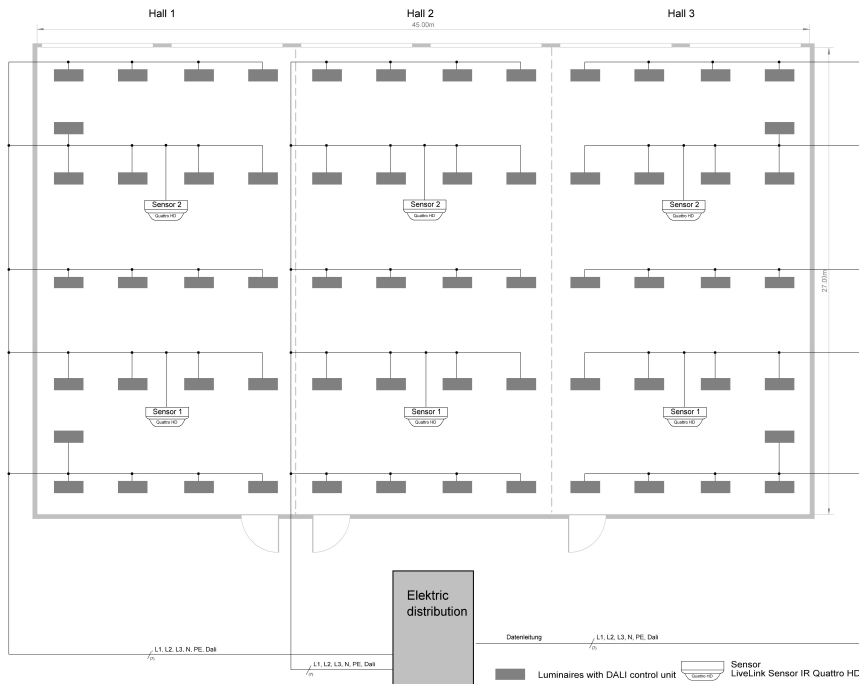


## Light control for a triple sports hall

Light management system LiveLink with DALI control gear units and external sensors in Use Case "Individual Sports Hall".



- Daylight-dependent control
- Presence detection in automatic operation, after switch-off restart is always in "Default" scene.
- Competition operation 100 % (without daylight-dependent control & presence detection)
- Addressing of lighting via iOS or Android tablet

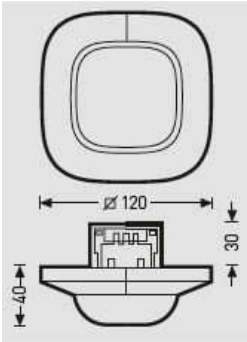
### Use Case "Individual Sports Hall"

In the Use Case "Individual Sports Hall", the luminaire group "Hall" is applied. In addition, there is a sensor (S1) that is responsible for the daylight-dependent light control as well as presence detection, and a sensor (S2) only for presence detection. Every portion of the hall must be set up individually, and it is mandatory to ensure that scenes are set up identically for each portion of the hall. The master/slave configuration can be found in the system manual, starting at page 80.

General information on Use Cases:

Use Cases should be updated regularly on your tablet in the LiveLink Install App. Use Cases can be updated in the LiveLink Install App in the menu item "Use Case Management".

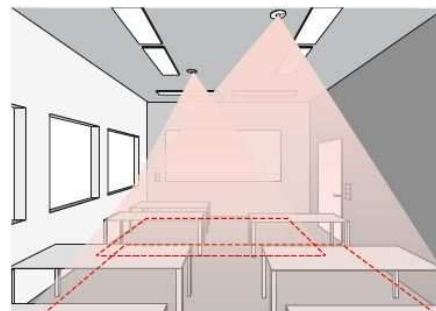
Preset luminaire groups		Preset scenes	
Luminaire Group	Function	Scene	Function
Hall	<ul style="list-style-type: none"> <li>• Presence detection,</li> <li>• Daylight-dependent control</li> </ul>	Automatic standard	<ul style="list-style-type: none"> <li>• 15 minutes switch-off delay, fully automatic operation</li> <li>• Daylight-dependent control active with 85 % of the system's output</li> </ul>
		Automatic bright	<ul style="list-style-type: none"> <li>• 15 minutes switch-off delay, fully automatic operation</li> <li>• Daylight-dependent control active with 100% of the system's output</li> </ul>
		Service	<ul style="list-style-type: none"> <li>• Constant dimming level for all groups at 100 %</li> <li>• 10 minutes switch-off delay, semi-automatic operation</li> </ul>
		Night lighting	<ul style="list-style-type: none"> <li>• Constant dimming level for all groups at 20%</li> <li>• No automatic switch-off</li> </ul>
		Off	<ul style="list-style-type: none"> <li>• All groups off</li> </ul>

