

Light is OSRAM

OSRAM

LINEARLIGHT FLEX POWER TUNABLE WHITE

LF1200/2000/3000/4000TW-G3

TECHNICAL DATASHEET

Enjoy full flexibility in lighting design. Integrate light smoothly into architecture and lifestyle objects. Even select the color when you switch on the light. Pair the new LINEARlight FLEX® Tunable White range of modules with the EASY color control system for hassle free installation and simple handling.

Key Features & Benefits

- High-intensity linear LED light source
- Tunable white 2700K – 6500K for dynamic white applications
- Flexible & cuttable module to support design freedom
- Long operational length per single power feed possible
- High efficiency for luminaire designs
- Extra strong self-adhesive backside for easy mounting
- 24V technology for easy dimensioning.
Recommended in system use with OPTOTRONIC®
- Increased reliability due to single piece reel-to-reel technology
- Extra-long lifetime – 60,000 h (L70B50)
- Dimmable with PWM technology

Possible Applications

- Individual & customized luminaires
- Organic shaped luminaires
- Architectural Integration – e.g. coves, walls
- Object integration – e.g. handrails
- Signage application



Quick Reference

Product	Order Code	Color	K (range)	CRI	V	W/m	lm/m	lm/W	Operable length [mm]	Beam Angle (°)
LF4000TW-G3-82765-02	4052899953260	dynamic	2700-6500	>80	24	36.8	3800	103	2,100	120
LF3000TW-G3-82765-03	4052899953277	dynamic	2700-6500	>80	24	30.0	3000	100	3,000	120
LF2000TW-G3-82765-04	4052899953284	dynamic	2700-6500	>80	24	18.5	2000	108	4,500	120
LF1200TW-G3-82765-09	4052899953161	dynamic	2700-6500	>80	24	10.5	1200	114	9,000	120

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Version: 2016-11-04

Technical operating data for complete reel

Product	Order Code	Performance Temp. T _p [°C]	Power for complete module length[W]	Current for complete module length [A]	Luminous Flux for complete module length [lm]	Complete module length per reel [m]
LF4000TW-G3-82765-02	4052899953260	75	77.3	3.2	7,980	2.1
LF3000TW-G3-82765-03	4052899953277	70	89.9	3.7	9,000	3.0
LF2000TW-G3-82765-04	4052899953284	60	83.2	3.5	9,000	4.5
LF1200TW-G3-82765-09	4052899953161	40	94.5	3.9	10,800	9.0

Technical data per channel

Product	Order Code	ALL CHANNELS (100%)			CHANNEL 1			CHANNEL 2		
		CCT [K]	Lum. Fl. [lm/m]	Watt. [W/m]	CCT [K]	Lum. Fl. [lm/m]	Watt. [W/m]	CCT [K]	Lum. Fl. [lm/m]	Watt. [W/m]
LF4000TW-G3-82765-02	4052899953260	4000	3800	36.8	6500	1855	17.0	2700	1945	19.8
LF3000TW-G3-82765-03	4052899953277	4000	3000	30.0	6500	1480	14.0	2700	1520	16.0
LF2000TW-G3-82765-04	4052899953284	4000	2000	18.5	6500	1005	8.8	2700	995	9.7
LF1200TW-G3-82765-09	4052899953161	4000	1200	10.5	6500	610	5.0	2700	590	5.5

Technical Specifications

General

Dimmable	Pulse width modulation (PWM)
Binning	3 steps MacAdam ellipse per single channel, resulting in combined values of up to 3.8 (LF1200TW, LF2000TW, LF3000TW) and 4.5 (LF4000TW)
Lifetime	60,000 h (L70B50, T _c max)
Adhesive tape on backside	3M RP16
Complementary systems	CONNECTsystem, SLIMCONNECTsystem, SLIM TRACK, OPTOTRONIC
Certifications	CE

Operating conditions

Operating temperature at T_c-Point [°C]	-20°C - +85°C
Storage temperature [°C]	-40°C - +85°C
Ambient temperature (rated)	25°C
Ambient temperature T_a (range)	-20°C - +50°C
Voltage range [V dc]	23 – 25
Reverse Voltage [V dc]	25

