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# Installation guide and mounting instructions OSRAM BT controls

**OSRAM**

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# 1 BT controls

Three hardware types of BT controls are available:

- DALI ACU BT
- DALleco BT
- DALleco BT RTC (with integrated real-time clock)



## Control features

Plug-&-play, out-of-the-box features	Yes	Yes	Yes
Controllable and configurable via app (Android/iOS)	Yes	Yes	Yes
Support of OSRAM DALI & DALI-2 sensors & couplers	Yes	Yes	Yes
No. of different connectable pushbuttons	1	1	2 <sup>1)</sup>
DALI grouping	Yes, up to 4	Yes, up to 4	Yes, up to 4
Swarm (wireless interconnection between controllers)	Yes	Yes	Yes
Mounting type	Flush box	Luminaire integration <sup>2)</sup>	Luminaire integration <sup>2)</sup>
HCL function (automatic time-of-day-based color temperature change)	-	-	Yes
Timer functions	-	-	4

1) The second pushbutton needs a resistor in the daisy chain

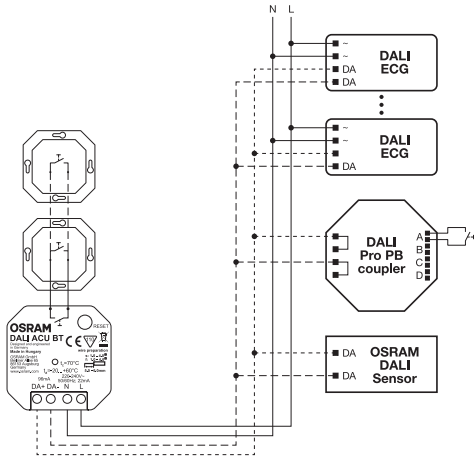
2) False ceiling integration with cable clamp (ECO CI KIT) possible

All three hardware types of BT controls feature the same electrical parameters:

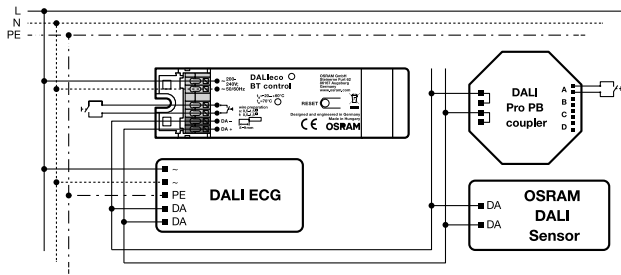
Electrical parameters	Value
$V_{AC}$	220-240V; 50/60Hz
P	0.3-3 W
$t_a$	-20 ... +60 °C
IP rating	IP20
Max. DALI load	32 ECGs + 4 OSRAM DALI sensors or DALI pushbutton couplers
	96mA

# 2 Wiring diagrams

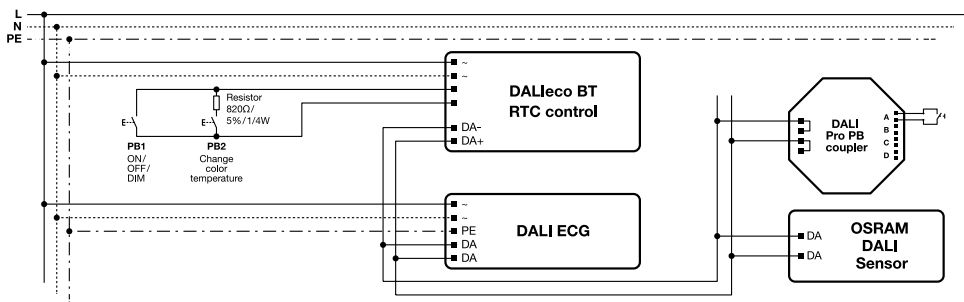
## 2.1 DALI ACU BT



## 2.2 DALIeco BT



## 2.3 DALIeco BT RTC



## 3 Limitations on connectable devices

Relevant for all three BT controls:

DALI ACU BT, DALIeco BT and DALIeco BT RTC (with integrated real-time clock)

