Wireless connectivity

HubSense® – qualified Bluetooth mesh

"The simpler system to simplify the lighting projects"

Dennis Fullin – PM
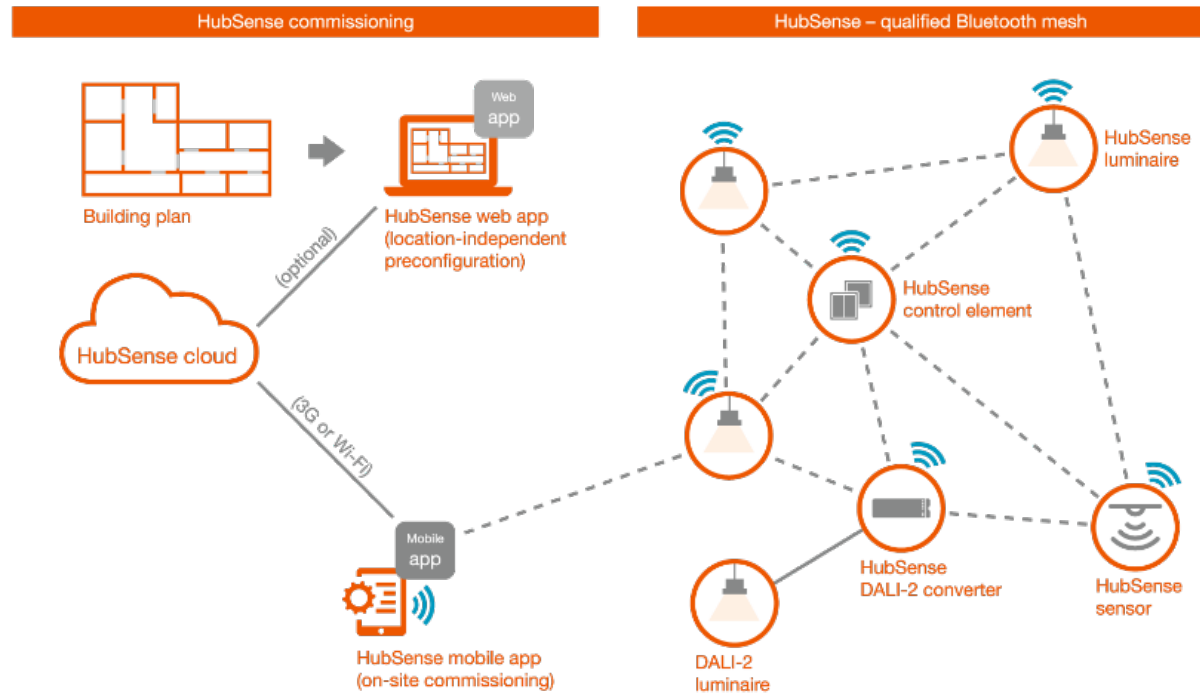**Building a Brighter Future**

20-10-2023 | CNT

Inventronics HubSense®
Your Host

"HubSense® by Inventronics is a wireless ecosystem based on

Bluetooth mesh to simplify the installation and minimize the retrofit effort"

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Inventronics HubSense®
Qualified Bluetooth® mesh: a rational choice

Reason behind a wise decision

Why standardization?	Why qualified Bluetooth® mesh?
Interchangeability higher productivity and lower manufacturing costs. **Efficiency** Standardization often includes quality assurance measure and committee offer new features constantly **Availability** minor capital on stock, shorter led time for luminaire manufacturer.	**Wireless** No installation of control cable nor masonry works. **Bluetooth mesh** integrates the BLE smart devices used for commissioning **Energy saving** easy installation of lighting and presence sensors **Secure** robust by definition and certified

Inventronics HubSense®
European Market for Wireless Retrofit

Unlock the potential of additional energy savings and well being for existing buildings

- New buildings ~ 1 %
- About 80% are light dimmable installation

- Renovated buildings ~ 4 %
- **Only 20 % are light dimmable installation**

Commercial building area
Europe > 6,2 billion m^2

Source BPIE survey

Inventronics HubSense®
Benefits for all the players in the value chain

Facility Manager	__Luminaires Manufacturer__	Installer
Savings by light / vacancy sensing	New high-value Luminaire to sell	Fast installation and no masonry works
Robust and secure communication	New opportunities because wireless	No Gateway needed
Short downtime during refurbishment	Sustainable thanks to open standard	Multi commissioning possible (short time)
Gradual updates / refurbishment possible	Pre-setting in factory possible	Pre-configuration service possible
Easy to re-adapt to new layouts	One shop stop from Inventronics	Real scalable solution

HubSense®
QBM Product Overview – base portfolio

| Commissioning | Input device / sensor | Control device/sensor | LED control gear | LED load |

HubSense web App
(planning)

HubSense mobile App
(planning, on site commissioning)

DALI-2 Sensor LS/PD CI

EASYFIT EWSSB

EASYFIT EWSDB

HUB PB COUPLER
1-4 buttons

QBM DALI CONV LI

QBM D4i LS/PD HB

QBM D4i LS/PD LB

QBM D4i LS/PD MB

1-4 devices

QBM D4i LS/PD R

QBM D4i R

1-4 devices

1-4 devices

QBM 220 LS/PD HB

1-8 devices

QBM

1-8 devices

New wireless EL-T controller

QBM DALI EL-T CONV

OTi DALI

OTi DEXAL

OTi DEXAL

OTi DEXAL

OTi DALI

OTi DALI

OTi Wi D NFC L

OTi Wi LP

OTi Wi LP I

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HubSense – one ecosystem
qualified Bluetooth mesh components

DRK LIGHTING — LIGHT THE FUTURE

No masonry works

Offices

No control cables

Schools

No gateway

Sport hall

Shorter time on site

Bluetooth <-> DALI emergency converter

Dexal Driver

Luminiare integrated D4I Bluetooth sensor

EnOcean pushbutton

Bluetooth drivers

Bluetooth <-> DALI converter

DALI-2 luminaire

Independent Sensor

Security certified

Retails

Standard protocol

Warehouses

Easy retrofit

Factories

One shop stop supplier

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HubSense – one ecosystem
a wide basket of components – Summary

HubSense: USP

The portfolio of HubSense is quite large:
- Sensors for luminaire integration and independent
- Converter for DALI-2 integration
- LED drivers SELV (compact) and non-isolated (linear)
- Converter for Emergency Luminaires
- Push buttons & EnOcean

It is possible to cover already:	
- Offices	- Indoor Parking
- Schools	- Retails
- Warehouses	- Factories
- Sport hall	

Benefit of a wireless installation
- No masonry works
- No control cable and its cost
- Easy retrofit (1-2-1) and working at stages
- Shorter time on site -> faster re-start of activity

Benefit of qualified Bluetooth mesh by Inventronics
- No gateway
- Standard protocol (mandatory on public spaces)
- Security certified from 3rd party: ioXT & psa
- One shop stop supplier

