LED LINE SMD LIGHTBAR

T5/T8 REPLACEMENT

LED LINE SMD LIGHTBAR – LED MODULES FOR OFFICE LIGHTING

Vossloh-Schwabe's new SMD LightBar modules constitute a highly effective SMD solution. Available in sets of six, the new modules are particularly suitable for installation in louvered luminaires (600x600 mm).

The SMD LightBar modules come in various shades of white and with a set of 6 leads (Ref. No. 559935) for easy, low-cost and solder-free connection. All six connectors must be attached (in series) to modules.

Typical Applications
Built-in luminaires/general illumination:

- Office lighting
- Retail lighting
- T5/T8 replacement as built-in module
- Furniture lighting

LED Line SMD Lightbar

- **HIGH BRIGHTNESS**
- **GLARELESS AND EXCELLENT LENS DESIGN**
- **HOMOGENEOUS ILLUMINATION WITH LESS LIGHT POINTS**
- **WIDE BEAM ANGLE: > 145°**

LIGHTING SOLUTIONS
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LED Line SMD LightBar

Technical Notes

- Dimensions: 520x17 mm
- Driving current: max. 300 mA

Electrical Characteristics

at t_a = 25 °C

Type	Typ. voltage DC* (V) 300 mA			Typ. power consumption* (W) 300 mA
	min.	typ.	max.	typ.
89520	21.7	23.1	24.5	6.9

*Voltage and power tolerance: ±10 %

Maximum Ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the module.

Type	Operation temperature range range at t_c-point		Storage temperature range		Max. operating current	Max. permitted output voltage of operating device
	°C min.	°C max.	°C min.	°C max.	mA	V
559509	–20	+65	–20	+50	300	< 250
all others	–20	+65	–20	+50	300	< 250

Optical Characteristics

at t_a = 25 °C

Type	**Ref. No.**	No. of LEDs	Colour	Correlated colour temperature* K	Typ. luminous flux* and efficiency at 300 mA lm	lm/W	Beam angle °	CRI R_a min.	typ.
89520	**559932**	7	warm white	3000	595	86	145	80	85
89520	**559933**	7	neutral white	4000	630	91	145	80	85
89520	**557990**	7	cool white	5700	665	96	145	80	85
89520	**559509**	7	cool white	5700	700	102	145	80	85
89520	**559934**	7	cool white	11000	520	96	145	70	75

* Measurement tolerance of luminous flux: ± 10 % | Min. CRI R_a: > 70 / > 80

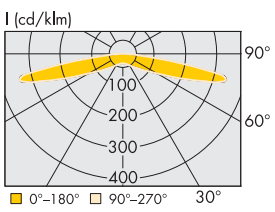
Minimum order quantity (packaging unit): 240 pcs.

Operating Life

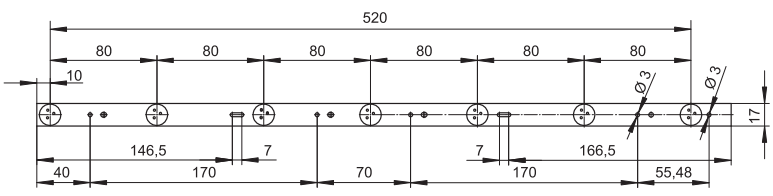
at t_p = 65 °C

Lumen maintenance	**89520** I_F 300 mA
L70/B50	30,000 hrs
L70/B10	25,000hrs

Typical Light Distribution Curve



Mechanical Dimensions



The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

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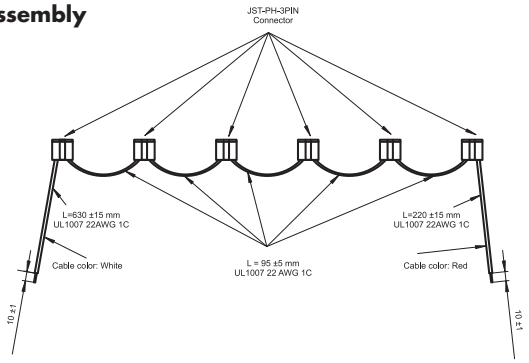
Connection leads
Lead with 6 plugs (connected in series)
Lead: UL 1007 22AWG 1C Red / White
JST-PH-3Pn-Serial MINI JST PH 3pin Male
Lead length (L): 1325 mm
Lead ends, tinned, 10 mm
All connectors must be attached to modules.
Type: 89520
Ref. No.: 559935

Connetion Assembly



ComfortLine LED Drivers – with Selectable Current

275 to 325 mA / max. 46.8 W
The linear LED constant-current drivers are designed for use in office and retail lighting.