Sensor Quattro HD	
Technical data	
Characteristics	<ul style="list-style-type: none"> <li>Room-typical square detection range</li> <li>Especially high sensitivity and range</li> </ul>
Sensor type	<ul style="list-style-type: none"> <li>Passive infrared presence sensor (PIR)</li> <li>Light sensor</li> </ul>
Dimensions	
Place of operation	<ul style="list-style-type: none"> <li>Indoor</li> </ul>
Sensor technology	<ul style="list-style-type: none"> <li>13 detection levels</li> <li>4,800 switching zones</li> </ul>
Light value setting	<ul style="list-style-type: none"> <li>10-1000 lx</li> </ul>
Protection rating	<ul style="list-style-type: none"> <li>IP20 (IP54 with AP box)</li> </ul>
Safety class	<ul style="list-style-type: none"> <li>II</li> </ul>
Temperature range	<ul style="list-style-type: none"> <li>0 °C to +40 °C</li> </ul>
Number of DALI devices	<ul style="list-style-type: none"> <li>3</li> </ul>
Mounting height (ceiling mounting)	<ul style="list-style-type: none"> <li>2,5 m – 10 m</li> </ul>
Detection angle/square	<ul style="list-style-type: none"> <li>Presence: max. 8 x 8 m (64 m<sup>2</sup>)</li> <li>Radial: max. 8 x 8 m (64 m<sup>2</sup>)</li> <li>Tangential: max. 20 x 20 m (400 m<sup>2</sup>)</li> </ul>

## Sensor placement

### Detection range

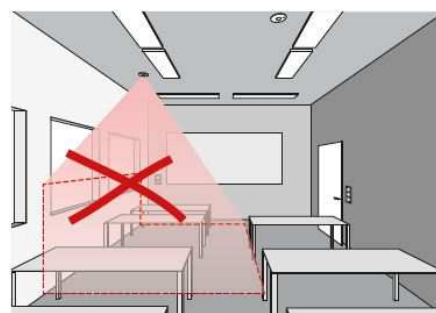
- The sensor's detection range must be considered (see sensor product specification sheet). The sensor should cover working and movement areas in the room, but also – if possible – the entrance, so that the light can be switched on in good time. If the detection range is insufficient, a greater number of sensors must be arranged.
- When using high-frequency or radar sensors, it is important to consider that detection may occur even through thin walls. Furthermore, the narrow detection range (see product specification sheet) must be considered.



### Light sensor

For daylight control functions it is important that the light or combined presence and light sensor is placed in a suitable position.

- The light sensor should not be placed too close to window surfaces, but also not too far inside the room.
- The sensor should be placed in a position where it is exposed to average daylight intensity, for example in the middle of the room or close to work stations for which the light control is calibrated.
- The light sensor should be placed above a suitable surface, if possible. Ideally, this surface should also be used as a reference surface for lighting intensity calibration. It should have a medium reflectance value. Well-suited surfaces are desktop surfaces or light grey path surfaces.
- It is important to observe that no objects which might impact sensor functions are placed underneath the sensor, e.g. palettes or taller pieces of furniture.



### Sources of interference

Avoid placement near any of the following sources of interference:

- Ventilation systems or sources of heat, e.g. heaters or video projectors
- Sources of light interference, e.g. luminaires with an indirect light component that directly hits the sensor
- Daylight reflection, e.g. from mirrors
- Radio or WLAN emitters at a distance of circa one metre



### Further sensor information

For further detailed sensor information and data please refer to the system manual or the sensor specification sheet.

## Functional description

### Daylight-dependent control

The light meter within the sensor evaluates mixed light reflections consisting of artificial light and daylight. The resulting measured value is then compared to the nominal value programmed in by the user. In case of differences between measured and nominal value, the artificial light is readjusted accordingly in order to keep the lighting intensity virtually consistent. If there is sufficient daylight and the nominal value is surpassed, the artificial light is switched off. The artificial light is only switched off once the lighting intensity nominal value is surpassed by 25 % and this state lasts for more than 5 minutes. If presence detection is active, the lighting installation automatically switches back on once levels fall below the nominal value.

### Presence detection

The user can select from the operating modes AUTOMATIC and SEMI-AUTOMATIC. In both cases, the entire lighting is switched off automatically after a preset switch-off delay of 15 minutes once a room is left empty. When movement is detected again, the light only switches back on automatically in AUTOMATIC operation. The operating mode SEMI-AUTOMATIC requires manual switching on via push buttons T1 (Automatic standard) and T2 (Automatic bright). Changing the switch-off delay or operating mode is possible via the "LiveLink Install App".

