

Modul RLE 3x8 EXC3 OTD

Modules RLE excite



RLE 3x8 6000lm HP HE EXC3 OTD

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 ... +95 °C
- _ Surge tested (+/- to earth) 6 kV with Tridonic LED driver
- _ For use with IP6x lenses (e.g. LEDiL STRADA-IP-24)
- _ Push-in terminals for simple and quick wiring
- _ HE ... High Efficiency, NM ... Nominal Mode, HO ... High Output
- _ Long lifetime up to 100,000 hours
- _ 8 years guarantee (conditions at <https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions>)

Optical properties

- _ Colour temperatures 2,200K, 2,700 K, 3,000 K, 4,000 K and 5,000 K
- _ Efficacy of the LED module 218 lm/W at 4,000 K, Irated and tp = 25 °C
- _ Colour rendering index CRI > 70
- _ Small luminous flux tolerances ^①

Mechanical properties

- _ Module dimension 47 x 148 mm
- _ Installation of the module together with lens in the luminaire by means of an M3 screw

System solution

- _ Integrate compatible partner products into your final system solution:
<https://www.tridonic.com/en/int/products/accessories#partner>

^① Integral measurement over the complete module.

Website

<http://www.tridonic.com/28005076>



Linear



High bay



Decorative



Downlights



Spotlights



Free-standing



Area



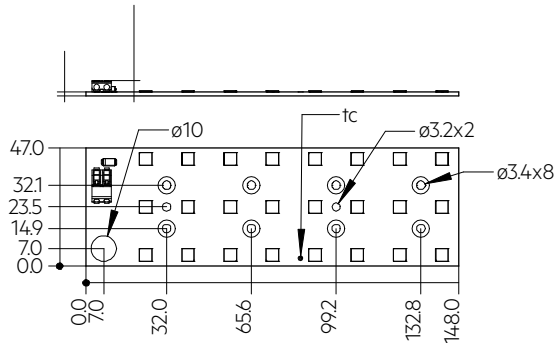
Floor | Wall



Street

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RLE 3x8 6000lm HP HE EXC3 OTD

Ordering data

Type	Article number	Colour temperature	Packaging, carton	Weight per pc.
RLE 3x8 6000lm 722 HP HE EXC3 OTD	28005076	2,200 K	80 pc(s).	0.033 kg
RLE 3x8 6000lm 727 HP HE EXC3 OTD	28005077	2,700 K	80 pc(s).	0.033 kg
RLE 3x8 6000lm 730 HP HE EXC3 OTD	28005078	3,000 K	80 pc(s).	0.033 kg
RLE 3x8 6000lm 740 HP HE EXC3 OTD	28005079	4,000 K	80 pc(s).	0.033 kg
RLE 3x8 6000lm 750 HP HE EXC3 OTD	28005735	5,000 K	80 pc(s).	0.033 kg

Technical data

Beam characteristic	120°
Ambient temperature t_a	-40 ... +80 °C
t_p rated	75 °C
t_c	95 °C
I_{rated}	700 mA
I_{max}	1,800 mA
Max. permissible LF current ripple	2,000 mA
Max. permissible peak current	2,500 mA / max. 10 ms
Max. working voltage for insulation [®]	350 V
Insulation test voltage	1.7 kV
Colour tolerance [®]	3 SDCM
ESD classification	Severity level 4
Risk group (IEC 62471)	RG2 ($E_{thr} = 1050 \text{ lx}$, RG1 at $d = 57 \text{ cm}$ (I_{max})), RG1 ($I \leq 700 \text{ mA}$)
Classification acc. to IEC 62031	Built-in
Type of protection	IP00
Lumen maintenance L70B50	100,000 h
Guarantee (conditions at www.tridonic.com)	8 Year(s)

