



Module LLE FLEX 8mm 48V SNC2

Modules LLE FLEX essence

Product description

- Dimmable 48 V constant voltage LED flextape (SELV)
- Ideal for applications on aluminium extrusions but also for various decorative and ambient lighting solutions
- 1 reel = 10 m
- Long lifetime: 60,000 hours
- 5 years guarantee (conditions at www.tridonic.com)

Optical properties

- Colour temperature 3,000 and 4,000 K (2,700 K on demand)
- Useful luminous flux up to 4,240 lm/m at $t_p = 25^\circ\text{C}$
- Efficacy of the LED module up to 173 lm/W at $t_p = 25^\circ\text{C}$
- High colour rendering index CRI > 80 and CRI > 90
- Small colour tolerance (MacAdam 3)

Mechanical properties

- High design freedom due to 6.25 cm cut-options and 128 LED light points per meter
- Self-adhesive 3M tape at the backside for simple mounting on different surfaces
- Available PCB to PCB and wire to PCB connectors for toolless handling and connection
- reel2reel – No solder joints on the tape, easy to separate and low length tolerances[®]

System solution

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



Standards, page 6

Colour temperatures and tolerances, page 8





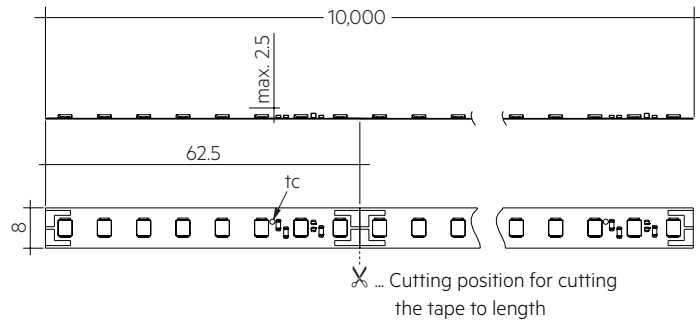
Module LLE FLEX 8mm 48V SNC2

Modules LLE FLEX essence

Technical data

Colour consistency [®]	3 SDCM
ESD classification	severity level 1
Classification acc. to IEC 62031	Built-in
Type of protection	IP00
Lumen maintenance L70B50	60,000 h
Guarantee (conditions at www.tridonic.com)	5 years

[®] Integral measurement over the complete module.



Ordering data

Type	Article number	Packaging carton	Weight per pc.
LLE FLEX 8mm 48V 8W 1200lm 827 SNC2 R10	28005272	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 8W 1200lm 830 SNC2 R10	28005273	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 8W 1200lm 840 SNC2 R10	28005274	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 12W 1800lm 827 SNC2 R10	28005276	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 12W 1800lm 830 SNC2 R10	28005277	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 12W 1800lm 840 SNC2 R10	28005278	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 17W 2500lm 827 SNC2 R10	28005280	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 17W 2500lm 830 SNC2 R10	28005281	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 17W 2500lm 840 SNC2 R10	28005282	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 20W 3000lm 827 SNC2 R10	28005284	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 20W 3000lm 830 SNC2 R10	28005285	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 20W 3000lm 840 SNC2 R10	28005286	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 26W 4000lm 827 SNC2 R10	28005288	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 26W 4000lm 830 SNC2 R10	28005289	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 26W 4000lm 840 SNC2 R10	28005290	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 10W 1200lm 930 SNC2 R10	28005293	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 14W 1800lm 930 SNC2 R10	28005297	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 14W 1800lm 940 SNC2 R10	28005298	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 20W 2500lm 930 SNC2 R10	28005301	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 20W 2500lm 940 SNC2 R10	28005302	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 22W 3000lm 930 SNC2 R10	28005305	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 22W 3000lm 940 SNC2 R10	28005306	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 30W 4000lm 930 SNC2 R10	28005309	1 pc(s).	0.133 kg
LLE FLEX 8mm 48V 30W 4000lm 940 SNC2 R10	28005310	1 pc(s).	0.133 kg

