

LED LINE ALUFIX

LINEAR FIXING UNIT
WITH LED MODULE
LUGA LINE 2016
ON ALUMINIUM PROFILE



LED LINE ALUFIX LUGA 2016

LED Line AluFix LUGA consists of an energy-efficient linear COB module, an aluminium holder and a clear cover or, alternatively, optics. The module was designed for integration into indoor luminaires providing direct or indirect light.

The light module is available with up to five pre-wired LUGA modules in lengths of 305 to 1,429 mm. The robust aluminium holder serves to optimise thermal management and is easy to attach using M3 screws. The clear or diffuse cover protects LED modules from environmental factors. The diffuse cover reduces glare and distributes light in a similar manner to a fluorescent lamp.

Enabling the kind of light distribution typically required in offices or shops, the optics versions facilitate luminaire designs that can do without an additional light guidance system. The high-quality optics consist of only one unit, regardless of its length, and therefore provide optimal protection for LED modules and ensure homogeneously illuminated surfaces without optical interruptions.

Typical Applications

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

LED Line AluFix LUGA 2016

SLIM AND ROBUST DESIGN

LONG SERVICE LIFETIME: 55,000 H (L90/B10)

HIGHLY EFFICIENT: UP TO 166 LM/W AT $T_p = 65^\circ\text{C}$

COLOUR TOLERANCES: 3 STEP MACADAM

**5 LENGTHS AVAILABLE: 305 MM / 586 MM /
867 MM / 1148 MM / 1429 MM**

LED Line AluFix LUGA 2016

**Aluminium profile equipped
with LUGA Line LED modules**

Technical notes for LUGA Line modules

For one to five LUGA Line modules

On-board push terminal system: Electrical connection
with lateral connection leads 28AWG

Allowed operating temperature at t_c point:
-40 to 85 °C

Use of external LED constant-current drivers required:
for drivers with $U_{OUT} < 150$ V DC

Efficiency up to 166 lm/W

Colour rendering index $R_a > 80$

Colour accuracy initially: 3 SDCM;

after 50,000 hrs. operating time: 4 SDCM

Lumen maintenance L90/B10:

55,000 hrs. (If 700 mA)



Optical characteristics of LUGA Line LED modules

at $t_p = 65$ °C | The following efficiency levels can be achieved when using a cover: see data sheets

Type	Number of LEDs pcs.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency, typical voltage ($U_{typ.}$) and power consumption (P_{el})*							
				350 mA		500 mA		700 mA		1050 mA	
				lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W
305 mm				$P_{el} = 5.2$ W $U_{typ.} = 14.9$ V		$P_{el} = 7.9$ W $U_{typ.} = 15.7$ V		$P_{el} = 11.7$ W $U_{typ.} = 16.7$ V		$P_{el} = 19.3$ W $U_{typ.} = 18.3$ V	
DML059C27FC	45	warm white	2700	770	148	1080	137	1470	126	2105	109
DML059C30FC	45	warm white	3000	800	154	1120	142	1530	131	2185	113
DML059C40FC	45	neutral white	4000	850	163	1185	150	1625	139	2325	120
586 mm (2 wired LED modules per aluminium profile)				$P_{el} = 10.4$ W $U_{typ.} = 29.8$ V		$P_{el} = 15.8$ W $U_{typ.} = 31.4$ V		$P_{el} = 23.4$ W $U_{typ.} = 33.4$ V		$P_{el} = 38.6$ W $U_{typ.} = 36.6$ V	
DML059C27FC	2x45	warm white	2700	1540	148	2160	137	2940	126	4210	109
DML059C30FC	2x45	warm white	3000	1600	154	2240	142	3060	131	4370	113
DML059C40FC	2x45	neutral white	4000	1700	163	2370	150	3250	139	4650	120
867 mm (3 wired LED modules per aluminium profile)				$P_{el} = 15.6$ W $U_{typ.} = 44.7$ V		$P_{el} = 23.7$ W $U_{typ.} = 47.1$ V		$P_{el} = 35.1$ W $U_{typ.} = 50.1$ V		$P_{el} = 57.9$ W $U_{typ.} = 54.9$ V	
DML059C27FC	3x45	warm white	2700	2310	148	3240	137	4410	126	6315	109
DML059C30FC	3x45	warm white	3000	2400	154	3360	142	4590	131	6555	113
DML059C40FC	3x45	neutral white	4000	2550	163	3555	150	4875	139	6975	120
1148 mm (4 wired LED modules per aluminium profile)				$P_{el} = 20.8$ W $U_{typ.} = 59.6$ V		$P_{el} = 31.6$ W $U_{typ.} = 62.8$ V		$P_{el} = 46.8$ W $U_{typ.} = 68.8$ V		$P_{el} = 77.2$ W $U_{typ.} = 73.2$ V	
DML059C27FC	4x45	warm white	2700	3080	148	4320	137	5880	126	8420	109
DML059C30FC	4x45	warm white	3000	3200	154	4480	142	6120	131	8740	113
DML059C40FC	4x45	neutral white	4000	3400	163	4740	150	6500	139	9300	120
1429 mm (5 wired LED modules per aluminium profile)				$P_{el} = 26$ W $U_{typ.} = 74.5$ V		$P_{el} = 39.5$ W $U_{typ.} = 78.5$ V		$P_{el} = 58.5$ W $U_{typ.} = 83.5$ V		$P_{el} = 96.5$ W $U_{typ.} = 91.5$ V	
DML059C27FC	5x45	warm white	2700	3850	148	5400	137	7350	126	10525	109
DML059C30FC	5x45	warm white	3000	4000	154	5600	142	7650	131	10925	113
DML059C40FC	5x45	neutral white	4000	4250	163	5925	150	8125	139	11625	120

