

Module LLE FLEX 12mm EXC3

Modules LLE FLEX excite

**Product description**

- _ Dimmable 24 V constant voltage LED flextape (SELV)
- _ Ideal for application on aluminium extrusions but also for various decorative lighting applications such as cove lighting, façade accent lighting etc.
- _ 4,000 K module COI approved acc. to AS/NZS1680.2.5:1997
- _ 1 reel = 5 m or 50 m
- _ Long lifetime up to 72,000 hours
- _ 5 years guarantee (conditions at <https://www.tridonic.com/manufacture-guarantee-conditions>)

Optical properties

- _ Colour temperature 2,700, 3,000, 4,000 and 6,500 K with SDCM 3^①
- _ Useful luminous flux 4,070 lm/m at $t_p = 25\text{ °C}$
- _ Efficacy of the LED module 124 lm/W at $t_p = 25\text{ °C}$
- _ Small colour tolerance (MacAdam 3), CRI 90

Mechanical properties

- _ Extremely narrow pitch distance enables short distance to diffuser and outstanding homogeneity
- _ High design freedom due to 5 cm cut-options
- _ Self-adhesive 3M tape at the backside for simple mounting on different surfaces
- _ reel2reel – No solder joints on the tape, easy to separate and low length tolerances^②

System solution

- _ System solution in combination with Tridonic constant voltage LED driver (fixed output and dimmable)

① Integral measurement over the complete module.

② For 5 m reel max. 2 solder joints and for 50 m reel max. 6 solder joints.

Website

<http://www.tridonic.com/28003622>



Spotlights



Downlights



Linear



Area



Floor | Wall



Free-standing



Street



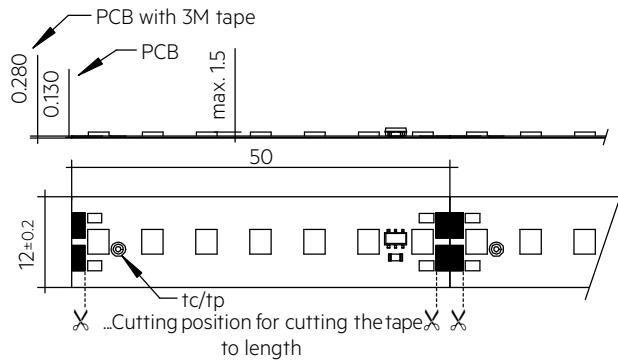
Decorative



High bay

Module LLE FLEX 12mm EXC3

Modules LLE FLEX excite



Ordering data

| Type | Article number | Colour temperature | Packaging, carton | Weight per pc. |
|---|----------------|--------------------|-------------------|----------------|
| 5,000 mm reel | | | | |
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 28003622 | 2,700 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | 28003623 | 3,000 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 28003624 | 4,000 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | 28003625 | 6,500 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 28003626 | 2,700 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | 28003627 | 3,000 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 28003628 | 4,000 K | 1 pc(s). | 0.075 kg |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | 28003629 | 6,500 K | 1 pc(s). | 0.075 kg |
| 50,000 mm reel | | | | |
| LLE FLEX 12x50000 25W-3000lm/m 927 EXC3 | 28003687 | 2,700 K | 1 pc(s). | 0.750 kg |
| LLE FLEX 12x50000 25W-3000lm/m 930 EXC3 | 28003688 | 3,000 K | 1 pc(s). | 0.750 kg |
| LLE FLEX 12x50000 25W-3000lm/m 940 EXC3 | 28003689 | 4,000 K | 1 pc(s). | 0.750 kg |
| LLE FLEX 12x50000 33W-4000lm/m 927 EXC3 | 28003691 | 2,700 K | 1 pc(s). | 0.750 kg |
| LLE FLEX 12x50000 33W-4000lm/m 930 EXC3 | 28003692 | 3,000 K | 1 pc(s). | 0.750 kg |
| LLE FLEX 12x50000 33W-4000lm/m 940 EXC3 | 28003693 | 4,000 K | 1 pc(s). | 0.750 kg |

