

# OSRAM SubstiTUBE® MOTION SENSOR T8 EM



## Highlights

- Replacement of traditional T8 tube with G13 base
- Integrated microwave sensor detection
- Step-Dim 100%-30% with motion detection
- Long lifetime: 50,000hrs
- Certification: CB certificated
- Glass tube with PET film protection

## Application Areas:

- Storage rooms
- Corridors
- Walkways
- Stairwells
- Parking garages

## Advancing Light

LEDVANCE is one of the World's leaders in general lighting for lighting professionals as well as end users, offering



A broad variety of LED luminaires



Advanced LED lamps



Intelligent, networked Smart Home & Smart Building solutions



Traditional light sources

LEDVANCE is licensee of product trademark OSRAM for lamps products in general lighting.

# OSRAM SubstiTUBE® MOTION SENSOR T8 EM



## Technical Features

- Replacement of traditional T8 tube with G13 base
- Input voltage: 220-240 VAC; 50/60 Hz
- Lifetime: 50,000 h (L70B50 at Ta 25° C)
- CCT: 4000K, 6500K
- Length: 2FT(0.6m) / 4FT(1.2m) / 5FT(1.5m)

## Use Benefits

innovative LED-lamp, easy and safe to use with CCG retrofit and AC direct input

Integrated 5.8Ghz microwave sensor with automatic motion detection

High lumen efficacy, providing excellent energy saving comparing to traditional FL T8

Lower maintenance cost thanks to longer lifetime than traditional Fluorescent.

Quick, simple and safe replacement. Correct operation temperature  $-20^{\circ}\text{C} \dots +45^{\circ}\text{C}$



## Application Areas:

- Train Station
- Office, School
- Underground subway
- Supermarket, retail store
- Parking lot
- Warehouse

## Electrical and photometric data (rated value)

	Voltage [V]	Frequency [Hz]	Power (100%) [W]	Lumen Flux(100%) [lm]	CCT [K]	PF	CRI (Ra)
ST8S-0.6M 8W/840	220-240	50/60	8	900	4000	0.9	>80
ST8S-0.6M 8W/865	220-240	50/60	8	900	6500	0.9	>80
ST8S-1.2M 16W/840	220-240	50/60	16	1800	4000	0.9	>80
ST8S-1.2M 16W/865	220-240	50/60	16	1800	6500	0.9	>80
ST8S-1.5M 20W/840	220-240	50/60	20	2400	4000	0.9	>80
ST8S-1.5M 20W/865	220-240	50/60	20	2400	6500	0.9	>80

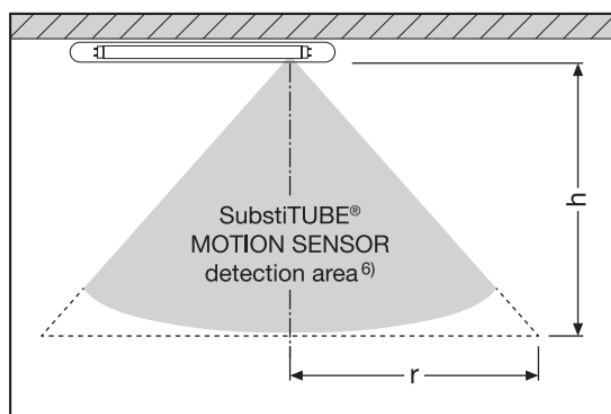
- All technical parameters apply to the entire lamp. Because of the complex manufacturing process for light-emitting diodes (LEDs), the specified typical values for LED technical parameters represent only purely statistical variables. They do not necessarily correspond to the actual technical parameters for each individual product which can deviate from the typical value. For parameter of Lumen and Watt, production control tolerance with  $\pm 10\%$  in delivery.
- The average lifetime of LED lamps is defined as the number of hours when the light output of 50% of a large group of identical lamps goes below 70% of its initial luminous flux (L70B50, IEC62612). The lifetime is estimated at room temperature (25°C), free air burning, base up burning position and at rated voltage.