Photometric data

Type	Colour temperature	Photometric code	Useful luminous flux at tp = 25 °C [®]	Luminous flux at tp rated [®]			Efficacy of the module at tp = 25 °C	Expected efficacy of the module at tp rated	Beam characteristic	Colour rendering index CRI
				Min.	Typ.	Max.				
LLE FLEX 8mm 48V 8W 1200lm 827 SNC2 R10	2,700 K	827/359	1,210 lm/m	1,020 lm/m	1,200 lm/m	1,380 lm/m	159 lm/W	149 lm/W	120°	>80
LLE FLEX 8mm 48V 8W 1200lm 830 SNC2 R10	3,000 K	830/359	1,250 lm/m	1,040 lm/m	1,230 lm/m	1,420 lm/m	165 lm/W	153 lm/W	120°	>80
LLE FLEX 8mm 48V 8W 1200lm 840 SNC2 R10	4,000 K	840/359	1,310 lm/m	1,090 lm/m	1,290 lm/m	1,490 lm/m	173 lm/W	160 lm/W	120°	>80
LLE FLEX 8mm 48V 12W 1800lm 827 SNC2 R10	2,700 K	827/359	1,800 lm/m	1,520 lm/m	1,790 lm/m	2,060 lm/m	159 lm/W	148 lm/W	120°	>80
LLE FLEX 8mm 48V 12W 1800lm 830 SNC2 R10	3,000 K	830/359	1,850 lm/m	1,560 lm/m	1,840 lm/m	2,120 lm/m	164 lm/W	153 lm/W	120°	>80
LLE FLEX 8mm 48V 12W 1800lm 840 SNC2 R10	4,000 K	840/359	1,940 lm/m	1,640 lm/m	1,930 lm/m	2,220 lm/m	172 lm/W	160 lm/W	120°	>80
LLE FLEX 8mm 48V 17W 2500lm 827 SNC2 R10	2,700 K	827/359	2,620 lm/m	2,210 lm/m	2,610 lm/m	3,010 lm/m	159 lm/W	148 lm/W	120°	>80
LLE FLEX 8mm 48V 17W 2500lm 830 SNC2 R10	3,000 K	830/359	2,700 lm/m	2,280 lm/m	2,690 lm/m	3,100 lm/m	164 lm/W	152 lm/W	120°	>80
LLE FLEX 8mm 48V 17W 2500lm 840 SNC2 R10	4,000 K	840/359	2,820 lm/m	2,380 lm/m	2,810 lm/m	3,240 lm/m	171 lm/W	159 lm/W	120°	>80
LLE FLEX 8mm 48V 20W 3000lm 827 SNC2 R10	2,700 K	827/359	3,020 lm/m	2,550 lm/m	3,010 lm/m	3,470 lm/m	158 lm/W	147 lm/W	120°	>80
LLE FLEX 8mm 48V 20W 3000lm 830 SNC2 R10	3,000 K	830/359	3,120 lm/m	2,630 lm/m	3,100 lm/m	3,570 lm/m	163 lm/W	152 lm/W	120°	>80
LLE FLEX 8mm 48V 20W 3000lm 840 SNC2 R10	4,000 K	840/359	3,260 lm/m	2,750 lm/m	3,240 lm/m	3,730 lm/m	170 lm/W	159 lm/W	120°	>80
LLE FLEX 8mm 48V 26W 4000lm 827 SNC2 R10	2,700 K	827/359	3,930 lm/m	3,340 lm/m	3,930 lm/m	4,520 lm/m	157 lm/W	146 lm/W	120°	>80
LLE FLEX 8mm 48V 26W 4000lm 830 SNC2 R10	3,000 K	830/359	4,060 lm/m	3,440 lm/m	4,050 lm/m	4,660 lm/m	162 lm/W	151 lm/W	120°	>80
LLE FLEX 8mm 48V 26W 4000lm 840 SNC2 R10	4,000 K	840/359	4,240 lm/m	3,590 lm/m	4,230 lm/m	4,870 lm/m	169 lm/W	157 lm/W	120°	>80
LLE FLEX 8mm 48V 10W 1200lm 930 SNC2 R10	3,000 K	930/359	1,220 lm/m	1,020 lm/m	1,210 lm/m	1,400 lm/m	141 lm/W	131 lm/W	120°	>90
LLE FLEX 8mm 48V 10W 1200lm 940 SNC2 R10	4,000 K	940/359	1,300 lm/m	1,090 lm/m	1,290 lm/m	1,490 lm/m	150 lm/W	140 lm/W	120°	>90
LLE FLEX 8mm 48V 14W 1800lm 930 SNC2 R10	3,000 K	930/359	1,840 lm/m	1,550 lm/m	1,830 lm/m	2,110 lm/m	141 lm/W	131 lm/W	120°	>90
LLE FLEX 8mm 48V 14W 1800lm 940 SNC2 R10	4,000 K	940/359	1,950 lm/m	1,640 lm/m	1,940 lm/m	2,240 lm/m	149 lm/W	139 lm/W	120°	>90
LLE FLEX 8mm 48V 20W 2500lm 930 SNC2 R10	3,000 K	930/359	2,480 lm/m	2,090 lm/m	2,470 lm/m	2,850 lm/m	140 lm/W	130 lm/W	120°	>90
LLE FLEX 8mm 48V 20W 2500lm 940 SNC2 R10	4,000 K	940/359	2,640 lm/m	2,230 lm/m	2,630 lm/m	3,030 lm/m	149 lm/W	139 lm/W	120°	>90
LLE FLEX 8mm 48V 22W 3000lm 930 SNC2 R10	3,000 K	930/359	3,020 lm/m	2,560 lm/m	3,020 lm/m	3,480 lm/m	139 lm/W	130 lm/W	120°	>90
LLE FLEX 8mm 48V 22W 3000lm 940 SNC2 R10	4,000 K	940/359	3,210 lm/m	2,720 lm/m	3,210 lm/m	3,700 lm/m	148 lm/W	138 lm/W	120°	>90
LLE FLEX 8mm 48V 30W 4000lm 930 SNC2 R10	3,000 K	930/359	3,900 lm/m	3,370 lm/m	3,970 lm/m	4,570 lm/m	139 lm/W	129 lm/W	120°	>90
LLE FLEX 8mm 48V 30W 4000lm 940 SNC2 R10	4,000 K	940/359	4,140 lm/m	3,580 lm/m	4,220 lm/m	4,860 lm/m	147 lm/W	137 lm/W	120°	>90

[®] Integral measurement over the complete module.

[®] For 10 m reel max. 2 solder joints.

[®] Tolerance of useful light flux -0 / + 15 %. Measurement uncertainty ± 10 %. Values given for 1 m LLE FLEX.

[®] Measurement uncertainty ± 10 %. Values given for 1 m LLE FLEX. Based on calculation.