Technical data

| | |
|--|------------------|
| Beam characteristic | 120° |
| Ambient temperature t_a | -35 ... +50 °C |
| t_p rated | 65 °C |
| t_c | 75 °C |
| Supply voltage DC | 24 V |
| Supply voltage range DC [®] | 21.5 – 26.4 V |
| Insulation test voltage | 0.5 kV |
| Colour tolerance | 3 SDCM |
| ESD classification | Severity level 1 |
| Risk group (IEC 62471) | RG1 |
| Classification acc. to IEC 62031 | Built-in |
| Type of protection | IP00 |
| Lumen maintenance L70B50 | 72,000 h |
| Guarantee (conditions at www.tridonic.com) | 5 Year(s) |

Approval marks



Standards

IEC 62031, IEC 62471, IEC 61000-4-2, UL 8750

Specific technical data

| Type | Article number | Photometric code | Useful luminous flux at $t_p = 25\text{ }^\circ\text{C}$ ^③ | Expected luminous flux at t_p rated ^④ | Typ. current consumption at t_p rated | Power consumption P_{on} at $t_p = 25\text{ }^\circ\text{C}$ | Efficacy of the module at $t_p = 25\text{ }^\circ\text{C}$ | Expected efficacy of the module at t_p rated | Colour rendering index CRI ^⑤ $t_p = 25\text{ }^\circ\text{C}$ |
|---|----------------|------------------|---|--|---|--|--|--|--|
| 5,000 mm roll | | | | | | | | | |
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 28003622 | 927/359 | 3,080 lm/m | 2,846 lm/m | 1,108 mA/m | 26.8 W/m | 125 lm/W | 117 lm/W | >90 |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | 28003623 | 930/359 | 3,145 lm/m | 2,912 lm/m | 1,108 mA/m | 26.8 W/m | 115 lm/W | 108 lm/W | >90 |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 28003624 | 940/359 | 3,080 lm/m | 2,855 lm/m | 1,028 mA/m | 24.9 W/m | 117 lm/W | 109 lm/W | >90 |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | 28003625 | 965/359 | 3,080 lm/m | 2,855 lm/m | 1,028 mA/m | 24.9 W/m | 124 lm/W | 115 lm/W | >90 |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 28003626 | 927/359 | 3,960 lm/m | 3,680 lm/m | 1,438 mA/m | 34.8 W/m | 124 lm/W | 115 lm/W | >90 |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | 28003627 | 930/359 | 4,070 lm/m | 3,780 lm/m | 1,438 mA/m | 34.8 W/m | 114 lm/W | 106 lm/W | >90 |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 28003628 | 940/359 | 4,050 lm/m | 3,751 lm/m | 1,368 mA/m | 33.1 W/m | 117 lm/W | 109 lm/W | >90 |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | 28003629 | 965/359 | 4,050 lm/m | 3,751 lm/m | 1,368 mA/m | 33.1 W/m | 122 lm/W | 114 lm/W | >90 |
| 50,000 mm roll | | | | | | | | | |
| LLE FLEX 12x50000 25W-3000lm/m 927 EXC3 | 28003687 | 927/359 | 3,080 lm/m | 2,846 lm/m | 1,108 mA/m | 26.8 W/m | 125 lm/W | 117 lm/W | >90 |
| LLE FLEX 12x50000 25W-3000lm/m 930 EXC3 | 28003688 | 930/359 | 3,145 lm/m | 2,912 lm/m | 1,108 mA/m | 26.8 W/m | 115 lm/W | 108 lm/W | >90 |
| LLE FLEX 12x50000 25W-3000lm/m 940 EXC3 | 28003689 | 940/359 | 3,080 lm/m | 2,855 lm/m | 1,028 mA/m | 24.9 W/m | 117 lm/W | 109 lm/W | >90 |
| LLE FLEX 12x50000 33W-4000lm/m 927 EXC3 | 28003691 | 927/359 | 3,960 lm/m | 3,680 lm/m | 1,438 mA/m | 34.8 W/m | 124 lm/W | 115 lm/W | >90 |
| LLE FLEX 12x50000 33W-4000lm/m 930 EXC3 | 28003692 | 930/359 | 4,070 lm/m | 3,780 lm/m | 1,438 mA/m | 34.8 W/m | 114 lm/W | 106 lm/W | >90 |
| LLE FLEX 12x50000 33W-4000lm/m 940 EXC3 | 28003693 | 940/359 | 4,050 lm/m | 3,751 lm/m | 1,368 mA/m | 33.1 W/m | 117 lm/W | 109 lm/W | >90 |

③ Exceeding the max. operating voltage leads to an overload on the LLE FLEX. This may in turn result in a significant reduction in lifetime or even in destruction.