Approval marks



Standards

IEC 62031, IEC 62778, IEC 62471, IEC 61000-4-2, IEC 60068-2-52, UL 8750, GR-1217-CORE

Specific technical data

Type	Article number	Photometric code	Useful luminous flux at $t_p = 25\text{ }^\circ\text{C}$ ^④	Expected luminous flux at t_p rated ^⑤	Typ. forward current	Min. forward voltage at t_p rated	Max. forward voltage at $t_p = 25\text{ }^\circ\text{C}$	Power consumption P_{on} at $t_p = 25\text{ }^\circ\text{C}$ ^⑥	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
Operating mode HE											
RLE 3x8 6000lm 722 HP HE EXC3 OTD	28005076	722/359	-	3,190 lm	400 mA	41.0 V	45.6 V	-	-	186 lm/W	>70
RLE 3x8 6000lm 727 HP HE EXC3 OTD	28005077	727/359	-	3,500 lm	400 mA	41.0 V	45.6 V	-	-	204 lm/W	>70
RLE 3x8 6000lm 730 HP HE EXC3 OTD	28005078	730/359	-	3,550 lm	400 mA	41.0 V	45.6 V	-	-	207 lm/W	>70
RLE 3x8 6000lm 740 HP HE EXC3 OTD	28005079	740/359	-	3,750 lm	400 mA	41.0 V	45.6 V	-	-	219 lm/W	>70
RLE 3x8 6000lm 750 HP HE EXC3 OTD	28005735	750/359	-	3,670 lm	400 mA	41.0 V	45.6 V	-	-	214 lm/W	>70
Operating mode NM											
RLE 3x8 6000lm 722 HP HE EXC3 OTD	28005076	722/359	5,700 lm	5,420 lm	700 mA	42.1 V	46.8 V	31.2 W	183 lm/W	176 lm/W	>70
RLE 3x8 6000lm 727 HP HE EXC3 OTD	28005077	727/359	6,300 lm	5,950 lm	700 mA	42.1 V	46.8 V	31.2 W	202 lm/W	193 lm/W	>70
RLE 3x8 6000lm 730 HP HE EXC3 OTD	28005078	730/359	6,530 lm	6,040 lm	700 mA	42.1 V	46.8 V	31.2 W	209 lm/W	196 lm/W	>70
RLE 3x8 6000lm 740 HP HE EXC3 OTD	28005079	740/359	6,800 lm	6,390 lm	700 mA	42.1 V	46.8 V	31.2 W	218 lm/W	207 lm/W	>70
RLE 3x8 6000lm 750 HP HE EXC3 OTD	28005735	750/359	6,720 lm	6,240 lm	700 mA	42.1 V	46.8 V	31.2 W	217 lm/W	203 lm/W	>70
Operating mode HO											
RLE 3x8 6000lm 722 HP HE EXC3 OTD	28005076	722/359	-	10,980 lm	1,500 mA	44.8 V	49.6 V	-	-	157 lm/W	>70
RLE 3x8 6000lm 727 HP HE EXC3 OTD	28005077	727/359	-	12,050 lm	1,500 mA	44.8 V	49.6 V	-	-	172 lm/W	>70
RLE 3x8 6000lm 730 HP HE EXC3 OTD	28005078	730/359	-	12,220 lm	1,500 mA	44.8 V	49.6 V	-	-	174 lm/W	>70
RLE 3x8 6000lm 740 HP HE EXC3 OTD	28005079	740/359	-	12,930 lm	1,500 mA	44.8 V	49.6 V	-	-	185 lm/W	>70
RLE 3x8 6000lm 750 HP HE EXC3 OTD	28005735	750/359	-	12,650 lm	1,500 mA	44.8 V	49.6 V	-	-	180 lm/W	>70

① Integral measurement over the complete module.

② If mounted with M3 countersunk screws.

③ The detailed explanation, see data sheet section 1.1.

④ Tolerance of useful light flux - 0 % / + 15 %. Measurement uncertainty $\pm 10\%$.

⑤ Measurement uncertainty $\pm 10\%$. Based on calculation.

⑥ Tolerance of power consumption $P_{on} \pm 10\%$. Measurement uncertainty $\pm 5\%$.

