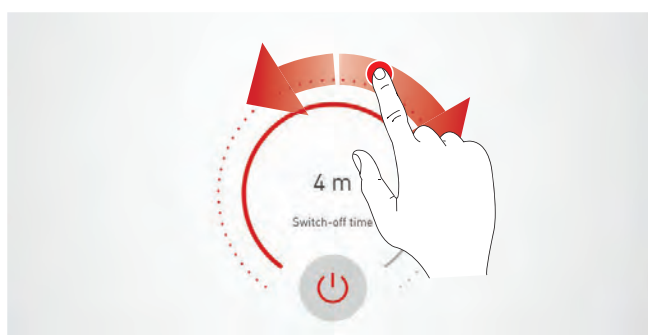
Set color temperature
If the HCL function is deactivated, the colour temperature can be set manually for luminaire groups containing Active luminaires. If the daytime sequence (HCL function) is activated, the manual setting option is not available.

Configuring a sensor
By tapping a sensor, the sensor functions are displayed. Depending on the sensor utilised, a presence detection and/or a constant light control can be configured. Subsequent to the selection of a function, the luminaire groups linked with this function are highlighted red. The assignment of the sensor controls to the luminaire groups takes place in the luminaire assignment (see chapter 4.5.4 "Room creation: Assignment", page 43).
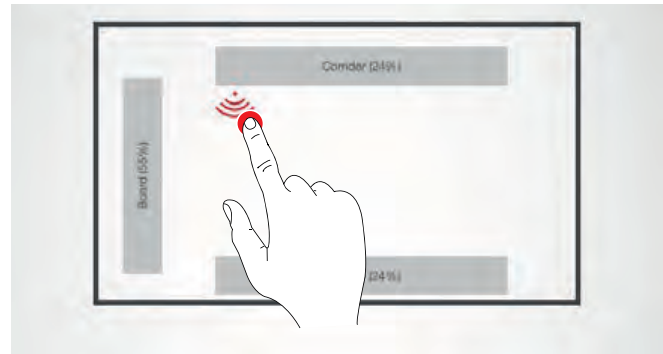
Setting up presence detection
Tapping on the sensor symbol (at the control wheel) activates/deactivates the sensor. The switch-off delay can be set with the control wheel.

Note: To ensure that the scene is automatically ended and the system returns to the default lighting scene, all luminaire groups must be assigned to an activated presence sensor (see chapter 2.6 BEHAVIOR IN OPERATION).
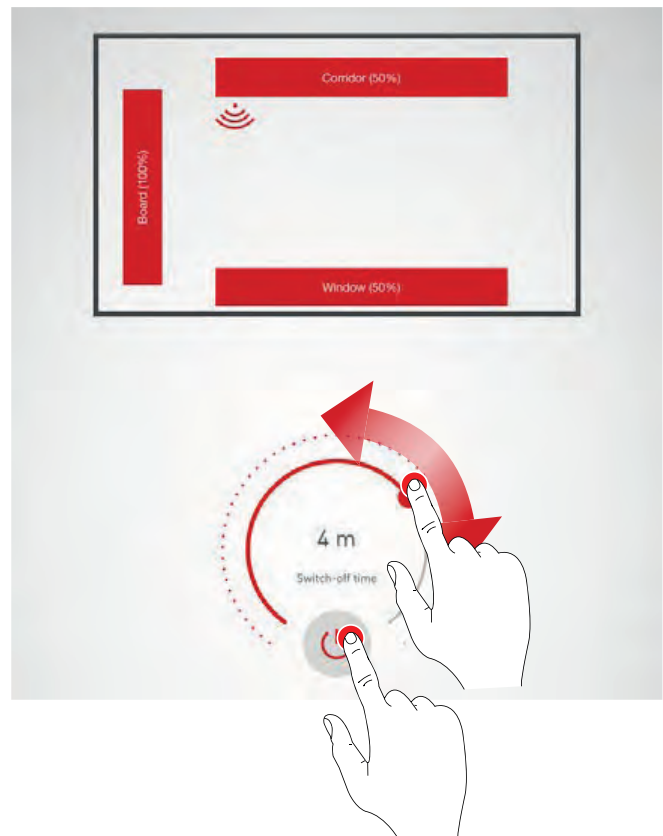
Presence detection: IQ mode
If the switch-off delay is set to "0" with the control wheel, the IQ mode is activated.

The IQ mode analyses the utilisation of the room based on the detected movements. In IQ mode, the delay period is between 5 and 20 minutes. If a lot of movement is registered, the delay period doubles, if hardly any movement is registered, the delay period is halved. In case of constant utilisation of the room, this will, for example, result in the lighting not being shut off directly when somebody leaves the room or if any of the occupants do not move for a while. But if the room is used only sporadically however, the delay period is automatically reduced to 5 minutes.

Presence detection: Fully automatic
The lighting is switched on and off automatically, depending on brightness levels and presence detection.

Presence detection: Semi-automatic
The lighting is only switched off automatically in this case. The switching on is performed manually.
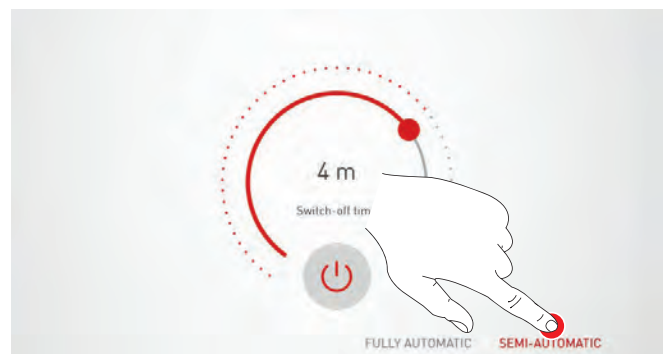
Setting up constant light control
In the case of constant light control, the sensor continuously measures the level of brightness in the room. The automatic control adjusts the brightness of the lighting in order to compensate for the changes in the levels of exterior light. This way, it ensures a constant brightness at the highest level of efficiency. Subsequent to selecting constant light control, the desired brightness level for the room can be set via the control wheel and stored as a nominal reference value.

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Constant light control: In calibrating the light control, the following points must be taken into consideration:

- The calibration of the lighting should be performed with as little daylight as possible.
- Sources of interference and the casting of shadows on the area to be calibrated must be avoided. (See chapter 2.5.2 "Sensor placement", page 14)
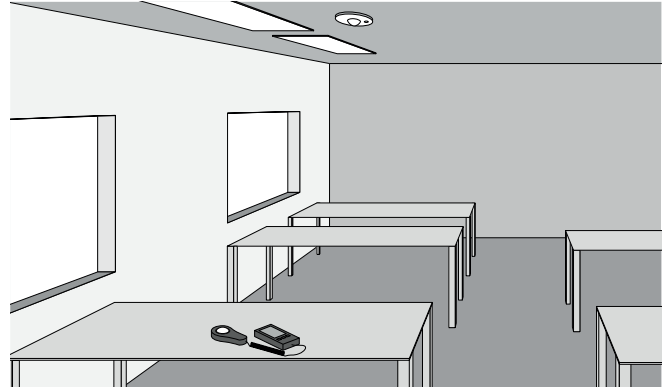
Constant light control: Setting the offset

For a uniform and efficient illumination, it may be sensible to undertake a separate control of luminaires that are close to the window and that are far from the window. If only one sensor is available, an offset setting may be applied: Once the constant light control has been activated, the luminaires that are linked to this function are highlighted red. By tapping the luminaire groups, these can be activated and/or deactivated and as such, different target values can be set.

Caution: For separate control of luminaires close to the window and luminaires far from the window, an individualised control with multiple sensors which adjust the different luminaire groups separately is better suited.

4.5.7 SET UP SEQUENCES

New sequence
A sequence is a succession of light scenes. The sequences are created and edited in a similar way to the light scenes. However, there are no predefined sequences contained in the public Use Cases. Therefore, a new sequence must first be created.
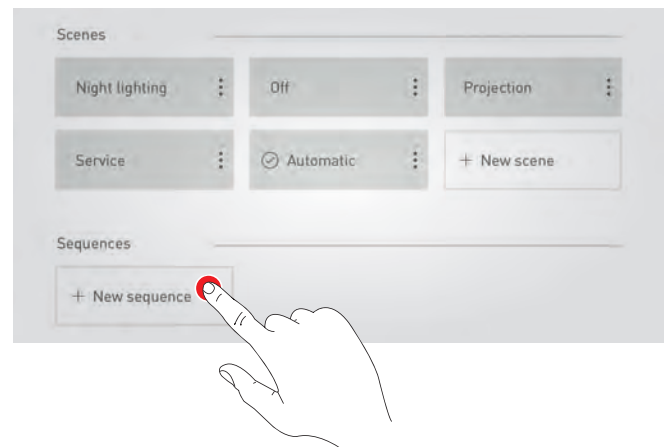
For this purpose, it must be determined whether the sequence, with an automatic start, is to be called at a fixed **time or as a time interval** with manual start - e.g. with a push-button.
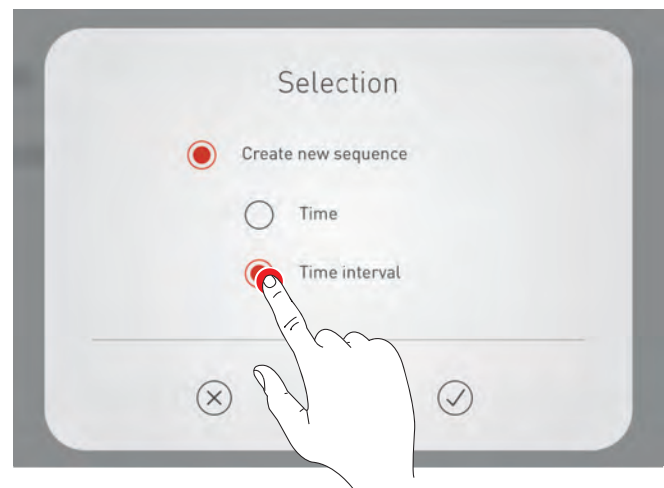
For all light scenes called in the course of a sequence, the automatic **daylight dependent control and presence detection functions are disabled**.

A **time interval** sequence can be set as a sequence of one or more scenes with the duration of each scene. You can set multiple runs of the sequence. Optionally, the call of a final scene can be set up. If no final scene is set up, the sequence will remain in its last scene after the last run. A time interval sequence ends with the manual call of any scene or the call of the final scene. The automatic functions of the called scene or the final scene are then active. If required, you can link your own presence detection functions in a time interval sequence, whereby switching off in the absence does not terminate the sequence and the default scene is not activated.