④ Tolerance of useful light flux - 0 % / + 20 %. Measurement uncertainty $\pm 10\%$. Values given for 1 m LLE FLEX.

⑤ Tolerance of expected light flux - 0 % / + 20 %. Measurement uncertainty $\pm 10\%$. Values given for 1 m LLE FLEX. Based on calculation.

⑥ Tolerance of power consumption $P_{on} \pm 15\%$. Measurement uncertainty $\pm 5\%$. Values given for 1 m LLE FLEX.

⑦ Measurement uncertainty CRI ± 2 .

LED driver matrix – Dimmable PRE – LLE FLEX 12mm EXC3

| Type | PRE 18W | PRE 35W | PRE 60W | PRE 100W | PRE 150W |
|--------------------------|----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------|
| Article number | 28003517 28003519 | 28002415 28001662 28003520 | 28002416 28001663 28003520 | 28002417 28001253 28001436 | 28002418 28001437 |
| LLE FLEX UL certificated | class 2 | class 2 | class 2 | no | no |

| Type | Assignable LED driver | | | | |
|--|-----------------------|-----------|-----------|-----------|-----------|
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 15–60 cm | 15–120 cm | 25–210 cm | 45–350 cm | 65–530 cm |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | | | | | |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 15–65 cm | 20–130 cm | 30–225 cm | 45–380 cm | 65–570 cm |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 10–45 cm | 15–95 cm | 20–160 cm | 35–270 cm | 50–405 cm |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 10–50 cm | 15–95 cm | 20–170 cm | 35–285 cm | 50–425 cm |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | | | | | |

LED driver matrix – Fixed output EXC – LLE FLEX 12mm EXC3

| Type | EXC 35W | EXC 75W | EXC 100W | EXC 200W |
|--------------------------|----------|----------|----------|----------|
| Article number | 28003295 | 28003296 | 28003297 | 28003298 |
| LLE FLEX UL certificated | class 2 | class 2 | no | no |

| Type | Assignable LED driver | | | |
|--|-----------------------|-----------|-----------|-----------|
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 15–120 cm | 35–260 cm | 45–345 cm | 85–695 cm |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | | | | |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 20–130 cm | 35–280 cm | 45–375 cm | 90–745 cm |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 15–90 cm | 25–200 cm | 35–265 cm | 65–535 cm |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 15–95 cm | 25–210 cm | 35–280 cm | 70–560 cm |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | | | | |

LED driver matrix – Fixed output SNC – LLE FLEX 12mm EXC3

| Type | SNC 18W | SNC 35W | SNC 60W | SNC 100W | SNC 150W |
|--------------------------|----------------------|----------------------|----------------------|----------------------|----------|
| Article number | 87500938 87500931 | 87500852 87500854 | 87500665 87500669 | 87500666 87500670 | 87500855 |
| LLE FLEX UL certificated | class 2 | class 2 | class 2 | no | no |

| Type | Assignable LED driver | | | | |
|--|-----------------------|-----------|-----------|------------|------------|
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 25–60 cm | 45–120 cm | 75–210 cm | 125–350 cm | 245–705 cm |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | | | | | |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 25–65 cm | 50–130 cm | 80–225 cm | 130–380 cm | 260–760 cm |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 20–45 cm | 35–95 cm | 60–160 cm | 95–270 cm | 185–545 cm |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | | | | | |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 20–45 cm | 35–100 cm | 60–170 cm | 100–285 cm | 195–570 cm |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | | | | | |

1. Standards

IEC 62031
IEC 62471
IEC 61000-4-2
UL 8750 (for CLASS2 circuits and dry locations)

1.1 Photometric code

Key for photometric code, e. g. 830 / 349

| 1 st digit | 2 nd + 3 rd digit | 4 th digit | 5 th digit | 6 th digit | |
|-----------------------|---|-----------------------|---|---|---------------|
| Code CRI | Colour temperature in Kelvin x 100 | MacAdam initial | MacAdam after 25% of the lifetime (max.6000h) | Luminous flux after 25% of the lifetime (max.6000h) | |
| 7 70 – 79 | | | | Code | Luminous flux |
| 8 80 – 89 | | | | 7 | ≥ 70 % |
| 9 ≥90 | | | | 8 | ≥ 80 % |
| | | | | 9 | ≥ 90 % |