Electrical data

Type	Typ. current consumption at tp rated	Supply voltage DC ^①	Supply voltage range DC	Power consumption Pon at tp = 25 °C ^②	Energy classification	Energy consumption	Type of light source
LLE FLEX 8mm 48V 8W 1200lm 827 SNC2 R10	168 mA/m	48.0 V	45 - 51 V	8.0 W	D	8 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 8W 1200lm 830 SNC2 R10	168 mA/m	48.0 V	45 - 51 V	8.0 W	D	8 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 8W 1200lm 840 SNC2 R10	168 mA/m	48.0 V	45 - 51 V	8.0 W	D	8 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 12W 1800lm 827 SNC2 R10	251 mA/m	48.0 V	45 - 51 V	12.0 W	D	12 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 12W 1800lm 830 SNC2 R10	251 mA/m	48.0 V	45 - 51 V	12.0 W	D	12 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 12W 1800lm 840 SNC2 R10	251 mA/m	48.0 V	45 - 51 V	12.0 W	D	12 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 17W 2500lm 827 SNC2 R10	368 mA/m	48.0 V	45 - 51 V	17.0 W	D	17 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 17W 2500lm 830 SNC2 R10	368 mA/m	48.0 V	45 - 51 V	17.0 W	D	17 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 17W 2500lm 840 SNC2 R10	368 mA/m	48.0 V	45 - 51 V	17.0 W	D	17 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 20W 3000lm 827 SNC2 R10	426 mA/m	48.0 V	45 - 51 V	20.0 W	D	20 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 20W 3000lm 830 SNC2 R10	426 mA/m	48.0 V	45 - 51 V	20.0 W	D	20 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 20W 3000lm 840 SNC2 R10	426 mA/m	48.0 V	45 - 51 V	20.0 W	D	20 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 26W 4000lm 827 SNC2 R10	560 mA/m	48.0 V	45 - 51 V	26.0 W	D	26 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 26W 4000lm 830 SNC2 R10	560 mA/m	48.0 V	45 - 51 V	26.0 W	D	26 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 26W 4000lm 840 SNC2 R10	560 mA/m	48.0 V	45 - 51 V	26.0 W	D	26 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 10W 1200lm 930 SNC2 R10	192 mA/m	48.0 V	45 - 51 V	9.0 W	E	9 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 10W 1200lm 940 SNC2 R10	192 mA/m	48.0 V	45 - 51 V	9.0 W	D	9 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 14W 1800lm 930 SNC2 R10	291 mA/m	48.0 V	45 - 51 V	14.0 W	E	14 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 14W 1800lm 940 SNC2 R10	291 mA/m	48.0 V	45 - 51 V	14.0 W	D	14 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 20W 2500lm 930 SNC2 R10	395 mA/m	48.0 V	45 - 51 V	18.0 W	E	18 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 20W 2500lm 940 SNC2 R10	395 mA/m	48.0 V	45 - 51 V	18.0 W	D	18 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 22W 3000lm 930 SNC2 R10	485 mA/m	48.0 V	45 - 51 V	22.0 W	E	22 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 22W 3000lm 940 SNC2 R10	485 mA/m	48.0 V	45 - 51 V	22.0 W	D	22 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 30W 4000lm 930 SNC2 R10	640 mA/m	48.0 V	45 - 51 V	29.0 W	E	29 kWh / 1,000 h	Non-directional
LLE FLEX 8mm 48V 30W 4000lm 940 SNC2 R10	640 mA/m	48.0 V	45 - 51 V	29.0 W	D	29 kWh / 1,000 h	Non-directional

^① Exceeding the max. operating voltage leads to an overload on the LLE FLEX. This may in turn result in a reduction in lifetime or even in destruction.

^② Tolerance of power consumption Pon ± 15 %. Measurement uncertainty ± 5 %. Values given for 1 m LLE FLEX.

Specific technical data

Type	Max. working voltage for insulation SELV	Electrical strength	ta	tp rated	tc
LLE FLEX 8mm 48V 8W 1200lm 827 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 8W 1200lm 830 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 8W 1200lm 840 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 12W 1800lm 827 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 12W 1800lm 830 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 12W 1800lm 840 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 17W 2500lm 827 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 17W 2500lm 830 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 17W 2500lm 840 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 20W 3000lm 827 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 20W 3000lm 830 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 20W 3000lm 840 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 26W 4000lm 827 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 26W 4000lm 830 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 26W 4000lm 840 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 10W 1200lm 930 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 10W 1200lm 940 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 14W 1800lm 930 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 14W 1800lm 940 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 20W 2500lm 930 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 20W 2500lm 940 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 22W 3000lm 930 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 22W 3000lm 940 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 30W 4000lm 930 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C
LLE FLEX 8mm 48V 30W 4000lm 940 SNC2 R10	60 V	0.5 kV	-25 ... +50 °C	65 °C	75 °C

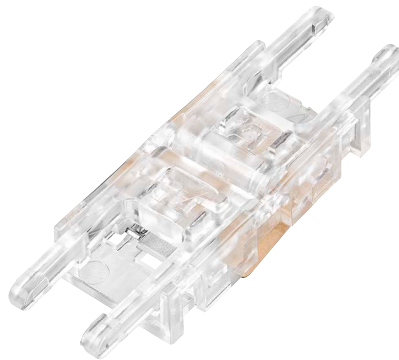
Connector for LLE FLEX

Product description

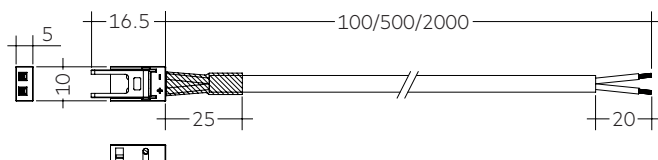
- For connection of LLE FLEX modules
- For internal wiring only (no strain relief functionality)
- Connector can be closed and re-opened easily:
For assembly instructions see application note available at www.tridonic.com
- Glow wire test according to IEC 60695-2-11
- Max. 5 A in connection with LLE FLEX
- Urated = 24 – 48 V
- Wire cross section AWG 18



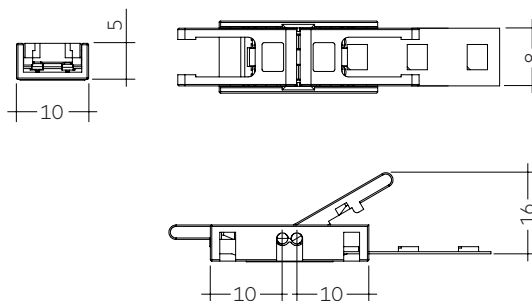
ACL connector Wire-PCB



ACL connector PCB-PCB



ACL connector Wire-PCB



ACL connector PCB-PCB

Ordering data

Type	Article number	Packaging carton	Weight per pc.
ACL FLEX CONNECTOR WIRE - PCB 100MM	28004985	20 pc(s).	0.004 kg
ACL FLEX CONNECTOR WIRE - PCB 500MM	28004986	20 pc(s).	0.020 kg
ACL FLEX CONNECTOR WIRE - PCB 2000MM	28004987	10 pc(s).	0.072 kg
ACL FLEX CONNECTOR PCB - PCB	28004988	25 pc(s).	0.001 kg