A **time** sequence can be set up as a time-dependent sequence of scenes. The time course is set as one day (from 00.00 o´clock to 24.00 o´clock) and repeats itself. The last scene called remains active during the day change. A final scene is not set up. The scene active before the time sequence is called remains active until the first scene change in the sequence. A called time sequence remains active until it is terminated by manually calling any light scene.
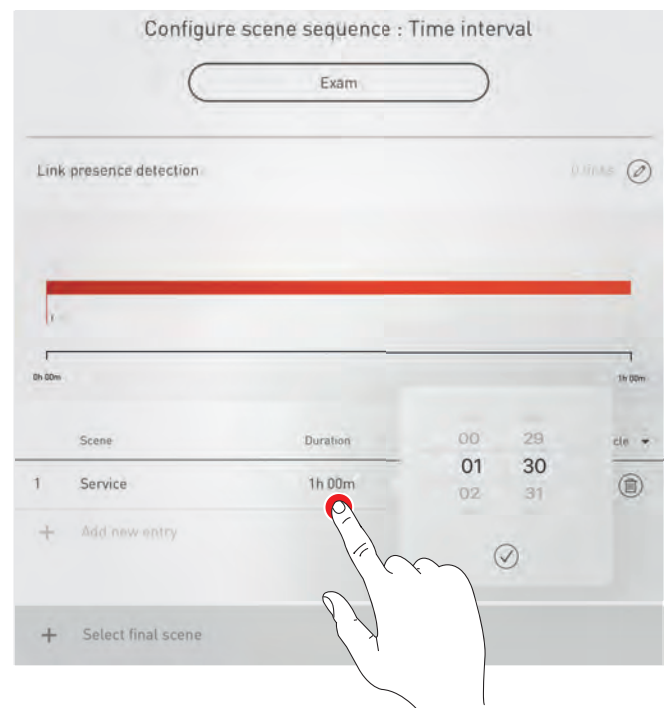
A **number of cycles can be determined** until the closing scene is called, or alternatively an **infinite loop** without a closing scene can be defined.
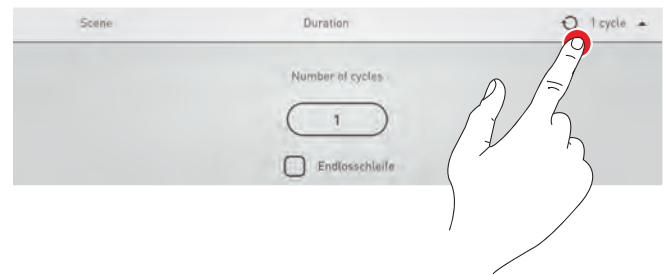
The finished sequence can be edited, copied or deleted as with a scene, or even defined as a **default** .
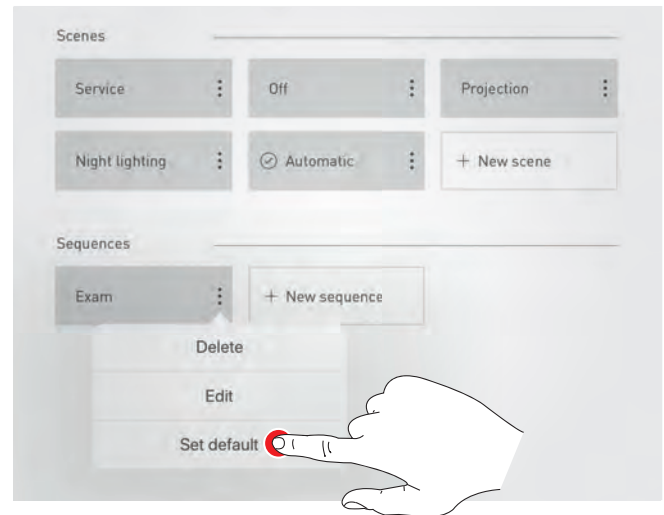
4.5.8 ASSIGNING PUSHBUTTONS

In this view, the push-buttons are linked to luminaire groups or a light scene

If one or more luminaire groups are assigned to a push-button, these can be switched and dimmed later by pressing the push-button (Touch Dim function).

If a push-button is assigned to a light scene, this light scene is then called up if the push-button is pressed later. No further function (e.g. dimming or switching) can be assigned to a light scene push-button.

New push-button assignments can be created by tapping the plus symbol.

Choose between scenes and luminaire groups.
A push-button either activates a light scene or switches a luminaire group on or off, respectively.

Listing of all push-button assign - ments set up

Labelling the push-button assignment
For light scenes and sequences, the push-button name corresponds to the scene name or sequence name.

Testing the scene
Subsequent to a long tap on a scene, it can be activated for a test.

Selecting the light scene or luminaire group, respectively.

Create new push-button assignment
Tapping on "New push-button" opens the setup of a new push-button assignment.
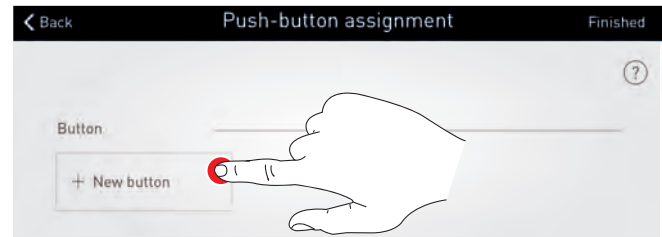
Select scenes/luminaire groups
In the next view, you first select whether the push-button should call up a light scene or should switch and dim one or more luminaire groups. Depending on the selection, the light scenes created or the luminaire groups available in the given Use Case are then displayed.

Selected luminaire groups can be switched on and off together and continuously dimmed up and down. For luminaire groups with Active luminaires, the push-button can also be used to continuously adapt the colour temperature.

The push-button assignment is also given a name. The name must be manually entered for light group push-buttons.
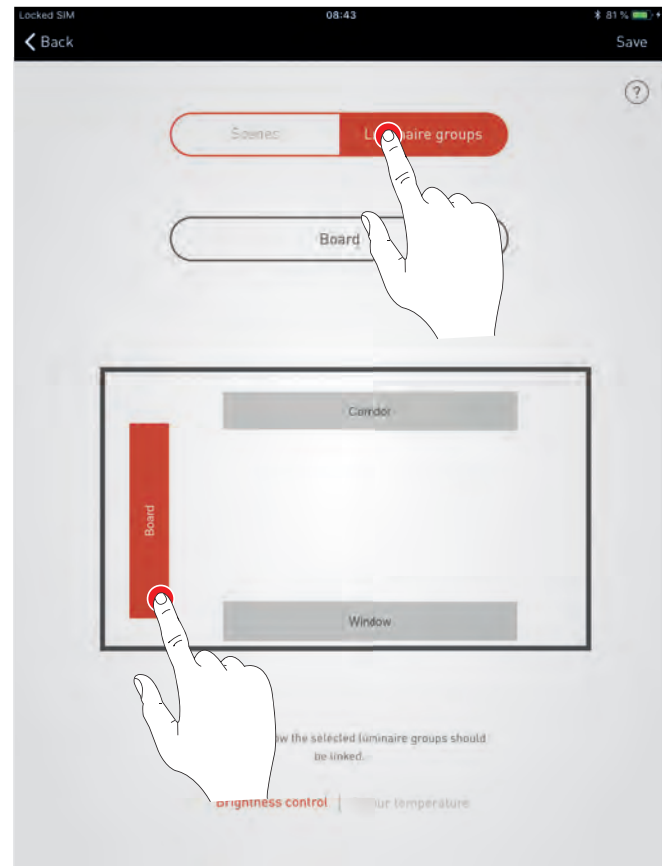
For light scenes and sequences, the name of the scene or sequence is used.
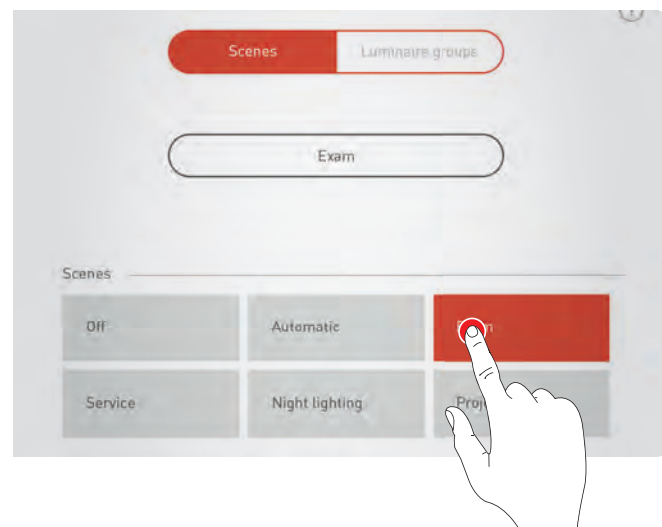
Assigning push-buttons

After the scene or luminaire group has been stored, a window signals that LiveLink is now waiting for the assignment of the push-button. The respective push-button must then be pushed and held (for up to 5 seconds) until the assignment is confirmed in the window.
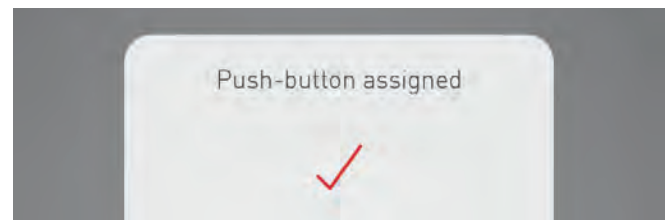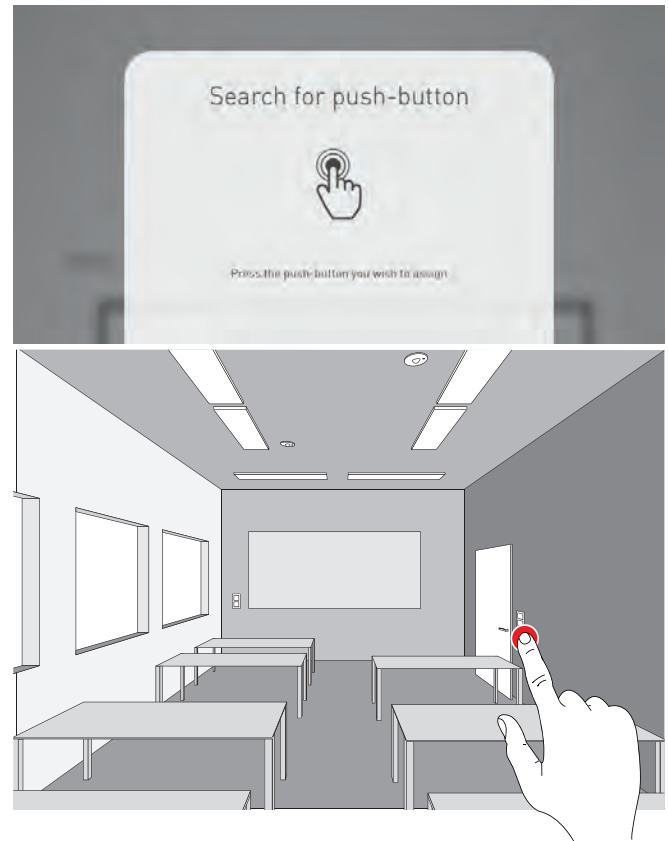
Overwriting and deleting assignments

Further push-button assignments can now be added. A message appears if a selected push-button is already assigned. At this point it is possible to either maintain or overwrite the existing assignment of this push-button.