1.2 Energy classification

| Type | Colour temperature | Energy classification | Energy consumption |
|---|--------------------|-----------------------|--------------------|
| LLE FLEX 12x5000 25W-3000lm/m | | | |
| LLE FLEX 12x5000 25W-3000lm/m 927 EXC3 | 2,700 K | F | 27 kWh / 1,000 h |
| LLE FLEX 12x5000 25W-3000lm/m 930 EXC3 | 3,000 K | F | 27 kWh / 1,000 h |
| LLE FLEX 12x5000 25W-3000lm/m 940 EXC3 | 4,000 K | E | 25 kWh / 1,000 h |
| LLE FLEX 12x5000 25W-3000lm/m 965 EXC3 | 6,500 K | E | 25 kWh / 1,000 h |
| LLE FLEX 12x5000 33W-4000lm/m | | | |
| LLE FLEX 12x5000 33W-4000lm/m 927 EXC3 | 2,700 K | F | 35 kWh / 1,000 h |
| LLE FLEX 12x5000 33W-4000lm/m 930 EXC3 | 3,000 K | F | 35 kWh / 1,000 h |
| LLE FLEX 12x5000 33W-4000lm/m 940 EXC3 | 4,000 K | E | 34 kWh / 1,000 h |
| LLE FLEX 12x5000 33W-4000lm/m 965 EXC3 | 6,500 K | E | 34 kWh / 1,000 h |
| LLE FLEX 12x50000 25W-3000lm/m | | | |
| LLE FLEX 12x50000 25W-3000lm/m 927 EXC3 | 2,700 K | F | 27 kWh / 1,000 h |
| LLE FLEX 12x50000 25W-3000lm/m 930 EXC3 | 3,000 K | F | 27 kWh / 1,000 h |
| LLE FLEX 12x50000 25W-3000lm/m 940 EXC3 | 4,000 K | E | 25 kWh / 1,000 h |
| LLE FLEX 12x50000 33W-4000lm/m | | | |
| LLE FLEX 12x50000 33W-4000lm/m 927 EXC3 | 2,700 K | F | 35 kWh / 1,000 h |
| LLE FLEX 12x50000 33W-4000lm/m 930 EXC3 | 3,000 K | F | 35 kWh / 1,000 h |
| LLE FLEX 12x50000 33W-4000lm/m 940 EXC3 | 4,000 K | E | 34 kWh / 1,000 h |

Energy label and further information at www.tridonic.com in the certificates tab of the corresponding product page and at the EPREL data base <https://eprel.ec.europa.eu/>

2. Thermal details

2.1 tc point, ambient temperature and lifetime

The temperature at tp reference point is crucial for the light output and lifetime of a LED product.

For LLE a tp temperature of 65 °C has to be complied in order to achieve an optimum between heat sink requirements, light output and lifetime.

Compliance with the maximum permissible reference temperature at the tc point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

The tc and tp temperature of LED modules from Tridonic are measured at the same reference point.

2.2 Storage and humidity

| | |
|---------------------|--------------|
| Storage temperature | -35...+80 °C |
|---------------------|--------------|

Operation only in non condensing environment.

Humidity during processing of the module should be between 0 to 70 %.

2.3 Thermal design and heat sink

The rated life of LED products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the LLE will be greatly reduced or the LLE may be destroyed.

2.4 Heat sink values

LLE FLEX 3000lm/m 9xx EXC3

| ta | tp | R _{th, hs-a} ^① | Cooling area ^① |
|-------|-------|------------------------------------|---------------------------|
| 25 °C | 65 °C | 55.53 K/W | 12 cm ² |
| 35 °C | 65 °C | 41.62 K/W | 16 cm ² |
| 40 °C | 65 °C | 34.67 K/W | 19 cm ² |
| 45 °C | 65 °C | 27.72 K/W | 24 cm ² |
| 50 °C | 65 °C | 20.77 K/W | 32 cm ² |

LLE FLEX 4000lm/m 9xx EXC3

| ta | tp | R _{th, hs-a} ^① | Cooling area ^① |
|-------|-------|------------------------------------|---------------------------|
| 25 °C | 65 °C | 42.39 K/W | 16 cm ² |
| 35 °C | 65 °C | 31.77 K/W | 21 cm ² |
| 40 °C | 65 °C | 26.46 K/W | 25 cm ² |
| 45 °C | 65 °C | 21.15 K/W | 32 cm ² |
| 50 °C | 65 °C | 15.84 K/W | 42 cm ² |

^① Values for a single segment of the LLE FLEX (50 mm).