Electrical characteristics
Secondary side switching of LED modules is not allowed.
Power factor at full load: > 0.97

Selectable current output
The required current output can be chosen by selecting the respective pin at the output terminal.

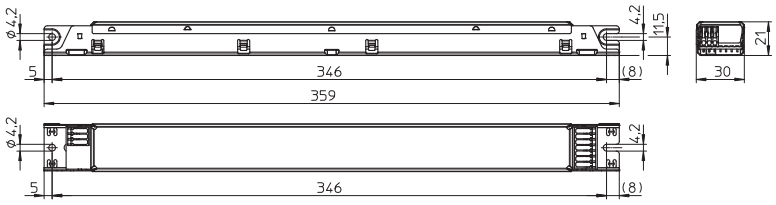
Connection details
Mains voltage: 220–240 V ± 10%
Mains frequency: 50–60 Hz
DC operation: 198–264 V DC, 0 Hz
(can be reduced to 176 V with reduced service life time)
Push-in terminals: 0.2–1.5 mm²

Safety features
Electronic short-circuit protection
Overtemperature protection
Protection against "no load" operation
Degree of protection: IP20
Protection class I

Expected service life time
at operation temperatures at t_c point

Operation current	Ref. No. 186488	
all	60 °C	50 °C
hrs.	50,000	100,000

M10



Max. output W	Type	**Ref. No.**	Mains voltage 50–60 Hz V	Mains current mA	Current output DC mA	Voltage output DC V	Max. voltage without load DC V	Efficiency at full load % (230 V)	Ambient temperature t_a °C	Casing temperature t_c °C	Weight g
M10 – Dimensions: 359x30x21 mm											
46.8	ECXe 325.175	**186488**	220–240	235–220	275	85–170	< 250	> 91	–25 to 50	60	220
				235–220	300	78–156		> 91			
				235–220	325	72–144		> 91			

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advice must be observed; non-observance can result in the destruction of the LED assembly modules, fire and/or other hazards.

- Consider safety regulations acc. EN 60598 in the luminair design, especially when the operating LED driver is not galvanic isolated.
  - In mode of operation regard to sufficient isolation.
  - Live parts must not be touched in operation mode. Danger in life!!!

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED modules. See VS's application notes on ESD protection.
- Adequate anti-static electricity measures, including the use of conductive shoes, ionizers, work bench grounding, wrist straps, flooring and stools sould be used.
- LED assembly modules must not be subjected to any undue mechanical stress, e. g.:
  - do not treat as bulk cargo
  - avoid shear and compressive forces during handling and installation
  - do not damage circuit paths
  - avoid any pressure on the light emitting surface
- Safe operation only possible by the use of external constant current sources ($I_{max.}$ see table "Electrical Characteristics").
- Operation only with power supply units that feature the following protection:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- The following points must be observed when connecting LED modules in parallel:
  - All LED strings that are wired in parallel must contain the same number of LEDs (symmetrical loading).
  - Owing to differing forward biases, there can be a difference of up to 10% in brightness between modules connected in parallel.
- To ensure problem-free operation, the specified maximum temperature at the t_p point (see "Operating Life") must be observed (and measured in accordance with EN 60598-1). To satisfy this point, it may be necessary to put measures in place to ensure any heat is dissipated from the PCB to the environment.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- Due to the manufacturing process, the PCBs of the LED assembly modules can have sharp edges and corners. Care must therefore be taken during handling and installation to avoid injury.
- For optimal load of used constant current driver the modules can only be connected in series. The quantity of LED modules is limited by the sum of forward voltage and the capacity of used constant current driver. Safety regulations acc. to EN 60598 has to be observed if the sum of forward voltage exceed the permitted touchable value.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website www.vossloh-schwabe.com

Product Guarantee

- 3 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
  We will be happy to send you these conditions upon request.

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