Completed push-button assignments are specified in the list and can also be deleted there.
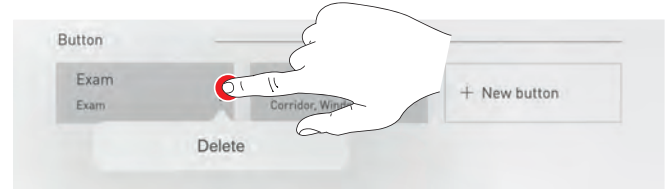
4.5.9 CONCLUDING THE ROOM SETUP

Upon conclusion, a user password must be specified and after a summary has been checked, the room setup is concluded.

Specify user password
Subsequent to the completion of the push-button assignment, a password for user access must be specified. The password serves for light control by the end user via the "LiveLink Control" app. **Caution: Remember the password!**
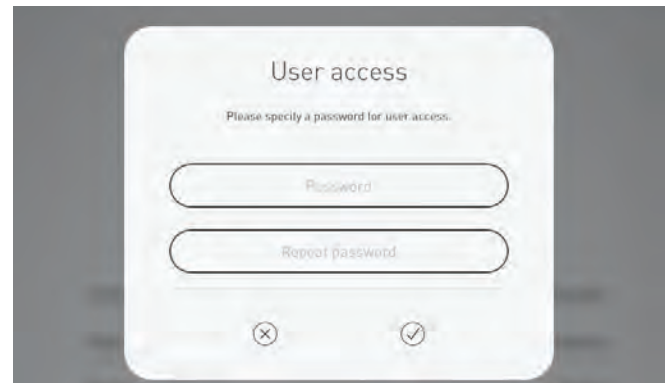
Check the summary and apply optional settings
In this view, the room setup can be checked based on a summary. If changes are necessary, it is possible to jump back to the preceding steps via the navigation in the title bar. If no changes are necessary, the room setup is concluded.
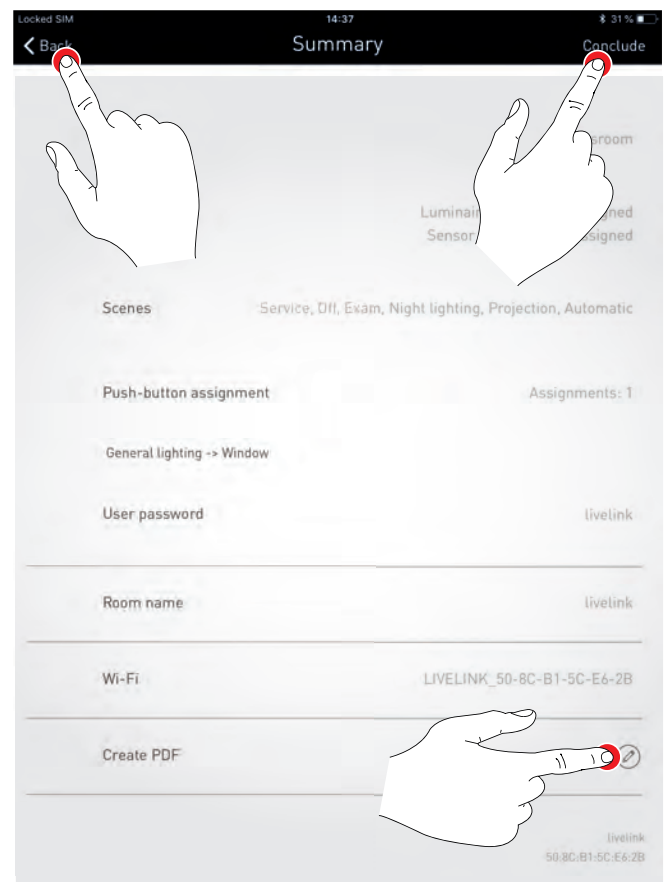
Generate PDF, optional

An acceptance log can be exported with the "Generate PDF" function. Operating these functions is described in the following sections.

4.6 ROOM MANAGEMENT

In the room management screen, all aspects of the room setup can be called up adjusted, as required.

The operation of this menu is identical to the initial setup and will not be explained further here.

Search for the components and assignment of light colours of the Active luminaires

Selection of a suitable Use Case

Assignment of luminaires and sensors

Management of light scenes available from the Use Case and setup of individual light scenes

Assignment of push-buttons to luminaire groups or light scenes

Change the name of the room.
The Wi-Fi name is adapted to the changed room name.

ZAssignment of a general lighting to the sensor areas

Set up connected KNX interface.
Link scenes, luminaire groups, push-buttons and sensors between LiveLink and KNX.

Display of all implemented programming in a pdf file

Locked SIM   14:37   31%
‹ Back   Manage room

livelink

Participation management   ✎

Select Use Case   ✎

Assignment   ✎

Manage scenes   ✎

Manage push-buttons   ✎

Modify room name   ✎

Basic lighting   ✎

KNX   ✎

PDF summary   ✎

livelink
50:8C:B1:5C:E6:2B
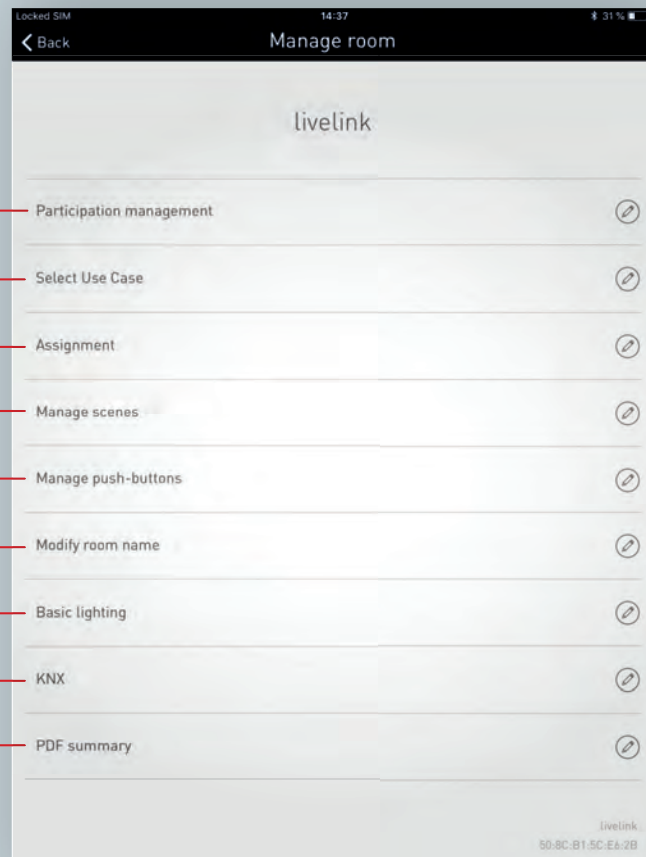
4.6.1 RENAME ROOM

In this screen, the room name can be changed.

The name the room is given is adopted as the Wi-Fi network name and as also as the room name for utilisation in the apps.

Room name
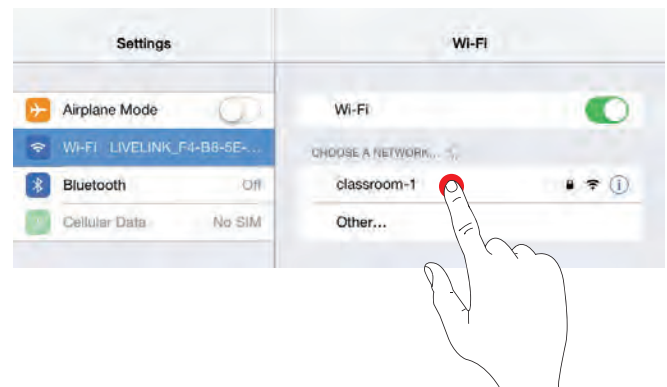After tapping this box, the keyboard is displayed to enter a new room name.
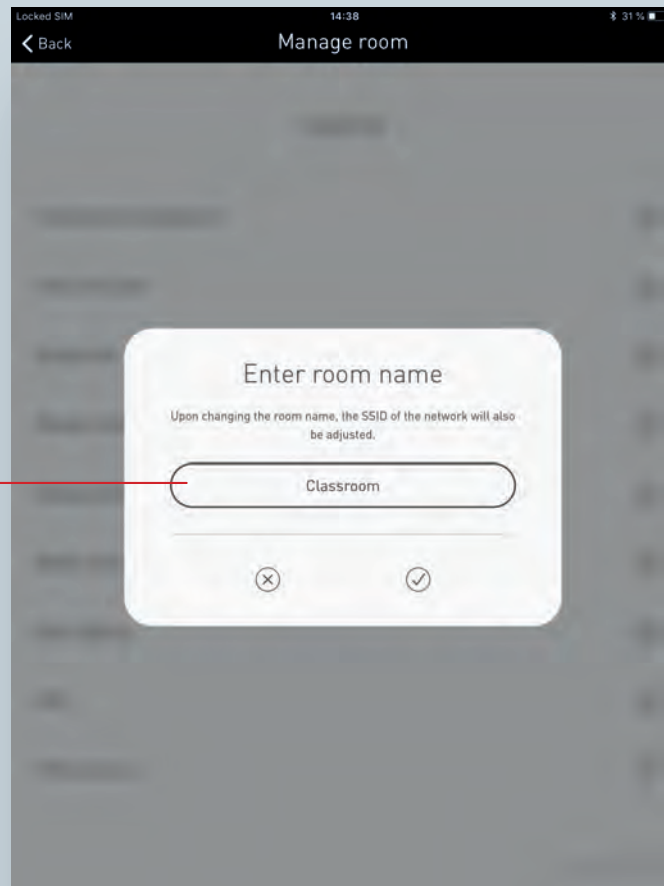
Change room name
After tapping "Change room name", a new room name can be entered.
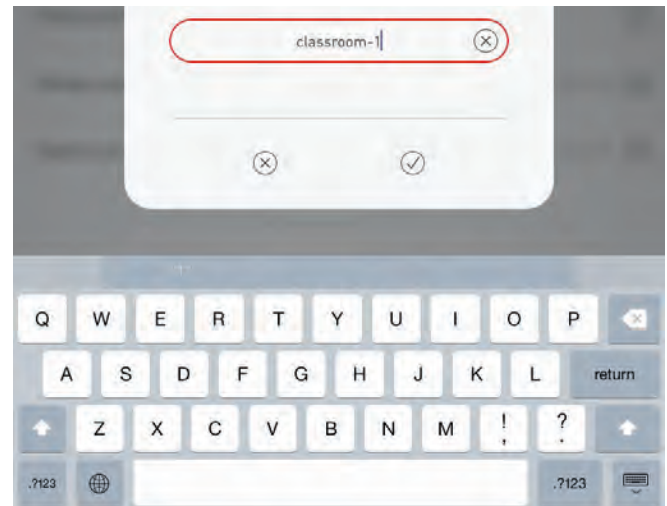
Reconnecting the Wi-Fi
By renaming the room name, the Wi-Fi also adopts this room name automatically. Therefore, the Wi-Fi network connection must be re-established.
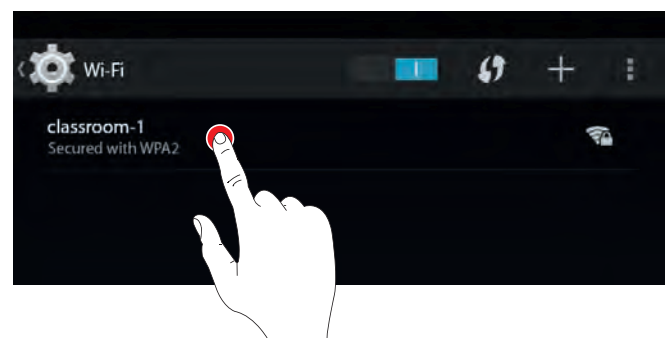
4.6.2 BASIC LIGHTING