## Operation and requirement of motion sensor

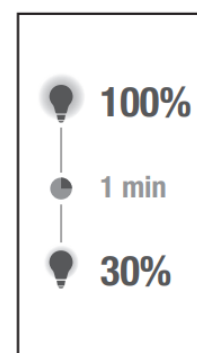
- Two step dimming
  - 100% brightness when detecting motion
  - 30% brightness 1min. after motion out of the detecting area
- Effective sensor detection range
 

Height:	Diameter:
2.5m to 5.0m	4.5m to 4.0m
- Motion speed for detection >1.0m/s

**Operating frequency: 5.725-5.875GHz; Maximum transmitting power: 0.5mW<sup>5)</sup>**



SubstiTUBE® MOTION SENSOR detection area <sup>6)</sup>	
h	r
2.5m	4.5m
3.0m	5.0m
4.0m	4.5m
4.5m	4.0m
5.0m*	4.0m

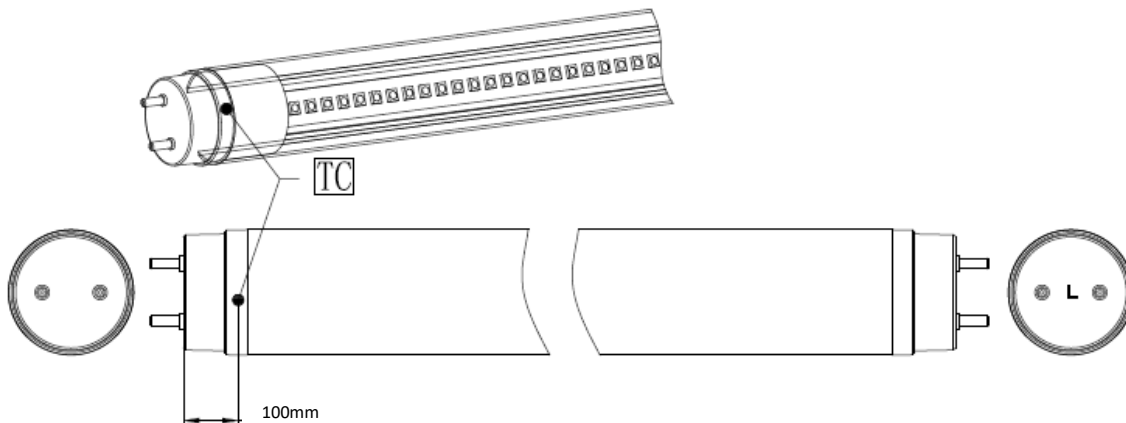


\*maximum recommended mounting height<sup>7)</sup>

- The built-in motion sensor is installed in one end of the tube (with product label). It should avoid be covered by metal parts and direction down.
- Install in places far away from magnetic field to avoid wrong function.
- Install in places far away from moving objects (such as fans, etc.) to avoid wrong function.
- Recommended installation distant between tubes is >6 meters

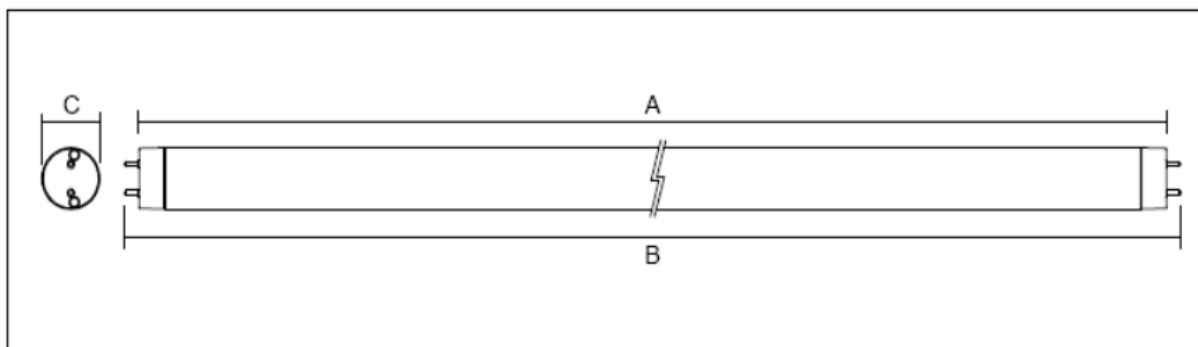
**Minimum /  
Maximum  
ratings**

	Ambient temperature Ta	Maximum temperature Tc	Storage temperature Ts [C°]
ST8S-0.6M	-10~50° C	<75° C	-20° ... 80° C
ST8S-1.2M	-10~50° C	<75° C	-20° ... 80° C
ST8S-1.5M	-10~50° C	<75° C	-20° ... 80° C



**Drawings**

	B (mm)	C (mm)	Net Weight (g)
ST8S-0.6M	<604	<28	<500
ST8S-1.2M	<1213.6	<28	<500
ST8S-1.5M	<1514.2	<28	<500