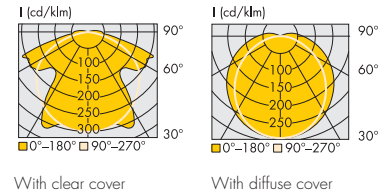
* Production tolerance of luminous flux, efficiency, voltage and power consumption: $\pm 10\%$

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

LED Line AluFix LUGA 2016

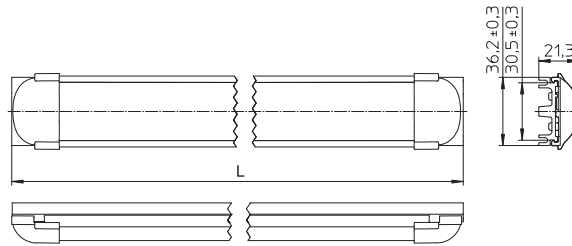
Technical notes

Material: Aluminium profile and PMMA cover
 Rear connection leads, lead length: 70 mm
 with 2-poles connector AMP Micro Mate-N-LOK 1445049-2
 Degree of protection: IP40
 Rear slots for screws M3
 Tightening torque: 0.5 Nm



LED Line AluFix LUGA 2016 – Cover

Type	Dimensions (LxWxH) in mm			Packaging unit pcs.	Weight g
	L	W	H		
89001	305	36.2	21.3	15	171
89002	586	36.2	21.3	15	330
89003	867	36.2	21.3	15	495
89004	1148	36.2	21.3	15	650
89005	1429	36.2	21.3	15	815



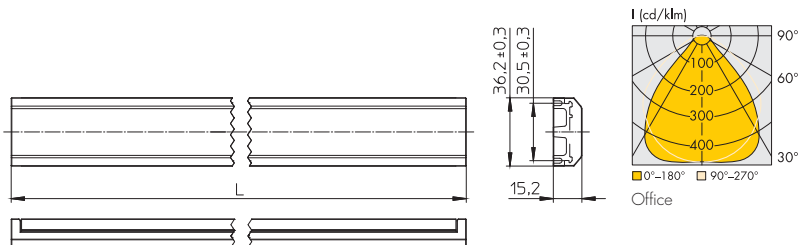
Reference numbers – LED Line AluFix LUGA 2016 – Cover

The following efficiency levels can be achieved when using a cover: clear (97%), diffuse (90%)