Presence detection is based on a passive infrared sensor, which means that there is a reaction to changes in heat radiation, e.g. due to people moving. When placing the sensor, it is important to ensure that no shadows fall in the detection range and limit sensor function. It is also important to consider that air currents which are caused by other heat sources than people may cause unintended switching on, such as heater fans or opened windows.

### Detailed functional description

#### Overall hall operation:

Overall hall operation is called up by pushing the key switches S5 on the LiveLink controller for halls 1 & 3 (slave 1 & 3). The entire lighting installation for halls 1 through 3 is now controlled synchronously. Only the push buttons on the LiveLink controller in hall 2 (master) remain functional.

#### Competition operation:

Competition operation is called up by pushing the key switch S5 on the LiveLink controller for hall 2 (master). Lighting goes up to 100 % luminous flux, and the entire installation is not automatically switched off when exiting the room.

#### Automatic operation:

With the push buttons T1 (Automatic standard) and T2 (Automatic bright) the adjustable scenes for the hall are called up. When the lighting is switched off via presence detection, the next switch-on automatically starts back up with the "Default" scene adjustable in the "LiveLink Install App".

### App download

The system is set up with the app "LiveLink Install". System requirements are either an iOS or an Android tablet.

The apps can be found in the Apple App Store or the Google Play Store.



### Commissioning

Commissioning LiveLink is done in next to no time – thanks to a simple graphic user interface featuring intuitive and comfortable operation. For this purpose, the control unit sets up its own secure WLAN. From that point on, the user communicates directly with the system through the commissioning app "LiveLink Install" on a tablet.

LiveLink Install guides the user through commissioning step by step. Intelligent control and feedback functions give the installer a maximum of security. When luminaires and sensors are tapped in the app, they flash. Mix-ups are impossible. Configuration is done via drag & drop. All steps are intuitively comprehensible, even for first-time users.

For help during commissioning, we provide you with our LiveLink system manual which is enclosed with every LiveLink system. You can also find the system manual on our homepage [www.trilux.com/livelink](http://www.trilux.com/livelink).

## Push button assignment

Push buttons are connected to a light scene or a luminaire group. When a light scene is assigned to a push button, said light scene is later activated at the press of the button. When a luminaire group is assigned to a push button, said luminaire group is later dimmed or switched on at the press of the button (Touch Dim function). One push button can only be occupied by one single light scene. In the Use Case Individual Sports Hall, the push buttons should be saved to the scenes “Automatic standard”, “Automatic bright”, “Service” and Off as depicted in the plan.

## Push button function

Push button operation	Function	Note
T1 T2 T3	Push button press, scene ON, e.g. automatic 300 lx Push button press, scene ON, e.g. automatic 500 lx Push button press, scene ON, e.g. automatic 700 lx	When switching on automatically, room lighting always starts up in the Default scene; with Standard Use Case settings in daylight-dependent standard operation.
T4	Push button press, scene OFF	The complete lighting installation is switched off.
S5 (halls 1 & 3)	Switch open, overall hall operation Switch locked, individual hall operation	Overall lighting in halls 1 and 2 is switched and controlled synchronously when the key switched is locked. Only the push buttons on the LiveLink controller in hall 2 remain functional.
S5 (hall 2)	Switch open, no competition operation Switch locked, competition operation	Lighting goes up to 100 % luminous flux with key switch locked, and overall lighting is not automatically switched off when exiting the room.