Notes

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. A heat transfer coefficient of 0,0015 is used for the calculation.

3. Installation / wiring

3.1 Electrical supply/choice of LED driver

LLE modules from Tridonic are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a LED driver which complies with the relevant standards. The use of LED driver from Tridonic in combination with LLE modules guarantees the necessary protection for safe and reliable operation.

If a LED driver other than Tridonic is used, it must provide the following protection:

- SELV
- Short-circuit protection
- Overload protection
- Overtemperature protection



LLE modules must be supplied by a constant voltage LED driver. Operation with a constant current LED driver will lead to an irreversible damage of the module.

Wrong polarity can damage the LLE FLEX.

3.2 Mounting instruction



None of the components of the LLE (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

The LLE FLEX is separable each 50 mm with the full function of each segment.

The LLE FLEX is to be installed within 2 weeks after it has been removed from the ESD blister packaging (contacting by means of soldering).

Insulation must be ensured at the contact area of the segments (e.g. by using the connector ACL or additional insulation in the area of the solder connection).

The fixing/cooling surface must be cleaned before installing the LLE FLEX modules to remove all dirt, dust and grease.

Prevent shear- or peel forces

Min. bending radius of the LLE FLEX is 2 cm.

For details see Application Note: www.tridonic.com



Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate.

Avoid corrosive atmosphere during usage and storage.

3.3 Soldering guidelines



The modules are suitable only for manual soldering (max. 275 °C, 2 seconds).

3.3 EOS/ESD safety guidelines



The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline_EOS_ESD.pdf) at: <http://www.tridonic.com/esd-protection>

4. Lifetime

4.1 Lifetime, lumen maintenance and failure rate

The light output of an LED module decreases over the lifetime, this is characterized with the L value.

L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of an LED module.

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules.

The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value. In addition the percentage of failed modules (fatal failure) is characterized by the C value.

The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LED modules may fail or be below 70 % of the initial luminous flux.

4.2 Lumen maintenance for LLE FLEX EXC3

LLE FLEX 3000lm/m 9xx EXC3

| Supply voltage | tp temperature | L90/F10 | L90/F50 | L80/F10 | L80/F50 | L70/F10 | L70/F50 |
|----------------|----------------|---------|---------|---------|---------|---------|---------|
| 24 V | 40 °C | 41k h | 51k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 45 °C | 39k h | 50k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 50 °C | 38k h | 48k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 55 °C | 36k h | 46k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 60 °C | 35k h | 45k h | 71k h | >72k h | >72k h | >72k h |
| 24 V | 65 °C | 33k h | 43k h | 68k h | >72k h | >72k h | >72k h |
| 24 V | 70 °C | 32k h | 42k h | 65k h | >72k h | >72k h | >72k h |
| 24 V | 75 °C | 31k h | 40k h | 62k h | >72k h | >72k h | >72k h |
| 24 V | 80 °C | 30k h | 39k h | 60k h | >72k h | >72k h | >72k h |

LLE FLEX 4000lm/m 9xx EXC3

| Supply voltage | tp temperature | L90/F10 | L90/F50 | L80/F10 | L80/F50 | L70/F10 | L70/F50 |
|----------------|----------------|---------|---------|---------|---------|---------|---------|
| 24 V | 40 °C | 41k h | 51k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 45 °C | 39k h | 49k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 50 °C | 37k h | 47k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 55 °C | 36k h | 46k h | >72k h | >72k h | >72k h | >72k h |
| 24 V | 60 °C | 34k h | 44k h | 70k h | >72k h | >72k h | >72k h |
| 24 V | 65 °C | 33k h | 43k h | 67k h | >72k h | >72k h | >72k h |
| 24 V | 70 °C | 32k h | 41k h | 64k h | >72k h | >72k h | >72k h |
| 24 V | 75 °C | 30k h | 40k h | 61k h | >72k h | >72k h | >72k h |
| 24 V | 80 °C | 29k h | 38k h | 59k h | >72k h | >72k h | >72k h |