Reason to believe -> installation in our own offices

Upgrade the lighting in the office building in OSRAM Munich - Garching in terms of <u>energy efficiency, lighting comfort and flexibility</u>,
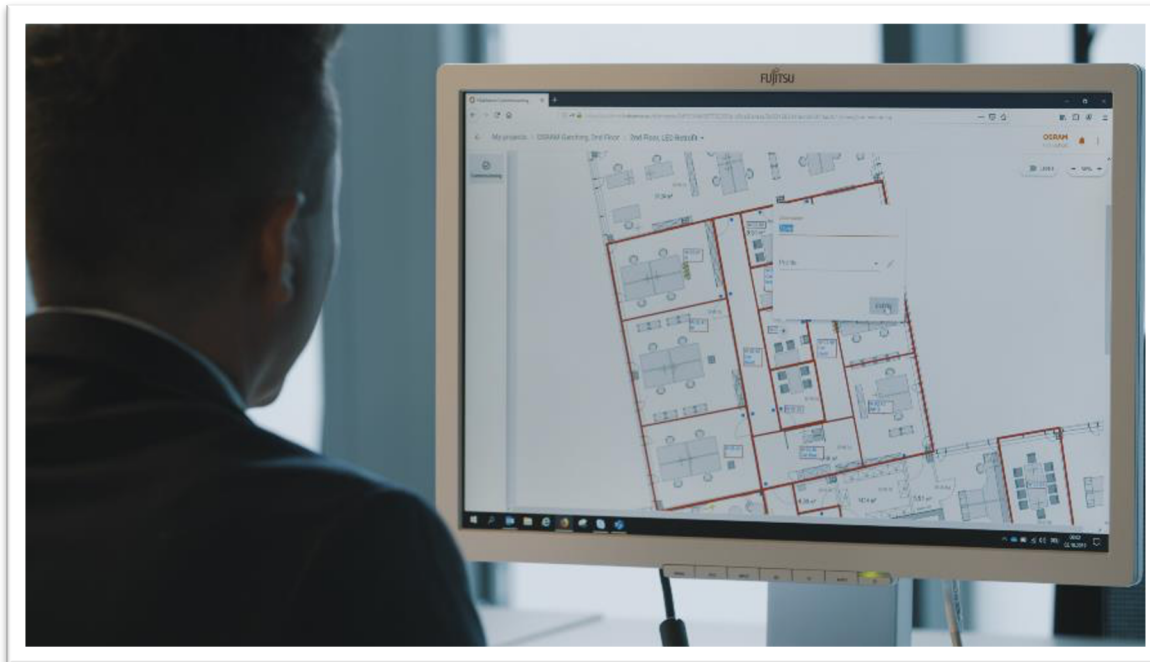
1 Planning

Thanks to reliable Bluetooth® Mesh wireless technology, the scalable retrofit solution can do without control lines and gateways, and can also be planned and pre-commissioned from anywhere using the web app. Information are pre-stored in the cloud
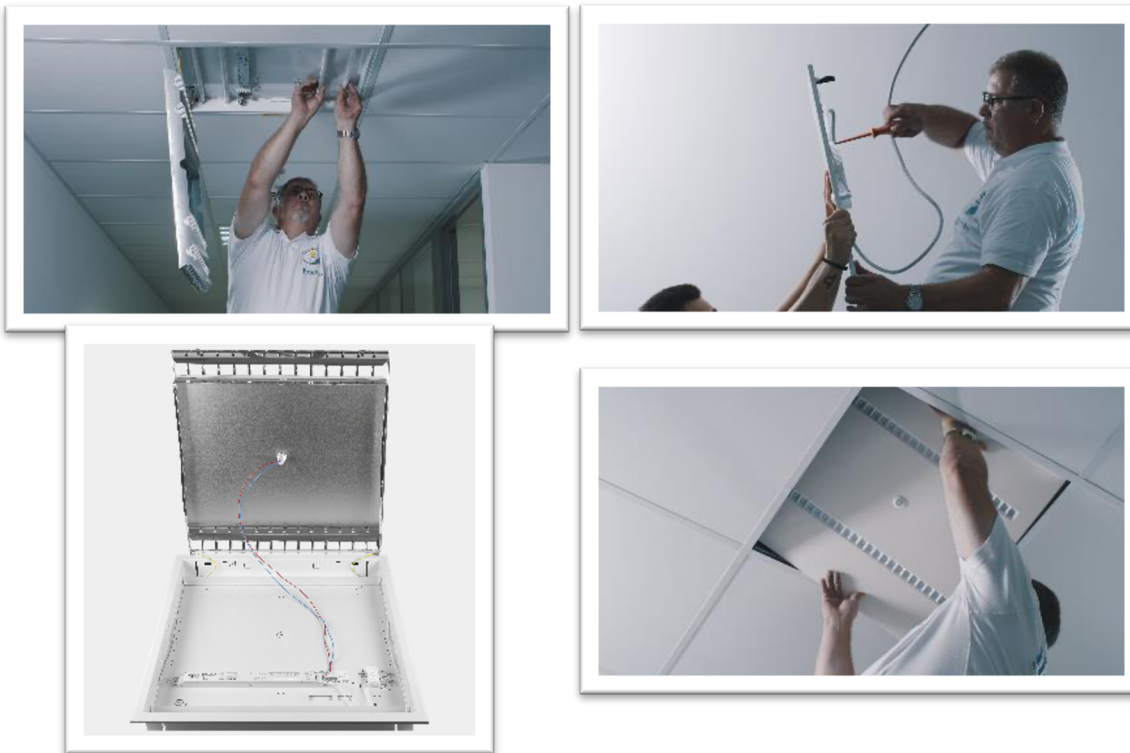
Reason to believe: installation in our own offices

Upgrade the lighting in the office building in OSRAM Munich - Garching in terms of

energy efficiency, lighting comfort and flexibility,

2 Installation

the existing infrastructure could not only be used without costly and time-consuming rewiring, but there was also no need for gateways or other complex IT elements.

For the installers, the system is particularly attractive because we can use it to easily retrofit existing office luminaires,

Reason to believe: installation in our own offices

Upgrade the lighting in the office building in OSRAM Munich - Garching in terms of <u>**energy efficiency, lighting comfort and flexibility**</u>,

3 Commissioning

Commissioning on site carried out by several installers at the same time

Simple luminaire localization and zone assignment via the mobile app. Information dropped by the cloud

Reduced the time spent compared to wired systems.

