LED LINE FIX SMD GEN. 2

LINEAR FIXING UNIT WITH SMD LED MODULE

LED LINE FIX SMD GEN. 2

LED Line Fix SMD consists of an energy-efficient linear SMD module, a holder with various attachment options and a cover. The module was designed for integration into indoor luminaires providing direct or indirect light.

The fast, safe and flexible adhesive-based, click on (ZHAGA-compliant L28/L56W4) hole spacing) or screw-based options for fixing the module within the luminaire constitute an ideal solution for linear lighting applications.

The light module forms a single unit consisting of a holder made of a thermoconductive polymer plus a clear or diffuse cover that protects the LED module and electrically isolates it from the luminaire.

The diffuse cover reduces glare and distributes light in a similar manner to a fluorescent lamp.

Typical applications

- Office and school lighting
- Retail lighting
- Industrial lighting
- For replacement of T5 and T8 lamps

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LED Line Fix SMD Gen. 2

Equipped with SMD Line LED modules

Technical notes SMD Line modules

On-board push-in terminals: 0.5 mm², for solid leads
Allowed operating temperature at t_c point: –20 to 75 °C
Use of external LED constant-current drivers
Efficiency up to 185 lm/W
Colour rendering index R_a: min. 80
Colour accuracy initially: 3 SDCM
Service life time: 50,000 hrs. (L80/B10)

Optical Characteristics

at t_c = 50 °C
The specified values apply only to the version of the linear LED Line Fix without a cover.
The following efficiency levels can be achieved when using a cover: transparent (97%), opaque (90%)

Type	Number of LEDs	Colour	Correlated colour temperature	Typ. luminous flux* and efficiency, typ. voltage ($U_{typ.}$) and power consumption (P_{el})						Beam angle	CRI	
				350 mA		500 mA		700 mA				
				min.	typ.	min.	typ.	min.	typ.		min.	typ.
	pcs.		K	lm	lm/W	lm	lm/W	lm	lm/W	°	R_a	R_a
280 mm				P_{el} = 4.9 W $U_{typ.}$ = 13.9 V		P_{el} = 7.2 W $U_{typ.}$ = 14.4 V		P_{el} = 10.6 W $U_{typ.}$ = 15.1 V				
WU-M-499-G-830	30	warm white	3000	835	171	1170	162	1600	152	120	80	85
WU-M-499-G-840	30	neutral white	4000	875	180	1230	170	1680	159	120	80	85
WU-M-499-G-850	30	neutral white	5000	900	185	1260	175	1725	164	120	80	85
WU-M-499-G-865	30	cool white	6500	885	182	1245	172	1700	161	120	80	85
560 mm				P_{el} = 9.7 W $U_{typ.}$ = 27.8 V		P_{el} = 14.5 W $U_{typ.}$ = 28.9 V		P_{el} = 21.1 W $U_{typ.}$ = 30.1 V				
WU-M-500-G-830	60	warm white	3000	1665	171	2340	162	3200	152	120	80	85
WU-M-500-G-840	60	neutral white	4000	1750	180	2455	170	3360	159	120	80	85
WU-M-500-G-850	60	neutral white	5000	1795	185	2520	175	3450	164	120	80	85
WU-M-500-G-865	60	cool white	6500	1770	182	2485	172	3400	161	120	80	85

* Measurement tolerance of luminous flux: ±7%

Reference numbers – Module length: 280 mm

Fixing	**For tape fixing – type: 89500**			**For screw fixing – type: 89501**			**For clip fixing – type: 89502**	
Cover	Without	Clear	Diffuse	Without	Clear	Diffuse	Clear	Diffuse
SMD56/30/280	**564942**	**564946**	**564950**	**564954**	**564958**	**564962**	**564966**	**564970**
SMD56/40/280	**564943**	**564947**	**564951**	**564955**	**564959**	**564963**	**564967**	**564971**
SMD56/50/280	**564944**	**564948**	**564952**	**564956**	**564960**	**564964**	**564968**	**564972**
SMD56/65/280	**564945**	**564949**	**564953**	**564957**	**564961**	**564965**	**564969**	**564973**

Reference numbers – Module length: 560 mm

Fixing	**For tape fixing – type: 89550**			**For screw fixing – type: 89551**			**For clip fixing – type: 89552**	
Cover	Without	Clear	Diffuse	Without	Clear	Diffuse	Clear	Diffuse
SMD56/30/560	**564974**	**564978**	**564982**	**564986**	**564990**	**564994**	**564998**	**565002**
SMD56/40/560	**564975**	**564979**	**564983**	**564987**	**564991**	**564995**	**564999**	**565003**
SMD56/50/560	**564976**	**564980**	**564984**	**564988**	**564992**	**564996**	**565000**	**565004**
SMD56/65/560	**564977**	**564981**	**564985**	**564989**	**564993**	**564997**	**565501**	**565005**

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LED Line Fix SMD Gen. 2

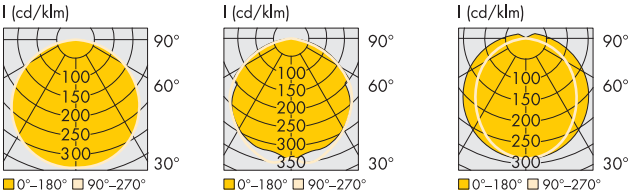
Equipped with SMD Line LED modules

Operating lifetime

at t_c = 50 °C

Lumen maintenance	**LED Line Fix SMD**
L80/B10	50,000 hrs.

