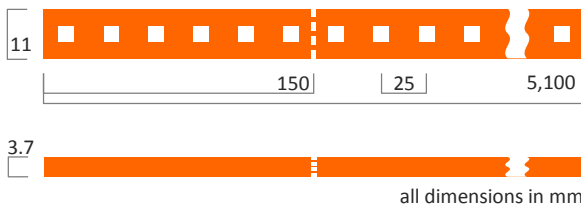
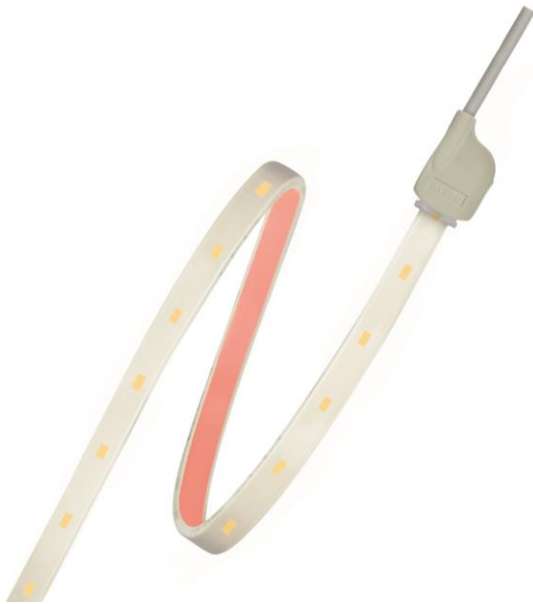


LINEARlight POWER Flex® Protect G2.1 (2016) – LF06P2-P

Technical Datasheet



Benefits

For outdoor use → IP67

High performance silicone:

- extreme long life time: 50.000 h
- high flexibility

Premounted feeder for easy connection

NEW: Slimmer Design

- Reduced height: 3.7 mm
- Elegant white appearance
- Electronic components hidden

NEW: Shorter pitch compared to prior generation

Applications

General Lighting
Ships and boats, wall integration
Machine lighting
Path illumination, illuminated signs
Architectural lighting

Quick reference

| Product | Order Code | Color | K | W/m | lm/m | lm/W | Shipping Units |
|------------------|----------------|-------|--------|------|------|------|----------------|
| LF06P2-W4F-830-P | 4052899400030. | white | 3000 | 15.5 | 1250 | 81 | 8 |
| LF06P2-W4F-835-P | 4052899372771 | white | 3500 | 14.0 | 1350 | 96 | 8 |
| LF06P2-W4F-840-P | 4052899372795 | white | 4000 | 14.0 | 1400 | 100 | 8 |
| LF06P2-W4F-860-P | 4052899372818 | white | 6000 | 14.0 | 1400 | 100 | 8 |
| LF06P2-W4F-890-P | 4052899372832 | white | 10,000 | 15.5 | 1400 | 90 | 8 |

Technical features

| | |
|----------------------------------|--|
| Protection Type | IP 67 (outdoor use) |
| High performance Silicone | High UV-resistancy Saltmist proof |
| Dimmable | Pulse width modulation (PWM) |
| Binning | Fine white |
| Lifetime | 50,000 h |
| Adhesive tape on backside | Tesa (High Performance Tape) |
| Fulfilled standards/tests | Flammability: Glow-wire test with 850° – EN60598-1 Mixed gas corrosion test – IEC60068-2-60 |
| Complementary systems | CONNECTsystem IP67 LP, SLIMCONNECTsystem (IP54), SLIM TRACK, OPTOTRONIC |

Due to the special conditions of manufacturing processes of LED, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.
Subject to change without notice. Errors and omissions excepted. **Version: 2016-07-12**

Technical operating data (for overall module)