1. Standards

IEC 62031
IEC 62471
IEC 62778
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 after 25% of the lifetime (max.6000h)	Luminous flux after 25% of the lifetime (max.6000h)
7	70 – 79	MacAdam initial	(max.6000h)	Code
8	80 – 89			Luminous flux
9	≥90			

1.2 Risk group

Type	Risk group
LLE FLEX 8mm 48V SNC2	RG1

1.3 Energy classification

Type	Colour temperature	Energy classification	Energy consumption
LLE FLEX 8mm 48V 8W 1200lm 827 SNC2 R10	2,700 K	D	8 kWh / 1,000 h
LLE FLEX 8mm 48V 8W 1200lm 830 SNC2 R10	3,000 K	D	8 kWh / 1,000 h
LLE FLEX 8mm 48V 8W 1200lm 840 SNC2 R10	4,000 K	D	8 kWh / 1,000 h
LLE FLEX 8mm 48V 12W 1800lm 827 SNC2 R10	2,700 K	D	12 kWh / 1,000 h
LLE FLEX 8mm 48V 12W 1800lm 830 SNC2 R10	3,000 K	D	12 kWh / 1,000 h
LLE FLEX 8mm 48V 12W 1800lm 840 SNC2 R10	4,000 K	D	12 kWh / 1,000 h
LLE FLEX 8mm 48V 17W 2500lm 827 SNC2 R10	2,700 K	D	17 kWh / 1,000 h
LLE FLEX 8mm 48V 17W 2500lm 830 SNC2 R10	3,000 K	D	17 kWh / 1,000 h
LLE FLEX 8mm 48V 17W 2500lm 840 SNC2 R10	4,000 K	D	17 kWh / 1,000 h
LLE FLEX 8mm 48V 20W 3000lm 827 SNC2 R10	2,700 K	D	20 kWh / 1,000 h
LLE FLEX 8mm 48V 20W 3000lm 830 SNC2 R10	3,000 K	D	20 kWh / 1,000 h
LLE FLEX 8mm 48V 20W 3000lm 840 SNC2 R10	4,000 K	D	20 kWh / 1,000 h
LLE FLEX 8mm 48V 26W 4000lm 827 SNC2 R10	2,700 K	D	26 kWh / 1,000 h
LLE FLEX 8mm 48V 26W 4000lm 830 SNC2 R10	3,000 K	D	26 kWh / 1,000 h
LLE FLEX 8mm 48V 26W 4000lm 840 SNC2 R10	4,000 K	D	26 kWh / 1,000 h
LLE FLEX 8mm 48V 10W 1200lm 930 SNC2 R10	3,000 K	E	9 kWh / 1,000 h
LLE FLEX 8mm 48V 10W 1200lm 940 SNC2 R10	4,000 K	D	9 kWh / 1,000 h
LLE FLEX 8mm 48V 14W 1800lm 930 SNC2 R10	3,000 K	E	14 kWh / 1,000 h
LLE FLEX 8mm 48V 14W 1800lm 940 SNC2 R10	4,000 K	D	14 kWh / 1,000 h
LLE FLEX 8mm 48V 20W 2500lm 930 SNC2 R10	3,000 K	E	18 kWh / 1,000 h
LLE FLEX 8mm 48V 20W 2500lm 940 SNC2 R10	4,000 K	D	18 kWh / 1,000 h
LLE FLEX 8mm 48V 22W 3000lm 930 SNC2 R10	3,000 K	E	22 kWh / 1,000 h
LLE FLEX 8mm 48V 22W 3000lm 940 SNC2 R10	4,000 K	D	22 kWh / 1,000 h
LLE FLEX 8mm 48V 30W 4000lm 930 SNC2 R10	3,000 K	E	29 kWh / 1,000 h
LLE FLEX 8mm 48V 30W 4000lm 940 SNC2 R10	4,000 K	D	29 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	-25 ... +75 °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 8mm 48V 1200lm 8xx SNC2

ta	tp	R _{th, hs-a} ①	Cooling area ①
25 °C	65 °C	169.30 K/W	self cooling
35 °C	65 °C	126.94 K/W	5 cm²
40 °C	65 °C	105.76 K/W	6 cm²
45 °C	65 °C	84.58 K/W	8 cm²
50 °C	65 °C	63.40 K/W	11 cm²

LLE FLEX 8mm 48V 1800lm 8xx SNC2

ta	tp	R _{th, hs-a} ①	Cooling area ①
25 °C	65 °C	108.32 K/W	6 cm²
35 °C	65 °C	81.21 K/W	8 cm²
40 °C	65 °C	67.65 K/W	10 cm²
45 °C	65 °C	54.09 K/W	12 cm²
50 °C	65 °C	40.53 K/W	16 cm²

LLE FLEX 8mm 48V 2500lm 8xx SNC2

ta	tp	R _{th, hs-a} ①	Cooling area ①
25 °C	65 °C	85.02 K/W	8 cm²
35 °C	65 °C	63.73 K/W	10 cm²
40 °C	65 °C	53.08 K/W	13 cm²
45 °C	65 °C	42.44 K/W	16 cm²
50 °C	65 °C	31.79 K/W	21 cm²

LLE FLEX 8mm 48V 3000lm 8xx SNC2

ta	tp	R _{th, hs-a} ①	Cooling area ①
25 °C	65 °C	71.55 K/W	9 cm²
35 °C	65 °C	53.64 K/W	12 cm²
40 °C	65 °C	44.69 K/W	15 cm²
45 °C	65 °C	35.73 K/W	19 cm²
50 °C	65 °C	26.78 K/W	25 cm²

