



### Module RLE 2x4 / 2x8 EXC2 OTD

Modules RLE excite

#### Product description

- High efficiency outdoor modules
- Suitable for harsh and humid outdoor conditions
- Tested acc. to salt spray test (IEC 60068-2-52) and harmful gas test (GR-1217-CORE)
- Huge performance temperature range from -40 ... +105 °C
- Surge tested (+/- to earth) 6 kV with Tridonic LED Driver
- Integrated NTC for overtemperature protection
- Zhaga Book 15 compliant
- For use with standard 2x2 lenses (e.g. LEDiL Strada 2x2)
- Push terminals for quick and simple wiring
- Long life-time up to 100,000 hours
- 8-year guarantee

#### Optical properties

- Colour temperatures 2,700 K, 3,000 K, 4,000 K, 5,000 K, 5,700 K and 6,500 K
- Typ. luminous flux 2,000 and 4,000 lm
- Efficacy of the module up to 179 lm/W at 550 mA (nominal operation)
- Two colour rendering index to fit the application: CRI > 70 high efficiency, CRI > 80 for high colour rendering
- Small luminous flux tolerances<sup>①</sup>

#### Mechanical properties

- Module dimension 49.5 x 121.4 mm and 49.5 x 223 mm
- Installation of the module together with lens in the luminaire by means of an M3 screw



**Standards**, page 4

**Colour temperatures and tolerances**, page 9



RLE 2x4 2000lm HP EXC2 OTD



RLE 2x8 4000lm HP EXC2 OTD



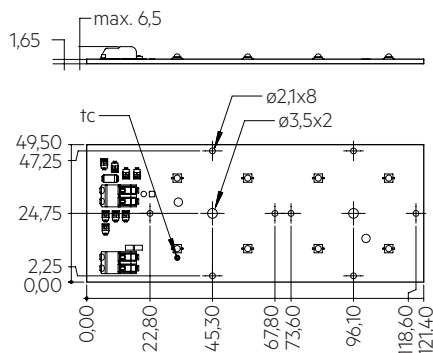


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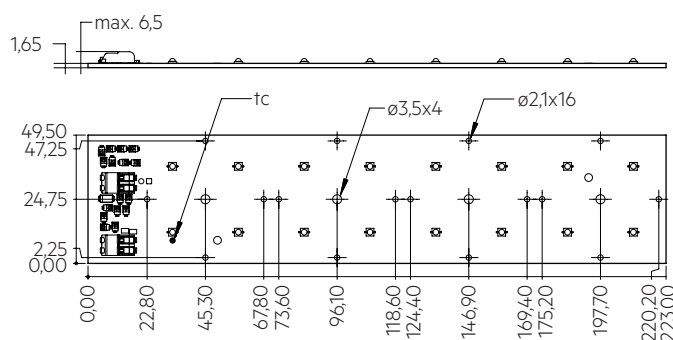
Modules RLE excite

#### Technical data

Beam characteristic	120°
Ambient temperature range	-40 ... +80 °C
tp rated	75 °C
tc	105 °C
Irated	650 mA
I <sub>max</sub>	1,200 mA
Max. permissible LF current ripple	1,340 mA
Max. permissible peak current	2,000 mA / max. 10 ms
Max. working voltage for insulation <sup>2)</sup>	370 V
Max. working voltage for insulation with lens	670 V
Insulation test voltage	1,74 kV
CTI of the printed circuit board	> 600
ESD classification	severity level 4
Risk group (IEC 62471) <sup>3)</sup>	RG2 (E <sub>thr</sub> = 767 lx, RG1 at d ≥ 50 cm)
Classification acc. to IEC 62031	Built-in
Type of protection	IP00



RLE 2x4 2000lm HP EXC2 OTD



RLE 2x8 4000lm HP EXC2 OTD

#### Ordering data

Type	Article number	Colour temperature	Packaging carton	Weight per pc.
RLE 2x4 2000lm 827 HP EXC2 OTD	89603156	2,700 K	46 pc(s).	0.027 kg
RLE 2x4 2000lm 830 HP EXC2 OTD	89603157	3,000 K	46 pc(s).	0.027 kg
RLE 2x4 2000lm 840 HP EXC2 OTD	89603158	4,000 K	46 pc(s).	0.027 kg
RLE 2x4 2000lm 850 HP EXC2 OTD	89603160	5,000 K	46 pc(s).	0.027 kg
RLE 2x4 2000lm 730 HP EXC2 OTD	89603432	3,000 K	46 pc(s).	0.027 kg
RLE 2x4 2000lm 740 HP EXC2 OTD	89603433	4,000 K	46 pc(s).	0.027 kg
RLE 2x8 4000lm 827 HP EXC2 OTD	89603161	2,700 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 830 HP EXC2 OTD	89603162	3,000 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 840 HP EXC2 OTD	89603163	4,000 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 850 HP EXC2 OTD	89603164	5,000 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 730 HP EXC2 OTD	89603434	3,000 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 740 HP EXC2 OTD	89603165	4,000 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 757 HP EXC2 OTD	89603435	5,700 K	88 pc(s).	0.050 kg
RLE 2x8 4000lm 765 HP EXC2 OTD	89603166	6,500 K	88 pc(s).	0.050 kg