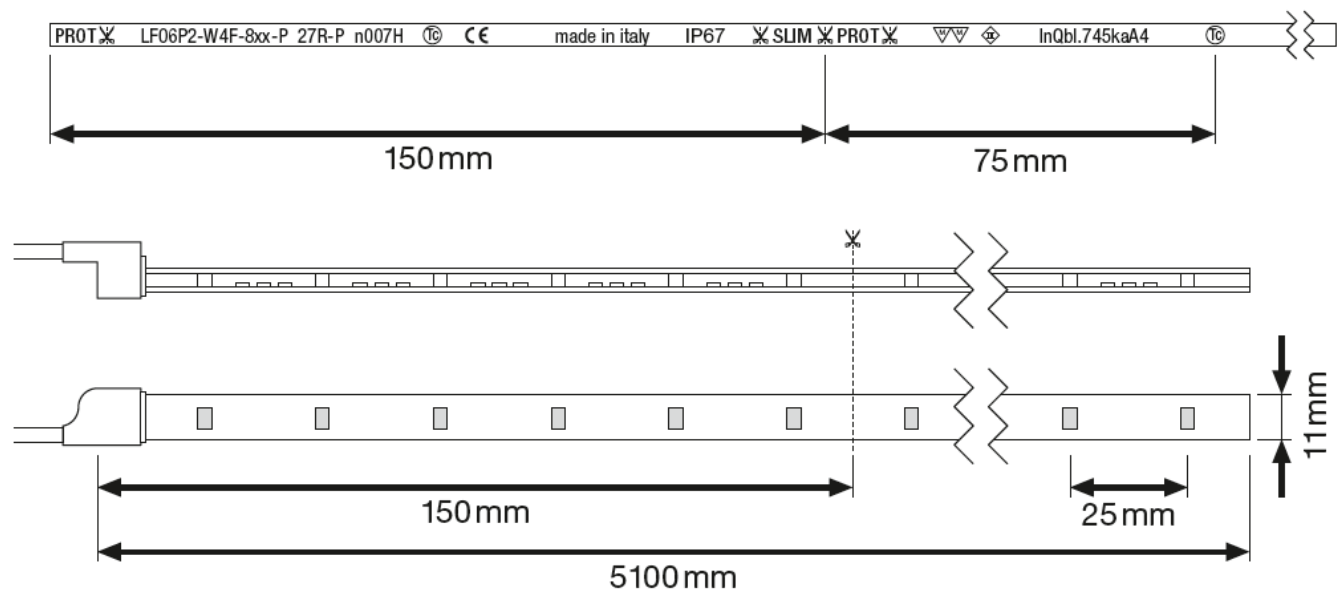
| Product | Order Code | Voltage [V] | Power [W] | Current [A] | Luminous Flux [lm] | Radiance Angle [°] | Overall Length |
|------------------|----------------|-------------|-----------|-------------|--------------------|--------------------|----------------|
| LF06P2-W4F-830-P | 4052899400030. | 24 | 79.1 | 3.3 | 6380 | 120 | 5.1 m |
| LF06P2-W4F-835-P | 4052899372771 | 24 | 71.4 | 3.0 | 6890 | 120 | 5.1 m |
| LF06P2-W4F-840-P | 4052899372795 | 24 | 71.4 | 3.0 | 7140 | 120 | 5.1 m |
| LF06P2-W4F-860-P | 4052899372818 | 24 | 71.4 | 3.0 | 7140 | 120 | 5.1 m |
| LF06P2-W4F-890-P | 4052899372832 | 24 | 79.1 | 3.0 | 7140 | 120 | 5.1 m |

Minimum & maximum ratings

| | Operating temperature at Tc-Point [°C] | Storage temperature [°C] | Voltage range [V dc] | Reverse Voltage [V dc] |
|----------|--|--------------------------|----------------------|------------------------|
| LF06P2-P | -20 ... +50°C | -40 ... +100°C | 23 ... 25 V | 24 V |

- ▶ 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 Tc-point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label. For exact location of the Tc-point see drawing below.

Technical drawing



Safety information

- ▶ The module has to be protected from mechanical loads
- ▶ 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 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 no light. The module can be damaged after a few seconds. To prevent this, 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 the LED module.
- ▶ ESD protection methods have to be observed when cutting and connecting the module. Check on ESD handling in the application note ESD protection for LED modules.
- ▶ The LED Module must not be operated under water
- ▶ Please ensure that the power supply is of adequate power to operate the total load.