4.3 Switching capability

100,000 cycles

Tridonic test according to IEC 62717 Cl 10.3.3
30 s on / 30 s off at I_{max}

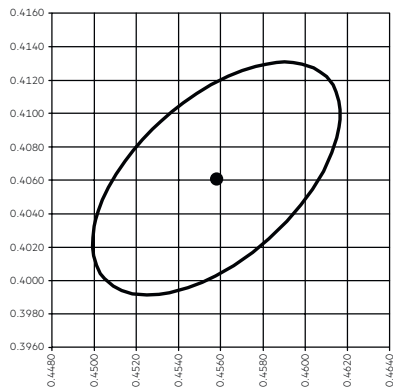
6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

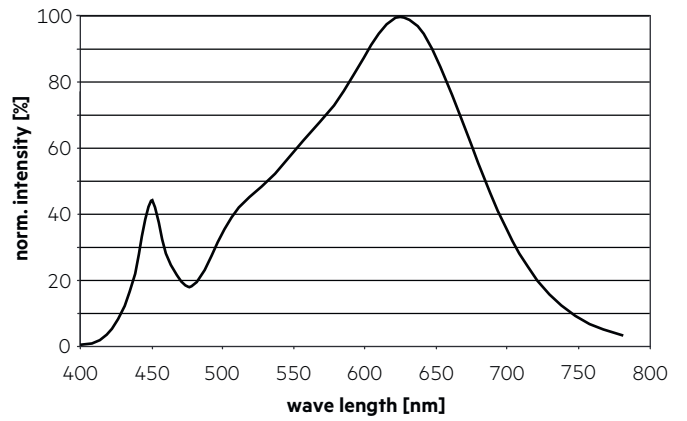
The specified colour coordinates are measured integral by a current impulse with typical values of module and a duration of 100 ms.
 The ambient temperature of the measurement is $t_a = 25^\circ\text{C}$.
 The measurement tolerance of the colour coordinates are ± 0.007 .