Specific technical data

Type <sup>®</sup>	Photo-metric code	Typ. luminous flux at tp = 25 °C <sup>ⓐ</sup>	Typ. luminous flux at tp = 75 °C <sup>ⓐ</sup>	Typ. forward current	Min. forward voltage at tp = 75 °C	Max. forward voltage at tp = 25 °C	Typ. power consumption at tp = 75 °C <sup>ⓐ</sup>	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 75 °C	Efficacy of the system at tp = 75 °C	Colour rendering index CRI
<b>RLE 2x4 2000lm EXC2 OTD – Operating mode HE</b>											
RLE 2x4 2000lm 827 HP EXC2 OTD	827/579	1,660 lm	1,570 lm	500 mA	21.2 V	23.7 V	111 W	14.6 lm/W	142 lm/W	131 lm/W	> 80
RLE 2x4 2000lm 830 HP EXC2 OTD	830/579	1,820 lm	1,720 lm	500 mA	21.2 V	23.7 V	111 W	161 lm/W	156 lm/W	144 lm/W	> 80
RLE 2x4 2000lm 840 HP EXC2 OTD	840/579	1,890 lm	1,780 lm	500 mA	21.2 V	23.7 V	111 W	166 lm/W	161 lm/W	148 lm/W	> 80
RLE 2x4 2000lm 850 HP EXC2 OTD	850/579	1,910 lm	1,800 lm	500 mA	21.2 V	23.7 V	111 W	168 lm/W	163 lm/W	150 lm/W	> 80
RLE 2x4 2000lm 730 HP EXC2 OTD	730/579	1,590 lm	1,560 lm	400 mA	20.8 V	23.4 V	8.8 W	177 lm/W	175 lm/W	161 lm/W	> 70
RLE 2x4 2000lm 740 HP EXC2 OTD	740/579	1,700 lm	1,640 lm	400 mA	20.8 V	23.4 V	8.8 W	189 lm/W	187 lm/W	172 lm/W	> 70
<b>RLE 2x4 2000lm EXC2 OTD – Operating mode NM</b>											
RLE 2x4 2000lm 827 HP EXC2 OTD	827/579	2,140 lm	2,020 lm	650 mA	21.5 V	24.0 V	14.6 W	14.3 lm/W	139 lm/W	128 lm/W	> 80
RLE 2x4 2000lm 830 HP EXC2 OTD	830/579	2,350 lm	2,220 lm	650 mA	21.5 V	24.0 V	14.6 W	157 lm/W	153 lm/W	141 lm/W	> 80
RLE 2x4 2000lm 840 HP EXC2 OTD	840/579	2,440 lm	2,300 lm	650 mA	21.5 V	24.0 V	14.6 W	163 lm/W	158 lm/W	145 lm/W	> 80
RLE 2x4 2000lm 850 HP EXC2 OTD	850/579	2,460 lm	2,320 lm	650 mA	21.5 V	24.0 V	14.6 W	164 lm/W	159 lm/W	146 lm/W	> 80
RLE 2x4 2000lm 730 HP EXC2 OTD	730/579	2,120 lm	2,050 lm	550 mA	21.2 V	23.9 V	12.3 W	169 lm/W	167 lm/W	154 lm/W	> 70
RLE 2x4 2000lm 740 HP EXC2 OTD	740/579	2,270 lm	2,190 lm	550 mA	21.2 V	23.9 V	12.3 W	180 lm/W	179 lm/W	165 lm/W	> 70
<b>RLE 2x4 2000lm EXC2 OTD – Operating mode HO</b>											
RLE 2x4 2000lm 827 HP EXC2 OTD	827/579	3,220 lm	3,030 lm	1,050 mA	22.3 V	24.7 V	24.2 W	129 lm/W	125 lm/W	115 lm/W	> 80
RLE 2x4 2000lm 830 HP EXC2 OTD	830/579	3,530 lm	3,330 lm	1,050 mA	22.3 V	24.7 V	24.2 W	142 lm/W	137 lm/W	126 lm/W	> 80
RLE 2x4 2000lm 840 HP EXC2 OTD	840/579	3,650 lm	3,440 lm	1,050 mA	22.3 V	24.7 V	24.2 W	147 lm/W	142 lm/W	131 lm/W	> 80
RLE 2x4 2000lm 850 HP EXC2 OTD	850/579	3,690 lm	3,480 lm	1,050 mA	22.3 V	24.7 V	24.2 W	148 lm/W	144 lm/W	132 lm/W	> 80
RLE 2x4 2000lm 730 HP EXC2 OTD	730/579	3,790 lm	3,650 lm	1,050 mA	22.3 V	24.7 V	24.2 W	152 lm/W	150 lm/W	138 lm/W	> 70
RLE 2x4 2000lm 740 HP EXC2 OTD	740/579	4,050 lm	3,900 lm	1,050 mA	22.3 V	24.7 V	24.2 W	163 lm/W	161 lm/W	148 lm/W	> 70
<b>RLE 2x8 4000lm EXC2 OTD – Operating mode HE</b>											
RLE 2x8 4000lm 827 HP EXC2 OTD	827/579	3,320 lm	3,130 lm	500 mA	42.5 V	47.4 V	22.1 W	14.6 lm/W	142 lm/W	131 lm/W	> 80
RLE 2x8 4000lm 830 HP EXC2 OTD	830/579	3,650 lm	3,440 lm	500 mA	42.5 V	47.4 V	22.1 W	161 lm/W	156 lm/W	144 lm/W	> 80
RLE 2x8 4000lm 840 HP EXC2 OTD	840/579	3,430 lm	3,230 lm	500 mA	42.5 V	47.4 V	22.1 W	151 lm/W	146 lm/W	134 lm/W	> 80
RLE 2x8 4000lm 850 HP EXC2 OTD	850/579	3,810 lm	3,600 lm	500 mA	42.5 V	47.4 V	22.1 W	168 lm/W	163 lm/W	150 lm/W	> 80
RLE 2x8 4000lm 730 HP EXC2 OTD	730/579	3,120 lm	3,060 lm	400 mA	42.0 V	46.9 V	17.5 W	177 lm/W	175 lm/W	161 lm/W	> 70
RLE 2x8 4000lm 740 HP EXC2 OTD	740/579	3,370 lm	3,250 lm	400 mA	42.0 V	46.9 V	17.5 W	187 lm/W	185 lm/W	172 lm/W	> 70
RLE 2x8 4000lm 757 HP EXC2 OTD	757/579	3,380 lm	3,260 lm	400 mA	42.0 V	46.9 V	17.5 W	188 lm/W	186 lm/W	172 lm/W	> 70
RLE 2x8 4000lm 765 HP EXC2 OTD	765/579	3,260 lm	3,120 lm	400 mA	42.0 V	46.9 V	17.5 W	181 lm/W	178 lm/W	164 lm/W	> 70
<b>RLE 2x8 4000lm EXC2 OTD – Operating mode NM</b>											
RLE 2x8 4000lm 827 HP EXC2 OTD	827/579	4,290 lm	4,040 lm	650 mA	43.1 V	48.0 V	29.1 W	14.3 lm/W	139 lm/W	128 lm/W	> 80
RLE 2x8 4000lm 830 HP EXC2 OTD	830/579	4,710 lm	4,440 lm	650 mA	43.1 V	48.0 V	29.1 W	157 lm/W	153 lm/W	141 lm/W	> 80
RLE 2x8 4000lm 840 HP EXC2 OTD	840/579	4,380 lm	4,120 lm	650 mA	43.1 V	48.0 V	29.1 W	146 lm/W	141 lm/W	128 lm/W	> 80
RLE 2x8 4000lm 850 HP EXC2 OTD	850/579	4,920 lm	4,640 lm	650 mA	43.1 V	48.0 V	29.1 W	164 lm/W	159 lm/W	146 lm/W	> 80
RLE 2x8 4000lm 730 HP EXC2 OTD	730/579	4,250 lm	4,090 lm	550 mA	42.7 V	47.6 V	24.5 W	169 lm/W	167 lm/W	154 lm/W	> 70
RLE 2x8 4000lm 740 HP EXC2 OTD	740/579	4,500 lm	4,340 lm	550 mA	42.7 V	47.6 V	24.5 W	179 lm/W	177 lm/W	165 lm/W	> 70
RLE 2x8 4000lm 757 HP EXC2 OTD	757/579	4,510 lm	4,350 lm	550 mA	42.7 V	47.6 V	24.5 W	180 lm/W	178 lm/W	165 lm/W	> 70
RLE 2x8 4000lm 765 HP EXC2 OTD	765/579	4,290 lm	4,100 lm	550 mA	42.7 V	47.6 V	24.5 W	171 lm/W	168 lm/W	151 lm/W	> 70
<b>RLE 2x8 4000lm EXC2 OTD – Operating mode HO</b>											
RLE 2x8 4000lm 827 HP EXC2 OTD	827/579	6,430 lm	6,070 lm	1,050 mA	44.4 V	49.4 V	48.5 W	129 lm/W	125 lm/W	115 lm/W	> 80
RLE 2x8 4000lm 830 HP EXC2 OTD	830/579	7,060 lm	6,660 lm	1,050 mA	44.4 V	49.4 V	48.5 W	142 lm/W	137 lm/W	126 lm/W	> 80
RLE 2x8 4000lm 840 HP EXC2 OTD	840/579	6,590 lm	6,190 lm	1,050 mA	44.4 V	49.4 V	48.5 W	133 lm/W	128 lm/W	118 lm/W	> 80
RLE 2x8 4000lm 850 HP EXC2 OTD	850/579	7,380 lm	6,960 lm	1,050 mA	44.4 V	49.4 V	48.5 W	148 lm/W	144 lm/W	132 lm/W	> 80
RLE 2x8 4000lm 730 HP EXC2 OTD	730/579	7,580 lm	7,300 lm	1,050 mA	44.4 V	49.4 V	48.5 W	152 lm/W	151 lm/W	139 lm/W	> 70
RLE 2x8 4000lm 740 HP EXC2 OTD	740/579	8,030 lm	7,740 lm	1,050 mA	44.4 V	49.4 V	48.5 W	161 lm/W	160 lm/W	148 lm/W	> 70
RLE 2x8 4000lm 757 HP EXC2 OTD	757/579	8,050 lm	7,760 lm	1,050 mA	44.4 V	49.4 V	48.5 W	162 lm/W	160 lm/W	148 lm/W	> 70
RLE 2x8 4000lm 765 HP EXC2 OTD	765/579	7,520 lm	7,180 lm	1,050 mA	44.4 V	49.4 V	48.5 W	151 lm/W	148 lm/W	136 lm/W	> 70