No structural work thanks to standardized qualified Bluetooth® mesh wireless technology

OSRAM HubSense®
new QBM D4I Dongle with Daylight / Presence Sensor

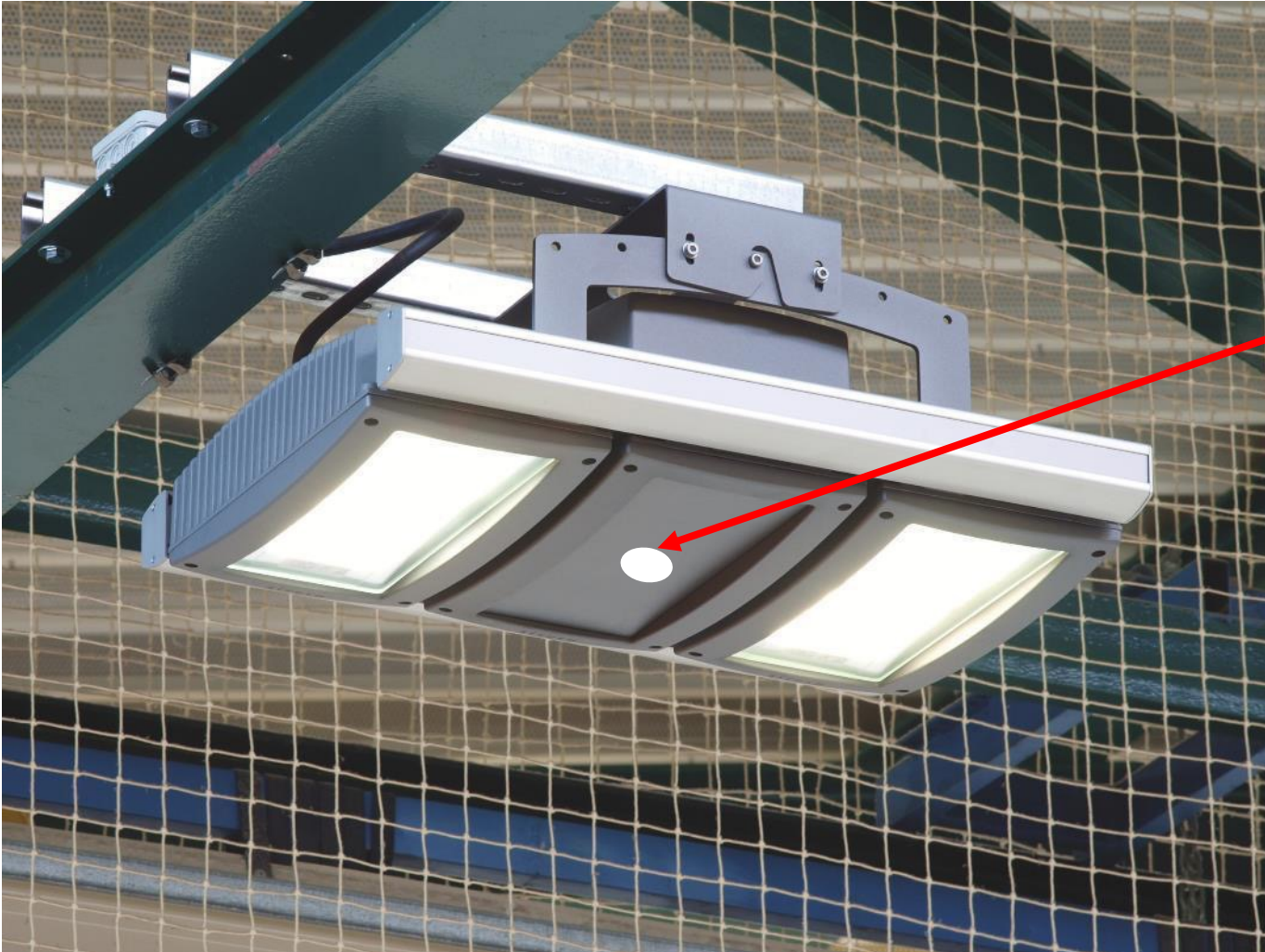## QBM D4I LS/PD R

Product Features

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- „Works with OSRAM DEXAL" Driver
- Wireless Sensor Module for office luminaire
- Including Daylight and Presence/Motion Detection

+ IP 65

+ Light Shield

Main Features	
Input Voltage	Powered by DEXAL Bus Power Supply
Input Current	10 mA 150 mW
Max. of drivers	4 DEXAL or 4 DALI driver plus DALI Bus Power supply
Wireless range (typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR ¹⁾
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	1/2" knockout, h = 36 mm (43 mm)
Detection Range	⌀ 8 m (major)	⌀ 3 m (minor)
Detection Height	< 5 m
Ambient Light Sensor	Yes

OSRAM HubSense ®
devices in the linear system

1 x **QBM D4i LS/PD LI R**

Every 4 x **OTI DX IND…**

Or

1 DEXAL driver + 3 DALI drivers

DEXAL LED Driver

OSRAM HubSense®
new QBM D4I Dongle

QBM D4I R
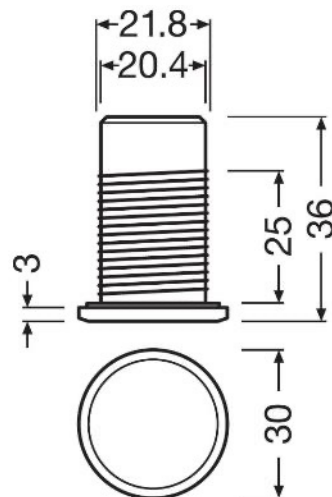
Product Features

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- „Works with OSRAM DEXAL" Driver
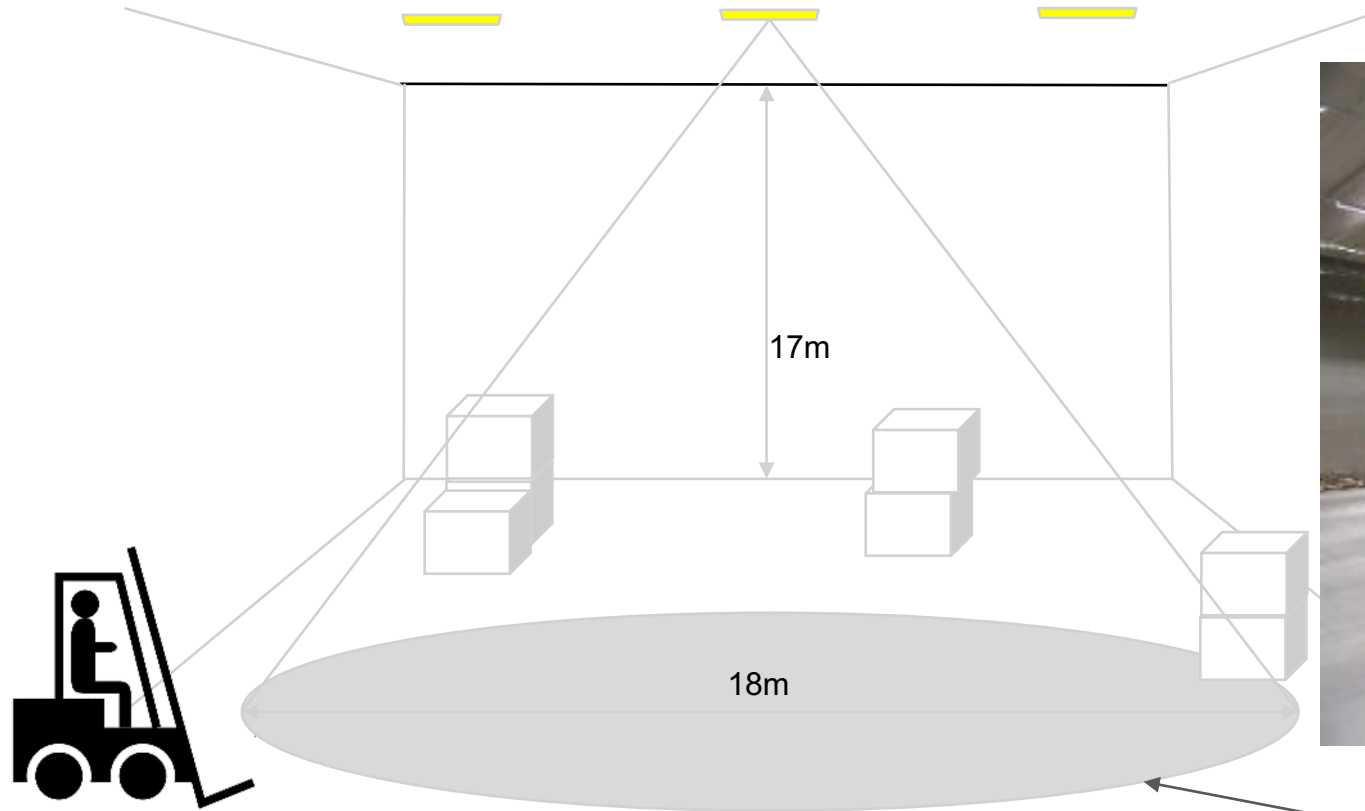- Wireless Module for Office Luminaire