For increasing safety and comfort, the lighting can also be combined with a basic lighting function. This makes sure that the lighting is not switched off with absence but is dimmed down to a settable basic lighting level. Various modes allow time intervals or time windows to be taken into account.

In addition to maximising comfort and energy efficiency, the basic lighting also increases safety and security. It can be used as switch-off prewarning as often required in corridors and stairways. [1]

Permanent
After exiting the room the lighting is permanently dimmed down to basic lighting level.

Time interval
After exiting the room the lighting is permanently dimmed down to basic lighting level for a settable time period. The lighting is only switched off after this time has expired.

Time
With absence, the lighting is dimmed down only in settable time windows to basic lighting level. The lighting is switched off outside these time windows.
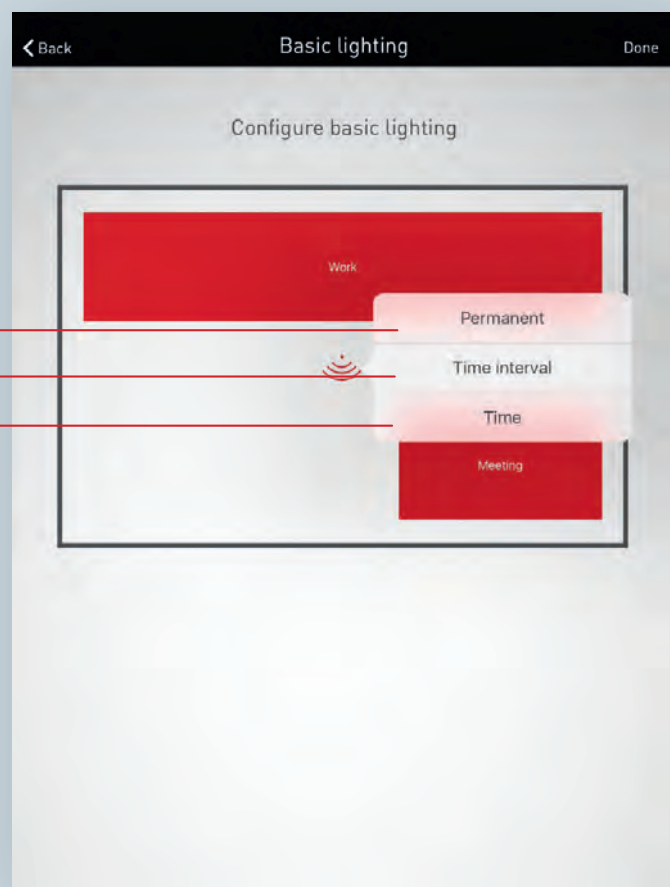
[1]The basic lighting function can only be set up in combination with fully automatic presence detection. In semi-automatic mode, the base light will cause malfunction.

BASIC LIGHTING: PERMANENT

Basic lighting	Main light	Switch-off time	Basic lighting
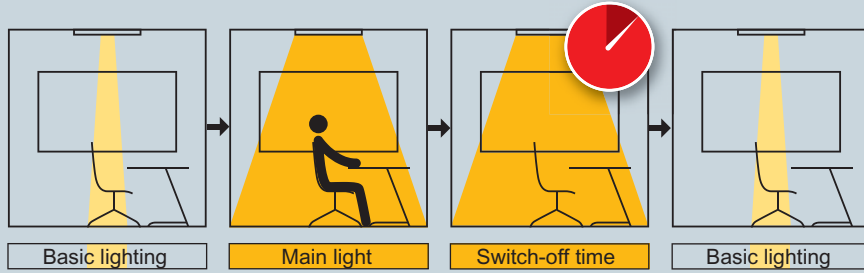
The room is continuously illuminated with basic lighting.

The system changes to main light as soon as motion is detected.

After expiry of the regular switch-off time (in accordance with presence detection) and with no further motion detection, the lighting is dimmed down again to the permanent basic light level.
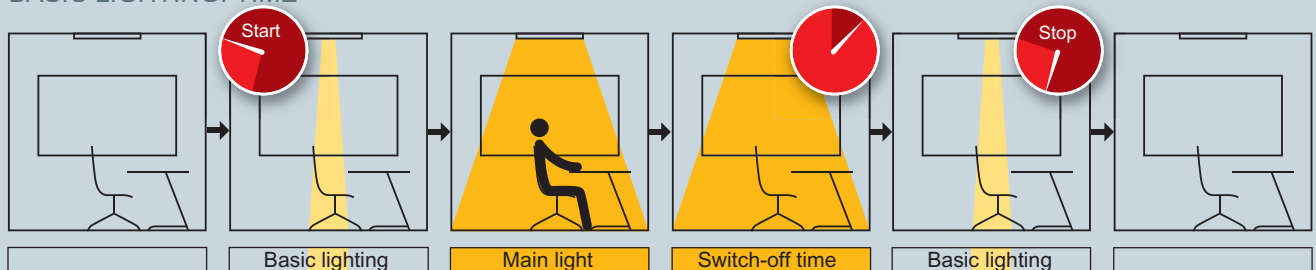
BASIC LIGHTING: TIME INTERVAL

	Main light	Switch-off time	Basic lighting	
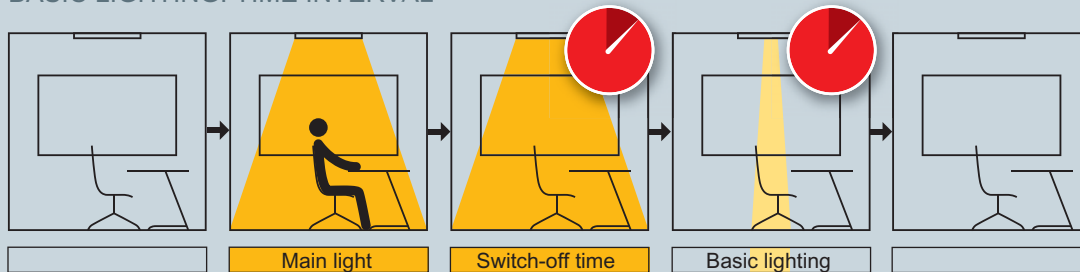
The main light is activated if motion is detected.

After expiry of the regular switch-off time (in accordance with presence detection) and with no further motion detection, the lighting is dimmed down to the basic lighting level.
A time interval of up to 60 minutes begins. This function can be used for e.g. switch-off prewarning, as is often required in corridors and stairways.

The lighting is switched off after expiry of the time interval and with no further motion detection.

BASIC LIGHTING: TIME

	Basic lighting	Main light	Switch-off time	Basic lighting	

The basic lighting starts at a settable time (several are possible).

The system changes to main light as soon as motion is detected.

After expiry of the regular switch-off time (in accordance with presence detection) and with no further motion detection, the lighting is dimmed down to the basic lighting level.

The basic lighting ends at a settable time (several are possible).