<sup>ⓐ</sup> Integral measurement over the complete module.

<sup>ⓑ</sup> If mounted with M3 screws.

<sup>ⓒ</sup> Measured at I = 1,800 mA.

<sup>ⓓ</sup> Tolerance range for optical and electrical data: ±10 %.

<sup>ⓔ</sup> HE ... high efficiency, NM ... nominal mode, HO ... high output.

## 1. Standards

EC 62031  
IEC 62778  
IEC 62471  
IEC 61000-4-2  
IEC 60068-2-52  
UL 8750 (for dry and damp locations)  
GR-1217-CORE

### 1.1 Photometric code

Key for photometric code, e. g. 830 / 579

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

### 1.2 Energy classification

Type	Operating mode	Energy classification
RLE 2x4 2000lm 827 HP EXC2 OTD	NM	A+
RLE 2x4 2000lm 830 HP EXC2 OTD	NM	A+
RLE 2x4 2000lm 840 HP EXC2 OTD	NM	A++
RLE 2x4 2000lm 850 HP EXC2 OTD	NM	A++
RLE 2x4 2000lm 730 HP EXC2 OTD	NM	A++
RLE 2x4 2000lm 740 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 827 HP EXC2 OTD	NM	A+
RLE 2x8 4000lm 830 HP EXC2 OTD	NM	A+
RLE 2x8 4000lm 840 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 850 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 730 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 740 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 757 HP EXC2 OTD	NM	A++
RLE 2x8 4000lm 765 HP EXC2 OTD	NM	A++

## 2. Thermal details

### 2.1 tc point, ambient temperature and life-time

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

For RLE a tp temperature of 75 °C has to be complied in order to achieve an optimum between heat sink requirements, light output and life-time.

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	-40... +80 °C
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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 RLE will be greatly reduced or the RLE may be destroyed.