Main Features	
Input Voltage	Powered by DEXAL Bus Power Supply
Input Current	10 mA <150 mW
Max. of drivers	4 DEXAL or 4 DALI driver plus DALI Bus Power supply
Wireless range (typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	1/2" knockout, h = 36 mm (43 mm)

[1] Technology Partner: SILVAIR

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OSRAM HubSense ®
device to create smart luminaire

1 x **QBM D4i LI R**

to create a SMART luminaire

Controlled remotely

OSRAM HubSense®
new QBM D4I Dongle for High Bay with Daylight / Presence Sensor

QBM D4I LS/PD HB
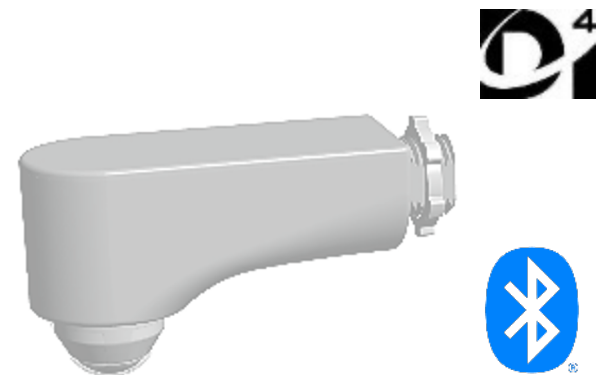
Batten accessory

+ IP 65

+ Light Shield

Product Features

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- „Works with OSRAM DEXAL" Driver
- Wireless Sensor Module for office luminaire
- Including Daylight and Presence/Motion Detection

Main Features

Main Features	
Input Voltage	Powered by DEXAL Bus Power Supply
Max. Input Current	10 mA 150 mW
Max. of drivers	4 DEXAL or 4 DALI driver plus DALI Bus Power supply
Wireless range (typ)	18 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR 1)
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	1/2" knockout, h = 36 mm (55 mm)
Detection Range	∅ 18 m (major)
Detection Height	< 17 m
Ambient Light Sensor	Yes

OSRAM HubSense®
new QBM D4I Dongle for high-bay with Daylight / Presence Sensor

QBM D4I LS/PD HB

17m

18m

Large detection area 18 meters

OSRAM HubSense ®
devices in the truncking system
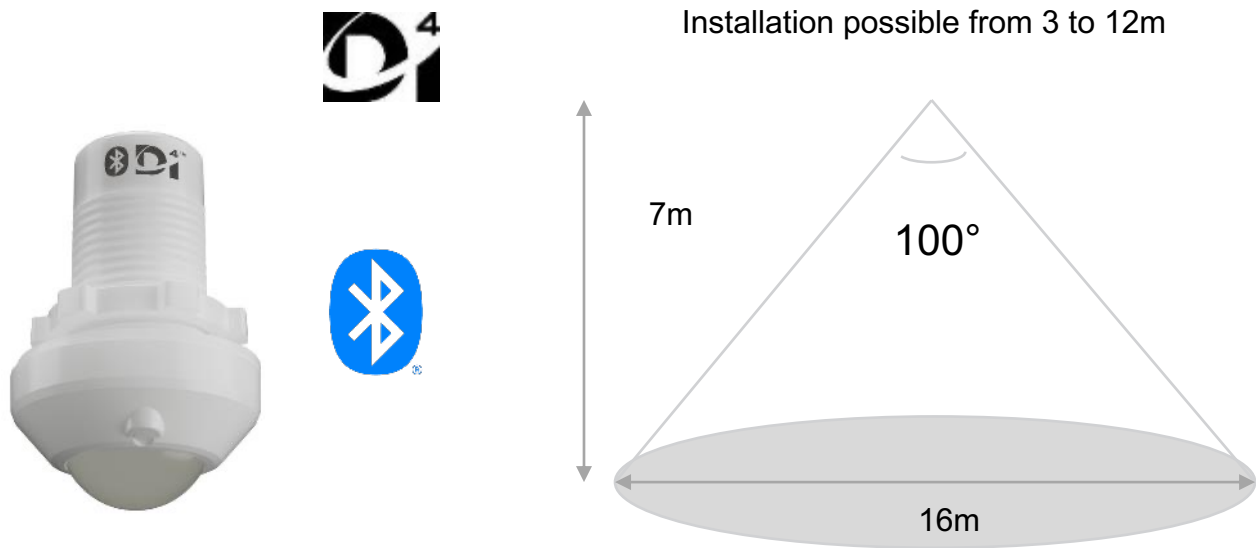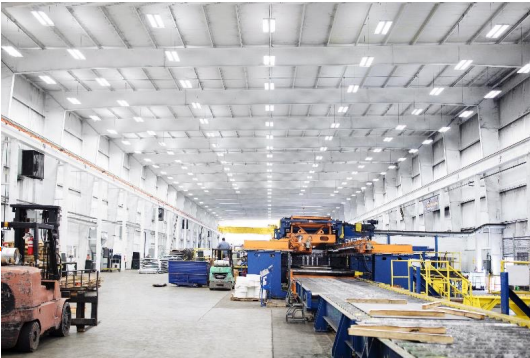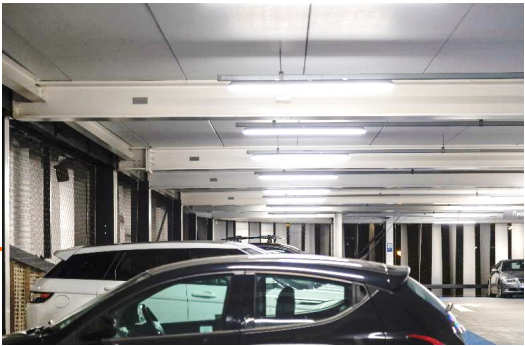

1 x **QBM D4i LS/PD LI R**

Every 4 x **OTI IND…**

Or

1 DEXAL driver + 3 DALI drivers

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OSRAM HubSense®
QBM D4I LS/PD for Mid Bay application