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 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 Risk group

Type	Risk group (IEC 62471)
RLE HP HE EXC3 OTD at I ≤ 700 mA	RG1
RLE HP HE EXC3 OTD at I _{max}	RG2 (E _{thr} = 1050 lx, RG1 at d ≥ 57 cm)

1.3 Energy classification

Type	Colour temperature	Forward current	Energy classification	Energy consumption
RLE 3x8 6000lm 722 HP HE EXC3 OTD	2,200 K	700 mA	C	32 kWh / 1,000 h
RLE 3x8 6000lm 727 HP HE EXC3 OTD	2,700 K	700 mA	B	32 kWh / 1,000 h
RLE 3x8 6000lm 730 HP HE EXC3 OTD	3,000 K	700 mA	B	32 kWh / 1,000 h
RLE 3x8 6000lm 740 HP HE EXC3 OTD	4,000 K	700 mA	B	32 kWh / 1,000 h
RLE 3x8 6000lm 750 HP HE EXC3 OTD	5,000 K	700 mA	B	32 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 RLE a tp temperature of 75 °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	-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 3x8 6000lm HP HE EXC3 OTD

ta	tp	Forward current	R _{th, hs-a}	Cooling area
25 °C	75 °C	400 mA	5.71 K/W	117 cm ²
25 °C	75 °C	700 mA	3.56 K/W	187 cm ²
25 °C	75 °C	1500 mA	1.26 K/W	528 cm ²
35 °C	75 °C	400 mA	4.57 K/W	146 cm ²
35 °C	75 °C	700 mA	2.84 K/W	234 cm ²
35 °C	75 °C	1500 mA	1.01 K/W	662 cm ²
40 °C	75 °C	400 mA	4.00 K/W	167 cm ²
40 °C	75 °C	700 mA	2.49 K/W	268 cm ²
40 °C	75 °C	1500 mA	0.88 K/W	757 cm ²
45 °C	75 °C	400 mA	3.42 K/W	195 cm ²
45 °C	75 °C	700 mA	2.13 K/W	313 cm ²
45 °C	75 °C	1500 mA	0.75 K/W	885 cm ²
50 °C	75 °C	400 mA	2.85 K/W	234 cm ²
50 °C	75 °C	700 mA	1.77 K/W	376 cm ²
50 °C	75 °C	1500 mA	0.63 K/W	1,064 cm ²
55 °C	75 °C	400 mA	2.28 K/W	292 cm ²
55 °C	75 °C	700 mA	1.42 K/W	470 cm ²
55 °C	75 °C	1500 mA	0.50 K/W	1,336 cm ²
60 °C	75 °C	400 mA	2.28 K/W	292 cm ²
60 °C	75 °C	700 mA	1.06 K/W	629 cm ²
60 °C	75 °C	1500 mA	0.37 K/W	1,792 cm ²

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.

The max. permissible output current of the LED driver for parallel wiring is 1.8 A.

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 350 V if mounted with M3 countersunk screws 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 350 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.

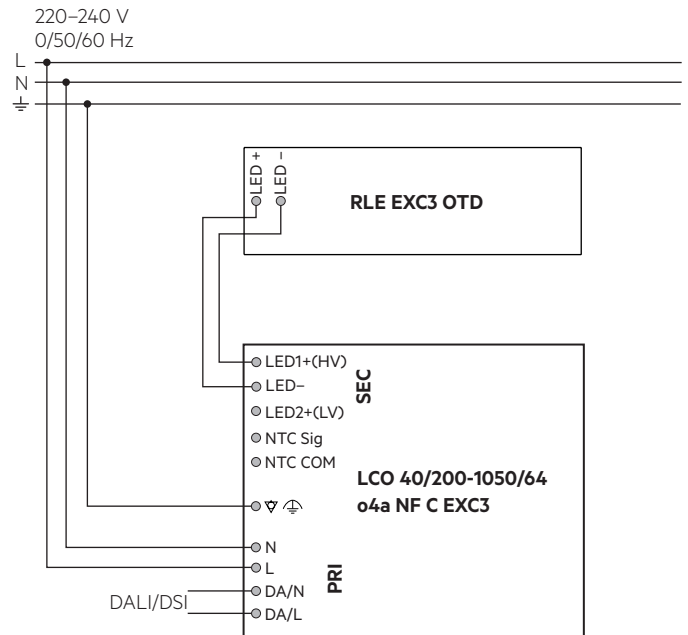
3.2 Integrated protection

The basic protection level consists of protection against reverse polarity.