### 2.4 Heat sink values

#### RLE 2x4 2000lm EXC2 OTD

ta	tp	Forward current	R <sub>th, hs-a</sub>	Cooling area
25 °C	75 °C	500 mA	6.83 K/W	98 cm <sup>2</sup>
25 °C	75 °C	650 mA	5.01 K/W	133 cm <sup>2</sup>
25 °C	75 °C	1,050 mA	2.82 K/W	237 cm <sup>2</sup>
35 °C	75 °C	500 mA	5.47 K/W	122 cm <sup>2</sup>
35 °C	75 °C	650 mA	4.00 K/W	166 cm <sup>2</sup>
35 °C	75 °C	1,050 mA	2.25 K/W	296 cm <sup>2</sup>
40 °C	75 °C	500 mA	4.78 K/W	139 cm <sup>2</sup>
40 °C	75 °C	650 mA	3.50 K/W	190 cm <sup>2</sup>
40 °C	75 °C	1,050 mA	1.97 K/W	338 cm <sup>2</sup>
45 °C	75 °C	500 mA	4.10 K/W	163 cm <sup>2</sup>
45 °C	75 °C	650 mA	3.00 K/W	222 cm <sup>2</sup>
45 °C	75 °C	1,050 mA	1.69 K/W	395 cm <sup>2</sup>
50 °C	75 °C	500 mA	3.41 K/W	195 cm <sup>2</sup>
50 °C	75 °C	650 mA	2.50 K/W	267 cm <sup>2</sup>
50 °C	75 °C	1,050 mA	1.41 K/W	474 cm <sup>2</sup>
55 °C	75 °C	500 mA	2.73 K/W	244 cm <sup>2</sup>
55 °C	75 °C	650 mA	2.00 K/W	334 cm <sup>2</sup>
55 °C	75 °C	1,050 mA	1.12 K/W	594 cm <sup>2</sup>
60 °C	75 °C	500 mA	2.04 K/W	326 cm <sup>2</sup>
60 °C	75 °C	650 mA	1.50 K/W	445 cm <sup>2</sup>
60 °C	75 °C	1,050 mA	0.84 K/W	794 cm <sup>2</sup>

#### RLE 2x8 4000lm EXC2 OTD

ta	tp	Forward current	R <sub>th, hs-a</sub>	Cooling area
25 °C	75 °C	500 mA	3.42 K/W	195 cm <sup>2</sup>
25 °C	75 °C	650 mA	2.49 K/W	268 cm <sup>2</sup>
25 °C	75 °C	1,050 mA	1.41 K/W	473 cm <sup>2</sup>
35 °C	75 °C	500 mA	2.73 K/W	244 cm <sup>2</sup>
35 °C	75 °C	650 mA	1.99 K/W	335 cm <sup>2</sup>
35 °C	75 °C	1,050 mA	1.13 K/W	592 cm <sup>2</sup>
40 °C	75 °C	500 mA	2.39 K/W	279 cm <sup>2</sup>
40 °C	75 °C	650 mA	1.74 K/W	383 cm <sup>2</sup>
40 °C	75 °C	1,050 mA	0.98 K/W	677 cm <sup>2</sup>
45 °C	75 °C	500 mA	2.05 K/W	325 cm <sup>2</sup>
45 °C	75 °C	650 mA	1.49 K/W	448 cm <sup>2</sup>
45 °C	75 °C	1,050 mA	0.84 K/W	790 cm <sup>2</sup>
50 °C	75 °C	500 mA	1.71 K/W	391 cm <sup>2</sup>
50 °C	75 °C	650 mA	1.24 K/W	537 cm <sup>2</sup>
50 °C	75 °C	1,050 mA	0.70 K/W	949 cm <sup>2</sup>
55 °C	75 °C	500 mA	1.36 K/W	489 cm <sup>2</sup>
55 °C	75 °C	650 mA	0.99 K/W	672 cm <sup>2</sup>
55 °C	75 °C	1,050 mA	0.56 K/W	1,188 cm <sup>2</sup>
60 °C	75 °C	500 mA	1.02 K/W	652 cm <sup>2</sup>
60 °C	75 °C	650 mA	0.74 K/W	898 cm <sup>2</sup>
60 °C	75 °C	1,050 mA	0.42 K/W	1,588 cm <sup>2</sup>

#### Notes

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. Depending on the heat sink a heat conducting paste or heat conducting film might be necessary to keep the specified tp temperature.

### 3. Installation / wiring

#### 3.1 Electrical supply/choice of LED Driver

RLE 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 RLE 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:

- Short-circuit protection
- Overload protection
- Overtemperature protection



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

If RLE modules are wired in parallel and a wire breaks or a complete module fails then the current passing through the other module increases. This may reduce its life considerably. In addition there can be slight differences in light output caused by tolerances.

RLE modules can be operated either from SELV LED Drivers or from LED Drivers with LV output voltage.



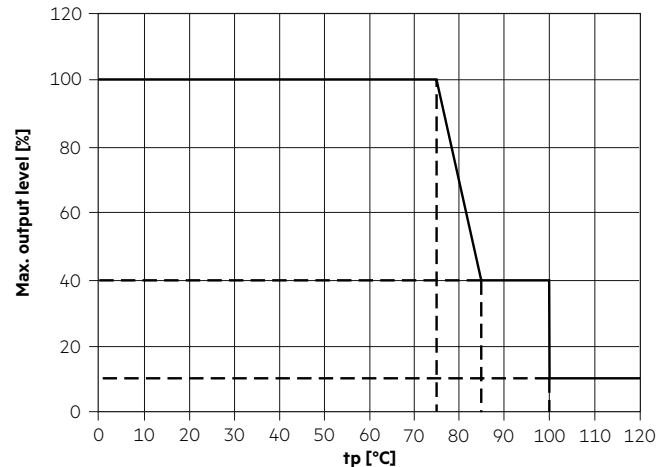
RLE modules are basic insulated up to 370 V if mounted with M3 screws or 670 V if mounted with M3 screws and lens (e.g. LEDiL Strada 2x2) against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 370 V / 670 V, an additional insulation between LED module and heat sink is required (for example by insulated thermal pads) or by a suitable luminaire construction. At voltages > 60 V an additional protection against direct touch (test finger) to the light emitting side of the module has to be guaranteed. This is typically achieved by means of a non removable light distributor over the module.

#### 3.2 Integrated protection

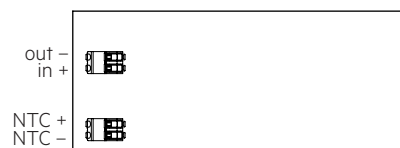
The basic protection level consists of protection against reverse polarity and an NTC for overtemperature protection of the module.

The NTC is designed to work with the LCO EXC3 drivers supporting NTC functionality (for more details see LED Driver data sheet).