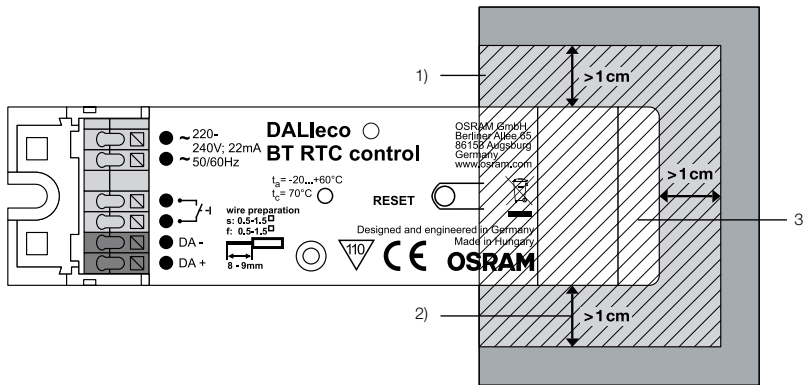
Number of OSRAM DALI sensors	Number of OSRAM DALI PB couplers	Max. number of OSRAM DALI ECGs (at an ambient temperature of 25 °C)	Max. number of OSRAM DALI ECGs (at an ambient temperature of 60 °C)
1	0	32	32
	1	32	32
	2	32	32
	3	32	32
	4	32	32
2	0	32	32
	1	32	32
	2	32	32
	3	32	32
	4	32	32
3	0	32	32
	1	32	32
	2	32	32
	3	32	30
	4	28	26
4	0	32	30
	1	30	28
	2	28	26
	3	26	24
	4	24	22

# 4 Mounting instructions for BT controls

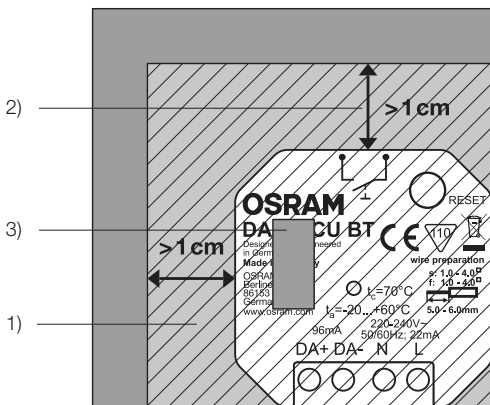
## 4.1 Radio optimization

The wireless Bluetooth Low Energy (BLE) interface is based on the Bluetooth 4.0 protocol. Connectivity range: ≤15 m

### DALieco BT, DALieco BT RTC



### DALI ACU BT



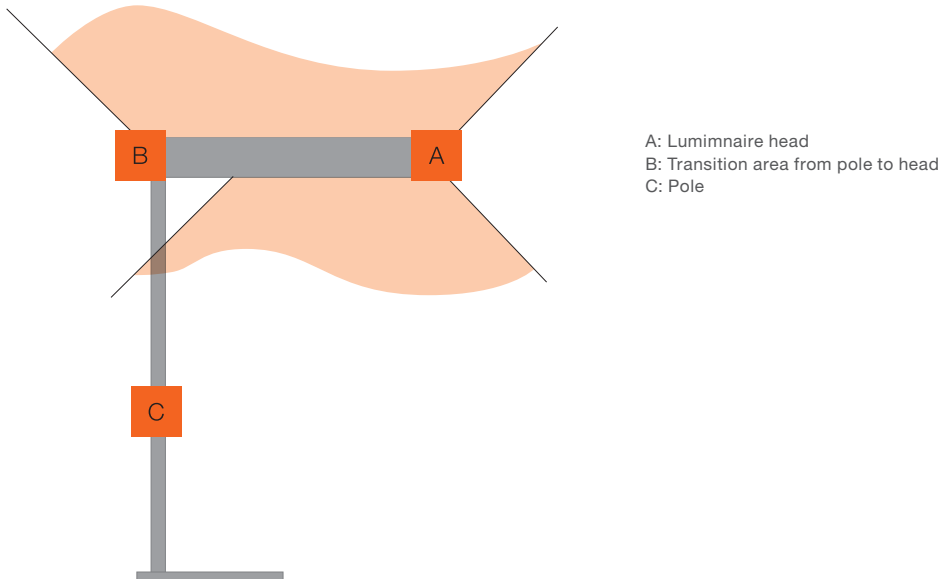
- 1) Do not place any mains voltage or LED supply wires within or close to this area
- 2) Recommended minimal distance to metal parts
- 3) Placement of integrated radio transmitter antenna