2,700 K

| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.4558 | 0.4061 |

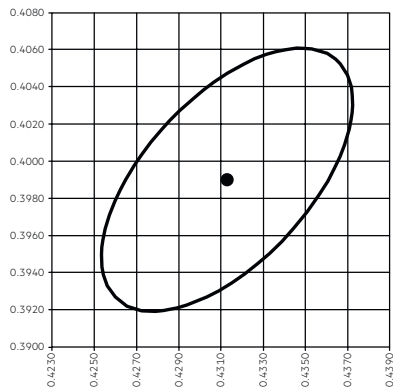


— MacAdam Ellipse: 3SDCM

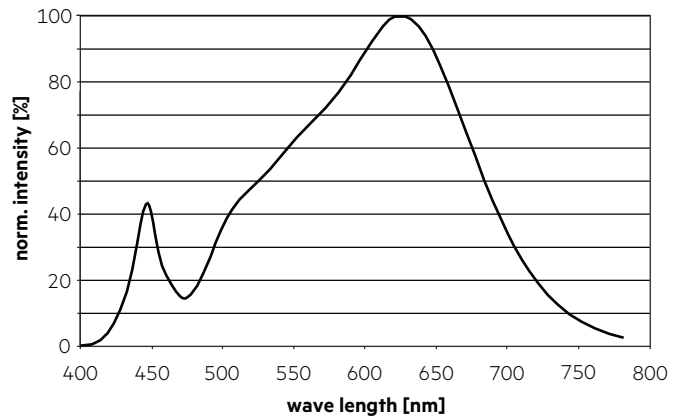


3,000 K

| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.4313 | 0.3990 |

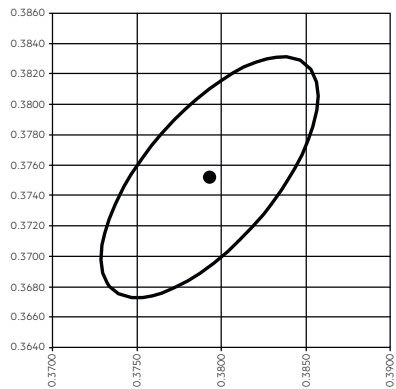


— MacAdam Ellipse: 3SDCM

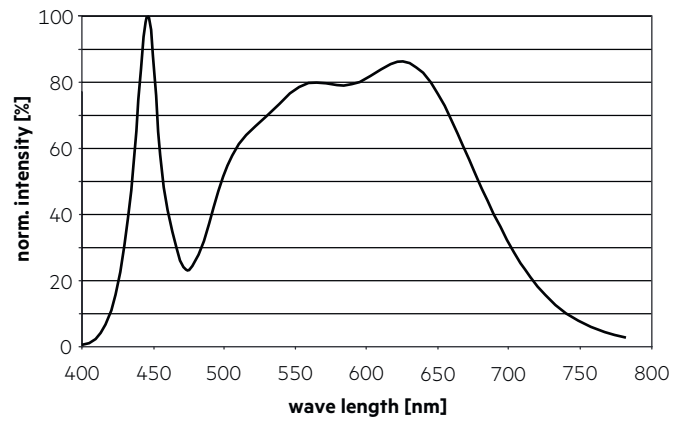


4,000 K

| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.3793 | 0.3752 |

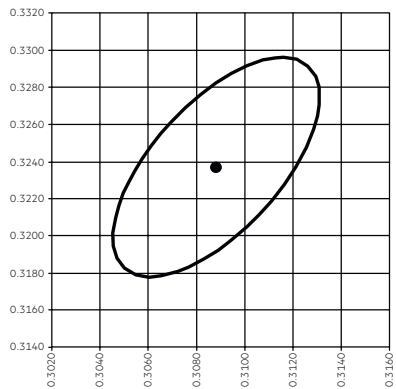


MacAdam Ellipse: 3SDCM

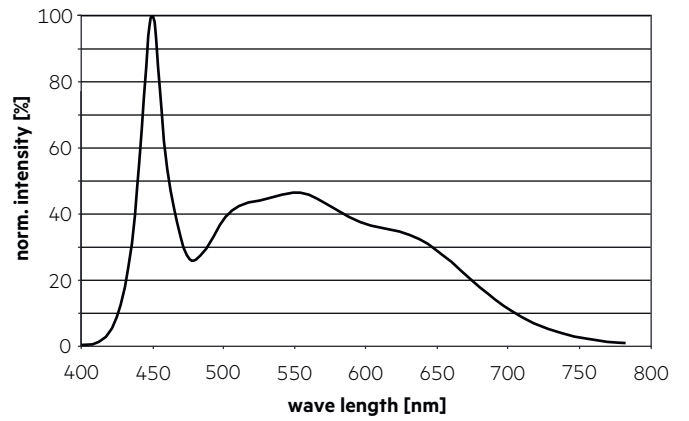


6,500 K

| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.3088 | 0.3237 |

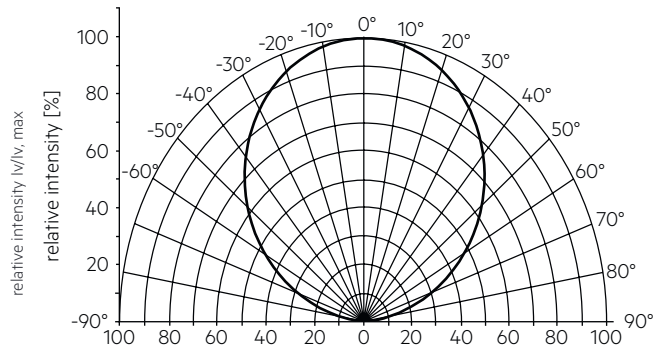


MacAdam Ellipse: 3SDCM



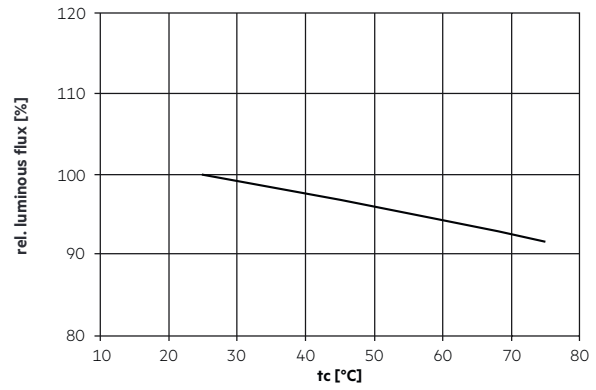
6.2 Light distribution

The optical design of the LLE product line ensures optimum homogeneity for the light distribution.