Type / Total length	89001 / 305 mm		89002 / 586 mm		89003 / 867 mm		89004 / 1148 mm		89005 / 1429 mm	
	Clear	Diffuse	Clear	Diffuse	Clear	Diffuse	Clear	Diffuse	Clear	Diffuse
DML059C27FC	563544	563553	563562	563571	563580	563589	563599	563608	563617	563626
DML059C30FC	563545	563554	563563	563572	563581	563590	563600	563609	563618	563627
DML059C40FC	563548	563557	563566	563575	563584	563593	563603	563612	563621	563630

LED Line AluFix LUGA 2016 – Optics Office

Type	Dimensions (LxWxH) in mm			Packaging unit pcs.	Weight g
	L	W	H		
89011	305	36.2	15.2	15	165
89012	586	36.2	15.2	15	316
89013	867	36.2	15.2	15	466
89014	1148	36.2	15.2	15	617
89015	1429	36.2	15.2	15	767



Reference numbers – LED Line AluFix LUGA 2016 – Optics Office

Efficiency optics: 94%

Type / Total length	89011 / 305 mm	89012 / 586 mm	89013 / 867 mm	89014 / 1148 mm	89015 / 1429 mm
DML059C27FC	563635	563644	563651	563661	563671
DML059C30FC	563636	563645	563652	563662	563672
DML059C40FC	563639	563648	563655	563665	563675

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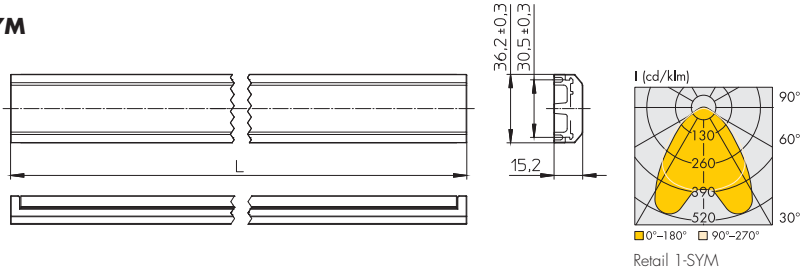
LED Line AluFix LUGA 2016

Technical notes

Material: Aluminium profile and PMMA cover
 Rear connection leads, lead length: 70 mm
 with 2-poles connector AMP Micro Mate-N-LOK 1445049-2
 Degree of protection: IP40
 Rear slots for screws M3
 Tightening torque: 0.5 Nm

LED Line AluFix LUGA 2016 – Optics Retail 1-SYM

Type	Dimensions (LxWxH) in mm			Packaging unit pcs.	Weight g
	L	W	H		
89021	305	36.2	15.2	15	165
89022	586	36.2	15.2	15	316
89023	867	36.2	15.2	15	466
89024	1148	36.2	15.2	15	617
89025	1429	36.2	15.2	15	767



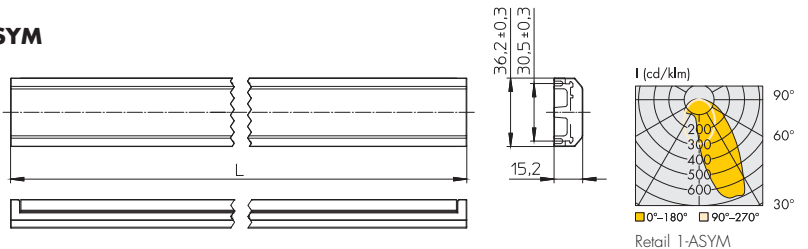
Reference numbers – LED Line AluFix LUGA 2016 – Optics Retail 1-SYM

Efficiency optics: 94%

Type / Total length	89021 / 305 mm	89022 / 586 mm	89023 / 867 mm	89024 / 1148 mm	89025 / 1429 mm
DML059C27FC	563680	563689	563698	563708	563717
DML059C30FC	563681	563690	563699	563709	563718
DML059C40FC	563684	563693	563702	563712	563721