## 4.2 Guidelines for control placement to optimize the stability and effective range of the BT connection

1. Preferable installation on systems free from metal obstructions or material that heavily weakens the radio frequency signal (e.g. fiber-reinforced plastic).
2. Do not place inside metal boxes!
3. Keep a distance of at least 1 cm between the antenna area and the mounting surface.
4. Do not wire cables (mains voltage, LED supply wires) near the antenna area and, if possible, outside of the device border.
5. Consider an installation height above the furniture and people obstacles (e.g.: 1.6 m from the floor). This is important for the wireless communication between controllers (Swarm). The wireless range between the controllers is smaller than between a controller and a smartphone because the controllers are partly surrounded by metal housings while the smartphone is not.

### 4.3 Best practice examples

#### Floor-standing luminaire mounting

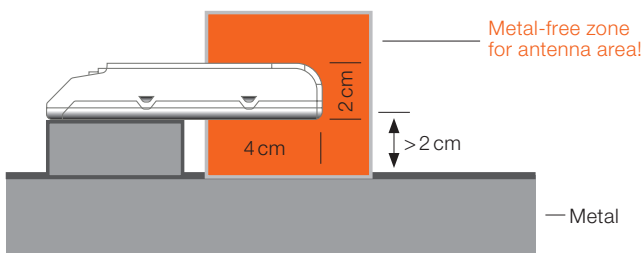


#### General mounting rules:

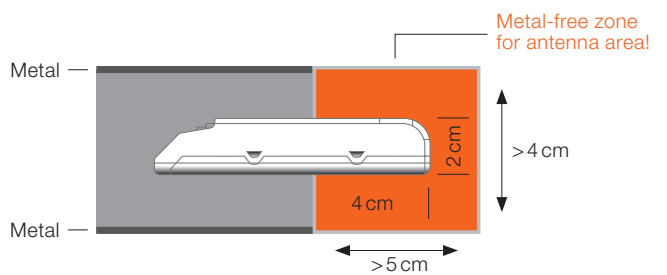
- ✗ Metal surrounding the antenna
- ✗ Wires over antenna area
- ✗ No space for free BT transmission
- ✓ Non-metallic surrounding material
- ✓ > 1 cm of free space around antenna
- ✓ Space for free BT transmission

#### A Luminaire head:

##### On-top mounting

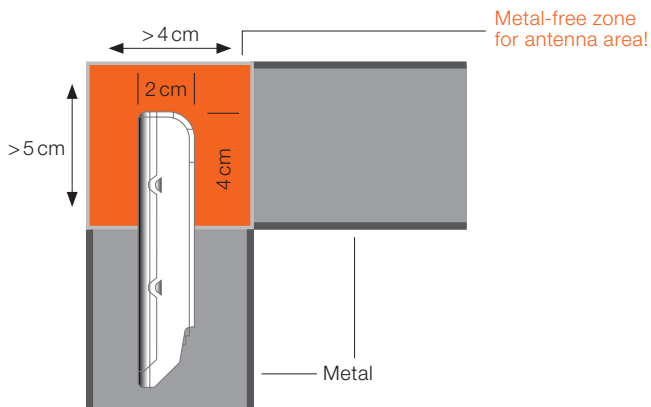


##### End mounting



**B Transition area:**

**Corner mounting**



**4.4 Function validation**

To validate the assembly, the construction must be checked and the connection stability and connection distance tested. The check should be done using:

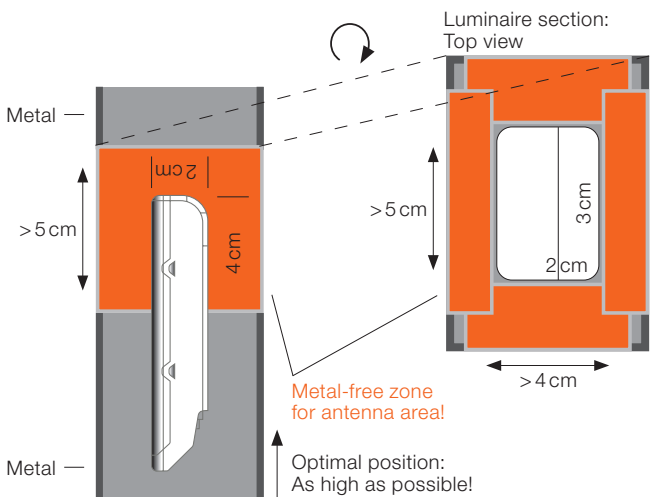
- The OSRAM BT app and a mobile device for testing the range of the mobile device to the BT the antenna
- In case of Swarm function: A second BT control unit to test the point-to-point range between Swarm participants

**Please note:**

The result of the validation is not an index of replicability in all environments and application situations.

**C Pole:**

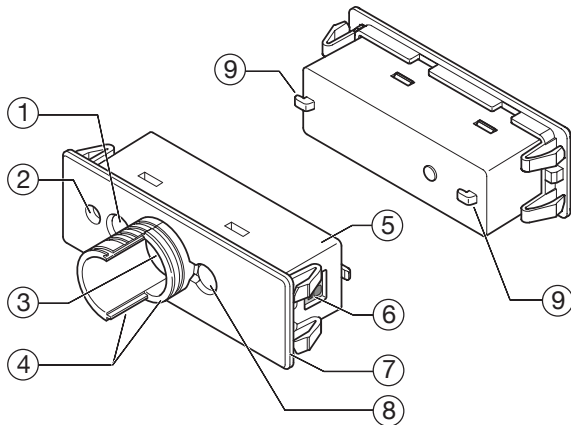
**Pole integration**





# 5 Mounting instructions for connectable DALI sensors

## 5.1 Sensors and networking



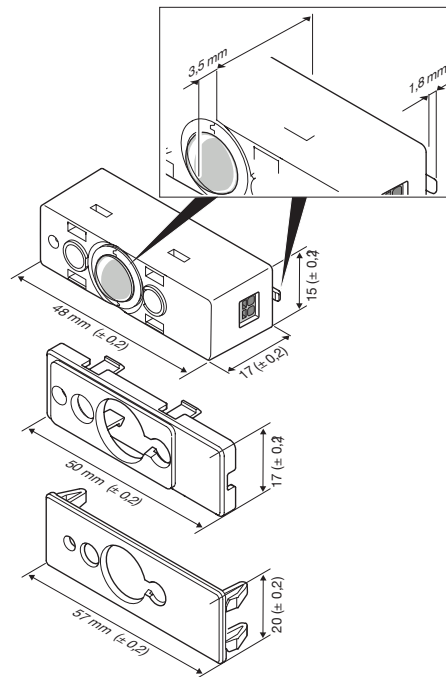
- 1) LED display
- 2) Sensor button (recessed in housing)
- 3) Presence sensor
- 4) Shutter mechanism (for setting the presence detection range)
- 5) Sensor housing
- 6) DALI line connection
- 7) Cover
- 8) Brightness sensor
- 9) Retaining lugs

Connection of multiple sensors via DALI to the control unit

## 5.2 Sensor size and assembly options for luminaires

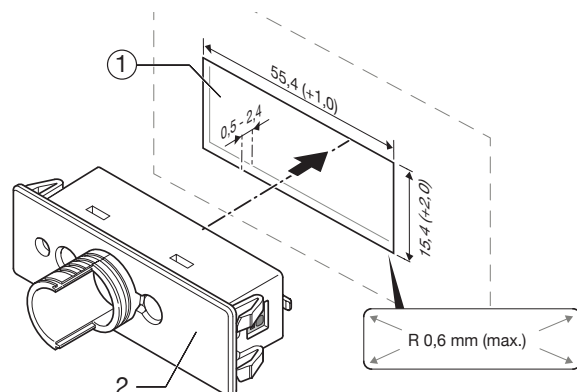
The sensor has a small size and it is optimized for luminaire integration.