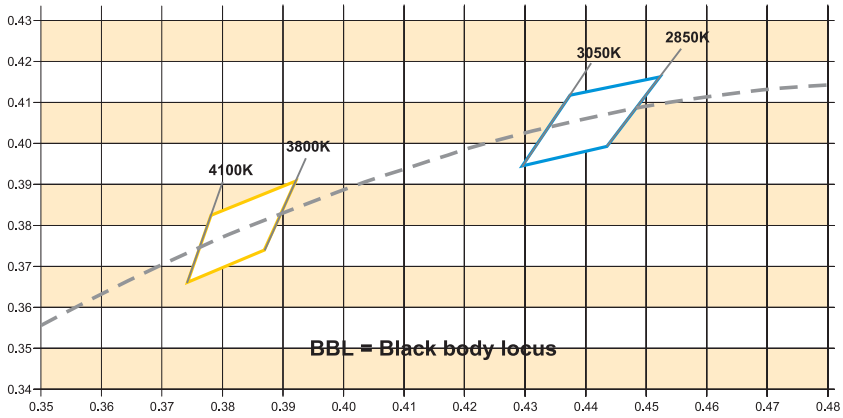
Typical light distribution curves



Without cover | With clear cover | With diffuse cover

Bins

The specified colour tolerances are correct at the time of delivery.
However, the chromaticity coordinates can visibly change during the course of longer operation.



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LED Line Fix SMD Gen. 2

Technical notes LED Line Fix holder

Holder material: thermo-conductive resin
When joining linear modules in a row, a minimum clearance of 1 mm between the fixing units must be observed due to thermal expansion.

LED Line Fix SMD for tape fixing

With base thermal tapes pre-assembled
Weight: 95/142 g, packaging unit: 4 pcs.
Type: 89500/89550

Module length (mm)	Drawing	Degree of protection	Dimensions (LxWxH) mm
Without cover			
280	A	–	280x23.2x4.5
560	C	–	561x23.2x4.5
With cover			
280	B	IP20	284x23.2x16.1
560	D	IP20	565x23.2x16.1

LED Line Fix SMD for screw fixing

Fixing holes for screws M4
Tightening torque: 0,6–0,7 Nm
Weight: 96/143 g, packaging unit: 4 pcs.
Type: 89501/89551

Module length (mm)	Drawing	Degree of protection	Dimensions (LxWxH) mm
Without cover			
280	E	–	280x40x4.5
560	G	–	561x40x4.5
With cover			
280	F	IP20	284x40x16.1
560	H	IP20	565x40x16.1

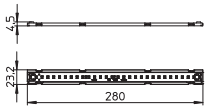
LED Line Fix SMD for clip fixing

With base thermal tapes pre-assembled
Base fixing clips for wall thickness 0.4.1mm
Weight: 95/142 g, packaging unit: 4 pcs.
Type: 89502/89552

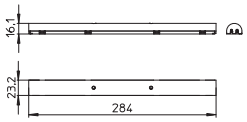
Module length (mm)	Drawing	Degree of protection	Dimensions (LxWxH) mm
With cover			
280	K	IP20	284x23.2x16.1
560	L	IP20	565x23.2x16.1