Due to the special conditions of manufacturing processes of LED, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.
Subject to change without notice. Errors and omissions excepted. **Version: 2016-07-12**

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 to all relevant standards and guarantees safe operation.

Assembly Information

- ▶ The smallest electrical unit (SEU) (150 mm- 6 LEDs) can be removed by cutting at the printed marks at the side.
- ▶ After cutting connect the module via CONNECTsystem IP67 LP. Insert module into connector and apply pressure on a hard surface until locked.
- ▶ The mounting of the single LED coupons is facilitated by means of the double-sided adhesive on the back surface of the module. Care must be taken to provide a clean and dry mounting surface, 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 adhesive backing. Once the module is appropriately positioned, press on the module with about 20N/cm² (refer to application techniques of Tesa adhesive transfer tapes). To support adhesion at higher temperatures, use additional mounting brackets if temperature exceeds T_c = 40°C.
- ▶ The module has to be mounted on a metal heat sink!
- ▶ The minimum bending radius is 5 cm.
- ▶ 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.
- ▶ If temperature exceeds T_c = 40°C, additional mounting brackets are needed.
- ▶ Pay attention to avoid highly corrosive atmospheres, e.g. permanent high humidity or Hydrogen Sulfide (H₂S). With current LED technology, H₂S is causing accelerated corrosion which will lead to shortened lifetime or premature failure. Sources for H₂S may be rubber, foamed rubber, soft-foam-tapes, sealings on rubber basis, natural sources (e.g. sulfur springs), etc. To avoid H₂S from sulfur-vulcanized rubber it is necessary to switch to silicon based materials or rubber that is Peroxid-crosslinked. Indication may be found in the material datasheet of the rubber supplier.

Complementary systems and accessories

Accessories

| Type | Product | EAN | Shipping units |
|--|------------------------|---------------|----------------|
| CONNECTsystem IP67 | | | |
| Endcap for module | LF-ENDCAP IP67 LP | 4052899902565 | 10 |
| 2pin Feeder | LF-2PIN IP67 LP | 4052899125711 | 5 |
| 2pin Jumper | LF-2CONN IP67 LP | 4052899125735 | 5 |
| SLIMCONNECTsystem IP54 | | | |
| 2pin Feeder | LF-2PIN Flex IP SC | 4008321841902 | 10 |
| Jumper (board-to-board) <i>(also add: 4008321841926)</i> | LF-CONN Flex SC | 4008321832467 | 25 |
| IP54 Protection <i>for Jumper (4008321832467)</i> | LF-CONN Flex IP SC | 4008321841926 | 25 |
| SLIM TRACK System | | | |
| SLIM TRACK | LF-LTS-2100 SLIM TRACK | 4008321978981 | 40 |
| Mounting Bracket for SLIM TRACK | LF-LTS-MB | 4008321979025 | 35 / 280 |
| Clear SLIM TRACK Cover | LF-LTS COVER C | 4008321790187 | 40 |
| Diffuse SLIM TRACK Cover | LF-LTS-COVER-DIFFUSE | 4008321979001 | 40 |
| Endcap for Diffuse Cover | LF-LTS-ENDCAP | 4008321979049 | 20 / 160 |
| Semi-Diffuse SLIM TRACK Cover | LF-LTS COVER S | 4008321790200 | 40 |

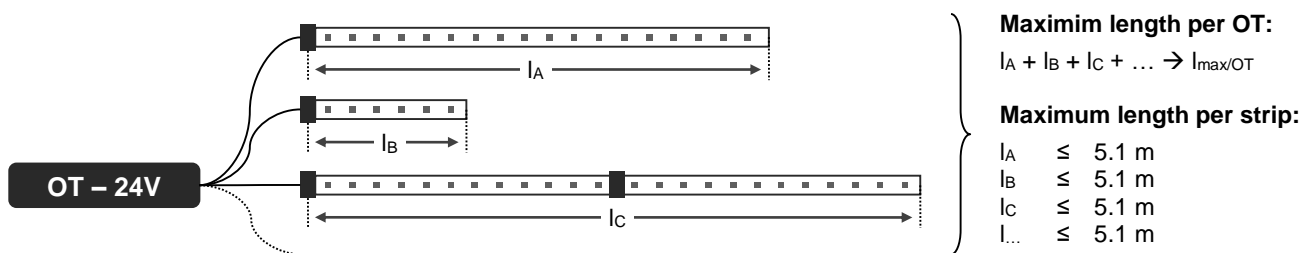
Due to the special conditions of manufacturing processes of LED, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.
Subject to change without notice. Errors and omissions excepted. **Version: 2016-07-12**