QBM D4I LS/PD MB R

Installation possible from 3 to 12m

7m

100°

16m

IP 65

Product Features

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- „Works with OSRAM DEXAL" Driver
- Wireless Sensor Module for office luminaire
- Including Daylight and Presence/Motion Detection

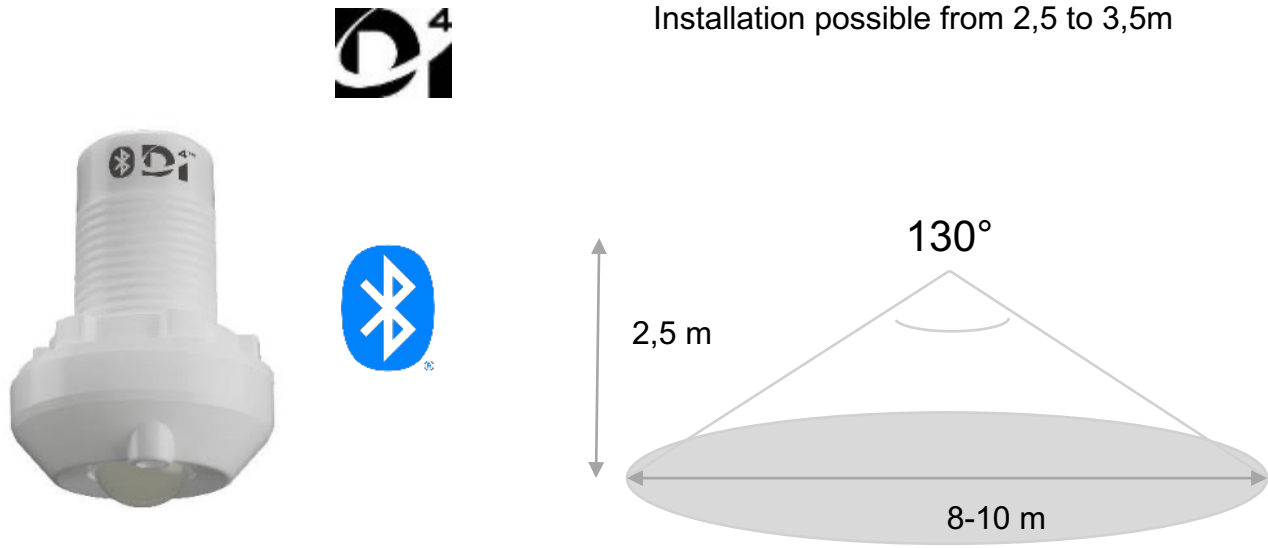| Main Features		
Input Voltage	Powered by DEXAL Bus Power Supply	
Input Current	10 mA 150 mW	
Max. of drivers	4 DEXAL or 4 DALI driver plus DALI Bus Power supply	
Wireless range (typ)	20 m	
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]	
EnOcean switch support	Yes, (EWSSB and EWSDB)	
Dimension	1/2" knockout, h = 36 mm (43 mm)	
Detection Range	16	10-12
Detection Height	<7 m	<12
Ambient Light Sensor	Yes	

[1] Technology Partner: SILVAIR

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OSRAM HubSense®
QBM D4I LS/PD for Low Bay application

QBM D4I LS/PD LB R

Installation possible from 2,5 to 3,5m

130°

2,5 m

8-10 m

IP 65

[1] Technology Partner: SILVAIR

Product Features

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- „Works with OSRAM DEXAL" Driver
- Wireless Sensor Module for office luminaire
- Including Daylight and Presence/Motion Detection
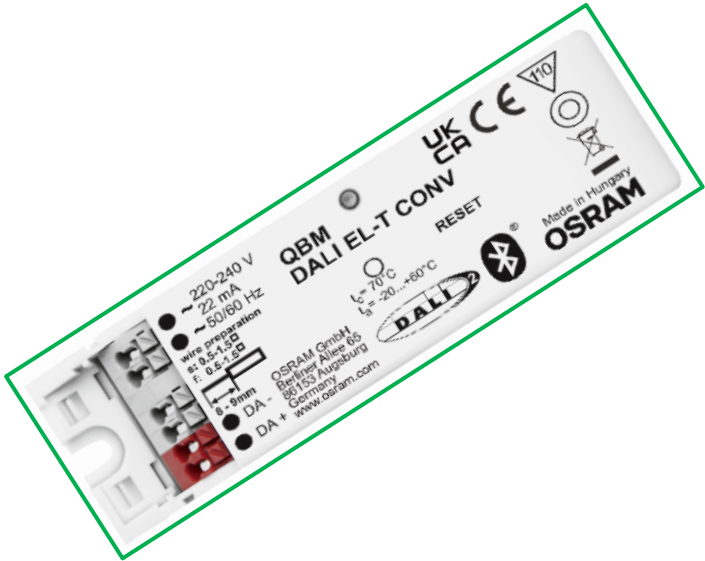
Main Features	
Input Voltage	Powered by DEXAL Bus Power Supply
Input Current	10 mA 150 mW
Max. of drivers	4 DEXAL or 4 DALI driver plus DALI Bus Power supply
Wireless range (typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	1/2" knockout, h = 36 mm (43 mm)
Detection Range	⌀ 8-10 m
Installation Height	< 2,5 - 3,5 m
Ambient Light Sensor	Yes

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HubSense – Emergency tester
QBM DALI EL-T CONV

