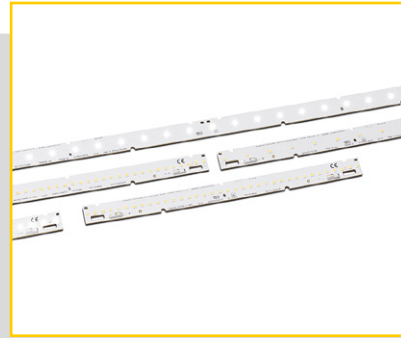


LED LINE SMD COMFORT L28/56 W2

700 lm, 1400 lm



LED LINE SMD COMFORT L28/56 W2 – 700 lm, 1400 lm

WU-M-624, WU-M-625, WU-M-626, WU-M-627

Typical Applications

Built-in luminaires/general illumination

- Office lighting
- Retail, corridor and shelf lighting
- T5/T8 replacement as built-in module
- Furniture lighting



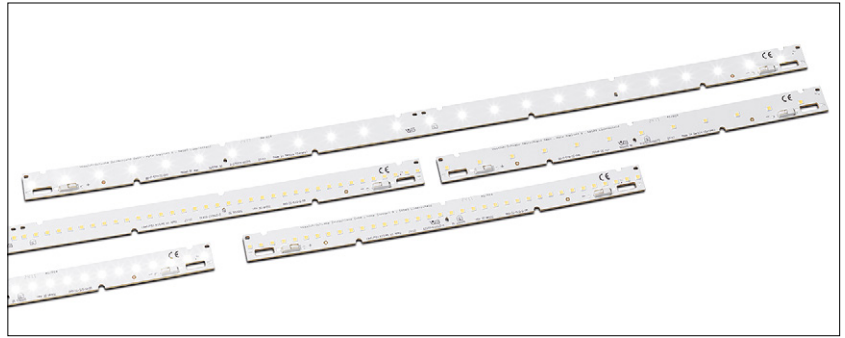
LED Line SMD Comfort – L28/56 W2

- **LONG SERVICE LIFE TIME: 60,000 H (L80, B10)**
- **HIGHLY EFFICIENT: UP TO 179 LM/W AT T_p = 50 °C**
- **2 LENGTHS AVAILABLE: 280 / 560 MM**
- **2 DIFFERENT LUMEN PACKAGES**
- **ZHAGA-COMPLIANT DIMENSIONS**

LED Line SMD Comfort – L28/56 W2

Technical Notes

- LED built-in module for integration into luminaires
- Dimensions
WU-M-624/625: 280x20 mm
WU-M-626/627: 560x20 mm
- Driving current: 250 mA / 350 mA / 500 mA / 600 mA
- On-board push-in terminals, optional on top or bottom
- Beam angle: 120°



Electrical Characteristics

at $t_p = 50\text{ °C}$

Type	No. of SMDs	Typ. voltage DC				Temperature coefficient mV/K	Typ. power consumption			
		250 mA V	350 mA V	500 mA V	600 mA V		250 mA W	350 mA W	500 mA W	600 mA W
LED Line SMD Comfort – L28 W2										
WU-M-624	12	11.3	11.7	12.2	12.5	-11.2	2.8	4.1	6.1	7.5
WU-M-625	24	22.6	23.4	24.4	25.0	-22.3	5.7	8.2	12.2	15
LED Line SMD Comfort – L56 W2										
WU-M-626	24	22.6	23.4	24.4	25.0	-22.3	5.7	8.2	12.2	15
WU-M-627	48	45.2	46.8	48.9	50.1	-44.6	11.3	16.4	24.4	30.1

Voltage and power consumption tolerance: $\pm 10\%$

Use of external LED constant current driver required.