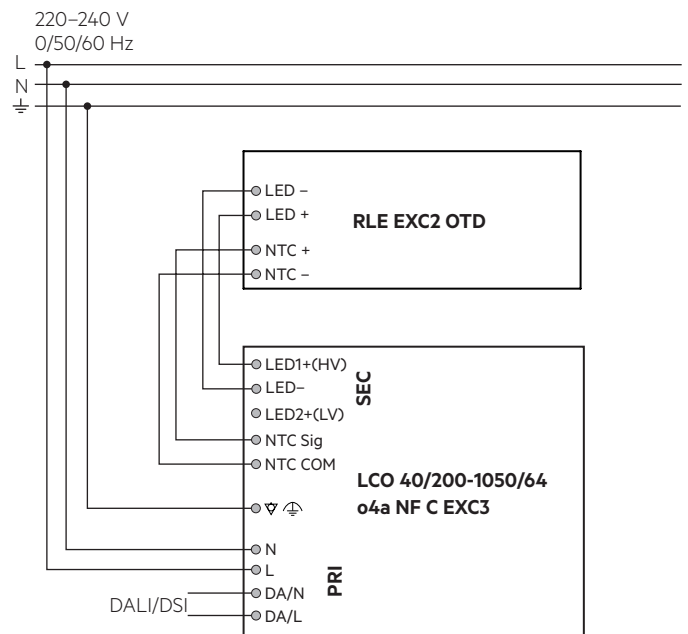
NTC type: 100kΩ / 4:100K



#### 3.3 Wiring

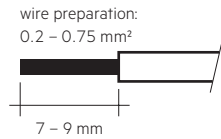


#### 3.4 Wiring examples



### 3.5 Wiring type and cross section

The wiring can be solid or stranded wires with a cross section of 0.2 to 0.75 mm<sup>2</sup>. For the push-wire connection you have to strip the insulation (7–9 mm).



Inserting stranded wires / removing wires by lightly pressing on the push button.

### 3.6 Mounting instruction



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

Max. torque for fixing: 0.5 Nm.

The LED modules are mounted onto a heat sink with M3 screws per module.



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.

### 3.7 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. Life-time

### 4.1 Life-time, lumen maintenance and failure rate

The light output of an LED Module decreases over the life-time, 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 life-time 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.

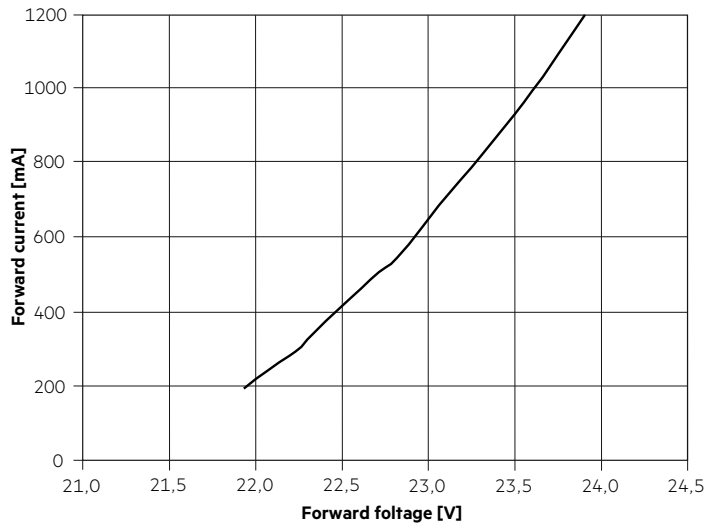
Operation below 200 mA may reduce lumen maintenance.



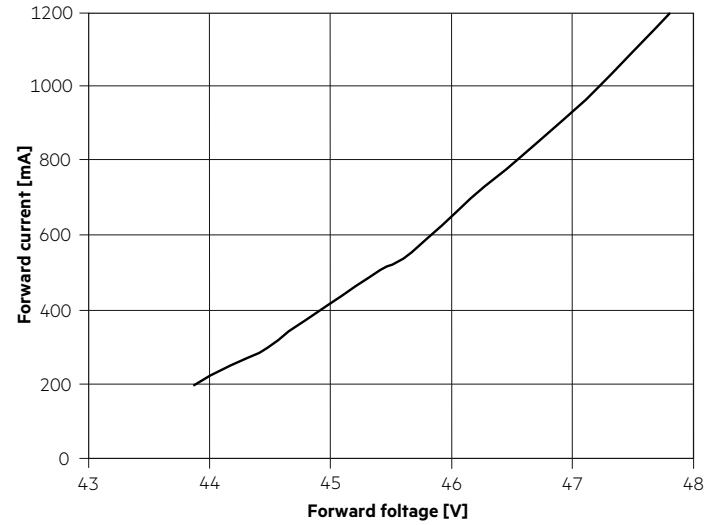
## 5. Electrical values

### 5.1 Typ. forward voltage vs. forward current

RLE 2x4 2000lm xxx HP EXC2 OTD

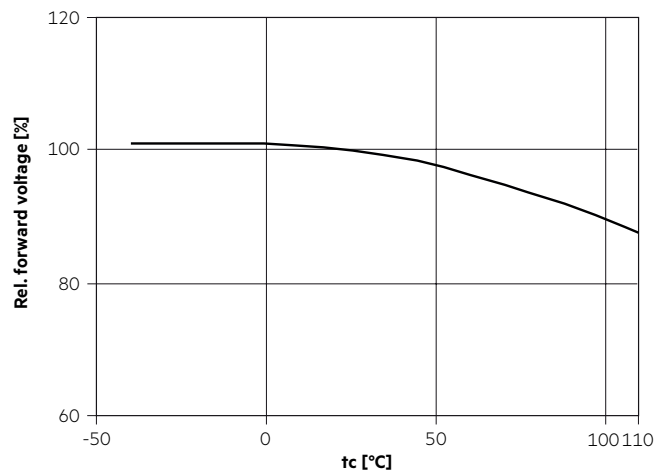


RLE 2x8 4000lm xxx HP EXC2 OTD

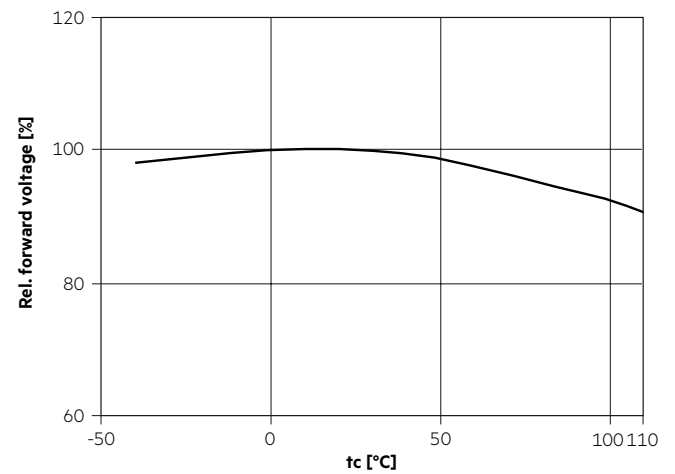


### 5.2 Forward voltage vs. tc temperature

CRI = 80



CRI = 70



The diagrams are based on statistic values.  
The real values can be different.