LED Line AluFix LUGA 2016 – Optics Retail 1-ASYM

Type	Dimensions (LxWxH) in mm			Packaging unit pcs.	Weight g
	L	W	H		
89031	305	36.2	15.2	15	165
89032	586	36.2	15.2	15	316
89033	867	36.2	15.2	15	466
89034	1148	36.2	15.2	15	617
89035	1429	36.2	15.2	15	767



Reference numbers – LED Line AluFix LUGA 2016 – Optics Retail 1-ASYM

Efficiency optics: 94%

Type / Total length	89031 / 305 mm	89032 / 586 mm	89033 / 867 mm	89034 / 1148 mm	89035 / 1429 mm
DML059C27FC	563726	563736	563745	563754	563763
DML059C30FC	563727	563737	563746	563755	563764
DML059C40FC	563730	563740	563749	563758	563767

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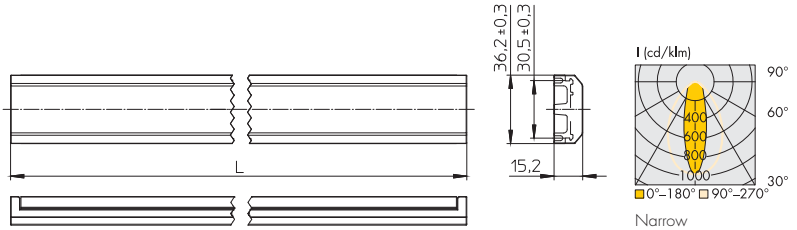
LED Line AluFix LUGA 2016

Technical notes

Material: Aluminium profile and PMMA cover
 Rear connection leads, lead length: 70 mm
 with 2-poles connector AMP Micro Mate-N-LOK 1445049-2
 Degree of protection: IP40
 Rear slots for screws M3
 Tightening torque: 0.5 Nm

LED Line AluFix LUGA 2016 – Optics Narrow

Type	Dimensions [LxWxH] in mm			Packaging unit pcs.	Weight g
	L	W	H		
89041	305	36.2	15.2	15	165
89042	586	36.2	15.2	15	316
89043	867	36.2	15.2	15	466
89044	1148	36.2	15.2	15	617
89045	1429	36.2	15.2	15	767



Reference numbers – LED Line AluFix LUGA 2016 – Optics Narrow

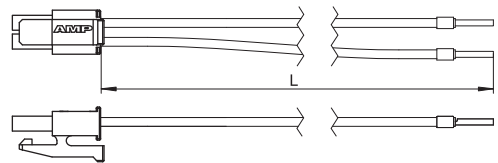
Efficiency optics: 94%

Type / Total length	89041 / 305 mm	89042 / 586 mm	89043 / 867 mm	89044 / 1148 mm	89045 / 1429 mm
DMLO59C27FC	566510	566528	566546	566564	566582
DMLO59C30FC	566511	566529	566547	566565	566583
DMLO59C40FC	566514	566532	566550	566568	566585

Connection leads

2-poles, ferrule on bare end of cores and AMP Micro Mate-N-LOK 1445022-2

Ref. No.	Lead length L					
	100 mm	200 mm	300 mm	400 mm	500 mm	600 mm
	554285	554286	554287	554288	554289	554290



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LED Constant Current Drivers

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

Assembly and Safety Information

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

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED Line AluFix. 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 fixing units must not be subjected to any undue mechanical stress, e. g.:
 - do not treat as bulk cargo
- 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.
Max. output voltage mustn't exceed 150 V DC.
- 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: 5
- The following points must be observed when connecting LED fixing units in parallel:
 - All LED strings that are wired in parallel must contain the same number of LED Line AluFix (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 AluFix).

- 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.
- M3 screws are required to fix the aluminium profile for the screw fitting. A torque of 0.5 Nm is recommended.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED Line AluFix 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 AluFix with a cover feature an IP40 degree of protection. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- For optimal load of used constant current driver the modules can 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 AluFix must be classified into risk groups in accordance with EN 62471: 2008.
 - general lighting: exempt group
 - other applications: exempt group

Further detailed safety and installation instructions on VS LED modules and 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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