There are two different covers available, but there is also the possibility of individually fitting the sensor into the luminaire housing:



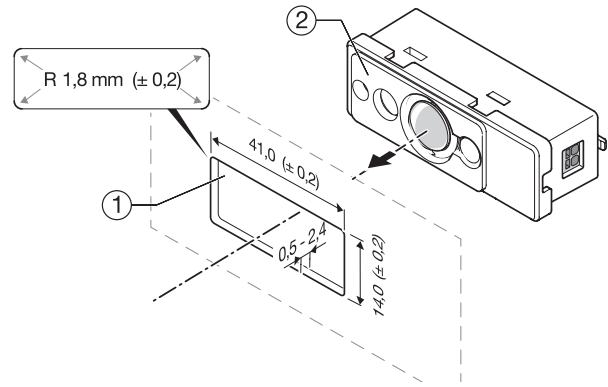
### A: Cover (2) for installing the sensor externally through the opening (1) in the luminaire housing

The cover is placed on the sensor prior to installing the sensor. Then both parts are inserted into the opening of the luminaire housing together.



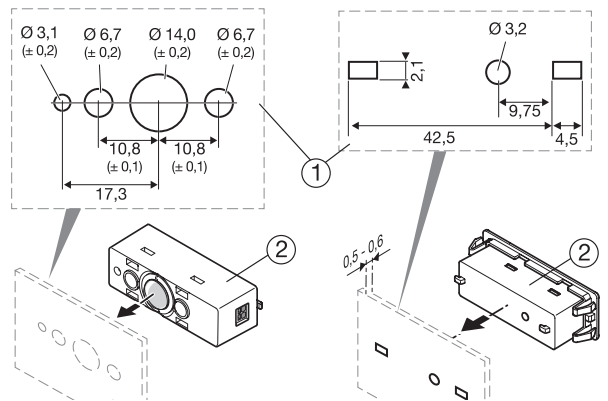
**B: Cover (2) for installing the sensor internally**

The cover is placed on the sensor housing. If the sensor is in the correct mounting position, the raised surface of the cover will sit flush in the luminaire opening (1).



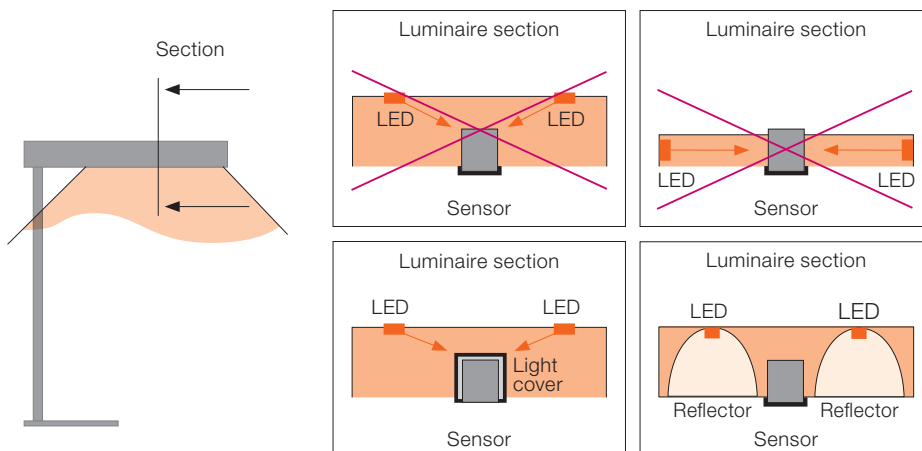
**C: Internal sensor installation without separate cover**

The openings in the luminaire housing (1) must be made to accurately fit with the sensor (2). For simple assembly on the corresponding counterpart, there are retaining lugs (9) on the bottom of the sensor.

