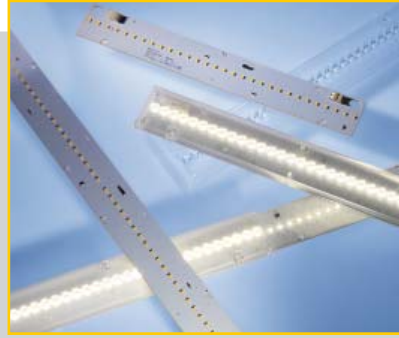


## LED LINE SMD KIT FOOD

WU-M-480/481-M6MEAT



## LED LINE SMD KIT FOOD

**WU-M-480 / 481-M6Meat**

### Typical Applications

Built-in luminaires/general illumination

- Retail lighting:  
especially for fresh food (meat)

### LED SMD Kit Food

- **SPECIAL LIGHT COLOUR FOR ILLUMINATION OF FRESH MEAT**
- **2 LENGTHS AVAILABLE: 280 / 560 MM**
- **FLEXIBLE LIGHT DISTRIBUTION BY DIFFERENT OPTICS**
- **ZHAGA-COMPLIANT HOLE DISTANCE**

## LED Line SMD Kit Food

### Technical Notes

- LED built-in module for integration into luminaires
- Dimensions  
WU-M-480: 280x39.6 mm  
WU-M-481: 560x39.6 mm
- Driving current: 350 mA / 500 mA / 700 mA
- On-board push terminal system
- Colour tolerance: 7-step MacAdam
- Beam angle: 120°



### Electrical Characteristics

at  $t_p = 50\text{ °C}$

Type	No. of LEDs	Voltage DC (V)									Temperature coefficient mV/K	Power consumption (W)								
		350 mA			500 mA			700 mA				350 mA			500 mA			700 mA		
		min.	typ.	max.	min.	typ.	max.	min.	typ.	max.		min.	typ.	max.	min.	typ.	max.	min.	typ.	max.
WU-M-480...M6...	30	13.2	14.1	15.7	13.6	14.5	16.1	14.2	15.1	16.7	-14.06	4.6	4.9	5.5	6.8	7.3	8.1	9.9	10.6	11.7
WU-M-481...M6...	60	26.3	28.1	31.3	27.3	29.1	32.3	28.4	30.2	33.4	-28.13	9.2	9.8	11	13.7	14.6	16.2	19.9	21.1	23.4

**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 $I_c$ point		Storage temperature range		Max. allowed repetitive peak current mA
		°C min.	°C max.	°C min.	°C max.	
WU-M-480/	350	-20	+75	-20	+85	1270
WU-M-481	500	-20	+75	-20	+85	1200
	700	-20	+75	-20	+85	1110

### Operating Life

L80/B10

in hours at measured temperature at  $t_p$  point

	350 mA			500 mA			700 mA		
	40 °C	50 °C	75 °C	40 °C	50 °C	75 °C	40 °C	50 °C	75 °C
WU-M-480/481	> 30,000	> 30,000	> 30,000	> 30,000	> 30,000	> 30,000	> 30,000	> 30,000	24,000

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## LED Line SMD Kit Food

### Optical Characteristics

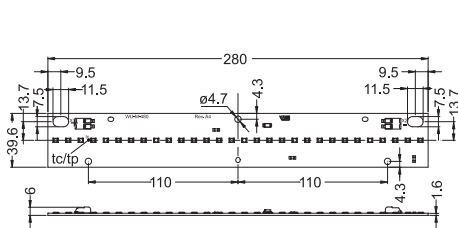
at  $t_p = 50\text{ }^\circ\text{C}$ ; without secondary optics

Type	Ref. No.	Colour	Correlated colour temperature K	Luminous flux* (lm) and efficiency (lm/W) at								
				350 mA			500 mA			700 mA		
				min. lm	typ. lm	typ. lm/W	min. lm	typ. lm	typ. lm/W	min. lm	typ. lm	typ. lm/W
<b>LED Line SMD Kit Food – 280 mm – 30 LEDs</b>												
WU-M-480-D-M6MEAT	<b>564793</b>	M6Meat	5310	230	325	66	325	455	63	445	620	59
<b>LED Line SMD Kit Food – 560 mm – 60 LEDs</b>												
WU-M-481-D-M6MEAT	<b>564794</b>	M6Meat	5310	465	650	66	650	910	63	885	1240	59

