

# SubstiTUBE® Basic 2<sup>nd</sup> Generation

## Datasheet



Innovative LED-lamp, easy and safe to use in CCG installations as direct retrofit. Energy saving potential of up to 60% by replacing 36 W T8 fluorescent tubes.

Instant 100% light without flickering. No mercury. Applicable in supermarket, warehouses, cold storage, supply rooms, corridors, industry, stairways, garages, indirect illumination etc; for applications with long operating hours.

### Technical Data

| Product         | Color         | Color Temp. | Lum. Flux [lm] | Voltage [V] / Frequency [Hz]               | Power [W] | Radiance-Angle [°] |
|-----------------|---------------|-------------|----------------|--------------------------------------------|-----------|--------------------|
| ST8-HB2-090-865 | Cool Daylight | 6500 K      | 900            | 200 - 240 V<br>50 / 60 Hz<br>*(Rated 230V) | 9 W       | 160°               |
| ST8-HB2-090-840 | Cool White    | 4000 K      | 900            |                                            |           |                    |
| ST8-HB2-080-830 | Warm White    | 3000 K      | 800            |                                            |           |                    |
| ST8-HB4-190-865 | Cool Daylight | 6500 K      | 1900           |                                            | 18.5 W    |                    |
| ST8-HB4-190-840 | Cool White    | 4000 K      | 1900           |                                            |           |                    |
| ST8-HB4-170-830 | Warm White    | 3000 K      | 1700           |                                            |           |                    |
| ST8-HB5-220-865 | Cool Daylight | 6500 K      | 2200           |                                            | 22 W      |                    |
| ST8-HB5-220-840 | Cool White    | 4000 K      | 2200           |                                            |           |                    |
| ST8-HB5-200-830 | Warm White    | 3000 K      | 2000           |                                            |           |                    |

All Data are related to the entire lamp. Due to the special conditions of the manufacturing processes of LED the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.

\* Rated voltage

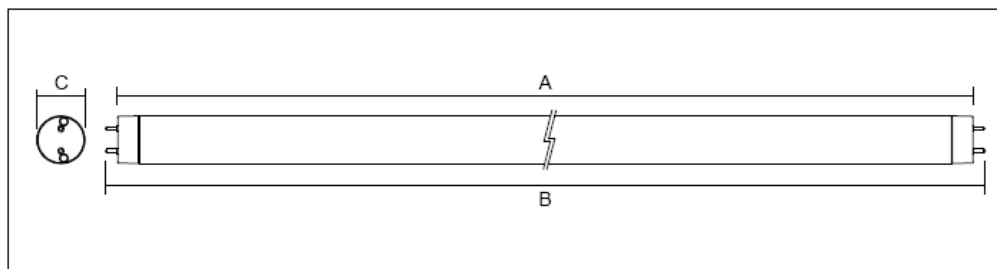
### Technical Features

- Linear LED lamp in T8 shape with G13 socket
- Suitable for operation with magnetic ballast
- Direct retrofit for CCG luminaires; replacement of lamp and including starter and no rewiring is necessary
- Polycarbonate cover
- Full integrated electronic driver complies to relevant standards
- Complies with draft of relevant safety standards
- Power factor > 0.9
- More than 40,000 hours lifetime
- Overpower, overheat, short and open circuit protected
- High color and light homogeneity
- RoHS-conformity, no mercury
- Not for operation with ECG, not suitable for dimming

## Minimum / Maximum ratings

| Ambient temperature Ta | Storage temperature Ts | Operating temperature Tc |
|------------------------|------------------------|--------------------------|
| -30° ... 45°C          | -30° ... 85 °C         | -30° ... 75 °C           |

## Mechanical & Electrical Specifications



| Models  | A       | B       | C    | Net weight |
|---------|---------|---------|------|------------|
| ST8-HB2 | 588 mm  | 602 mm  | 28mm | 151g       |
| ST8-HB4 | 1198 mm | 1212 mm | 28mm | 282g       |
| ST8-HB5 | 1499 mm | 1513 mm | 28mm | 327g       |

|                                                                                                                                         |                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| (According to IEC 60081)                                                                                                                |                                                 |
| Optics:                                                                                                                                 | Diffused PC Cover                               |
| End cap:                                                                                                                                | OSRAM orange color                              |
| Mounting:                                                                                                                               | G13                                             |
| Protection Class:                                                                                                                       | IP20                                            |
| Tensile Strength (N/mm <sup>2</sup> ),<br>Compressive strength (N/mm <sup>2</sup> )<br>& Impact strength (kJ/m <sup>2</sup> esp. kN/m): | IEC 61195 and IEC 60061                         |
| ESD Protection:                                                                                                                         | IEC 61547                                       |
| Dimming Function:                                                                                                                       | N.A.                                            |
| Ambient Temp. (Ta):                                                                                                                     | -20°C.... +45°C                                 |
| Rated Voltage:                                                                                                                          | 220-240V~, 50/60Hz                              |
| Power Factor:                                                                                                                           | >0.9 @ direct mains, >0.9 @ CCG non compensated |
| Safety Protection:                                                                                                                      | Short circuit protection / open loop protection |