Configure basic lighting
After selecting the „Basic lighting" function in room management, the room scheme of the configured use case is displayed.
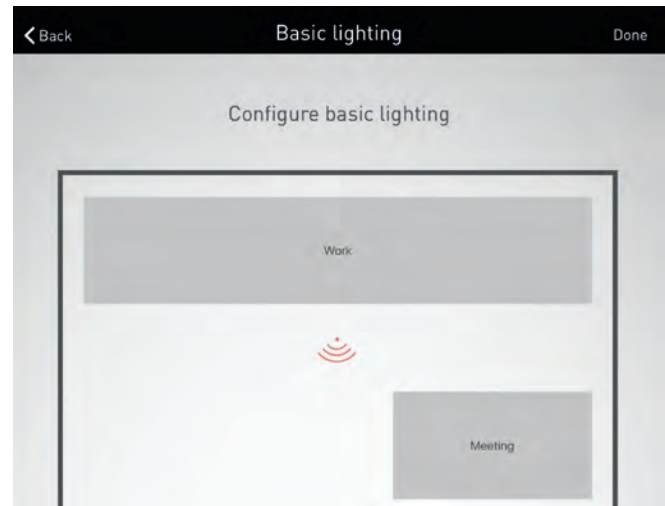
Sensor selection
The sensors, as the central selection element, are shown in red. After tapping a sensor the linked luminaire groups are also shown in red. A list is also displayed for selecting one of the three basic lighting types.
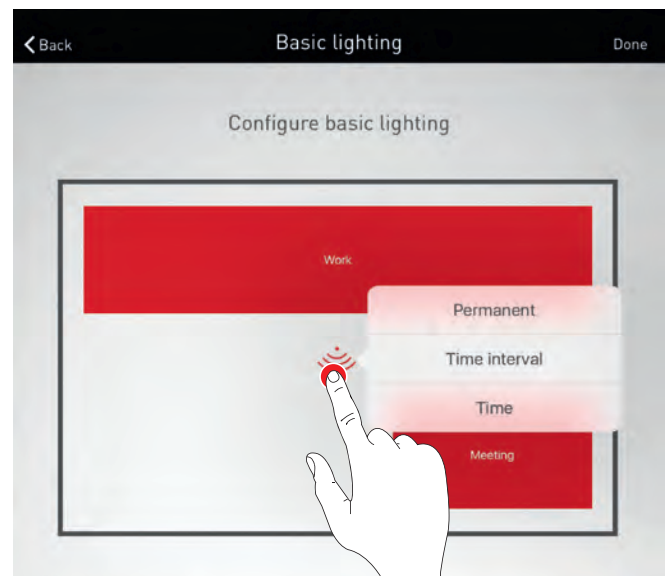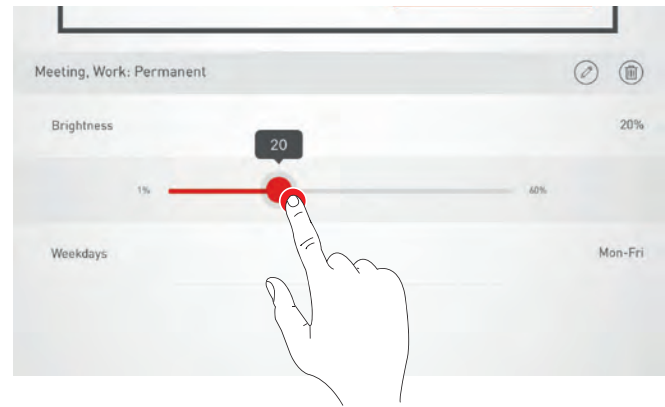

Basic lighting: permanent
After selecting „permanent" basic lighting, the setting options for permanent basic lighting are displayed below the room scheme:

- Brightness
- Week days

The pre-set dimming value for basic lighting brightness is 20%.A slider then enables the basic lighting brightness to be set to a dimming value of 1% to 60%. The lighting responds directly to this setting and can therefore be observed in the room.

Tapping the week days defines on which days the basic lighting function should be activated. Weekdays Monday to Friday are preset.

The basic lighting setting is completed by tapping on „Finished" in the menu bar.
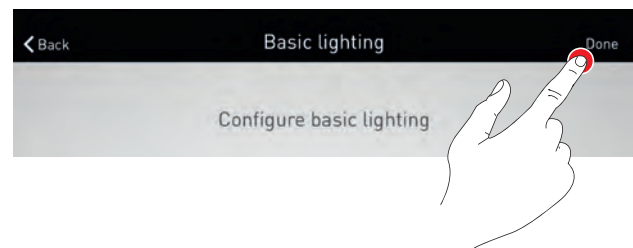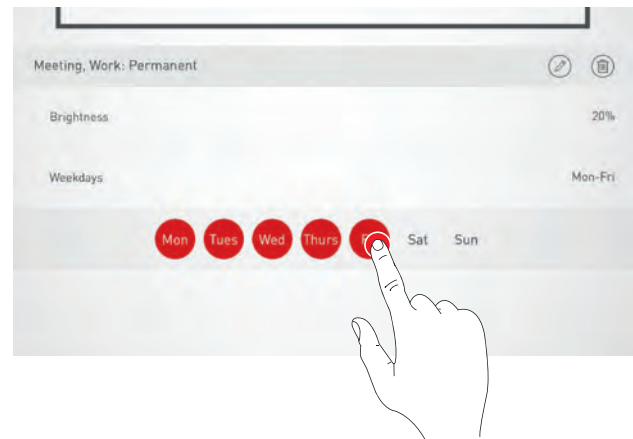
Basic lighting: time interval
After selecting the „time interval" type of basic lighting, the setting options for time interval-dependent basic lighting are displayed below the room scheme:

- Brightness
- Delay time
- Week days

Setting the „brightness" and „week days" functions is carried out in the same way as the „permanent" type of basic lighting.

The delay time must also be set. The value can be set from 1 to 60 minutes. The basic lighting is activated after expiry of the switch-off time set for the sensor, and illuminates for the duration of the time interval set here.
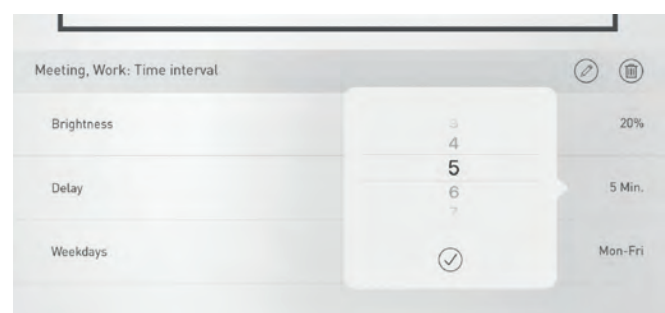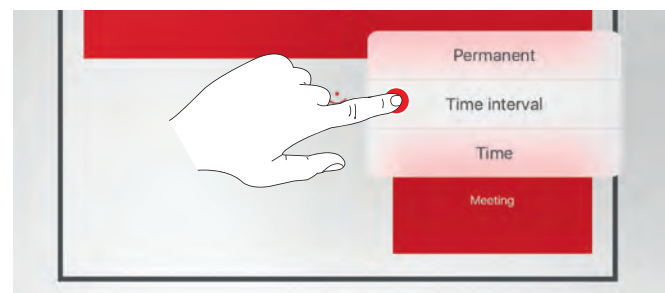
Basic lighting: time
After selecting the „time" type of basic lighting, the setting options for time-dependent basic lighting are displayed below the room scheme:

- Brightness
- Time
- Week days

Setting the „brightness" and „week days" functions is carried out in the same way as the „permanent" type of basic lighting.

The time must also be set. Several time intervals can be set, for the duration of which the basic lighting is activated.
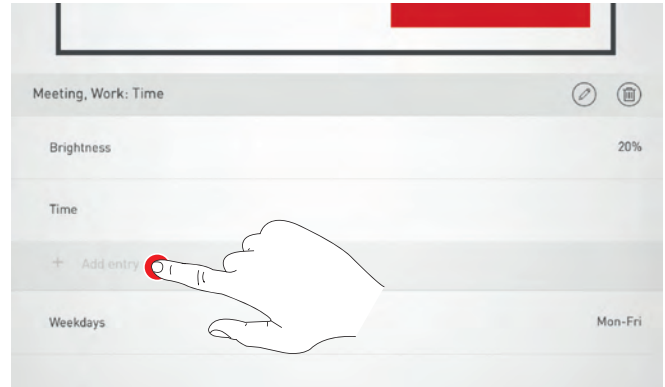
4.6.3 GENERATE PDF

This function enables a system log to be exported as a PDF. This document can be used e.g. as an acceptance log following the commission process.

Project data
Project-specific data for the LiveLink setup is entered. The system settings are summarised automatically.

Select PDF generation
In the summary of the LiveLink setup (see page 60) the optional
function "Generate PDF" can be called. Once room creation is com-
plete, this function is found in the Room management/Overview menu
(see page 61).

Enter project data
The project-specific data of the LiveLink setup is entered first. Af-
ter acknowledging these entries, all system settings are collected and
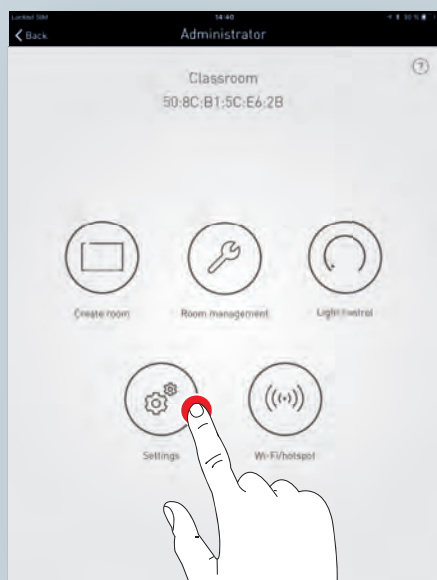an acceptance log is generated with this project data.

Export PDF
The acceptance log is displayed. The PDF is exported via the share
button, e.g. sent via email.
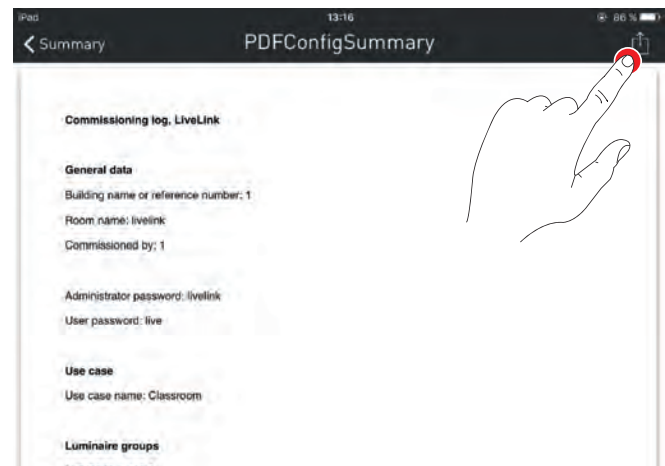
4.7 SETTINGS

The "Settings" screen in the administrator menu displays important system information and covers the basic settings of the LiveLink control device.

DALI fade time
Setting of the transition time
between the dimming levels

Advanced sensor settings
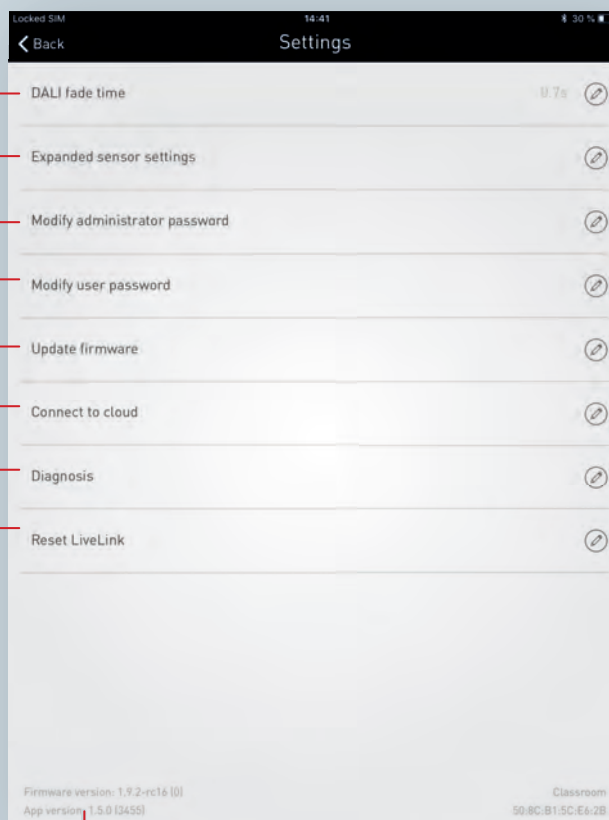
Modification of the
administrator password

Modification of the
user password

Update firmware
Update the operating software
on the LiveLink control device

Connection to the TRILUX Cloud
for recording operational data

Diagnostic procedure for
system errors. In consultation
with TRILUX support.