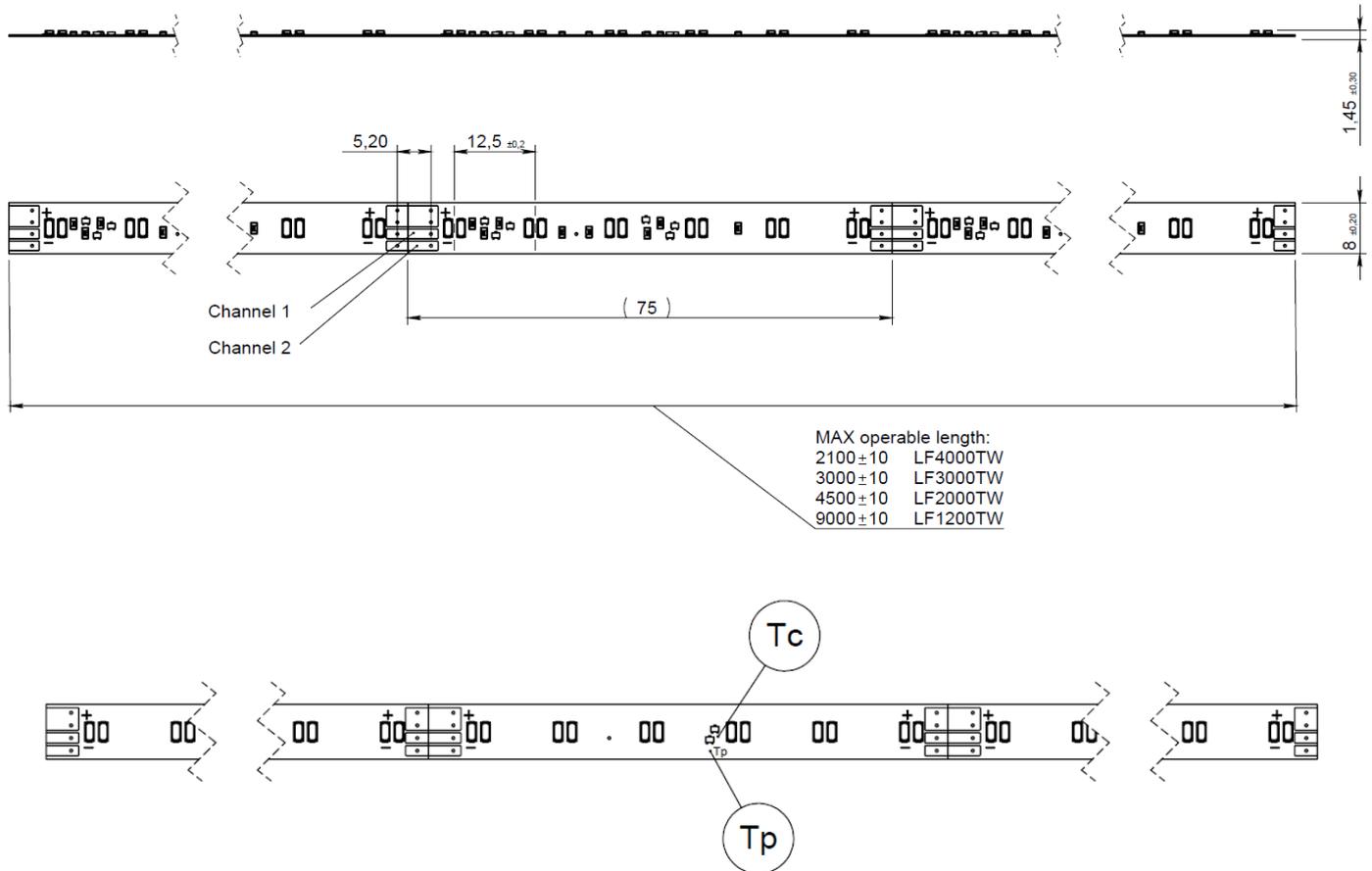
- Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED Module.
- Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED Module.
- The temperature of the LED module must be measured at the T_c-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label. For exact location of the T_c-point see drawing below.
- Temperature ramping for environmental test acc. EN 62717 performed at 1 K/min