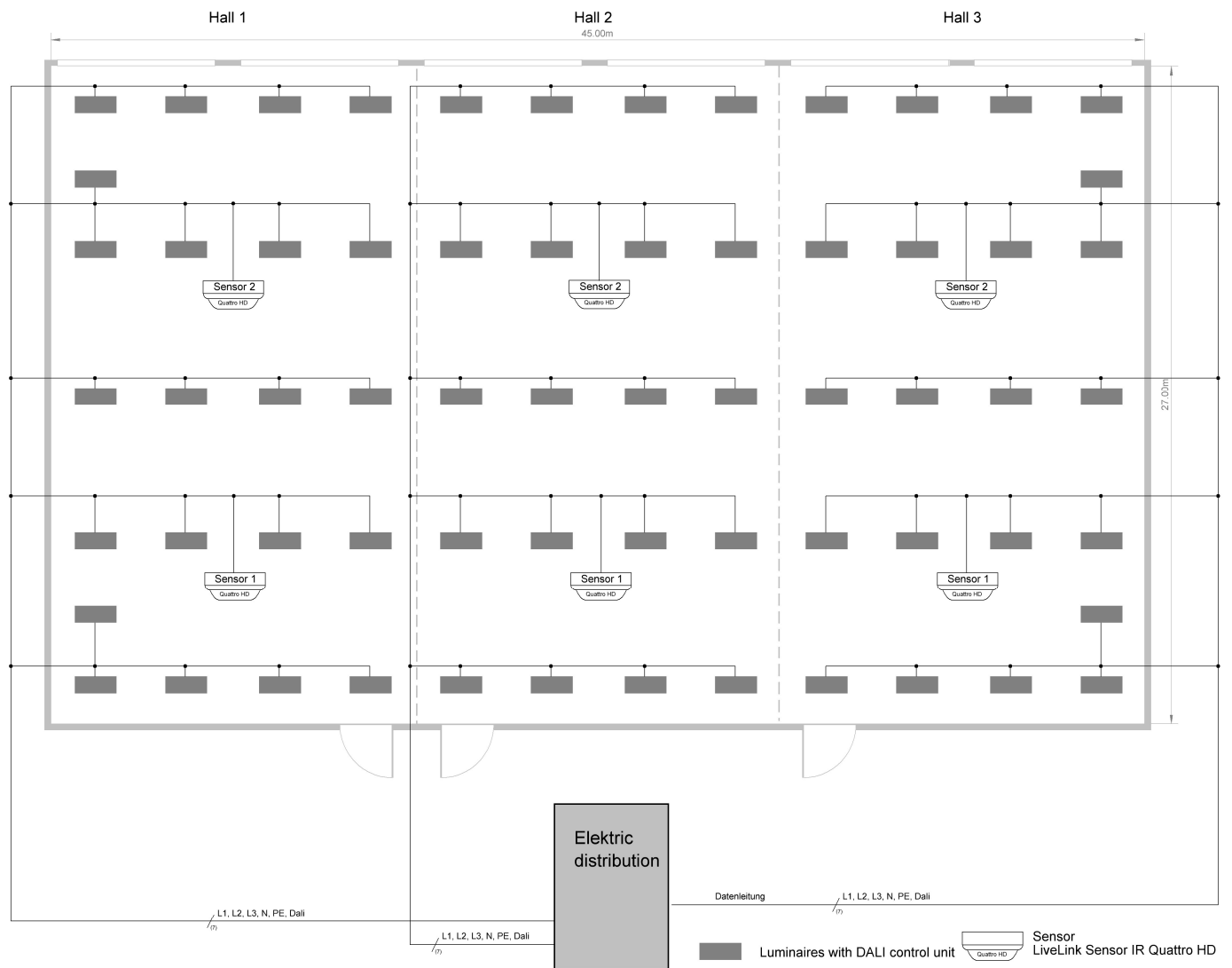
### Push button coupler note:

A maximum of 4 commercially available push buttons with one normally open contact can be connected to each push button coupler. If more than 4 push buttons are required, more push button couplers can be integrated. (1 push button coupler = 1 DALI device)

## List of components

Pcs.	Reference		Note
66	Luminaire	TRILUX Actison G3 RSX3 14000-840 ETDD (example luminaire)	Luminaire with DALI control gear unit
3	Controller	LiveLink Wifi Connect	TX LiveLink controller + cable strain relief system accessory
6	Sensor	LiveLink sensor IR Quattro HD	Steinel sensor Quattro HD with DALI connection
6	Ball protection basket	LiveLink sensor BSK	Steinel Sensor ball protection basket
6	Sensor surface mounting box	LiveLink sensor AP BOX	Steinel sensor surface mounting box
3	Push button coupler	LiveLink DALI PB4	TX DALI push button coupler
3	Repeater	OSRAM DALI Repeater	OSRAM DALI Repeater

# General plan:



The diagram illustrates the wiring for a DALI lighting system across three halls (Hall 1, Hall 2, Hall 3). The main power supply (L1, L2, L3, PE) is connected to the system. Each hall contains a LiveLink Connect unit, an OSRAM DALI Repeater LI unit, and a DALI luminaire. The wiring shows the connection of the DALI bus lines (DALI+, DALI-) and the power lines (L1, L2, L3, PE) to the various components. The diagram also includes a legend for button functions and a note about sensor/push button couplers.

**Legend:**

- T1 (push button) = Scene 1 (e.g. Auto 300lx)
- T2 (push button) = Scene 2 (e.g. Auto 500lx)
- T3 (push button) = Scene 3 (e.g. Auto 700lx)
- T4 (push button) = Scene 4 (e.g. Auto 1000lx)
- S1 (key switch) = Individual/overall operation

**Note:**

All LiveLink Dali components (sensor/push button coupler) must be connected directly to LiveLink, do not connect downstream of the DALI Repeater!!