Reset LiveLink
to delivery condition

App version details

4.7.1 DALI FADE TIME

The DALI fade time defines the transition time between dimming levels. It is preset to 0.7 seconds and should only be changed if urgently required. With a setting of "0 s", the brightness is changed without dimming functionality. The longer the transition time, the softer the dimming process appears. However, it should be noted that with increased fade time values (>0.7s) the operation of TouchDim push-buttons is restricted because the dimming process continues after the push-button is released. For higher values, the display of the DALI fade time can be shifted by vertical wiping. The selected fade time is assumed with a tap.
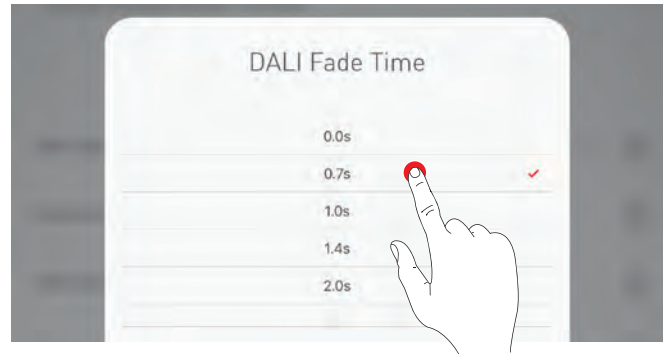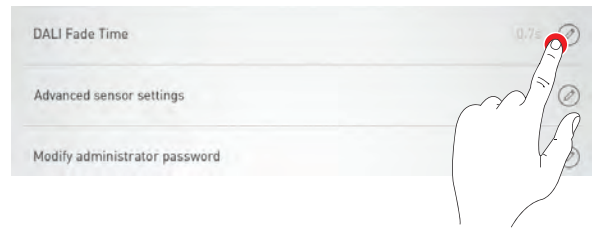
4.7.2   RESET LIVELINK AND HARDWARE RESET

After tapping "Reset LiveLink" and subsequent confirmation, the LiveLink control device will be reset to its delivery condition. **Caution: All settings will be deleted!**
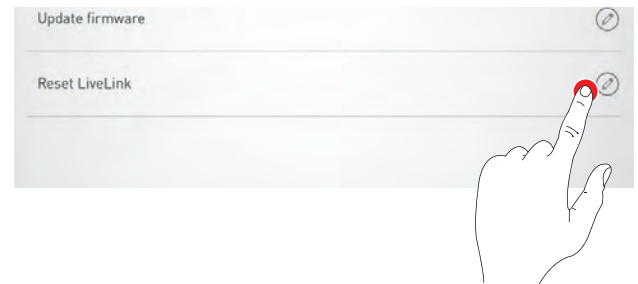
After resetting, the LiveLink control unit is restarted. The WLAN is not available during this period.

For a hardware reset, the DALI connections are short-circuited (connecting both DALI lines) and at the same time the internal push-button on the control device is held down for 20 seconds. For this, a push-button should be connected to the designated interface (S) on the LiveLink controller. The LED flashes on the controller as confirmation when the hardware reset starts (and if the devices boots).

4.7.3 ADVANCED SENSOR SETTINGS

Tapping on "Advanced sensor settings" provides access to detailed settings of the sensors. The functions that can be adjusted are dependent on the sensor used. Typical default values are already pre-set; in most cases, these do not need to be adjusted.
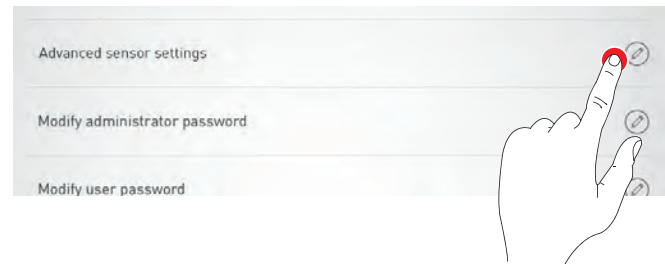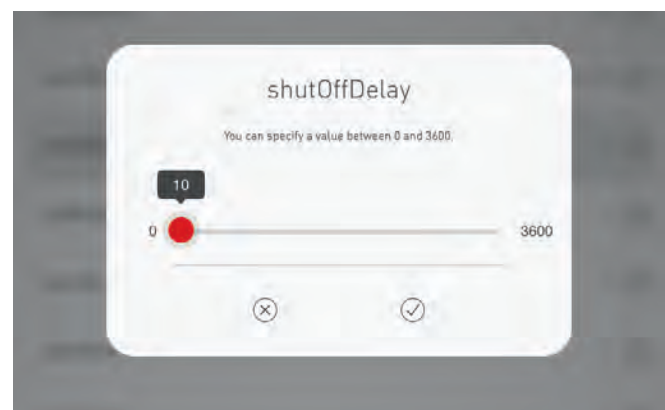
All sensors are listed. Here, the desired sensor can be selected.
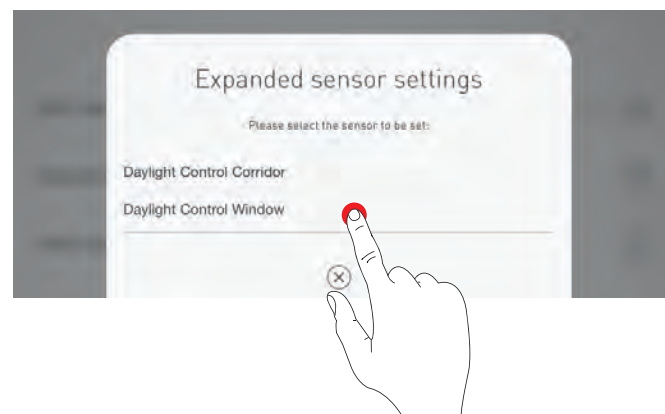
In this screen, the settings options for the sensor are listed.
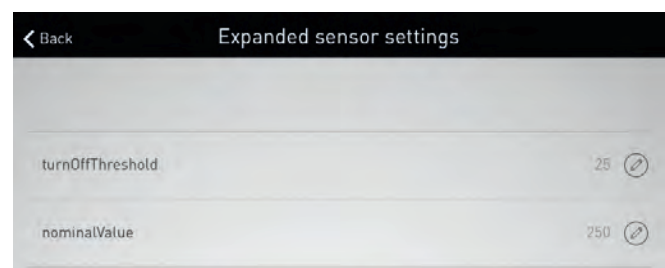
Subsequent to tapping on a sensor function, the value can be changed and stored. The different sensor functions are described in the table below.

Parameter	Range	Default setting	Explanation
Presence detection:			
Operating mode	Automatic / Semi-automatic	see page 18	Automatic: automatic switch-off and switch-on Semi-automatic: automatic switch-off, switch-on manually via push-button or app
Switch-off time	0-60 min	5 min	Shut-off delay in minutes
Inverse time	0-60 min (identical to switch-off time)	5 min	Inverse time of presence detection
Start value without constant light	0 - 100%	100%	If the light without daylight dependant regulation is switched on again via a presence sensor, this is adopted as the start value.
Constant light regulation:			
Daylight switching behaviour	1. Automatic switch off/on 2. Minimum, no switch-off 3. Switch-on inhibit	Auto off/on	Switching behaviour in case of sufficient daylight
Daylight switch-off time	Fixed time	900 sec	Switch-off time with sufficient daylight (seconds)
Switch-off threshold	Fixed value	25%	Switch-off threshold with sufficient daylight (percent)
Nominal value	0-1024lx	500lx	Nominal value (measured on sensor)

4.7.4 CONNECTION TO THE TRILUX CLOUD

A LiveLink control unit can be connected to the TRILUX Cloud to read out data from the luminaires, store the data in the Cloud and view or evaluate it there via a dashboard. For this purpose, the controller must be connected to the internet (e.g. via integration into a network). The luminaires must also be equipped with an intelligent control gear unit (BAG INCD), because only these units can be read out.

A tap on "Connect to Cloud" opens the TRILUX Cloud login area.

Registration at the TRILUX Cloud takes place with the personal login data. If no login data is available yet, you can register in this login area.

Successful registration is confirmed with a pop-up window.

In a TRILUX Cloud dashboard, the LiveLink control unit is now available for evaluation and setting.