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Technical Drawings



Safety information

- The LED module itself and all its components must not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.
- Installation of LED modules (with power supplies) needs to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
- Observe correct polarity!
Depending on the product incorrect polarity will lead to emission of red or no light. The module can be destroyed! Correct polarity immediately! (see "reverse voltage", page 2).
- Parallel connection is highly recommended as safe electrical operation mode. Serial connection is not recommended. Unbalanced voltage drop can cause hazardous overload and damage the LED module.
- Please ensure that the power supply is of adequate power to operate the total load.
- When mounting on metallic or otherwise conductive surfaces, there needs to be an electrical isolation at soldering points between module and the mounting surface.
- Maximum length of a coherently operable unit:
2.1m for LF4000TW, 3m for LF3000TW, 4m for LF2000TW, 9m for LF1200TW
- Pay attention to standard ESD precautions when installing and handling the module.
- The module, as manufactured, has no conformal coating and therefore offers no inherent protection against corrosion. The ability to customize the length of the module by cutting at specifically marked points is a key feature of the product and hence the reason for no factory installed conformal coating. For these reasons, it is recommended that the user completes all module modifications first (cutting wiring) and then apply a conformal coating in the final stages of installation
- Damage by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.

- For applications involving exposure to humidity and dust the module must be protected by a fixture or housing with a suitable protection class. The module can be protected against condensation water by treatment with an appropriate circuit board grade conformal coating. The conformal coating should have the following features:
 - Optical transparency
 - UV-resistance
 - Thermal expansion matching the thermal expansion of the module
 - Low permeability of steam for all climatic conditions
 - Resistance against corrosive environment.

In order to drive OSRAM LED-Modules safely, it is absolutely necessary to operate them with an electronically stabilized power supply protecting against short circuits, overload and overheating. To also ease the luminaire/installation approval, electronic control gear for LED or LED modules should carry the CE mark and be ENEC certified. In Europe the declarations of conformity must include the following standards: CE: EC 61347-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61347-2-13 and IEC/EN 62384. Also check for the mark of an independent authorized certification institute. Please see the relevant brochure for more detailed information (see "Related and Further Information") OSRAM OPTOTRONIC® control gear complies with all relevant standards and guarantees safe operation.