LLE FLEX 8mm 48V 4000lm 8xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	5312 K/W	13 cm²
35 °C	65 °C	39.80 K/W	17 cm²
40 °C	65 °C	3314 K/W	20 cm²
45 °C	65 °C	26.49 K/W	25 cm²
50 °C	65 °C	19.83 K/W	34 cm²

LLE FLEX 8mm 48V 1200lm 9xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	122.82 K/W	5 cm²
35 °C	65 °C	92.08 K/W	7 cm²
40 °C	65 °C	76.71 K/W	9 cm²
45 °C	65 °C	61.34 K/W	11 cm²
50 °C	65 °C	45.97 K/W	15 cm²

LLE FLEX 8mm 48V 1800lm 9xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	83.21 K/W	8 cm²
35 °C	65 °C	62.37 K/W	11 cm²
40 °C	65 °C	51.95 K/W	13 cm²
45 °C	65 °C	41.54 K/W	16 cm²
50 °C	65 °C	31.12 K/W	21 cm²

LLE FLEX 8mm 48V 2500lm 9xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	64.26 K/W	10 cm²
35 °C	65 °C	48.16 K/W	14 cm²
40 °C	65 °C	40.11 K/W	17 cm²
45 °C	65 °C	32.06 K/W	21 cm²
50 °C	65 °C	24.00 K/W	28 cm²

LLE FLEX 8mm 48V 3000lm 9xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	50.33 K/W	13 cm²
35 °C	65 °C	37.71 K/W	18 cm²
40 °C	65 °C	31.40 K/W	21 cm²
45 °C	65 °C	25.09 K/W	27 cm²
50 °C	65 °C	18.78 K/W	35 cm²

LLE FLEX 8mm 48V 4000lm 9xx SNC2

ta	tp	R _{th, hs-a} ^①	Cooling area ^①
25 °C	65 °C	4110 K/W	16 cm²
35 °C	65 °C	30.79 K/W	22 cm²
40 °C	65 °C	25.63 K/W	26 cm²
45 °C	65 °C	20.48 K/W	33 cm²
50 °C	65 °C	15.32 K/W	44 cm²

^① Values for a single segment of the LLE FLEX (62.5 mm).

Notes

The module has to be mounted on a heat sink and operated within the specified temperature range.

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 62.5 mm with the full function of each segment.

Insulation must be ensured at the contact area of the segments (e. g. by using 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

LLE FLEX 8mm 48V 1200lm SNC2

LLE FLEX 8mm 48V 1800lm SNC2

Supply voltage	tp temperature	L90/B10	L90/B50	L80/B10	L80/B50	L70/B10	L70/B50
48 V	40 °C	34k h	52k h	>60k h	>60k h	>60k h	>60k h
	45 °C	34k h	50k h	>60k h	>60k h	>60k h	>60k h
	50 °C	33k h	48k h	>60k h	>60k h	>60k h	>60k h
	55 °C	33k h	47k h	>60k h	>60k h	>60k h	>60k h
	60 °C	32k h	45k h	>60k h	>60k h	>60k h	>60k h
	65 °C	32k h	43k h	>60k h	>60k h	>60k h	>60k h
	70 °C	31k h	42k h	>60k h	>60k h	>60k h	>60k h
	75 °C	31k h	40k h	>60k h	>60k h	>60k h	>60k h

LLE FLEX 8mm 48V 2500lm SNC2

LLE FLEX 8mm 48V 3000lm SNC2

LLE FLEX 8mm 48V 4000lm SNC2

Supply voltage	tp temperature	L90/B10	L90/B50	L80/B10	L80/B50	L70/B10	L70/B50
48 V	40 °C	34k h	51k h	>60k h	>60k h	>60k h	>60k h
	45 °C	34k h	50k h	>60k h	>60k h	>60k h	>60k h
	50 °C	33k h	48k h	>60k h	>60k h	>60k h	>60k h
	55 °C	32k h	46k h	>60k h	>60k h	>60k h	>60k h
	60 °C	32k h	44k h	>60k h	>60k h	>60k h	>60k h
	65 °C	31k h	43k h	>60k h	>60k h	>60k h	>60k h
	70 °C	31k h	41k h	>60k h	>60k h	>60k h	>60k h
	75 °C	30k h	40k h	>60k h	>60k h	>60k h	>60k h

LOC10 >60 kh. At tp rated, based on 10 switching cycles per day.

4.3 Switching capability

100,000 cycles

Tridonic test according to IEC 62717 CI 10.3.3

30 s on / 30 s off at I_{max}

6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

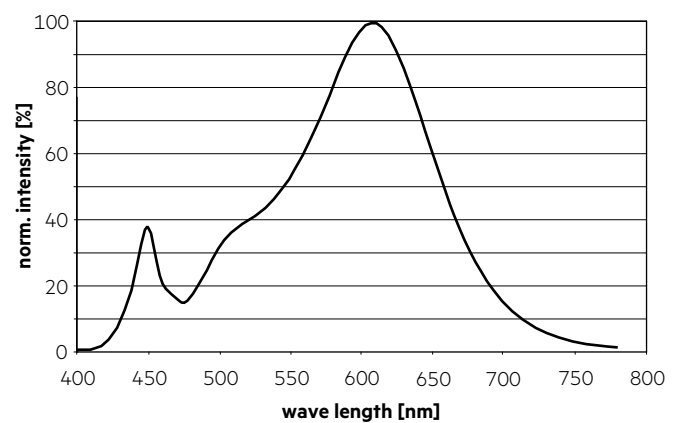
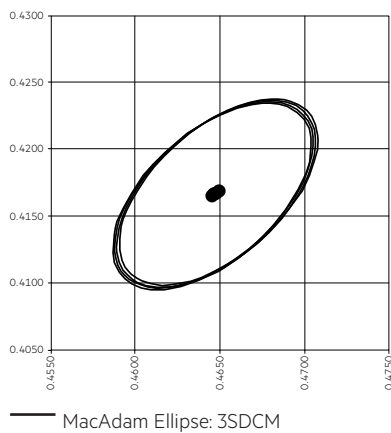
The specified colour coordinates are measured integral by a current impulse with typical values of module and a duration of 100 ms.