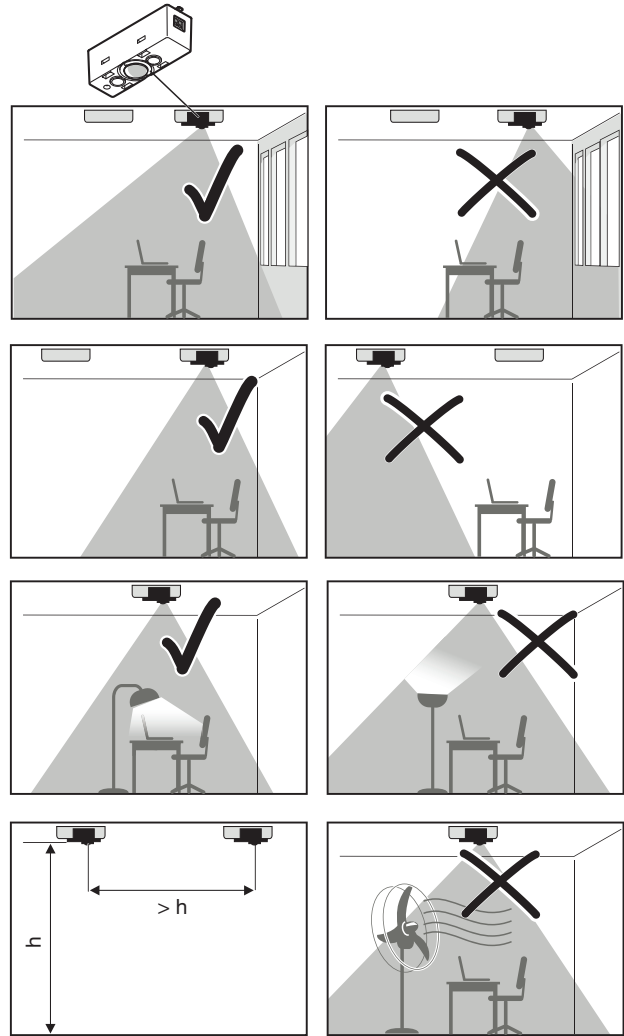


**5.3 Guidelines for sensor placement to optimize the functionality and the detection area**

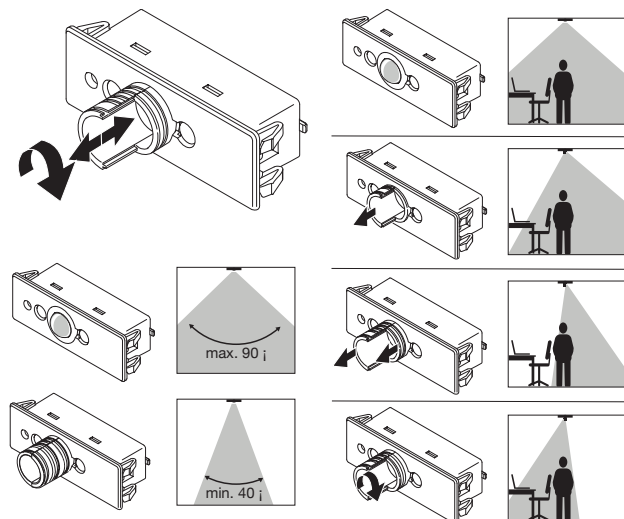
1. The light sensor measures the sum of daylight and artificial light reflected by a reference surface (e.g. tabletop or floor). For this purpose, the sensor must be directed as perpendicularly as possible to the reference surface. To achieve a proper function, the sensor must be placed so that it receives the reflected light of luminaires connected to the DALI channel.
2. Direct sunlight falling on the sensor has to be avoided, as well as unwanted measurement of the outside brightness through the sensor. Therefore, the sensor must not be mounted too close to the window. A sufficient change in the sensor reading through a change in the illumination is only guaranteed if the maximum mounting height is respected.
3. Do not place light directly behind the sensor as the housing is not fully lightproof!



4. Keep a distance between each of the sensor-controlled luminaires of at least the same distance as the installation height measured from the floor to the sensor.



5. Use the integrated shutter mechanism to adjust the detection pattern according to your individual needs.



**Detection range adjustable via shutter  
(min. 40°- max. 90°)**

Installation height	2.0m	Detection range	Ø 1.5m - 4.0m
Installation height	2.5m	Detection range	Ø 1.8m - 5.0m
Installation height	3.0m	Detection range	Ø 2.0m - 6.0m
Installation height	3.5m	Detection range	Ø 2.5m - 7.0m
Max. installation height	5.0m	Max. detection range	Ø 7.0m

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