DRK LIGHTING
LIGHT THE FUTURE

Standalone solution for emergency lighting testing, reporting and maintenance

Product Features

- Fits to DALI-2 Emergency luminaires
- One ecosystem for all the luminaries
- Schedule of **Functional** & **Duration** test
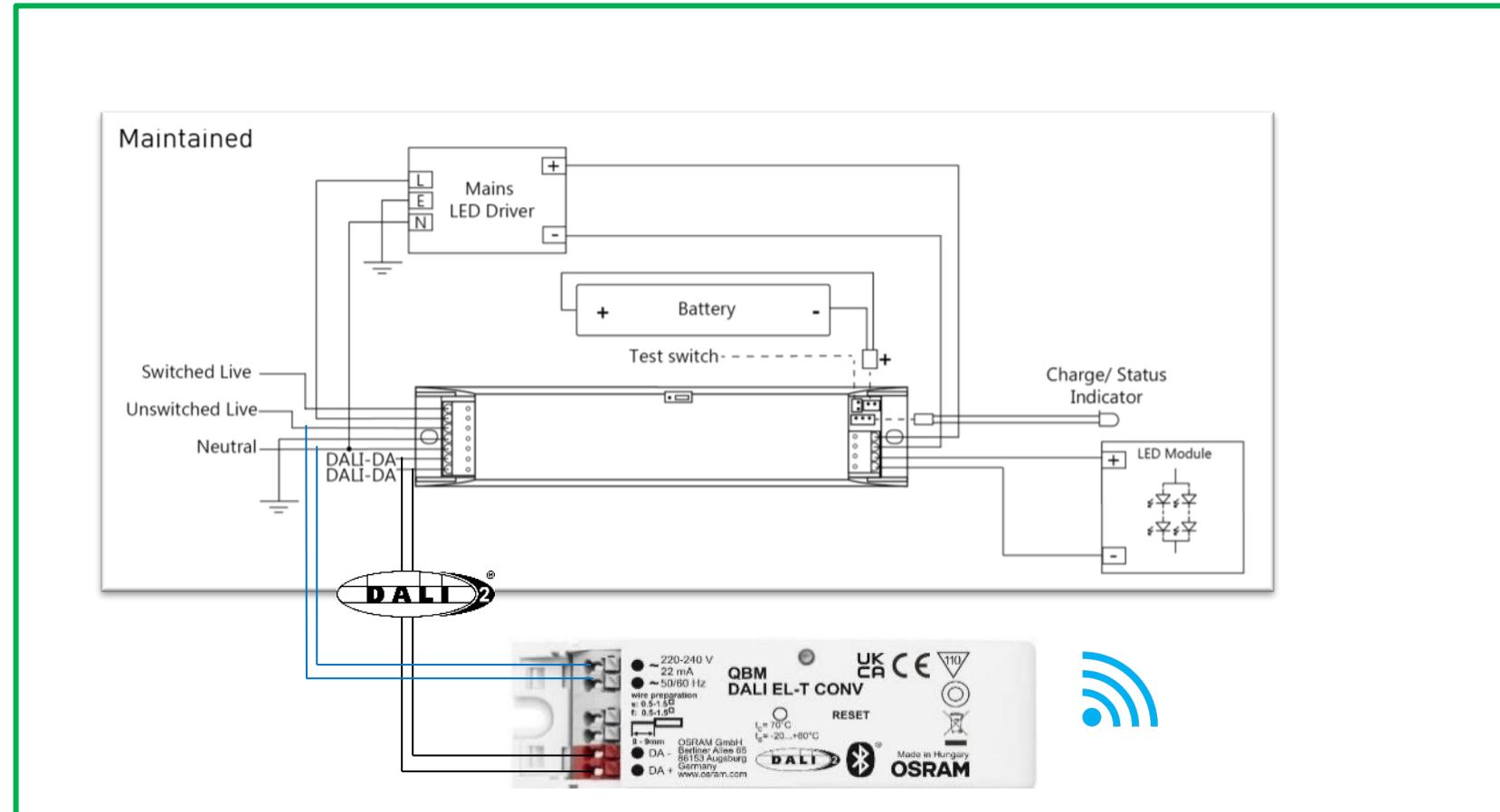- Report of battery status and maintenance need

Main Features	
Input Voltage	220 – 240V
DALI Bus Current	82 mA (32 drivers plus 1 sensor)
Wireless Range (Typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimming Interface	DALI, Basic isolated
Dimension	108 x 30 x 21 mm^2
Accessory	Cable Clamps
Approbation	CE

Office Education Industry Shop Retail Hospitality Horticulture Outdoor

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The DALI Emergency luminaire is configured by the HubSense ecosystem only.
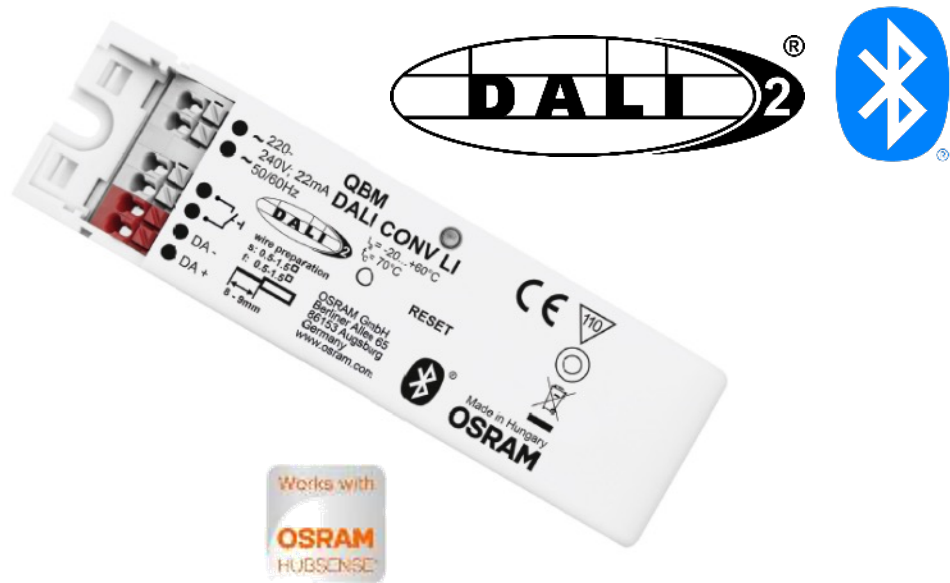
OSRAM HubSense®
QBM DALI-2 Converter with DALI Sensor support