## Safety and Application notes

- The OSRAM SubstiTUBE MOTION SENSOR T8 EM must not be damaged or operated in a damaged condition.
- When operating with CCG,



Lamp not suitable for emergency operation



Lamp suitable for 50Hz or 60Hz operation



Dimming not allowed



Lamp to be used in dry conditions or in a luminaire that provides protection



LED replacement starter

- **Do not use OSRAM SubstiTUBE MOTION SENSOR T8 EM in ECG luminaire !**
- When operating with CCG (magnetic ballast), SubstiTUBE® Starter has to be inserted to replace the conventional fluorescent lamp starter. If the conventional starter is not replaced, the OSRAM SubstiTUBE MOTION SENSOR T8 EM will start blinking and be damaged!
- Do not use OSRAM SubstiTUBE MOTION SENSOR T8 EM in luminaires which do not have any conventional starter or whereby the conventional starter cannot be replaced. Otherwise, rewiring is needed.
- Not suitable for luminaires with serial lamp connection i.e. more than one tube at one magnetic ballast.
- OSRAM SubstiTUBE MOTION SENSOR T8 EM **can be operated in AC 230V**. In order to grant a safe operation mode please refer to the installation instructions for further information
- The OSRAM SubstiTUBE MOTION SENSOR T8 EM emits light only with a limited angle, not like a fluorescent tube with 360° output.
- Due to the characteristic light distribution of the OSRAM SubstiTUBE MOTION SENSOR T8 EM, the resulting luminaire light characteristic is likely to change. It is not guaranteed that e.g. standards for lighting at working places will be complied to after replacement. A photometric check of the installation is recommended.
- The effective energy savings depend on the efficiency of the luminaire setup to be replaced and should be considered individually in each case.
- The OSRAM SubstiTUBE MOTION SENSOR T8 EM is protected according to IP20. Applications with external risk of moisture and dust can be served with an adequately protected luminaire.
- OSRAM SubstiTUBE MOTION SENSOR T8 EM differ in their diameters and geometries from fluorescent lamps. Their use in open batten luminaires with gaskets is possible if no excessive force is expended during the fixing. Obtaining the necessary IP protection in open batten luminaires with gaskets cannot be ensured.
- The built-in motion sensor is installed in one end of the tube (with product label). It should avoid be covered by metal parts and direction down.
- Install in places far away from magnetic field to avoid wrong function.
- Install in places far away from moving objects (such as fans, etc.) to avoid wrong function.
- Recommended installation distant between tubes is >6 meters
- Photobiological Safety of lamps and lamp systems according to IEC 62778. Risk Group: Exempt

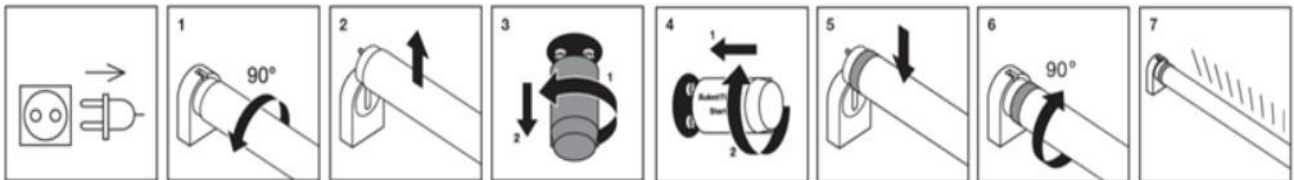
## Installation Guide

### 1) Retrofitting a CCG luminaire accord. to EN 62776

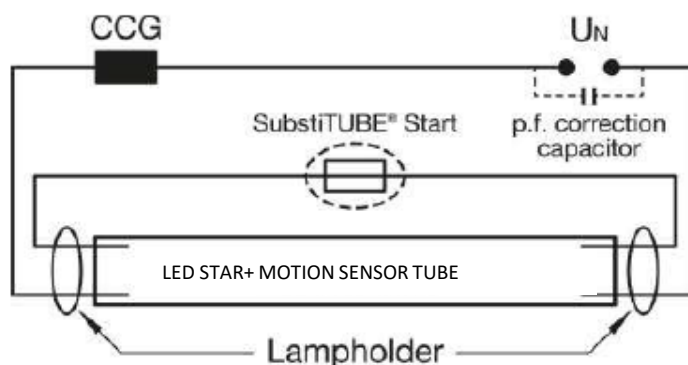
Replacing fluorescent T8-tube and installed starter by OSRAM SubstiTUBE MOTION SENSOR T8 EM and SubstiTUBE® Starter

#### Below an example for typical lamp holder types

- ✓ Please ensure that the voltage supply is disconnected.
- ✓ Carefully remove the fluorescent tube and conventional starter according to the lamp holder type
- ✓ Insert OSRAM SubstiTUBE MOTION SENSOR T8 EM and SubstiTUBE® Starter properly.