Maximum Ratings

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

Type	Operating current (mA)	Operation temperature range at t_c point		Storage temperature range		Max. allowed repetitive peak current mA
		°C min.	°C max.	°C min.	°C max.	
All types	all	-20	+80	-20	+85	720

Operating Life

L80/B10

in hours at measured temperature at t_p point

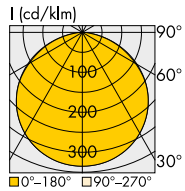
	250 mA			350 mA			500 mA			600 mA		
	40 °C	50 °C	75 °C	40 °C	50 °C	75 °C	40 °C	50 °C	75 °C	40 °C	50 °C	75 °C
WU-M-624	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000
WU-M-625	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000
WU-M-626	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000
WU-M-627	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000	> 60,000

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LED Line SMD Comfort – L28/56 W2

Typical Light Distribution Curve

Data are available in .ldt format for download under www.vossloh-schwabe.com.



Without cover

Light distribution curve for LED Line SMD modules **with covers** see page 6.

Light distribution curve for LED Line SMD modules **with optics** see page 7.

Optical Characteristics

at $t_p = 50\text{ °C}$

Type	Ref. No. Connection		Colour	Correlated colour temperature* K	Typ. luminous flux** and typ. efficiency** at								Min. CRI R_a	Photo-metric code
	top (TC)	bottom (BC)			250 mA		350 mA		500 mA		600 mA			
					lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W		
LED Line SMD Comfort – L28 W2														
WU-M-624-TC/BC-830	569538	569542	warm white	3000	480	169	655	160	900	147	1050	140	80	830/359
WU-M-624-TC/BC-840	569539	569543	neutral white	4000	505	179	690	169	950	155	1110	148	80	840/359
WU-M-624-TC/BC-850	569540	569544	neutral white	5000	505	179	690	169	950	155	1110	148	80	850/359
WU-M-624-TC/BC-865	569541	569545	cool white	6500	505	179	690	169	950	155	1110	148	80	865/359
WU-M-625-TC/BC-830	569546	569550	warm white	3000	955	169	1305	160	1800	147	2105	140	80	830/359
WU-M-625-TC/BC-840	569547	569551	neutral white	4000	1010	179	1380	169	1900	155	2220	148	80	840/359
WU-M-625-TC/BC-850	569548	569552	neutral white	5000	1010	179	1380	169	1900	155	2220	148	80	850/359
WU-M-625-TC/BC-865	569549	569553	cool white	6500	1010	179	1380	169	1900	155	2220	148	80	865/359
LED Line SMD Comfort – L56 W2														
WU-M-626-TC/BC-830	569554	569560	warm white	3000	955	169	1305	160	1800	147	2105	140	80	830/359
WU-M-626-TC/BC-840	569555	569561	neutral white	4000	1010	179	1380	169	1900	155	2220	148	80	840/359
WU-M-626-TC/BC-850	569557	569562	neutral white	5000	1010	179	1380	169	1900	155	2220	148	80	850/359
WU-M-626-TC/BC-865	569559	569563	cool white	6500	1010	179	1380	169	1900	155	2220	148	80	865/359
WU-M-627-TC/BC-830	569564	569568	warm white	3000	1915	169	2615	160	3600	147	4210	140	80	830/359
WU-M-627-TC/BC-840	569565	569569	neutral white	4000	2020	179	2760	169	3800	155	4440	148	80	840/359
WU-M-627-TC/BC-850	569566	569570	neutral white	5000	2020	179	2760	169	3800	155	4440	148	80	850/359
WU-M-627-TC/BC-865	569567	569571	cool white	6500	2020	179	2760	169	3800	155	4440	148	80	865/359

* Colour tolerance: 3 MacAdam | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

Minimum order quantity (packaging unit): 75 pcs.