! The colour temperature is measured over the complete module. To ensure an ideal mixture of colours and a homogeneous light distribution a suitable optic (e. g. PMMA diffuser) and a sufficient spacing between module and optic (typ. 5 cm) should be used.

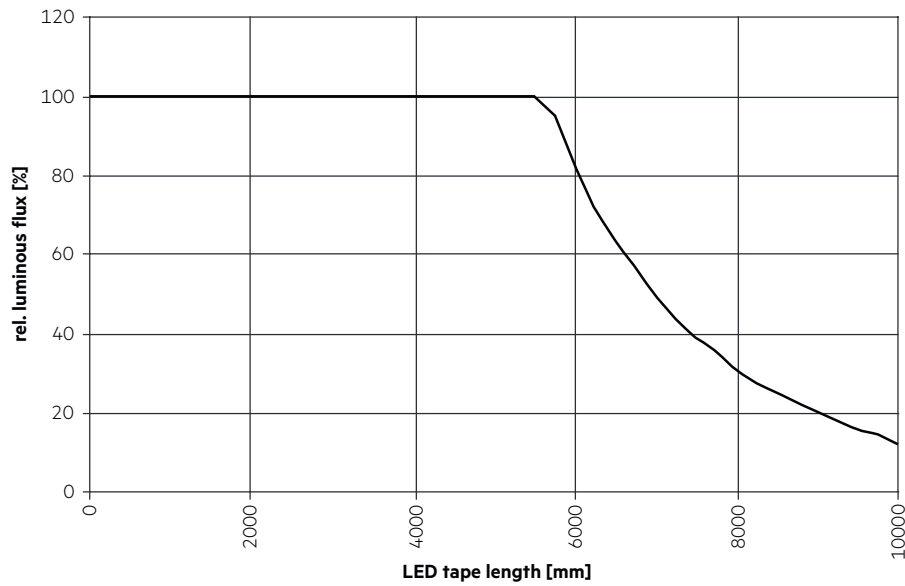
6.3 Relative luminous flux vs. tc temperature



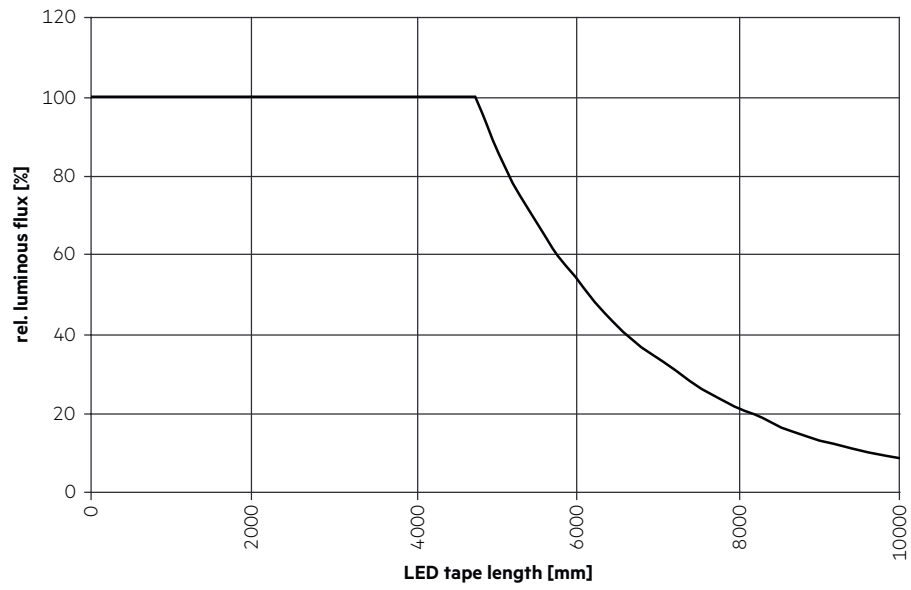
6.4 Relative luminous flux vs. LED tape length

The graphs show the luminous flux drop of the first compare to the last segment over the used tape length.

LLE FLEX 3000lm/m EXC3:



LLE FLEX 4000lm/m EXC3:



7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.