Assembly Information

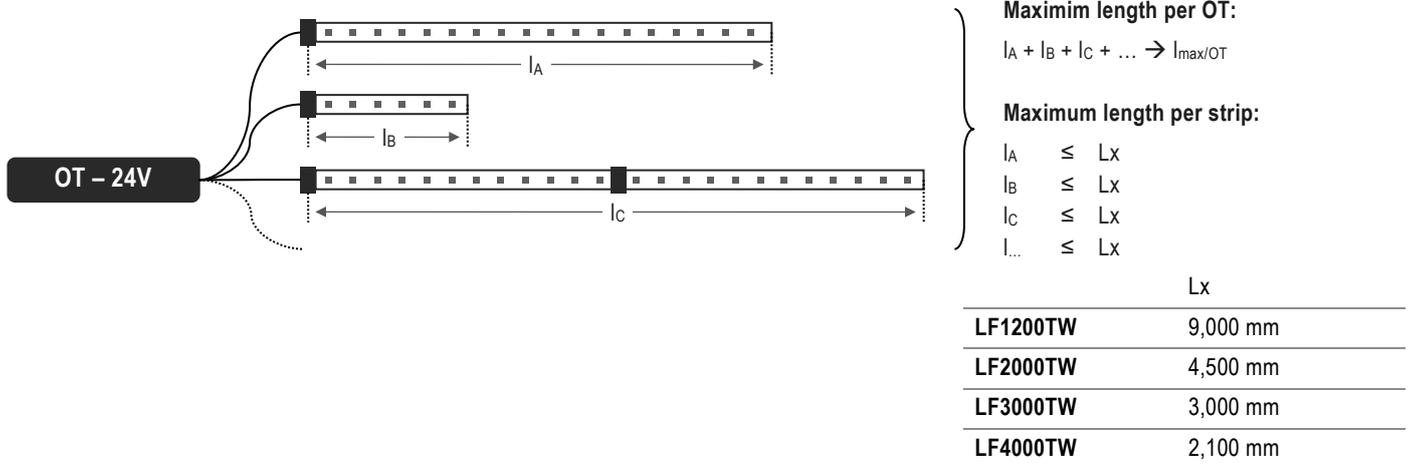
- Connection with soldering wires on unmounted module:
Do not pre-tin the solder pads but pre-tin the wires and solder for max 4 s at 300°C. Allow solderpoints to completely cool down before the next soldering. Prevent shear- or peel forces.
- Soldering of wires with the module mounted on a heatsink:
Pre-tin solder pads and wires and solder for max 3 s at 350 °C. Allow solderpoints to completely cool down before the next soldering. Prevent shear- or peel forces.
- The smallest unit (75 mm- 6 LED-bundles) can be removed by cutting with scissors between the designated solder pads.
- Mounting of the module is facilitated by the double-sided adhesive tape on the back-surface of the module.
- Mounting surface must be clean and dry, free of oils or silicone coatings as well as dirt particle.
- The mounting substrate must have sufficient structural integrity. Take care to completely remove the protective backing. Once the module is appropriately positioned, pre on the module with about 20N/cm² (refer to application techniques of 3M adhesive transfer tapes). In difficult cases the use of a prime may help.
- The minimum bending radius is 2 cm. The module may be bent over a smaller radius but only in regions of the circuit board not containing electronic components and such bends should be made once and fixed in position to avoid cyclic fatigue.
- When installing in environments with large variations in temperature (e.g. outdoor applications) and operating length of more than 2 m, the use of adequate mounting surfaces is necessary. Otherwise it is advisable to use an additional thicker adhesive tape to absorb the stress of any mismatch in expansion.

Complementary Systems, Accessories & Shipping information

OPTOTRONIC

Recommended OPTOTRONIC® drivers	EAN
Non-dimmable	
OPTOTRONIC OT 6/200-240/24 CE	4008321113269
OPTOTRONIC OT 8/200-240/24	4008321040169
OPTOTRONIC OT 20/220-240/24	4050300618111
OPTOTRONIC OT 20/120-240/24 S	4050300662626
OPTOTRONIC OT 75/220-240/24	4050300817477
OPTOTRONIC OT 75/220-240/24 E	4008321362476
OPTOTRONIC OT 80/220-240/24 P	4008321981684
OPTOTRONIC OT 120/220-240/24 P	4008321981707
OPTOTRONIC OT 240/220-240/24 P	4008321981721
Dimmable	
OPTOTRONIC OT EASY 60 II	4008321187796
OPTOTRONIC OT EASY 80	4008321808363
OPTOTRONIC OT 65/220-240/24 3DIM E	4008321964403
OPTOTRONIC OTi DALI 75/220-240/24 1-4 CH	4008321371560
OPTOTRONIC OT 80/220-240/24 DIM P	4008321981677
OPTOTRONIC OT 120/220-240/24 DIM P	4008321981691
OPTOTRONIC OT 240/220-240/24 DIM P	4008321981714

Please consider that lengths may differ if further controls are installed.



Global order information

EUROPE/MEA	EAN10 (1 UNIT)	EAN40 (8 SHIPPING UNITS)	US/CA/MX
LF4000TW-G3-82765-02	4052899953260	4052899954267	tbd. tbd.
LF3000TW-G3-82765-03	4052899953277	4052899954267	tbd. tbd.
LF2000TW-G3-82765-04	4052899953284	4052899954267	tbd. tbd.
LF1200TW-G3-82765-09	4052899953161	4052899954267	tbd. tbd.

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Related and further information

- OSRAM LED Systems www.osram.com/led-systems
- OSRAM: FLEXIBLE LED MODULES www.osram.com/flex
- OSRAM catalogue <http://catalog.osram.com>
- General information www.osram.com



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Sales and technical support is given by the local OSRAM subsidiaries.

On the OSRAM website all subsidiaries are listed with complete address and phone numbers.

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