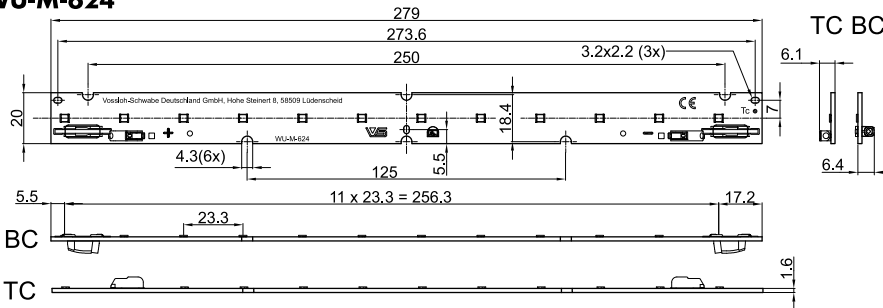
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LED Line SMD Comfort – L28/56 W2

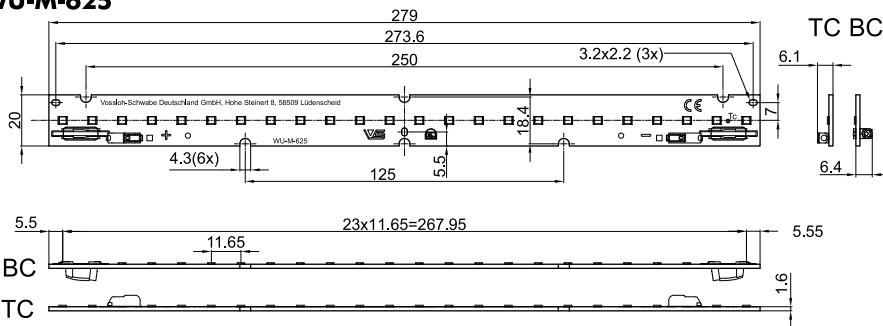
Mechanical Dimensions

TC = Top Connection
BC = Bottom Connection

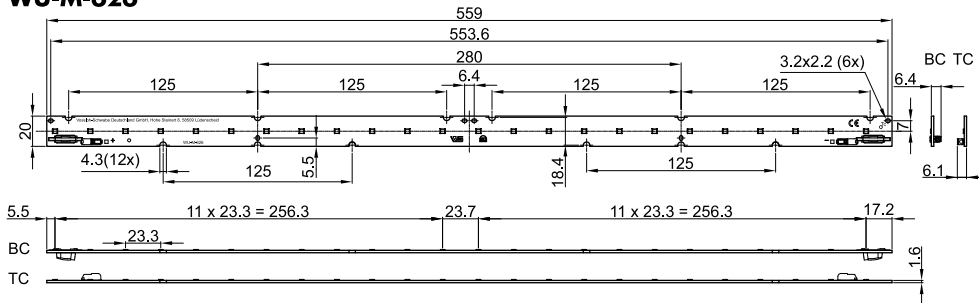
WU-M-624



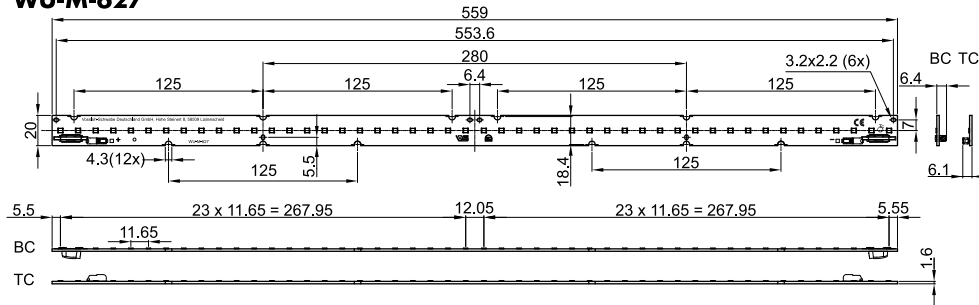
WU-M-625



WU-M-626




WU-M-627

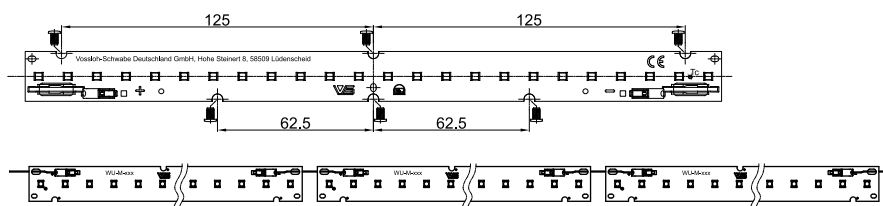


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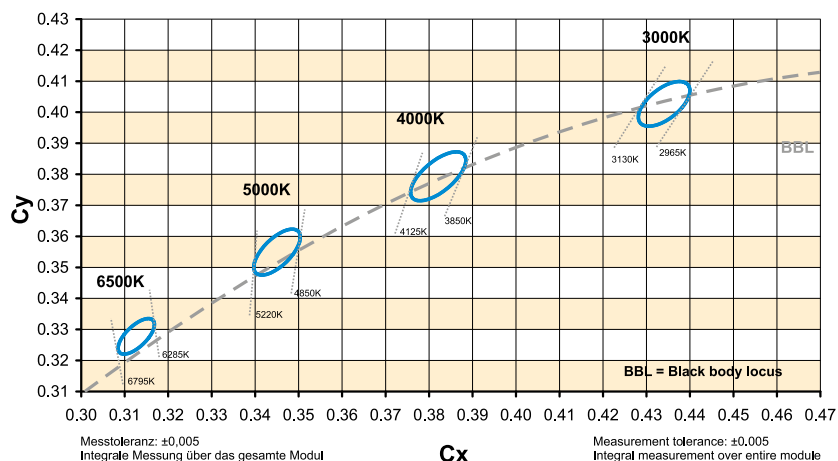
LED Line SMD Comfort – L28/56 W2

Connection Example

- The number of modules that can be connected in series depends on the available output voltage of the LED driver.
- The clearance and creepage distances are designed for working voltages up to 350 V DC (basic insulation) and 185 V DC (reinforced insulation).
- In case of assembly of the LED modules in profiles (e.g. aluminium) where the profile touches the top edge of the PCB the clearance and creepage distances are reduced to 175 V DC (basic insulation) and 50 V DC (reinforced insulation).
- Max. diameter of screw head (M4): \varnothing 8 mm