## Standards

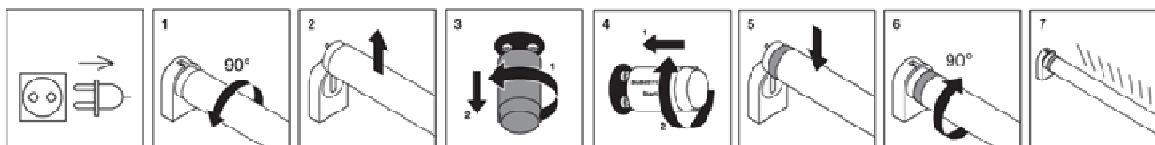
|                                          |                                                                   |
|------------------------------------------|-------------------------------------------------------------------|
| Photo-biological Safety:                 | IEC 62471                                                         |
| Flammability:                            | Glow wire test (650°C)                                            |
| Insulation class:                        | IEC 61347-2-11 Clause 12                                          |
| Safety Requirements                      | IEC 61347-2-11 Clause 14 + actual status of<br>IEC 62560 proposal |
| Environment:                             | RoHS                                                              |
| EMC / radio disturbance characteristics: | EN 55015 (CISPR 15)                                               |
| EMC / immunity:                          | IEC 61547 (IEC 61000-3-2 and -3-3)                                |
| MM / F / FF compliance:                  | Test according to DIN 57710 Part 14                               |

## Installation Instructions

- Please ensure that the voltage supply is disconnected.
- Carefully remove the fluorescent tube and conventional starter according to the lamp holder type.
- Insert SubstiTUBE® Basic and SubstiTUBE® Starter properly.

Below an example for typical lamp holder types is described

- Turn the conventional lamp 90° degrees and take it out of the socket.
- Remove the conventional starter by turning it.
- Insert and latch the SubstiTUBE® Start into starter socket.
- Insert SubstiTUBE® Basic into socket and locate into position by turning 90°. Check light emission direction



## Safety and Application notes

- The SubstiTUBE® Basic must be handled with care, and do not operate the product that in a damaged condition.
- When operating with CCG (magnetic ballast), SubstiTUBE® Starter has to be inserted to replace the conventional fluorescent lamp starter as well. If the conventional starter is not replaced, the SubstiTUBE® Basic will start blinking and be damaged!
- Do not use SubstiTUBE® Basic in luminaires which do not have any conventional starter or whereby the conventional starter cannot be replaced.
- Not suitable for luminaires with serial lamp connection i.e. more than one tube at one magnetic ballast.
- The SubstiTUBE® Basic lamp emits light at limited angle, unlike conventional fluorescent tube in 360° omni direction.
- Due to the light distribution characteristic of the SubstiTUBE® Basic, the resulting luminaires 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 highly recommended.
- The effective energy savings depend on the efficiency of the luminaires setup to be replaced and should be considered individually case by case basis. Particularly magnetic ballast losses are reduced to ohmic losses and are typically only about 1 W.
- The SubstiTUBE® Basic is protected according to IP20. Applications with external risk of moisture and dust can be served with an adequately protected luminaires.
- SubstiTUBE® Basic may also be driven directly on line voltage. In order to grant a safe operation mode please refer to the application note for installation information.
- Photobiological Safety of Lamps and Lamp Systems according to IEC 62471  
Risk Group: Exempt

## Ordering guide

| Product name     | Light color          | EAN 10 (Single Unit) | S-Unit |
|------------------|----------------------|----------------------|--------|
| ST8-HB2-090-865  | Cool Daylight/ 6500K | 4008321840288        | 25 x 1 |
| ST8-HB2-090-840  | Cool White/ 4000K    | 4008321840301        |        |
| ST8-HB2-080-830  | Warm White/ 3000K    | 4008321840325        |        |
| *ST8-HB4-190-865 | Cool Daylight/ 6500K | 4008321808295        |        |
| *ST8-HB4-190-840 | Cool White/ 4000K    | 4008321808271        |        |
| *ST8-HB4-170-830 | Warm White/ 3000K    | 4008321808257        |        |
| ST8-HB5-220-865  | Cool Daylight/ 6500K | 4008321840226        |        |
| ST8-HB5-220-840  | Cool White/ 4000K    | 4008321840240        |        |
| ST8-HB5-200-830  | Warm White/ 3000K    | 4008321840264        |        |

*\* Luminous flux level refers to this data sheet (1900lm for 840/865, 1700lm for 830)*

## SALES & TECHNICAL SUPPORT

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