OPTOTRONIC & recommended max. operation length per driver

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

| Recommended OPTOTRONIC® drivers | EAN | LF06P2-W4F-830-P LF06P2-W4F-840-P | LF06P2-W4F-876-P |
|---------------------------------|---------------|--------------------------------------|-----------------------------|
| Non-dimmable | | | |
| OT 6/200-240/24 CE | 4008321113269 | up to 0.3 m | up to 0.3 m |
| OT 8/200-240/24 | 4008321040169 | up to 0.45 m | up to 0.45 m |
| OT 20/220-240/24 | 4050300618111 | up to 1.2 m | up to 1.35 m |
| OT 20/120-240/24 S | 4050300662626 | up to 1.2 m | up to 1.35 m |
| OT 30/220-240/24 P | 4052899043497 | up to 1.8 m | up to 2.1 m |
| OT 50/220-240/24 | 4052899905566 | up to 3.15 m | up to 3.45 m |
| OT 50/220...240/24 P | 4052899043510 | up to 3.15 m | up to 3.45 m |
| OT 75/220-240/24 | 4050300817477 | up to 4.8 m | up to 5.25 m ^(*) |
| OT 75/220-240/24 E | 4008321362476 | up to 4.8 m | up to 5.25 m ^(*) |
| OT 80/220-240/24 P | 4008321981684 | up to 5.1 m | up to 5.7 m ^(*) |
| OT 120/220-240/24 P | 4008321981707 | up to 7.65 m ^(*) | up to 8.55 m ^(*) |
| OT 240/220-240/24 P | 4008321981721 | up to 15.45 m ^(*) | up to 17.1 m ^(*) |
| OTe 120/220...240/24 E | 4008321645715 | up to 7.65 m ^(*) | up to 8.55 m ^(*) |
| Dimmable | | | |
| OT EASY 60 II | 4008321187796 | up to 3.75 m | up to 4.2 m |
| OT EASY 80 | 4008321808363 | up to 5.1 m | up to 5.7 m ^(*) |
| OTi DALI 75/220-240/24 1-4 CH | 4008321371560 | up to 4.8 m | up to 5.25 m ^(*) |
| OT 80/220-240/24 DIM P | 4008321981677 | up to 5.1 m | up to 5.7 m ^(*) |
| OT 120/220-240/24 DIM P | 4008321981691 | up to 7.65 m ^(*) | up to 8.55 m ^(*) |
| OT 240/220-240/24 DIM P | 4008321981714 | up to 15.45 m ^(*) | up to 17.1 m ^(*) |

(*) Total length operable per driver. Length of single strip or sequential connection of multiple pieces may not exceed 5.1 m.



Contacts & information

German engineering meets Italian elegance – **creating a European product**

All LINEARlight POWER Flex® Protect are Made in Italy by OSRAM, with almost 100 years of experience in light solutions.



OSRAM GmbH

Marcel-Breuer-Straße 6
80807 Munich, Germany

www.osram.com
+49.89.6213-0

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.

OSRAM LED Systems
OSRAM: FLEXIBLE LED MODULES
OSRAM catalogue
General information

www.osram.com/led-systems
www.osram.com/flex
http://catalog.osram.com
www.osram.com

Due to the special conditions of manufacturing processes of LED, the typical data of technical parameters can only reflect statistical figures and do not necessarily correspond to the actual parameters of each single product which could differ from the typical data.
Subject to change without notice. Errors and omissions excepted. **Version: 2016-07-12**