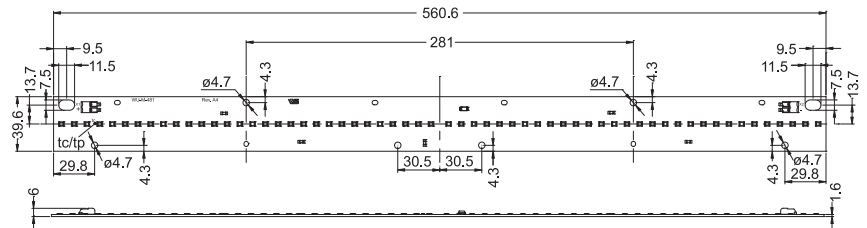
\* Measurement tolerance:  $\pm 7\%$

**Minimum order quantity (packaging unit): 50 pcs.**

### Mechanical Dimensions SMD Board



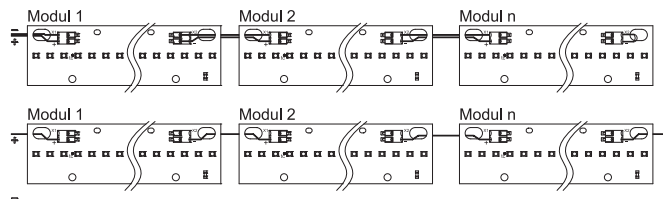
**WU-M-480**



**WU-M-481**

### Connection Examples

- 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 450 V DC.
- Max. diameter of screw head (M4): 8 mm
- The modules are connected in series in both wiring examples.
- Due to different forward voltages and power classes it is not recommended to use WU-M-480/481 in one application.



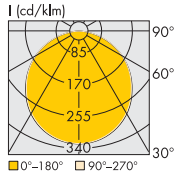
**WU-M-480 / WU-M-481**

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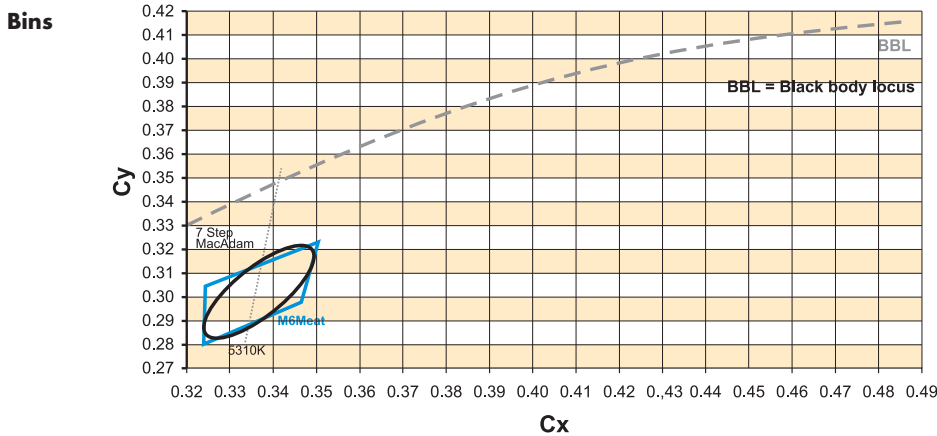
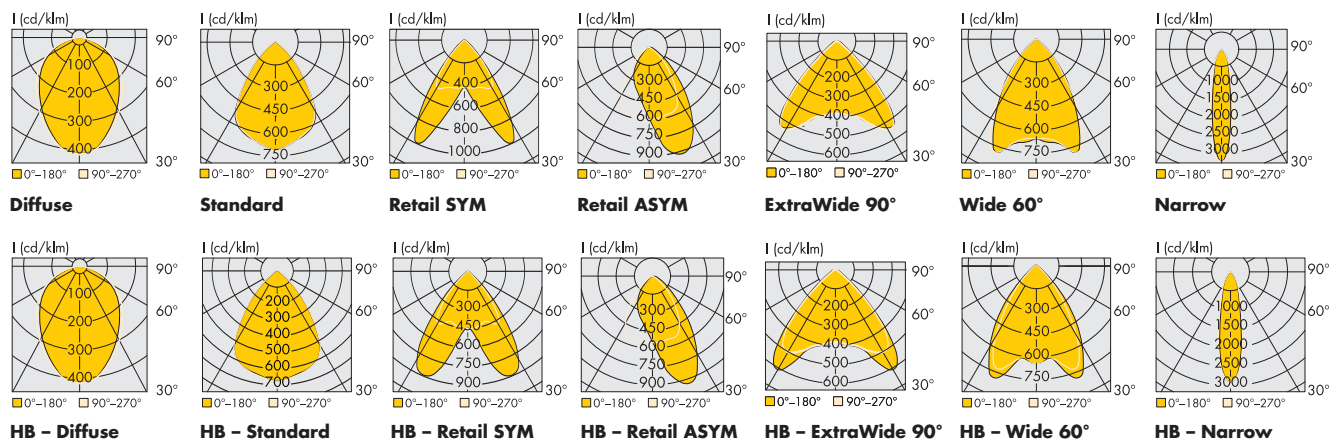
## LED Line SMD Kit Food