LED Line Fix SMD – For tape fixing

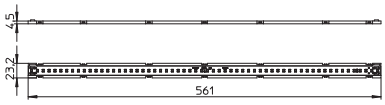
A – Type 89500 – 280 mm
Without cover



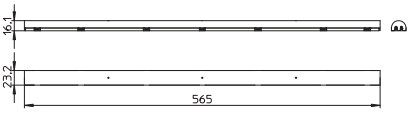
B – Type 89500 – 280 mm
With cover



C – Type 89550 – 560 mm
Without cover

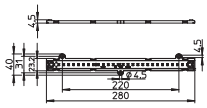


D – Type 89550 – 560 mm
With cover

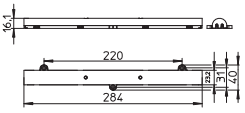


LED Line Fix SMD – For screw fixing

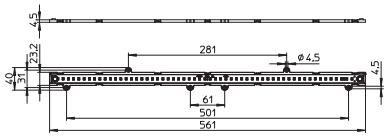
E – Type 89501 – 280 mm
Without cover



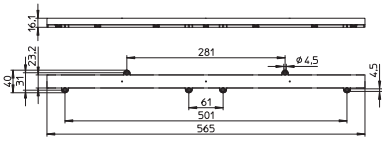
F – Type 89501 – 280 mm
With cover



G – Type 89551 – 560 mm
Without cover



H – Type 89551 – 560 mm
With cover



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LED Line Fix SMD Gen. 2

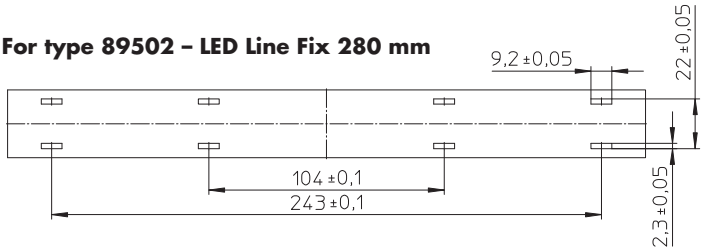
Technical notes LED Line Fix cover
Material: PC, clear or diffuse
Lead exit: lateral push-in holes
Efficency covers: clear 97%, diffuse 90%

Covers for LED Line Fix 280 mm for tape and screw fixing
For type: 89500/89501
Ref. No.: 554044 clear
Ref. No.: 554045 diffuse

For clip fixing
Longer fixing clips of cover for fixing the holder into the luminaire sheet
For wall thickness 0.4.1 mm
For type: 89502
Ref. No.: 554046 clear
Ref. No.: 554047 diffuse

Luminaire cut-outs for clip fixing

For type 89502 – LED Line Fix 280 mm

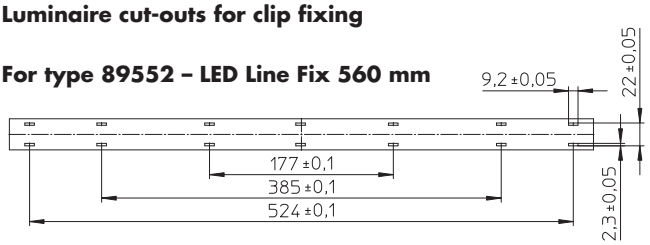


Covers for LED Line Fix 560 mm for tape and screw fixing
For type: 89550/89551
Ref. No.: 551588 clear
Ref. No.: 551589 diffuse

For clip fixing
Longer fixing clips of cover for fixing the holder into the luminaire sheet
For wall thickness 0.4.1mm
For type: 89552
Ref. No.: 551590 clear
Ref. No.: 551591 diffuse

Luminaire cut-outs for clip fixing

For type 89552 – LED Line Fix 560 mm



LED Constant Current Drivers

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

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED Line Fix 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 fixing untis, fire and/or other hazards.

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED Line Fix. 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 fixing untis 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").
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- Power supply units must be used for operation, in which the following protective measures are ensured:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Max. number of modules connected in series: 4
- The following points must be observed when connecting LED fixing untis in parallel:
  - All LED strings that are wired in parallel must contain the same number of LED Line Fix (symmetrical loading).
  - Owing to differing forward biases, there can be a difference of up to 10% in brightness between modules connected in parallel.
  - All modules that are wired in parallel must be thermally connected (same temperatures at all LED Line Fix).
- To ensure problem-free operation, the specified maximum temperature at the t_c 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.
- Products equipped with adhesive transfer tape must only be applied to dry and clean surfaces that are free from grease, oil, silicone or other soiling. It is therefore recommended to clean the substrate with isopropyl alcohol (IPA). Please ensure a full-surface bond over the entire contact area when sticking the module to the substrate.

  The following substances are regarded as critical for creating an adhesive bond:
  – Polyefins (polyethylene, polypropylene)
  – Rubber
  – Powder-coated materials
  – Silicone rubber
  – Teflon

  Owing to the varying application options and different types of surface as well as ambient conditions, VS accepts no liability for the quality of the adhesive bond achieved when mounting these products. Prior to sticking a VS product care must be taken to check whether the material in question is actually suitable for the intended purpose under consideration of all possible application-relevant influences.
- M4 screws are required to fix the holder for the screw fitting (countersunk screws must not be used for this purpose). A torque of 0.6–0.7 Nm is recommended. Plate thicknesses of 0.4–1 mm are permissible for fixing the clip fitting.
- If an adhesive pad is additionally fixed to the bottom of the holder of the screw fixing, care must be taken to reduce the torque since the holder could otherwise be damaged.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED Line Fix 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. Linear LED Line Fix with a cover feature an IP20 degree of protection. 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.
- The photobiological safety of the LED Line Fix must be classified into risk groups in accordance with EN 62471: 2008.
  – general lighting: group 1
  – other applications: group 1

Further detailed safety and installation instructions on VS LED drivers can be found in the product data sheets at **www.vossloh-schwabe.com.**

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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