Caution: In the basic configuration, only parts of the readable data are displayed. Digital services can be added for further functions, for example "Energy Monitoring" and "Light Monitoring".
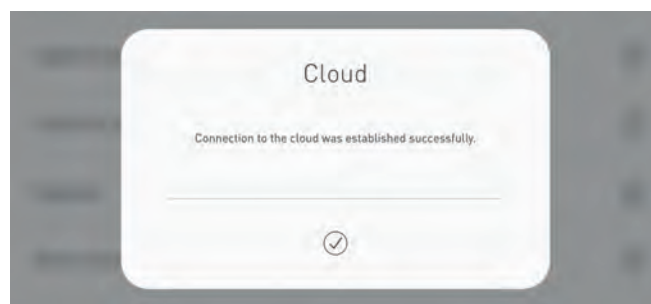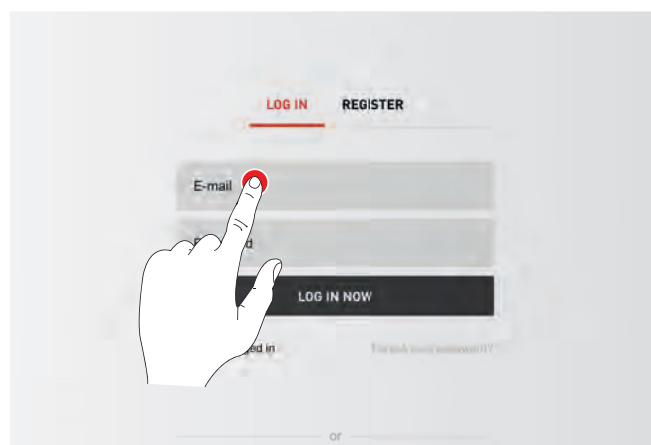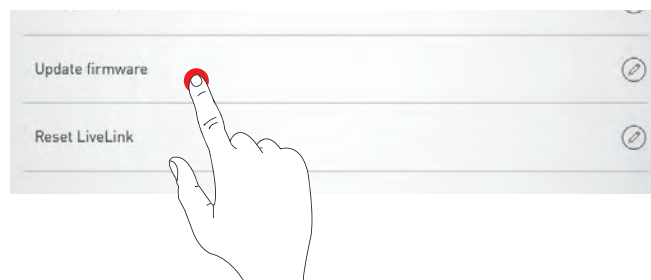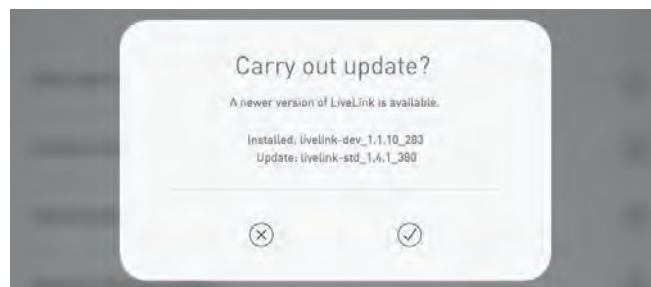
4.7.5 UPDATE FIRMWARE

Tapping on "Update firmware" starts the update process of the operating software in the LiveLink control device. The latest firmware is transferred from the app to the control device via Wi-Fi and installed on it. For this, no Internet connection is necessary. **Caution: The firmware is stored in the "LiveLink In-stall" app. To ensure that the latest firmware is be-ing utilised, the app should be updated in advance.** (Typical update process via the Apple App Store on iOS devices or the Google Play Store on Android devices; Internet connection required)


A window shows which version is currently installed and to which version an update can be performed.

Upon confirmation, the firmware is uploaded to and subsequently installed on the control device ("LiveLink flashing").
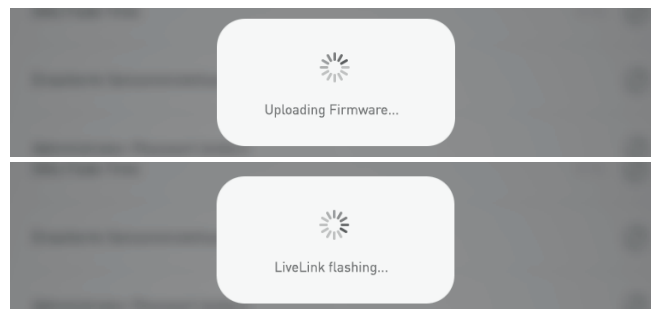

A window indicates that the update has been completed successfully.. The system then restarts and the app then displays the room selection view again.
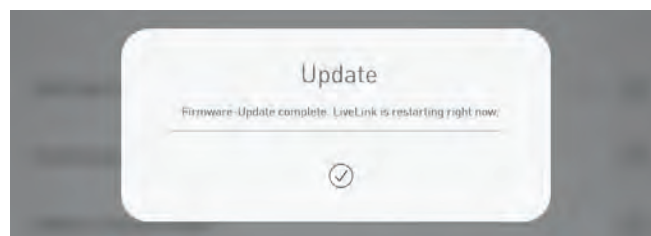
4.7.6 CHANGE PASSWORDS

The administrator password and the user password can be changed at any time. The respective function is called up and the old password must be entered first. The new password must be entered twice.
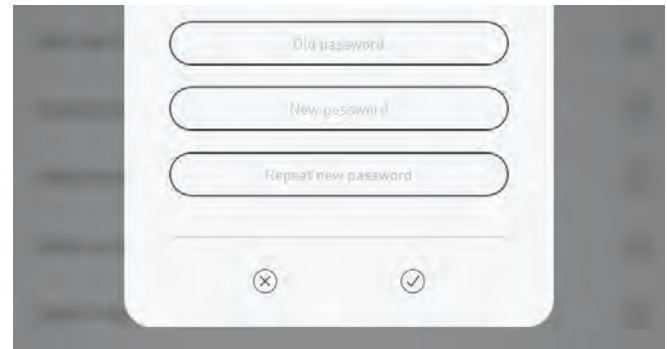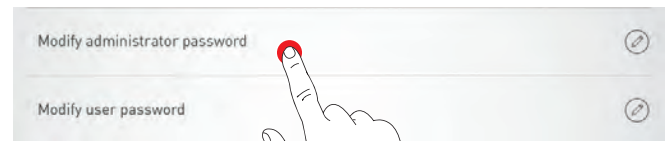
4.8 WI-FI SETTINGS

The LiveLink control device can be connected to an existing local Wi-Fi network. The LiveLink room then is available on the existing network for configuration and operation.
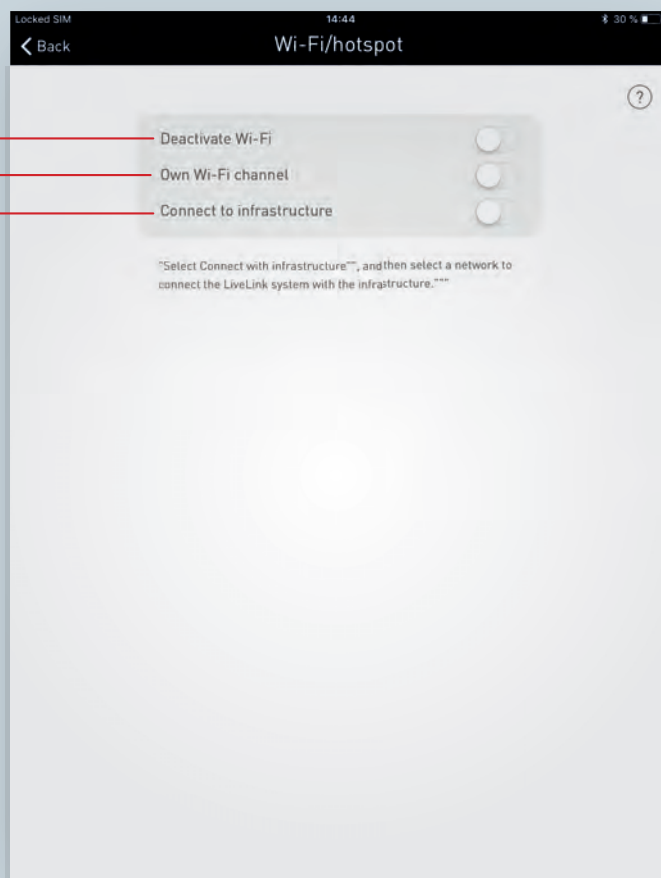
The WLAN can also be deactivated if required. In this case a direct connection to LiveLink via WLAN is no longer possible and only becomes available again after restarting the LiveLink system.
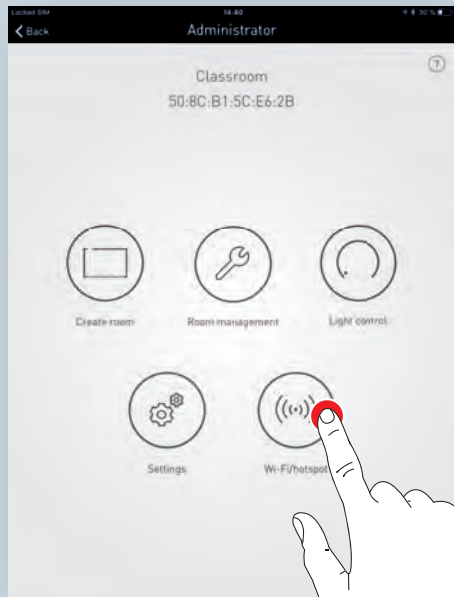
Deactivate WLAN

Select Wi-Fi channel used

Connect with infrastructure

4.8.1 CONNECT TO AN EXISTING LOCAL NETWORK

Technical requirements for the WiFi infrastructure

- Encryption: WPA/PSK, WPA2/PSK, WEP (not recommended)
-
- WiFi standard: 802.11bg
- Frequency band: 2,4 Ghz
- Network: DHCP or static IP
- Port: 8443 (not limited)
- The tablet and LiveLink must be located in the same subnet.

Switching on configuration of an existing local Wi-Fi network

Technical basis for WLAN SSID
If an infrastructure connection is active the WLAN of the LiveLink control device is hidden (SSID broadcast is suppressed). The WLAN can still be used for service purposes. In this case the WLAN name must be manually entered for connection.

Select network
All available Wi-Fi networks are listed. The desired Wi-Fi network is selected.

IP setting: dynamic (DHCP)
If the LiveLink control device is to be assigned an IP dynamically by the existing network (DHCP), the "static" tickbox should remain unticked.
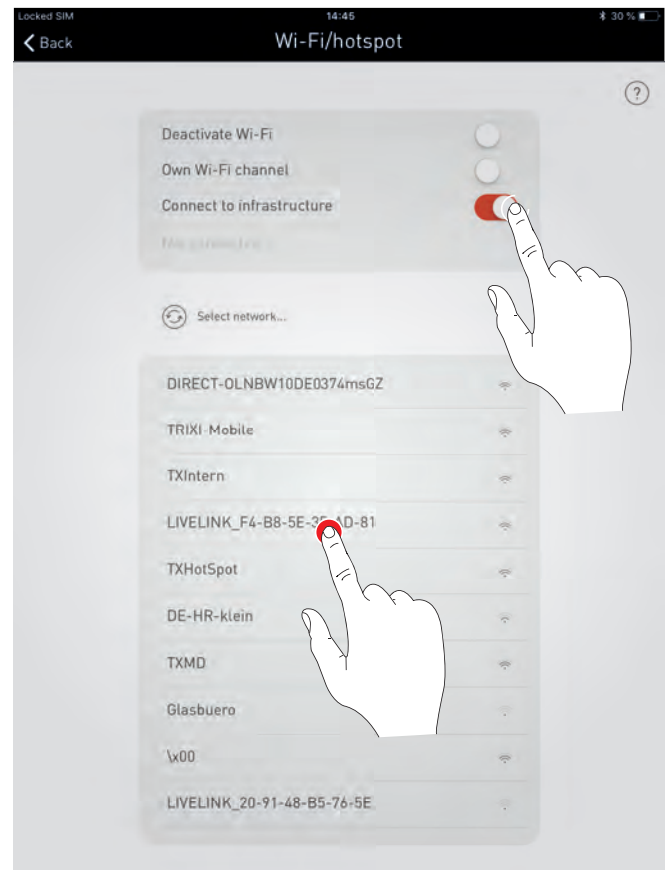
IP setting: static
Alternatively, static IP settings can be applied.