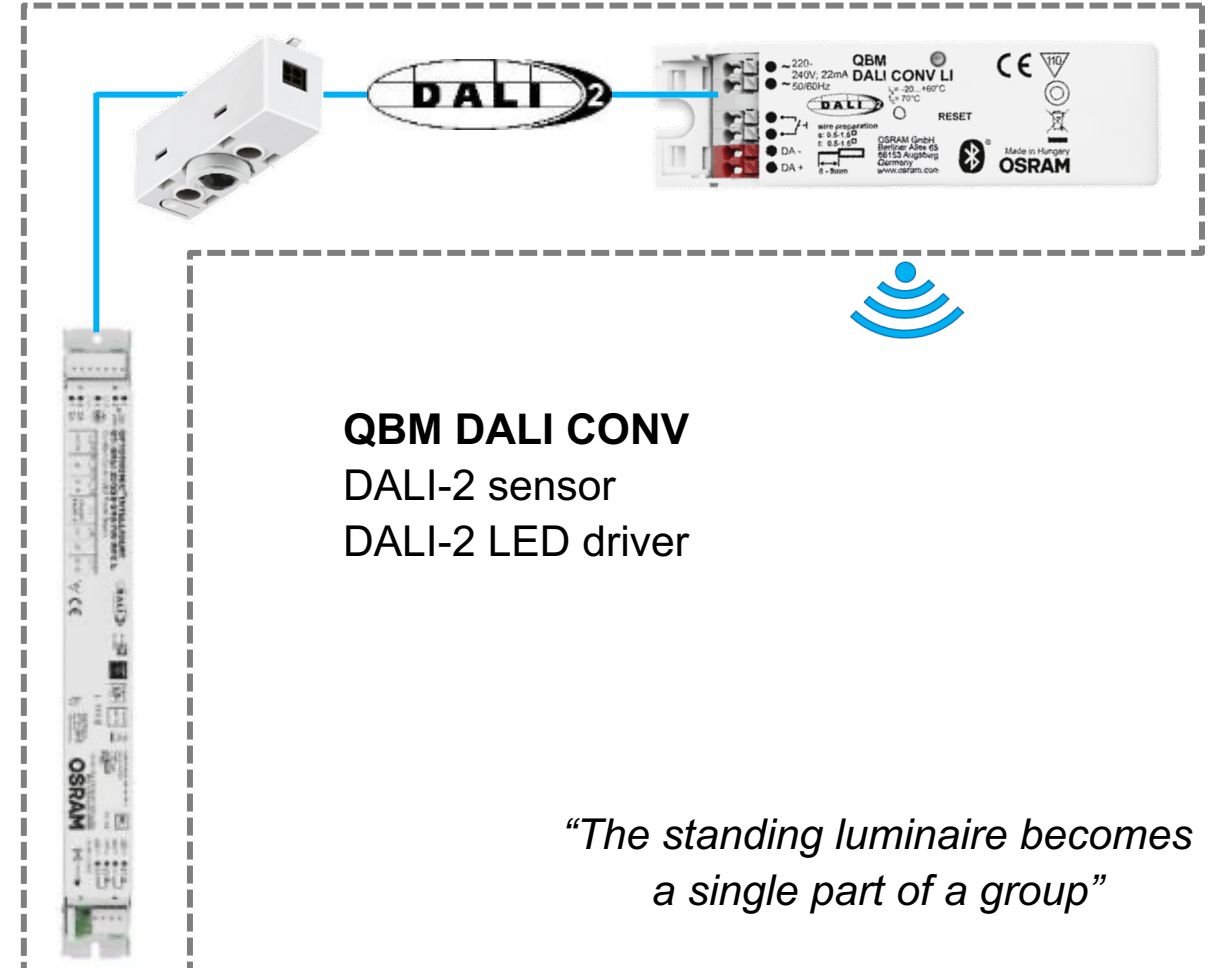## QBM DALI CONV LI

Product Family

- „Works with OSRAM HubSense®"
- Qualified Bluetooth® Mesh Wireless DALI® Converter
- Control of up 32 DALI-2 drivers in broadcast mode Part -207
- 1 DALI-2 Sensor support (Part -303, Part -304)
- 1 push button support

Main Features

Input Voltage	220 – 240V
DALI Bus Current	82 mA (32 drivers plus 1 sensor)
Wireless Range (Typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimming Interface	DALI, Basic isolated
Dimension	108 x 30 x 21 mm^2
Accessory	Cable Clamps
Approbation	CE

[1] Technology Partner: SILVAIR

OSRAM HubSense®
SMART standing luminaires with QBM DALI CONV

QBM DALI CONV
DALI-2 sensor
DALI-2 LED driver

*"The standing luminaire becomes
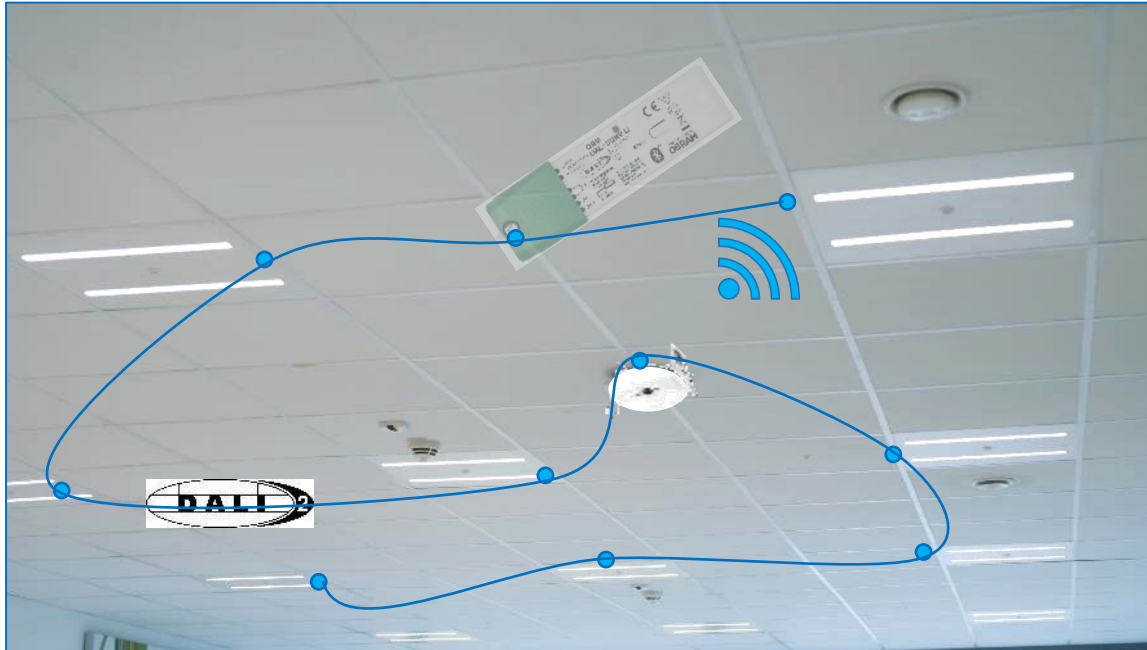a single part of a group"*

OSRAM HubSense®
SMART pendant luminaires with QBM DALI CONV

QBM DALI CONV
DALI-2 sensor
DALI-2 LED driver
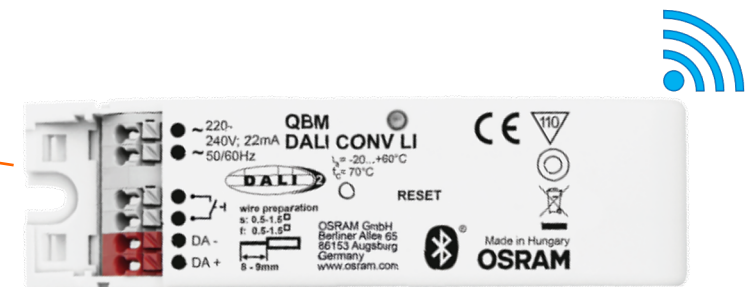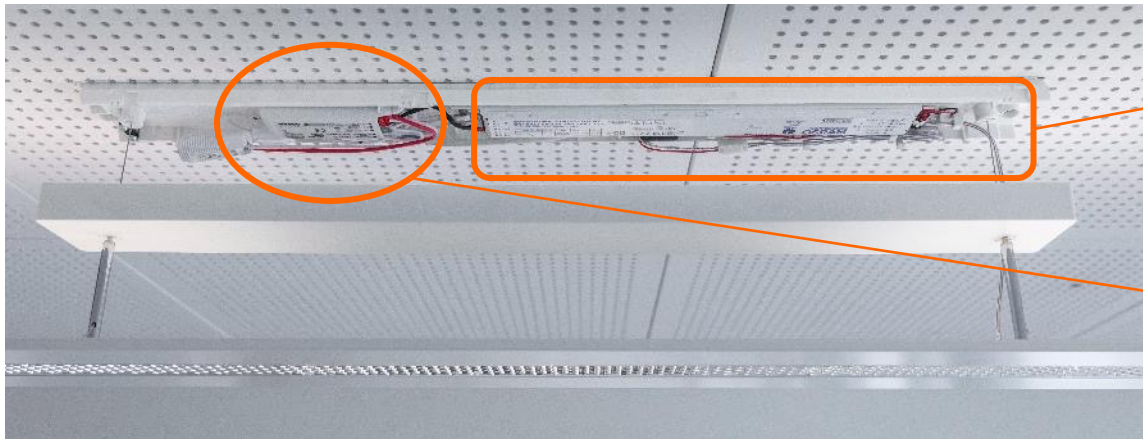
OSRAM HubSense®
SMART ceiling with QBM DALI CONV

Behind the false ceiling it would be necessary to install

just one **QBM DALI CONV** can be connected via DALI to -

all the DALI-2 Luminaires (up to 32)

- one DALI-2 sensors

Already existing DALI infrastructure, can be reused!