- Only the marked holes  are fixing holes for screws M4. Please do not use other holes for fixation!

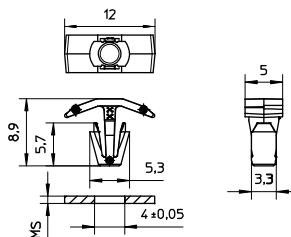


Bins



Fixing Clip

For fastening LED PCBs to luminaire sheets without needing screws
 PCB hole dia.: 4.3–4.5 mm
 Vibration resistant version
 Material: PC, white (UL-94 V2)
 Weight: 0.2 g, Packaging unit: 1000 pcs. (11 = 10,000 pcs.)



Type	Ref. No.	For luminaire sheet thickness (MS) mm
98050	562870	0.5–1.0*

* PCB thickness: 1.6 mm

Linear LED Constant Current Drivers

Please visit our homepage for details for suitable LED constant current drivers: www.vossloh-schwabe.com

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LED Line SMD Comfort – L28/56 W2

Cover W2 for clip fixing or tape fixing

A semi-transparent or a diffuse cover is available for the modules LED Line SMD W2 which protects the SMD board. The cover reduces glare and makes a homogeneous light distribution.

Easy assembly by clip fixing of the cover under the fixing screws of the SMD board or by tape fixing.

Technical Notes for Cover

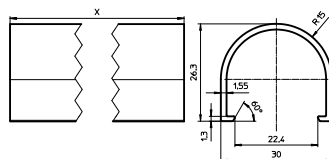
Material: PMMA

High transmission:

- 92% semi-transparent
- 84% diffuse

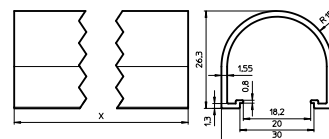
For clip fixing

Recommended diameter of fixing screw head: 7 mm



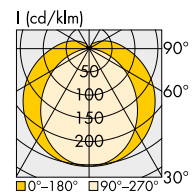
For tape fixing

No screws for PCB and cover fixing needed

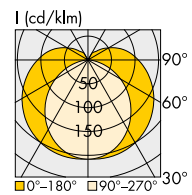


Type	Ref. No. for clip fixing	Type	Ref. No. for tape fixing	Length X mm	Version	Efficiency %	Weight g	Packaging unit pcs.
89830	568591	89800	562549	597	semi-transparent	92	81.8	240
89831	568593	89801	562551	1200	semi-transparent	92	164.4	192
89832	568595	89802	562553	1500	semi-transparent	92	205.5	192
89833	568597	89803	562555	1800	semi-transparent	92	246.6	192
89834	568865	—	on request	3000	semi-transparent	92	410	192
89830	568592	89800	562550	597	diffuse	84	81.8	240
89831	568594	89801	562552	1200	diffuse	84	164.4	192
89832	568596	89802	562554	1500	diffuse	84	205.5	192
89833	568598	89803	562556	1800	diffuse	84	246.6	192
89834	568866	—	on request	3000	diffuse	84	410	192

Length tolerance: 597 mm ± 1 mm (ends finished), 1200 / 1500 / 1800 / 3000 mm + 10 mm (ends raw)



With semi-transparent cover



With diffuse cover

End caps for cover for clip fixing

End caps with or without wire hole for push-fit into the cover

Material: PC, transparent

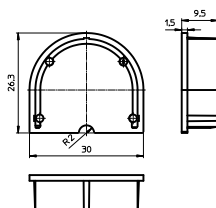
Weight: 2 g, Packaging unit: 250 pcs.

Type: 898

Ref. No.: 562500 end cap with wire hole

Ref. No.: 562499 end cap without wire hole

End cap with wire hole



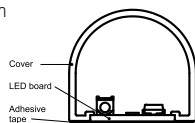
Preassembled module SMD board including W2 adhesive cover

The cover and PCB are fixed together with double-side adhesive assembled.

No screws for PCB and cover fixing needed!

Length: assembled 597 mm

Packaging unit: 242 pcs.



Type	Ref. No.	Cover	SMD board
89800	on request	semi-transparent	on request
89800	on request	diffus	on request

With W2 SMD boards (colour temperature and lengths) on request

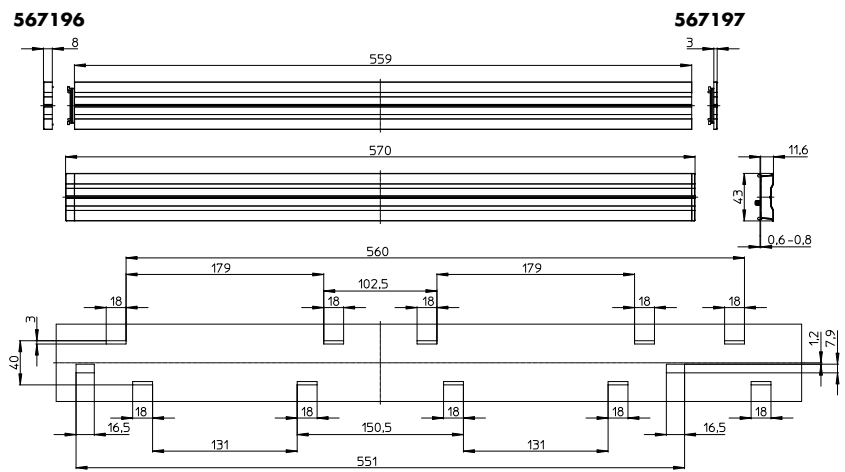
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W2 Optics