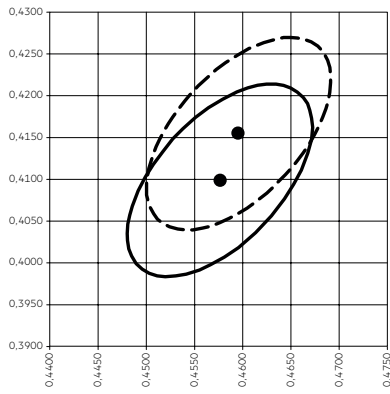
## 6. Photometric characteristics

### 6.1 Coordinates and tolerances according to CIE 1931

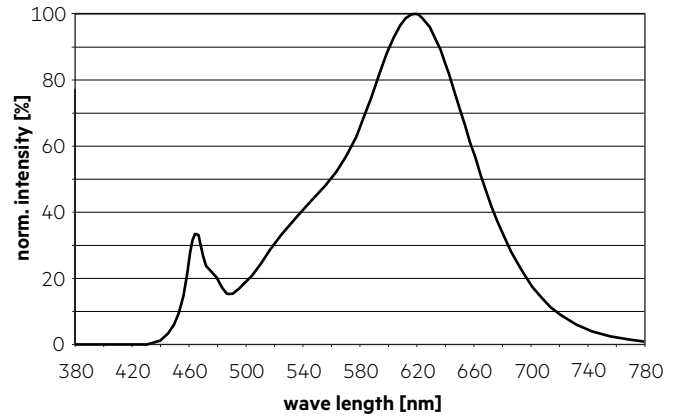
The specified colour coordinates are integral measured by current impulse of 700 mA and a duration of 100 ms.  
The ambient temperature of the measurement is  $t_a = 75^\circ\text{C}$  steady state.  
The measurement tolerance of the colour coordinates are  $\pm 0.01$ .

#### 2,700 K, CRI 80

	x0	y0
Centre	0.4577	0.4098

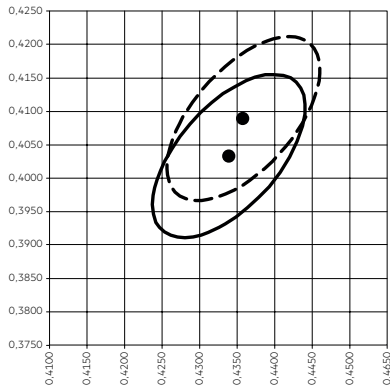


- MacAdam Ellipse: 5SDCM ( $t_a = 75^\circ\text{C}$ )
- - MacAdam Ellipse: 5SDCM ( $t_a = 25^\circ\text{C}$ )

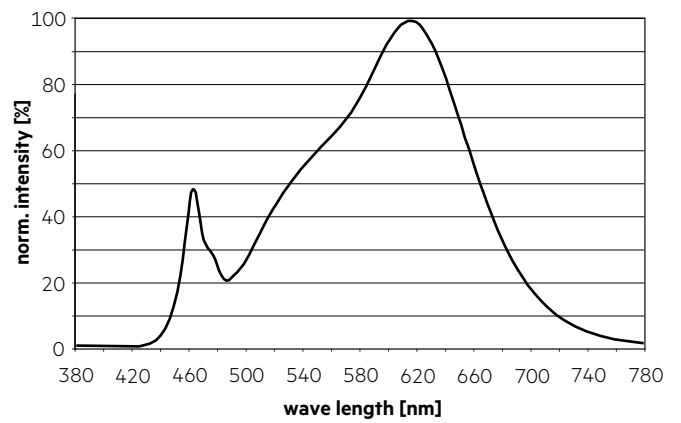


#### 3,000 K, CRI 80

	x0	y0
Centre	0.4339	0.4032

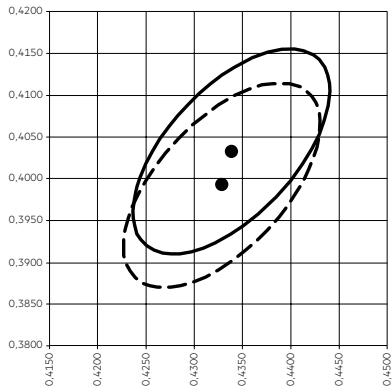


- MacAdam Ellipse: 5SDCM ( $t_a = 75^\circ\text{C}$ )
- - MacAdam Ellipse: 5SDCM ( $t_a = 25^\circ\text{C}$ )

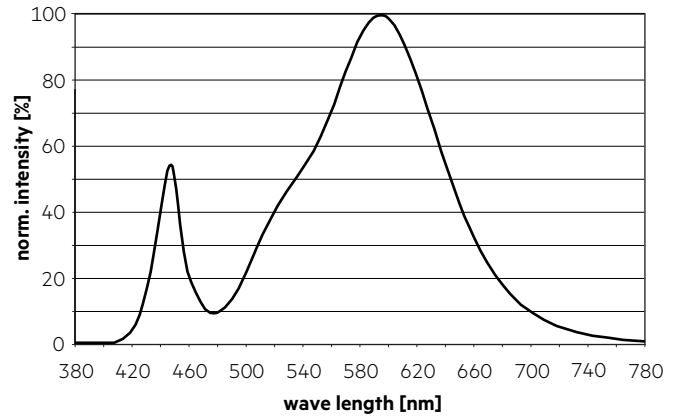


**3,000 K, CRI 70**

	x0	y0
Centre	0.4329	0.3992

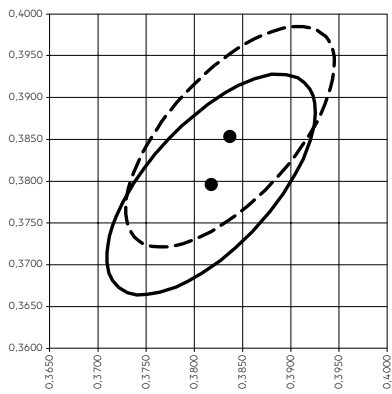


— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)