Just connect the **QBM DALI CONV** and control it by your **HubSense mobile APP**

DALI LS/PD CI

Linear LED Drivers – OPTOTRONIC OT Wi non isolated
OT Wi… D NFC L

Shaping the future – making wireless installations possible

Family / System

- Non isolated 35 / 75 / 100W linear drivers
- Availableas qualified Bluetooth mesh version
- Tuner4TRONIC programming
- Perfect match to HUBSENSE system

Highlights

- Wireless capability integrated
  - Bluetooth SIG
- QBM: Luminaire Info & Monitoring Data
- Up to 10m coverage inside metal luminaires

Benefits

- 1…100% dimming
- Fully digital programmable by NFC incl. Box Programming
- Very wide operating window
- Very low ripple

Type	Dimensions
35W	
75W	280*30*21
100W	

Type	Range I	Range V	Phys. Min DIM
35W	75 – 400mA		1mA
75W	250 – 750mA	54 – 240V	1mA
100W	125 – 750mA		1mA

Compact LED Drivers – OPTOTRONIC Intelligent NFC LP
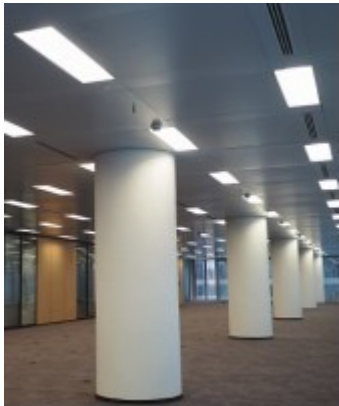# OT Wi 15/25/40 NFC QBM LP (I)

Miniaturization – wireless functionality – ready for IoT
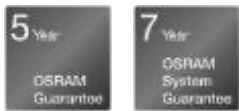
Family / System

- Compact SELV product family, 15/25/40W
- Available as qualified Bluetooth mesh version
- LP: low profile; I: independent
- Tuner4TRONIC programming
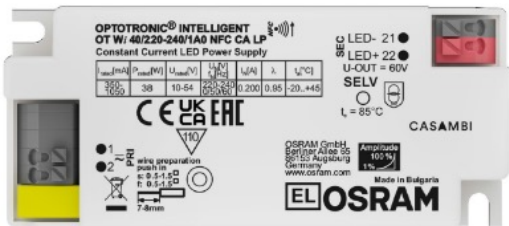- Perfect match to HUBSENSE system

Highlights

- Wireless communication integrated
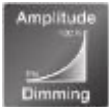- QBM: Luminaire Info & Monitoring Data in preparation

Benefits

- 1…100% amplitude dimming
- Fully digital programmable by NFC incl. Box Programming
- Wide operating window

Type	Dimensions LP	Dimensions LP I
15W		
25W	97x43x22	150x43x22
40W		

Type	Range I	Range V
15W	150 – 1050mA	
25W	180 – 700mA	10 – 54V
40W	350 – 1050mA	

HubSense®
Push Button Coupler, Mains powered

DRK LIGHTING — LIGHT THE FUTURE

HUB PB Coupler

Works with OSRAM HUBSENSE

Shop | Retail | Office | Industry | Outdoor | Hospitality
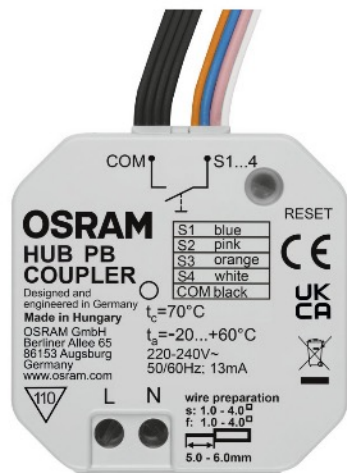
Product Family

- „Works with OSRAM Hubsense®"
- Push Button Coupler
- Enable free selection of switch frames
- Support up to 4 potential free push buttons
- Designed for mounting in deep flush device boxes

Main Features

Main Features	
Input Voltage	220 – 240 Vac
Max. Input Current	13 mA
Wireless range (typ)	10 m
Wireless Protocol	Bluetooth®
EnOcean switch support	No
Dimension	48 x 49 x 22 mm
System Wattage	0,5 W
Supported push buttons	4
Wire length	250 mm
Reset	Yes
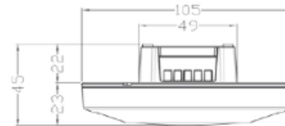
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HubSense®
QBM Presence Daylight Sensor, Mains powered

QBM 220-240 LS/PD CI

Product Family

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- Wireless Sensor Module for Office Luminaire
- Daylight and Occupancy Detection
- Support up to 8 DALI OSRAM LED Driver (Part -207)
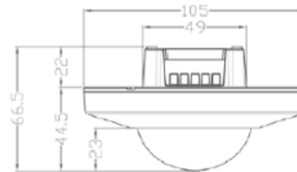- Flush box included

Main Features

Input Voltage	220 – 240 Vac
Max. Input Current	14 mA
Wireless range (typ)	10 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	$\varnothing$=105 mm , h = 45 mm
Occupancy Range	$\varnothing$ 4 m minor movement @ 3 m height $\varnothing$ 8 m major movement @ 3 m height
Occupancy Height	< 4 m
Ambient Light Sensor	Yes, 5 – 1400 lux

Shop · Retail · Office · Industry · Outdoor · Hospitality

*) Preliminary, In planning
[1] Technology Partner: SILVAIR

QBM Presence Highbay Daylight Sensor, Mains powered

QBM 220-240 LS/PD HB

Works with OSRAM HUBSENSE

Shop | Retail | Office | Industry | Outdoor | Hospitality

*) Preliminary, In planning
[1] Technology Partner: SILVAIR

Product Family

- „Works with OSRAM Hubsense®"
- Qualified Bluetooth® Mesh Wireless Sensor Module
- Wireless Sensor Module for Office Luminaire
- Daylight and Occupancy Detection
- Support up to 8 DALI OSRAM LED Driver (Part -207)
- Recessed mounting box included

Main Features

Input Voltage	220 – 240 Vac
Max. Input Current	14 mA
Wireless range (typ)	15 m
Wireless Protocol	Qualified Bluetooth® Mesh by SILVAIR [1]
EnOcean switch support	Yes, (EWSSB and EWSDB)
Dimension	$\varnothing$=105 mm , h = 66.5 mm
Occupancy Range	$\varnothing$ 22 m major movement @ 14 m height
Occupancy Height	< 14 m
Ambient Light Sensor	Yes, 5 – 1400 lux

inventronics inherits the :

quality and **reliability** of its products and

professionalism of the people.

HubSense ® gives you a large **portfolio** from one company only, constantly growing

HubSense ® gives you a **team of experts** available to support you everywhere, anytime

HubSense ® gives you **cooperation with a solid partner** oriented to the future technologies