The ambient temperature of the measurement is $t_a = 25^\circ\text{C}$.

The measurement tolerance of the colour coordinates are ± 0.01 .

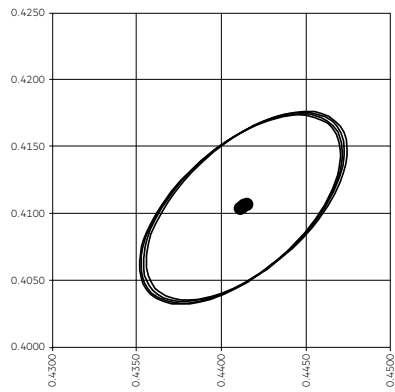
2,700 K – CRI80

	x0	y0
Centre 1,200 lm/m	0.4650	0.4168
Centre 1,800 lm/m	0.4650	0.4168
Centre 2,500 lm/m	0.4648	0.4167
Centre 3,000 lm/m	0.4647	0.4166
Centre 4,000 lm/m	0.4646	0.4165

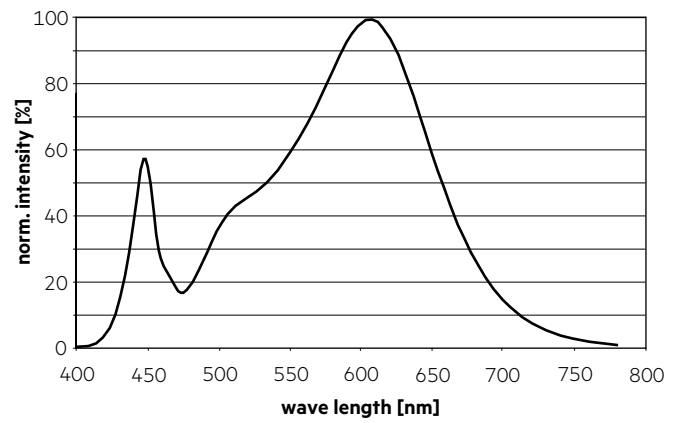


3,000 K – CRI80

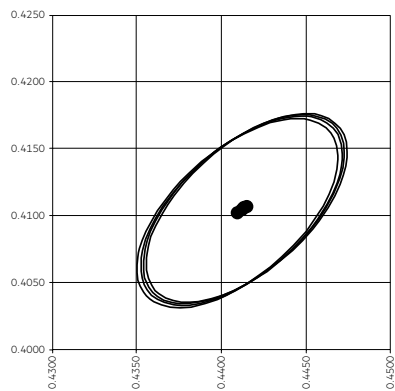
	x0	y0
Centre 1,200 lm/m	0.4416	0.4106
Centre 1,800 lm/m	0.4416	0.4106
Centre 2,500 lm/m	0.4414	0.4105
Centre 3,000 lm/m	0.4413	0.4104
Centre 4,000 lm/m	0.4412	0.4103



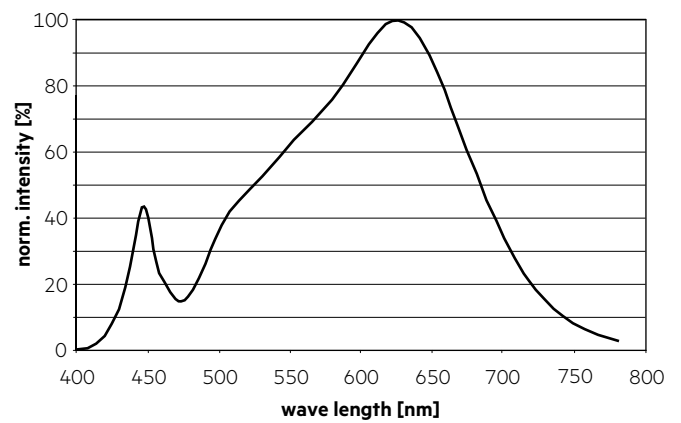
MacAdam Ellipse: 3SDCM

**3,000 K – CRI90**

	x0	y0
Centre 1,200 lm/m	0.4416	0.4106
Centre 1,800 lm/m	0.4414	0.4105
Centre 2,500 lm/m	0.4414	0.4105
Centre 3,000 lm/m	0.4413	0.4104
Centre 4,000 lm/m	0.4410	0.4102

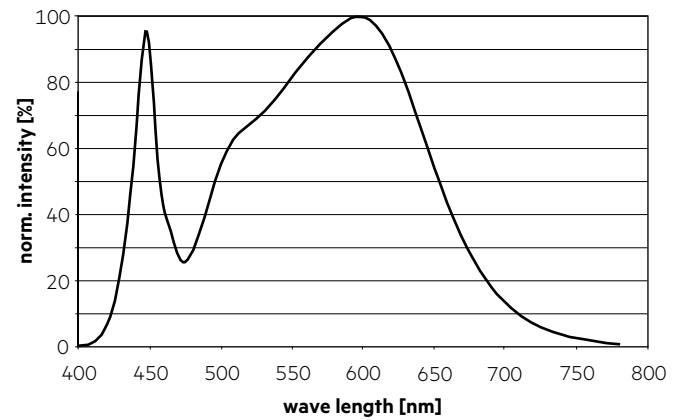
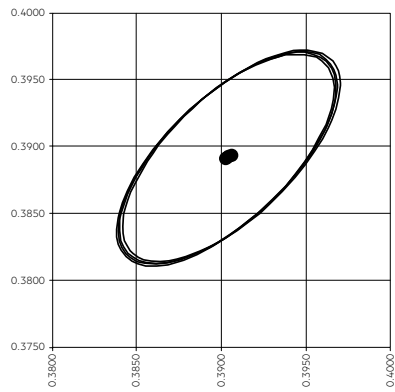