3.3 Wiring

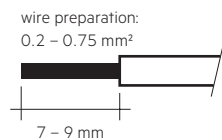


3.4 Wiring examples



3.5 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 to 0.75 mm².
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 countersunk screws according to DIN 965 / ISO 7046.



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. 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.

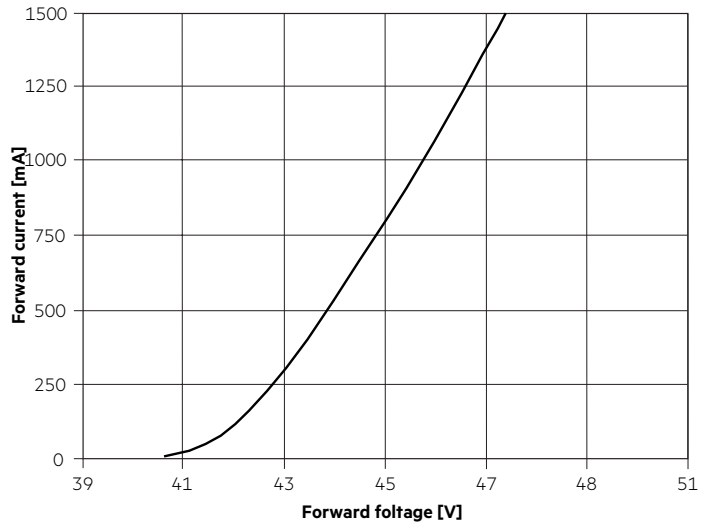
4.2 Lumen maintenance

Typ. forward current	tp tempera- ture	L90 / B10	L90 / B50	L80 / B10	L80 / B50	L70 / B10	L70 / B50
700 mA	45 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	55 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	65 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	75 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
1,500 mA	45 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	55 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	65 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h
	75 °C	>100k h	>100k h	>100k h	>100k h	>100k h	>100k h

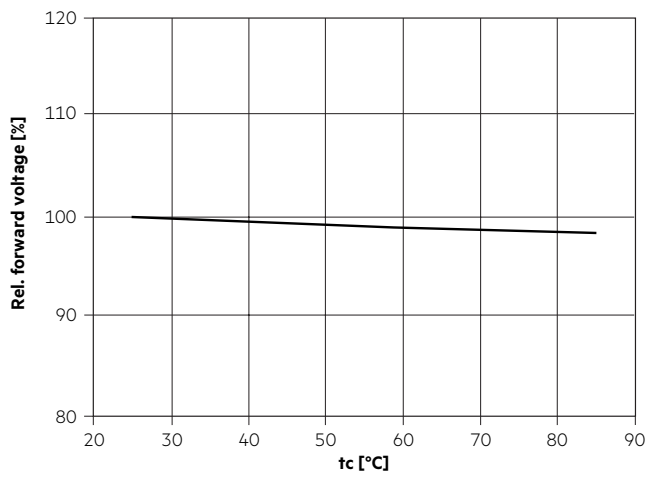
L0C10 >100k h. At tp rated and Irated, based on 10 switching cycles per day.

5. Electrical values

5.1 Typ. forward voltage vs. forward current



5.2 Forward voltage vs. tc temperature



The diagrams are based on statistic values.

The real values can be different.

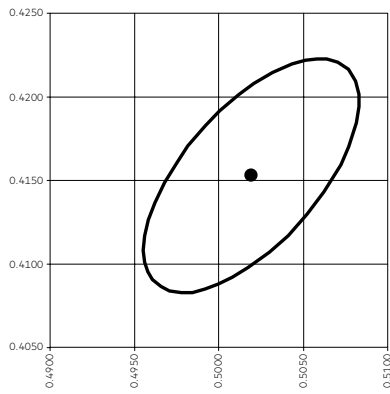
6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