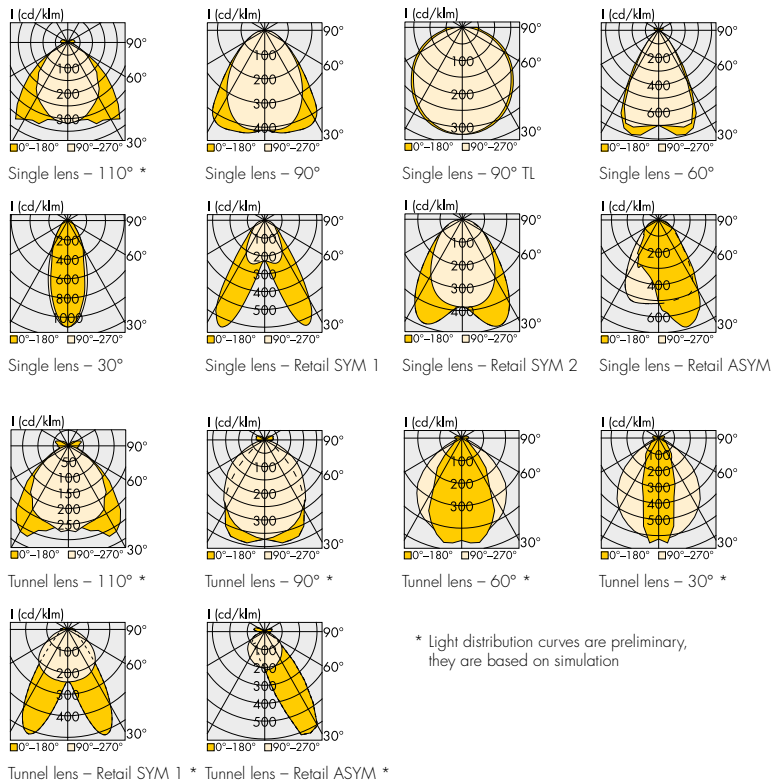
LED Line SMD Comfort – L28/56 W2

Technical Notes

Highly efficient of up to 93%
 Constant Light Colour (CLC): very low colour temperature deviations over beam angle
 Extended Luminous Area (ELA): light emission over the entire surface of the optics
 Material: PMMA, clear or translucent (TL)
 Max. allowed temperature: 80 °C
 Dimensions (LxWxH): 559x43x11.6 mm
 Optics can be stringed together for module chains
 Single lens version for WU-M-624/625/626/627 with bottom connection (BC)
 Tunnel lens version for WU-M-624/625/626/627 with bottom connection (BC)
 Clip fixation for metal sheets with wall thickness of 0.6–0.8 mm or aluminium profiles



Light distribution	Optics type	Ref. No.	Weight g
Single lens			
Extra Wide 110°	97005	568236	124
Wide 90°	97000	568075	115
Wide 90° TL	97000	568412	115
Medium 60°	97003	568238	107
Narrow 30°	97002	568239	104
Retail SYM 1	97001	568240	108
Retail SYM 2	97001	568413	108
Retail ASYM	97004	568237	104
Tunnel lens			
Extra Wide 110°	97105	568248	130
Wide 90°	97100	568243	118
Medium 60°	97103	568246	116
Narrow 30°	97102	568245	114
Retail SYM 1	97101	568244	118
Retail ASYM	97104	568247	114



* Light distribution curves are preliminary, they are based on simulation

End Caps

Lateral attachment on the optics
 (on the side of the groove or tongue)
 Material: PC, clear or translucent (TL)

End cap type	For optics type	Ref. No.	Weight g
Tongue side	970	567196	1.85
Groove side	970	567197	1.45
Tongue side TL	970	568601	1.85
Groove side TL	970	568602	1.45

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LED Line SMD Comfort – L28/56 W2

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 luminaire 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.
- 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 could 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
- The module can be fixed with M4 screws. Fixation only with flat or cylinder head screws (M4) (no countersunk screws)
Max. torque: 1.2 Nm (M4)
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- For interconnection the LED modules is equipped with push-in terminals.
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- Measurement tolerances:
 - luminous flux: $\pm 7\%$
 - voltage: $\pm 3\%$
 - CRI: ± 1
- 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
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008. Rating in accordance with IEC / TR 62778: risk group 1

CCT K	Max. operating current for risk group 1 mA	E threshold for higher operating currents to be risk group 1 lx
≤ 4000	600	1130
5000	600	657
6500	600	545

Applied Standards

EN 62031

LED modules for general lighting – Safety specifications



pending

EN 62471

Photobiological safety of lamps and lamp systems

Product Guarantee

- 5 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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