- Turn the conventional lamp 90° and take it out of the socket.
- Remove the conventional starter by turning it.
- Insert and latch the SubstiTUBE® Starter into starter socket.
- Insert OSRAM SubstiTUBE MOTION SENSOR T8 EM into socket and locate into position by turning 90°.
- Check light .emission direction



*Circuit diagram of a retrofitted CCG luminaire*

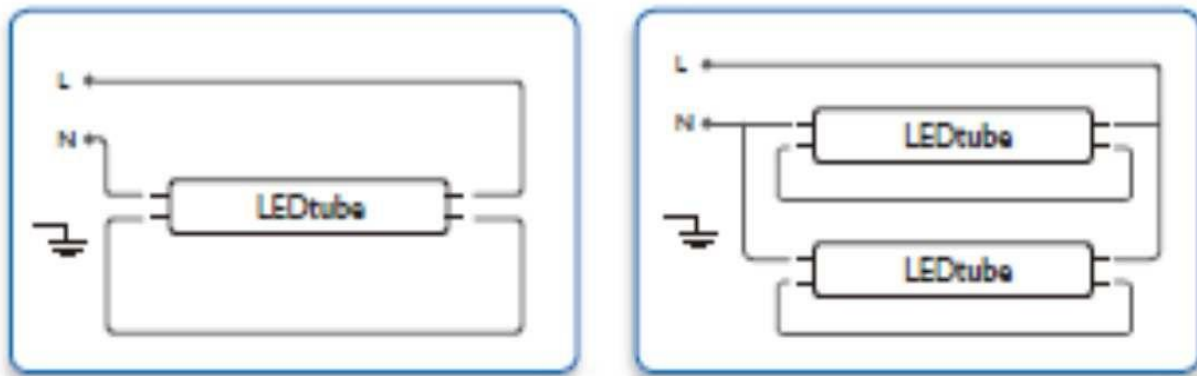
## Installation Guide

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### 2) Installation directly on line voltage

OSRAM SubstiTUBE MOTION SENSOR T8 EM may also be driven directly on line voltage. **Please check the L/N markings on the LED tube.** In order to grant a safe operation mode please refer to the installation instructions for further information. Installation must be done by qualified Electricians and all security described should be strictly followed.

Diagram show on below is the reference rewiring for one lamp and repeat same wiring for multiple tubes



### 3) Installation of an ECG luminaire with EM tube

OSRAM SubstiTUBE MOTION SENSOR T8 EM is not for use with ECG (electronic control gear). Rewiring of the luminaire is necessary for replacing fluorescent tube by OSRAM SubstiTUBE MOTION SENSOR T8 EM in ECG luminaires. Installation must be done by qualified Electricians and all security described should be strictly followed.

## Ordering Guide

Product	EAN-10*	EAN-40**	S-Unit***
ST8S-0.6M 8W/840 230V EM 10X1 G2AP OSRAM	4058075660830	4058075660847	25X1
ST8S-0.6M 8W/865 230V EM 10X1 G2AP OSRAM	4058075660731	4058075660748	25X1
ST8S-1.2M 16W/840 230V EM 10X1 G2APOSRAM	4058075660755	4058075660762	25X1
ST8S-1.2M 16W/865 230V EM 10X1 G2APOSRAM	4058075660779	4058075660786	25X1
ST8S-1.5M 20W/840 230V EM 10X1 G2APOSRAM	4058075660793	4058075660809	25X1
ST8S-1.5M 20W/865 230V EM 10X1 G2APOSRAM	4058075660816	4058075660823	25X1

\* ENA-10: ordering code for single unit

\*\* ENA-40: ordering code for shipping unit

\*\*\* S-Unit: Lamps per shipping unit

## Sales and Technical Support

Sales and technical support is given by the local LEDVANCE subsidiaries.

On our worldwide homepage all LEDVANCE subsidiaries are listed with complete address and phone numbers.

[www.ledvance.com](http://www.ledvance.com)

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Any update of data in this datasheet will  
not be informed  
Please contact LEDVANCE Lighting for  
detailed information