MacAdam Ellipse: 3SDCM

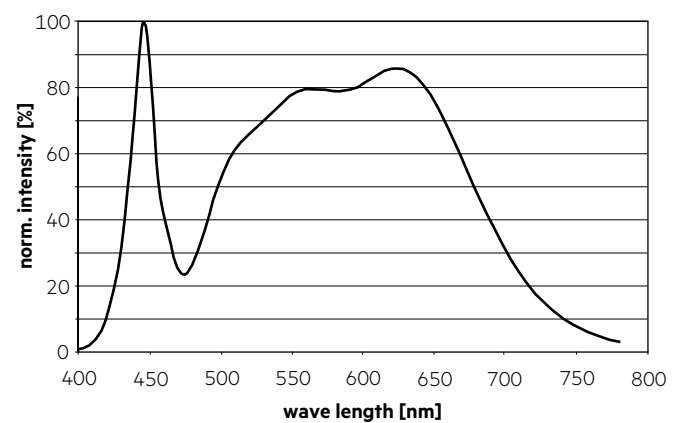
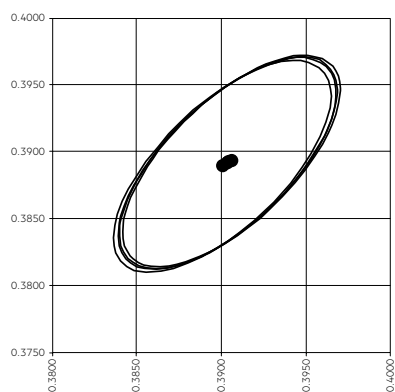


4,000 K – CRI80

	x0	y0
Centre 1,200 lm/m	0.3907	0.3893
Centre 1,800 lm/m	0.3907	0.3893
Centre 2,500 lm/m	0.3905	0.3892
Centre 3,000 lm/m	0.3904	0.3891
Centre 4,000 lm/m	0.3903	0.3890

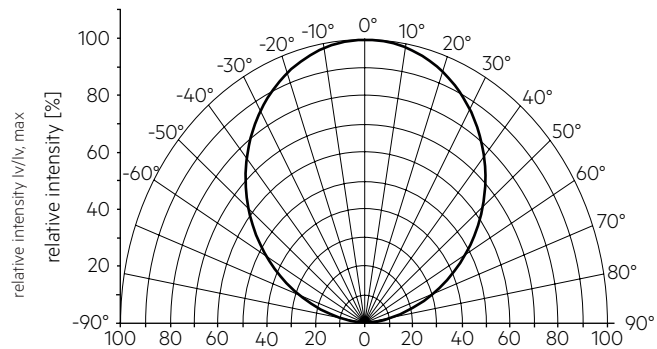
**4,000 K – CRI90**

	x0	y0
Centre 1,200 lm/m	0.3907	0.3893
Centre 1,800 lm/m	0.3905	0.3892
Centre 2,500 lm/m	0.3905	0.3892
Centre 3,000 lm/m	0.3904	0.3891
Centre 4,000 lm/m	0.3901	0.3889



6.2 Light distribution

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

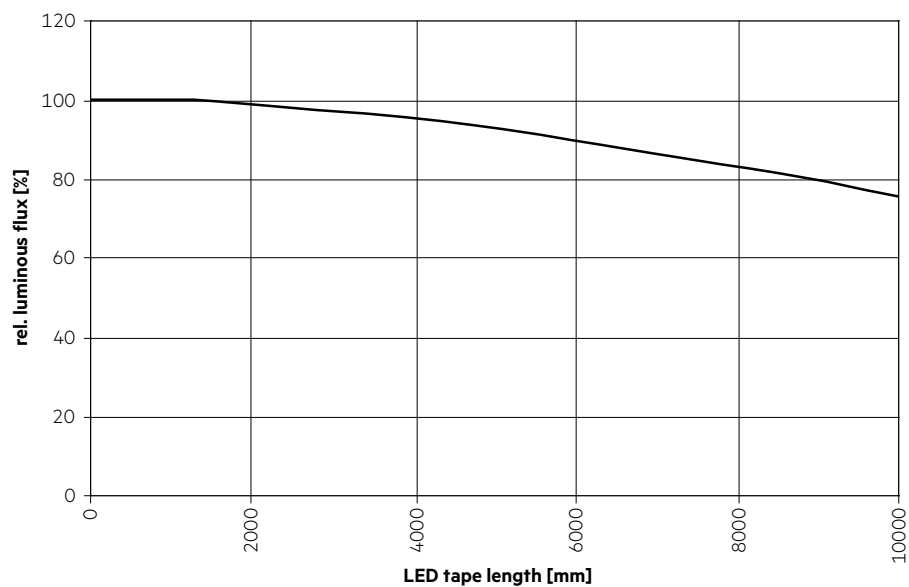


The colour temperature is measured over the complete module. To ensure an ideal mixture of colours and a homogeneous light distribution a suitable optic (e. g. PMMA diffuser) and a sufficient spacing between module and optic (typ. 1.5 cm) should be used.