Enter the Wi-Fi password
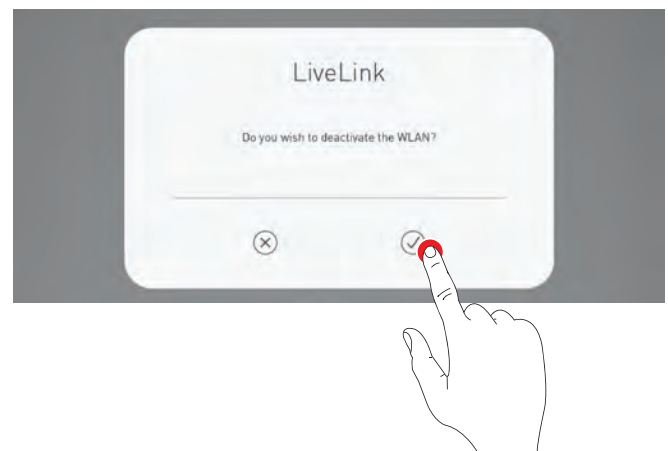Upon entering the password for the local Wi-Fi network the connection is established.
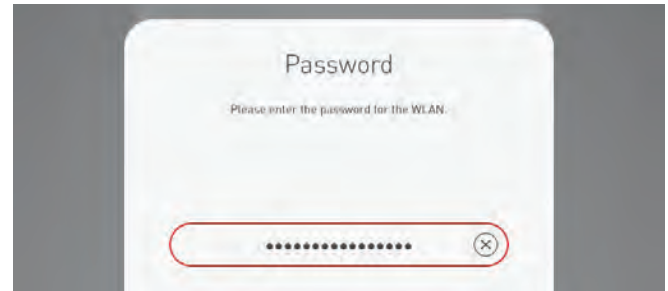
4.8.2 WI-FI DEACTIVATION

The WLAN can be deactivated following commissioning.

The WLAN switch-off function is located in the "WLAN/Hotspot" administrator menu.

The deactivation in this pop-up must be confirmed. The WLAN switches off after 10 minutes.

4.8.3 REACTIVATING THE WI-FI

If disconnecting the WLAN prevents access to the system, the control unit must be disconnected from the power supply. Following restart of the control unit, the WLAN becomes available again for 10 minutes. It is then possible to connect to the system via WLAN to e.g. remove deactivation of the WLAN. Following power-up and selection of the room, the user is informed of this via a pop-up.
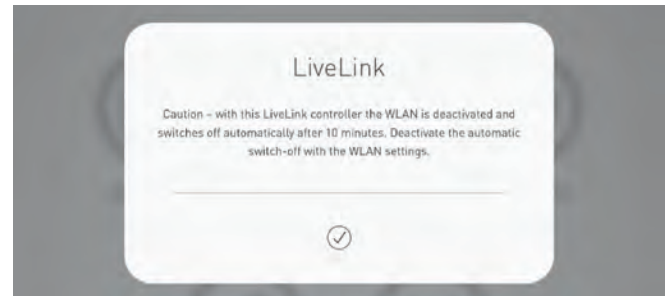
4.9 OPERATING THE LIGHT CONTROL

The light control of the already selected room can be called up directly in the administration menu of the "LiveLink In-stall" app. The operation is identical to the functional-ity of the "LiveLink Control" app; see chapter 3, page 26.
Caution: The light control can be selected only if the room has al-ready been completely set up.
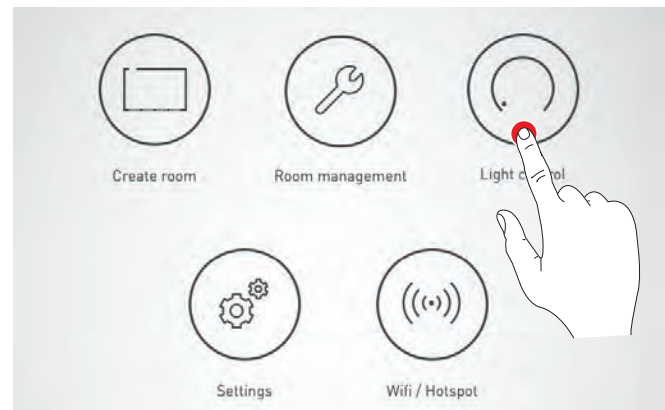
5 Troubleshooting

Malfunction	Cause	Solving
Light does not switch on	The active scene switches with semi-automatic (see schematic illustration on page 16)	Manual switching on (e.g. with the push button) required
	Setpoint value set too low	Increase setpoint (see page 53)
	No movement detection	Create a clear view of the sensor
		Check the detection area
Light does not turn off	Setpoint too high	Reduce setpoint (see page 53)
	Shutdown time has not yet expired	Wait for switch-off time, shorten if necessary (see page 52)
	Disturbing heat sources, such as: fan heaters, open doors and windows, pets, incandescent / halogen lamps, moving objects (IR sensor)	Remove or hide stationary sources of interference [1]
Light switches off despite presence	Switch-off time too short	Increase the switch-off time (see page 52)
	Setpoint too low	Increase setpoint (see page 53)
Light turns off too late	Switch-of time too long	Decrease the switch-off time (see page 52)
Light turns on too late when the direction of travel to the sensor is radial	The range is less with radial direction than with tangential direction	Reduce distance between sensors, install additional sensors if necessary
Light does not switch on despite presence in the dark	The active scene switches with semi-automatic mode (see schematic illustration on page The active scene switches with semi-automatic mode (see schematic diagram on page 16)	Manual switching on (e.g. with the push button) required
	Light switched off manually	Wait for inverse switch-off time (see footnote on page 64)
	Setpoint value set too low	Increase setpoint (see page 53)
System does not switch to the basic light or from the basic light to regulated operation	System is in semi-automatic mode (see footnote on page 64)	Set automatic mode (see Seite 53).
	Setpoint value set too low	Increase setpoint (see page 53)
General malfunctions	Operation of the system components outside the permissible temperature range	See technical data in chapter 2 from page 6

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[1]Sources of interference should be removed, if possible. Otherwise, they may possibly be positioned so that they are blocked by objects in the room, e.g. Furniture, shaded from the sensor. If this too is not possible, segments of the sensor that detect sources of interference can be pasted over with e.g. cardboard.

6 ORDER DATA

	Reference	Description	TOC
Controller			
	LiveLink WiFi	LiveLink control unit with DALI output for controlling up to 64 DALI devices, with integrated WLAN module for commissioning and control via tablet or smartphone, includes mounting clips for VDE-compliant connection in ceilings or cavity walls.	6565400
Sensor			
	LiveLink Sensor IR Quattro HD	PIR room sensor for daylight-dependent control and presence detection (for installing in ceiling, mounting height 2.5m to 10m, square detection zone: 8x8m to 20x20m), connection to LiveLink system via DALI line, occupies 3 DALI devices	6565500
	LiveLink Sensor IR Quattro Slim XS	PIR room sensor for daylight-dependent control and presence detection (for installing in ceiling, mounting height 2.5m to 4m, square detection zone of 4x4m), connection to LiveLink system via DALI line, occupies 2 DALI devices.	6906200
	LiveLink Sensor IR Micro 01	PIR mini sensor for daylight-dependent control and presence detection (installed in the ceiling, mounting height 2.5m to 4m, square detection range of 4x4m to 6x6m diameter), connection to LiveLink system via DALI line, occupies 2 DALI devices – assembled in luminaires on request.	6906300
	LiveLink Sensor Dual HF	HF corridor sensor for daylight-dependent control and presence detection (for installing in ceiling, mounting height 2.5m to 3.5m, consists of two integrated HF sensors for detecting both corridor directions in corridors, detection range per sensor: 3x3m to 10x3m), connection to LiveLink system via DALI line, occupies 8 DALI devices.	6565600
	LiveLink Sensor IS 3360 MX Highbay	PIR highbay sensor for presence detection (for installing to ceiling, mounting height 3m to 14m, round detection range of max. Ø36m), connection to a LiveLink system via the DALI line, occupies 3 DALI devices.	6781000
	LiveLink Sensor IS 345 MX Highbay	PIR highbay sensor for presence detection in racking aisles (for installing in ceiling, mounting height 4m to 14m, oval detection range of max. 30x4m), connection to a LiveLink system via the DALI line, occupies 3 DALI devices.	6781100
Accessories			
	LiveLink DALI PB4	Push-button coupler for connecting up to 4 standard installation push-buttons, freely definable button functions, connection to LiveLink system via DALI line, occupies 1 DALI device.	6565200
	LiveLink Sensor AP BOX	Ceiling installation set for surface-mounting IR Quattro HD and Dual HF sensors, IP54.	6565700
	LiveLink Sensor BSK	Ball protection guard for IR Quattro HD and Dual HF sensors.	6565800
	LiveLink ZREG	Cap rail adapter set consisting of two universal mounting brackets for installing the LiveLink control unit to a DIN cap rail.	7006700
	LiveLink Use Case	Individual use case with project-specific room configuration.	6912000

	Reference	Description	TOC
Kits			
	LiveLink Room Kit Standard	Standard room package consisting of LiveLink control unit and IR Quattro HD room sensor for energy saving in small to mid-sized offices.	6566100
	LiveLink Room Kit Comfort	Comfort room package consisting of LiveLink control unit, push-button coupler and IR Quattro HD room sensor for energy saving in e.g. classrooms and conference rooms, with additional scene control via standard installation push-buttons.	6566200
	LiveLink Corridor Kit	Corridor package consisting of LiveLink control unit and Dual HF corridor sensor, for energy saving in corridors with optional basic lighting upon absence.	6566300

Radio components

	Reference	Description	TOC
	LiveLink WiFi + RC	Controller. For the combined operation of wireless controlled radio luminaires and wired DALI luminaires. With radio unit based on the ZigBee radio standard. Radio luminaires are fully integrated into the LiveLink system. All luminaires can be freely grouped.	only integrated in master luminaire
	LiveLink RC-Module	Radio converter for the integration of wirelessly controlled radio luminaires into a LiveLink system, based on the ZigBee wireless standard. Suitable for luminaire integration. Up to 4 DALI devices can be controlled in broadcast mode (DT6).	only integrated in luminaires