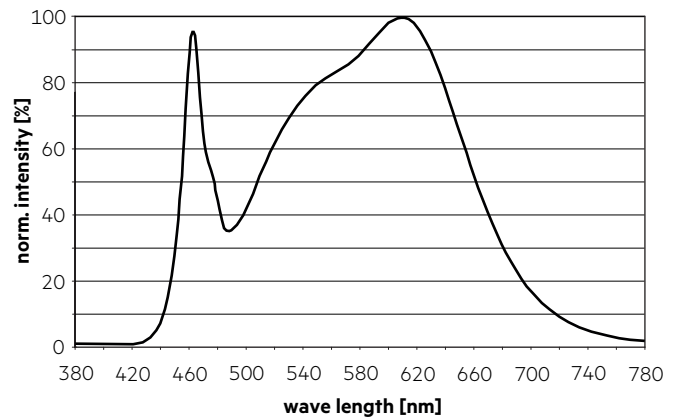


**4,000 K, CRI 80**

	x0	y0
Centre	0.3818	0.3796

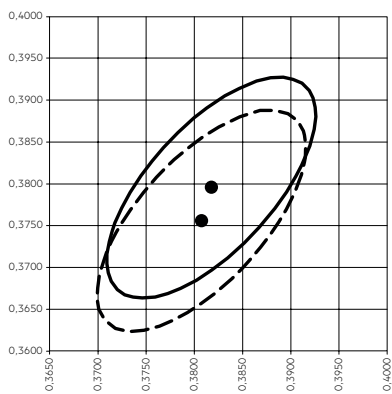


— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)

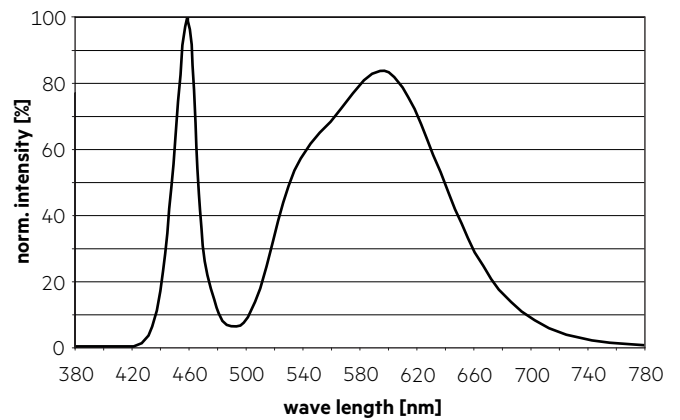


**4,000 K, CRI 70**

	x0	y0
Centre	0.3826	0.3816



— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)

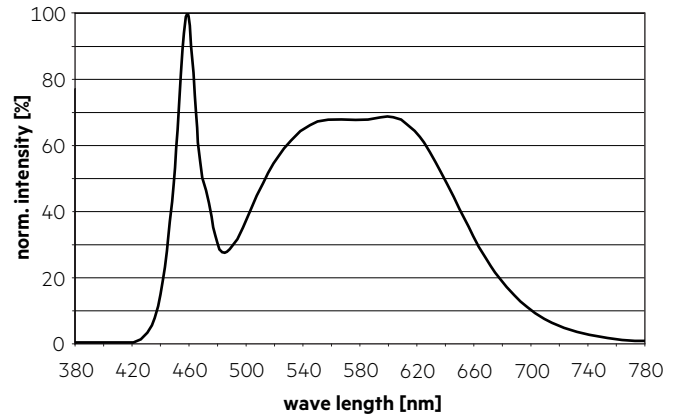


**5,000 K, CRI 80**

	x0	y0
Centre	0.3446	0.3551

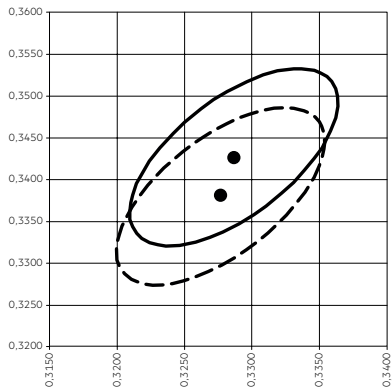


— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)

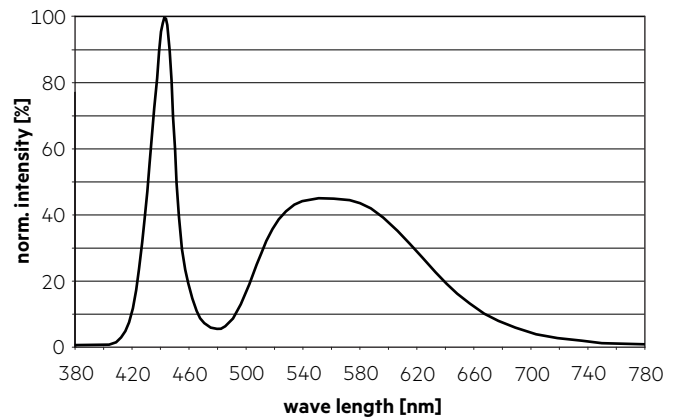


**5,700 K, CRI 70**

	x0	y0
Centre	0.3277	0.3380

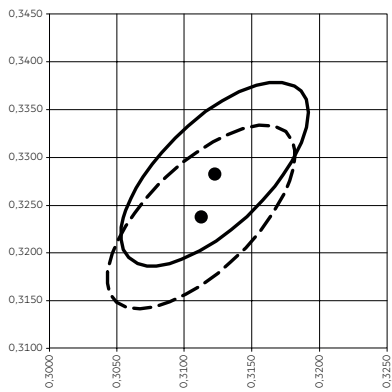


— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)