### Typical Light Distribution Curves

Data are available in .ldt format for download under [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com).

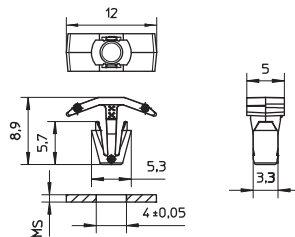


Without optics



### 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.



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

\* PCB thickness: 1.6 mm

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## LED Line SMD Kit Food

### Technical Notes for Optics

Highly efficient of up to 95%

Material: PMMA

Dimensions (LxWxH): 280x43x9.5 mm

optics can be stringed together,

for modules 280 mm, 560 mm and module chains

Max. allowed temperature: 80 °C

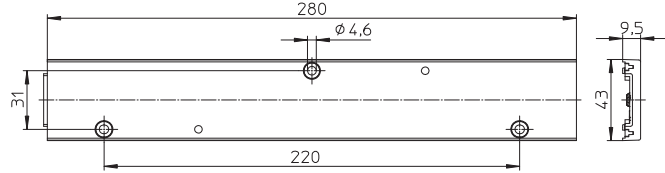
Fixation with flat or cylinder head screws (M4)

or with fixing clip (see below)

Max. torque: 1.2 Nm (M4)

Packaging unit: 192 pcs.

### Optics



Light distribution	Optics type	Ref. No.	Efficiency %	Weight g
Standard	98810	<b>555437</b>	95	50
Diffuse	98810	<b>559972</b>	88	50
Extra Wide 90°	98813	<b>560570</b>	95	50
Wide 60°	99816	<b>560573</b>	95	50
Narrow 30°	99814	<b>560571</b>	95	50
Retail SYM	99811	<b>555438</b>	95	50
Retail ASYM	99812	<b>555439</b>	95	50

### End Cap

Lateral fixation at the optics

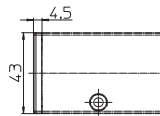
with tongue and groove

Weight: 0.9 g, Packaging unit: 500 pcs.

Type: 98810

**Ref. No.: 555482**

### End Cap



### Fixing Clip

For fastening LED optics of type 988 and LED PCBs

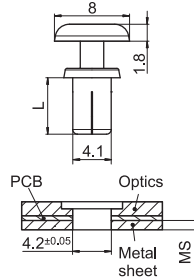
to luminaire sheets without needing screws

Vibration resistant version

Material: PA, natural (UL-94 V-2)

Weight: 0.2 g, Packaging unit: 1000 pcs.

### Fixing Clip



Type	Ref. No.	For luminaire sheet thickness* (MS) mm	Length L mm
98002	<b>562558</b>	0.5–1.3	9
98003	<b>562559</b>	1.4–2.2	10

\* For PCB thickness: 1.5 mm

## Linear LED Constant Current Drivers

Please visit our homepage for details for suitable

LED constant current drivers: [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

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## LED Line SMD Kit Food

### 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.  
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 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) /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 (WAGO 2060).
- 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](http://www.vossloh-schwabe.com)
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471  
Rating in accordance with IEC / TR 62778: risk group 1)

### Applied Standards

EN 62031  
LED modules for general lighting – Safety specifications

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](http://www.vossloh-schwabe.com)). We will be happy to send you these conditions upon request.

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