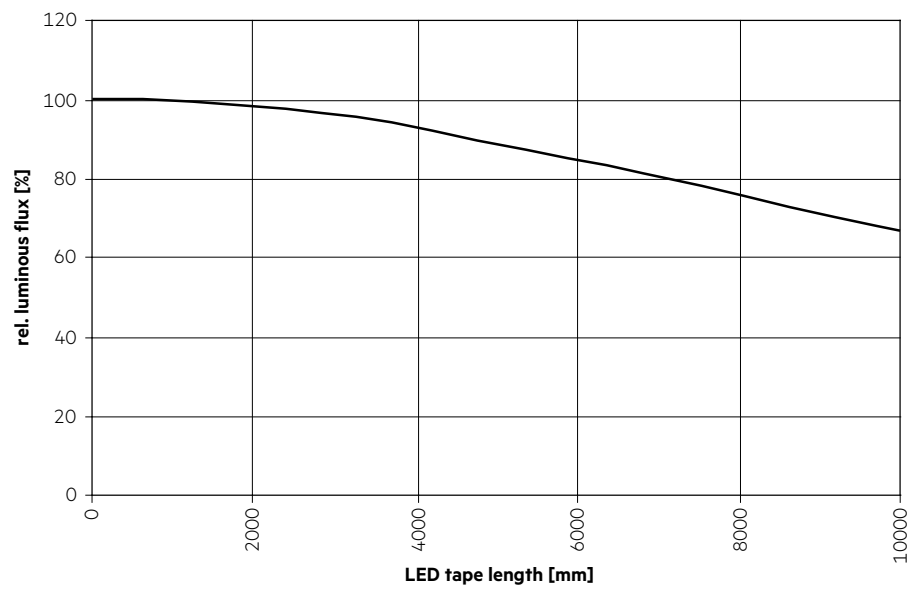
6.4 Relative luminous flux vs. LED tape length

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

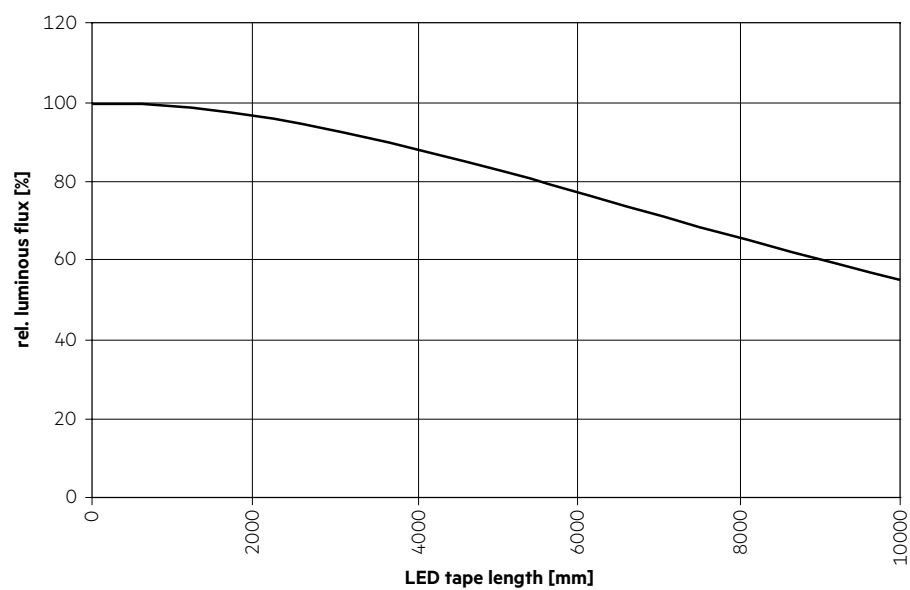
LLE FLEX 8mm 48V 1200lm SNC2



LLE FLEX 8mm 48V 1800lm SNC2



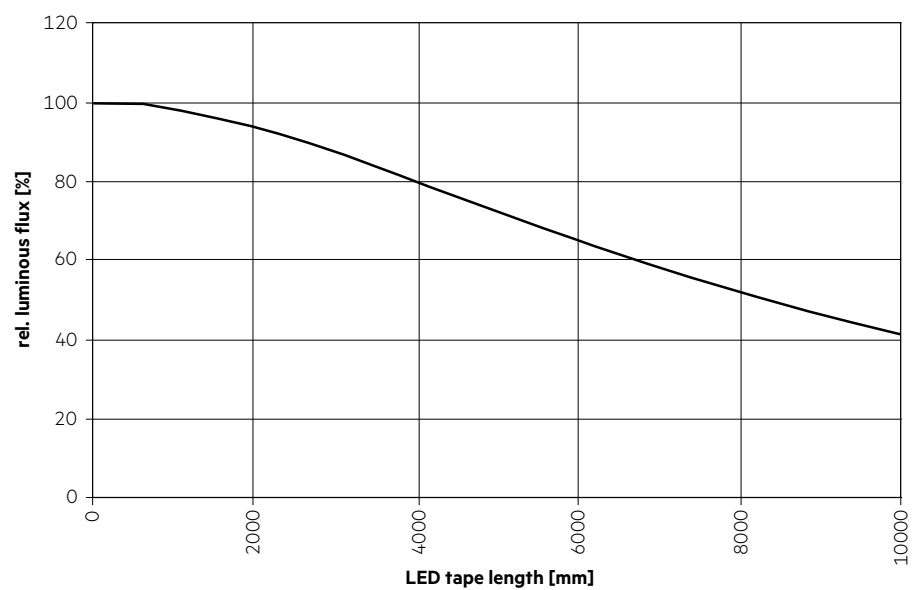
LLE FLEX 8mm 48V 2500lm SNC2



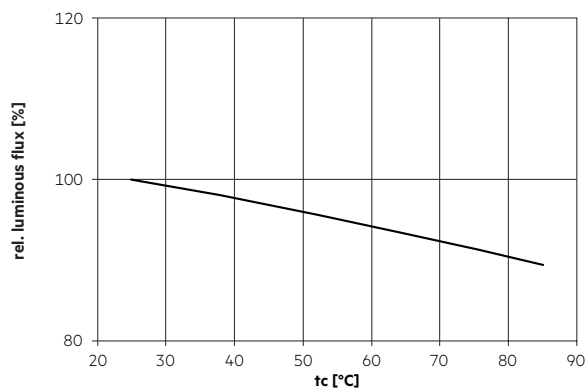
LLE FLEX 8mm 48V 3000lm SNC2



LLE FLEX 8mm 48V 4000lm SNC2



6.3 Relative luminous flux vs. tc temperature



7. Miscellaneous

7.1 Additional information

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

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/>

Lifetime declarations are informative and represent no warranty claim.