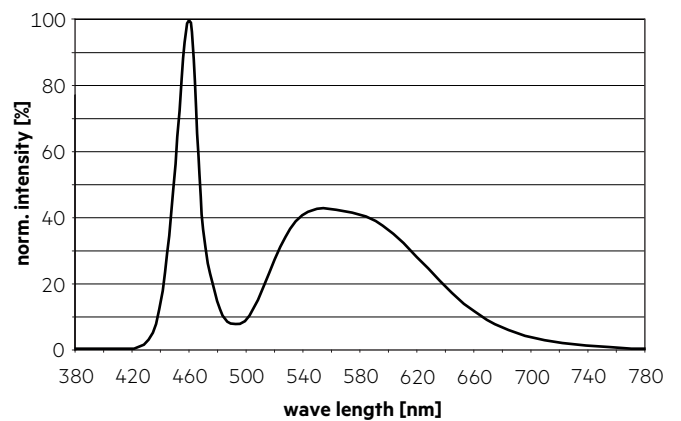


**6,500 K, CRI 70**

	x0	y0
Centre	0.3123	0.3282

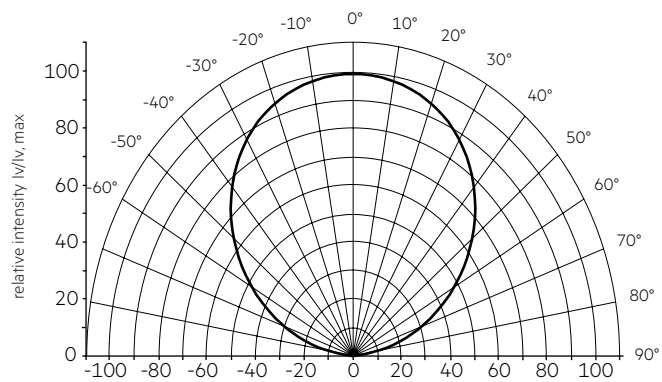


— MacAdam Ellipse: 5SDCM (ta = 75 °C)  
- - MacAdam Ellipse: 5SDCM (ta = 25 °C)



### 6.2 Light distribution

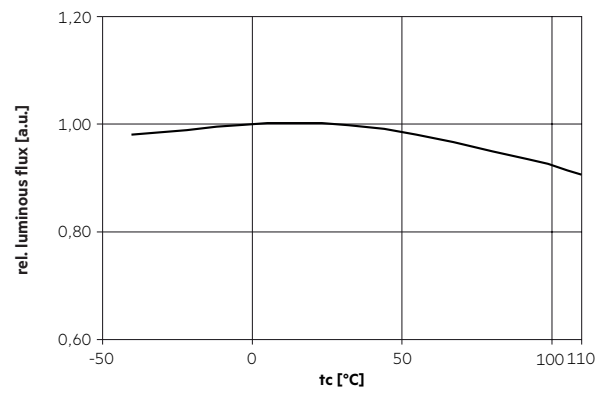
RLE G1 OTD modules are designed to be compatible with 50 x 50 mm lense arrays with 25.4 mm pitch distance. This allows multiple light distributions.



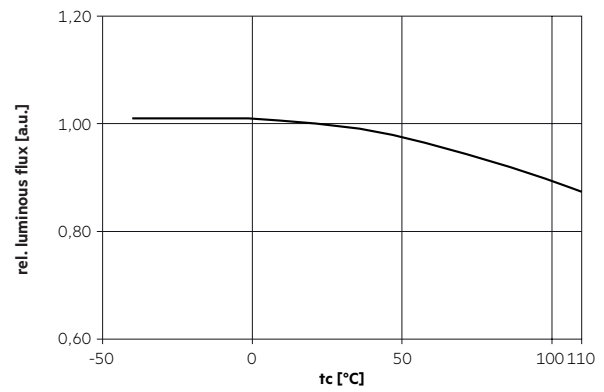
The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 4.

### 6.3 Relative luminous flux vs. tc temperature

CRI 70

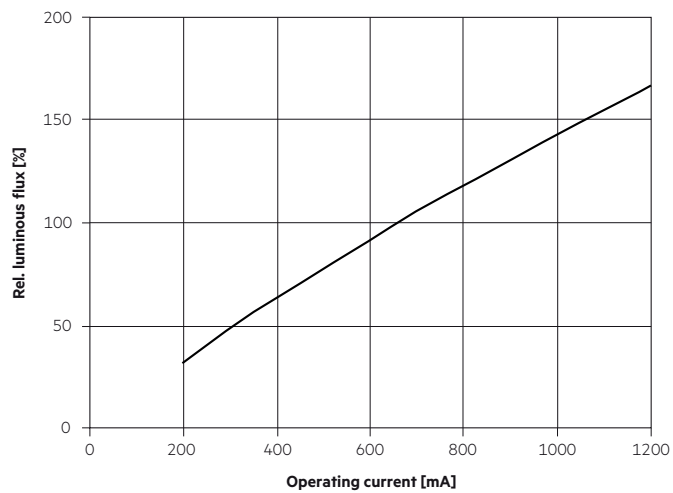


CRI 80

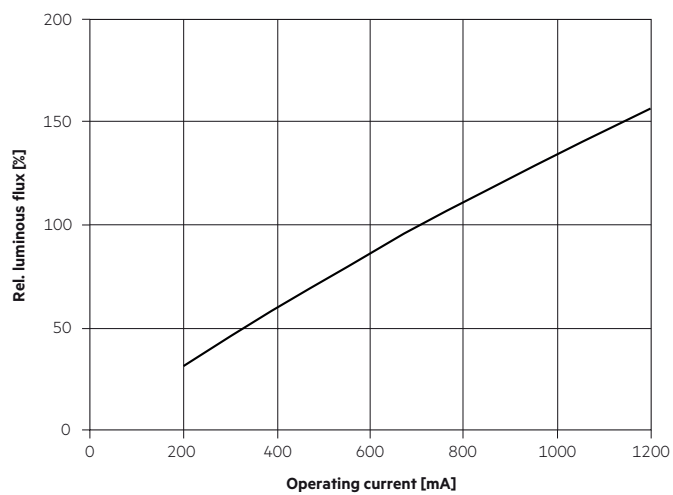


## 6.4 Relative luminous flux vs. operating current

CRI 70



CRI 80



The diagrams are based on statistic values.  
The real values can be different.

## 7. Miscellaneous

### 7.1 Additional information

Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

Life-time declarations are informative and represent no warranty claim.