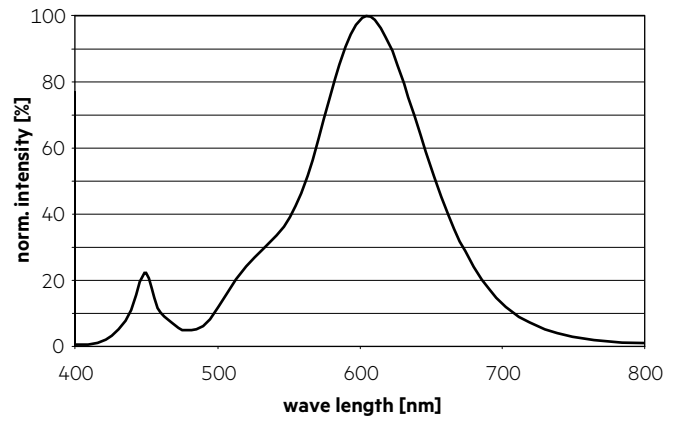
The specified colour coordinates are integral measured by current impulse of 1,920 mA and a duration of < 2 s.
 The ambient temperature of the measurement is 25 °C.
 The measurement tolerance of the colour coordinates are ± 0.01.

2,200 K, CRI 70

	x0	y0
Centre	0.5019	0.4153

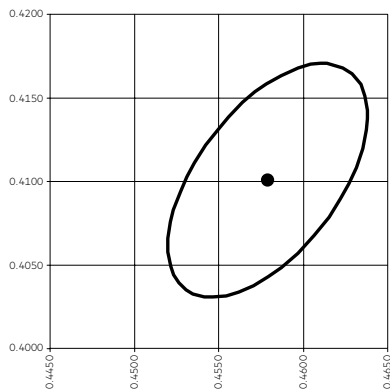


— MacAdam Ellipse: 3SDCM

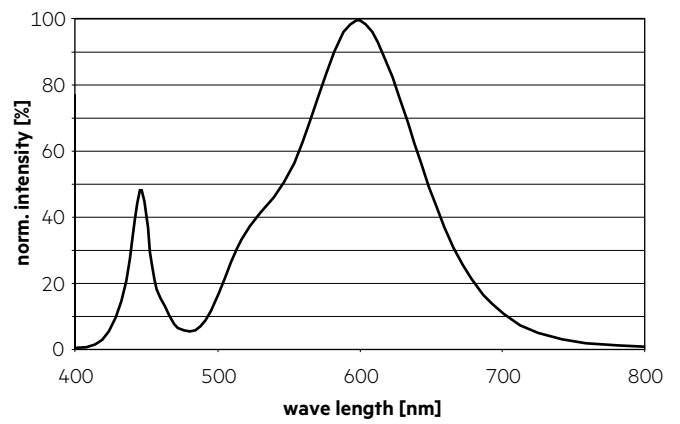


2,700 K, CRI 70

	x0	y0
Centre	0.4578	0.4101

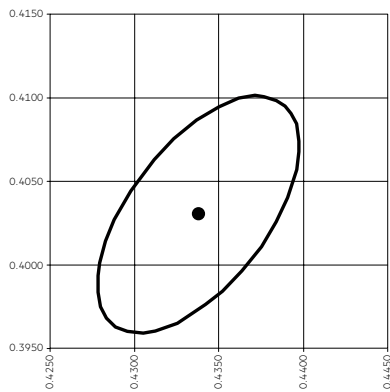


— MacAdam Ellipse: 3SDCM

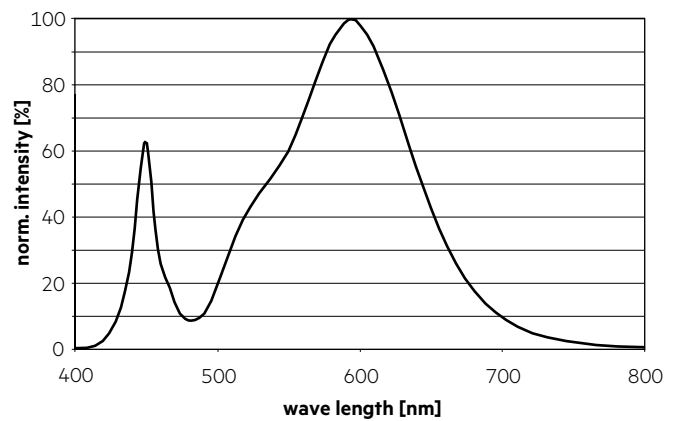


3,000 K, CRI 70

	x0	y0
Centre	0.4338	0.4030

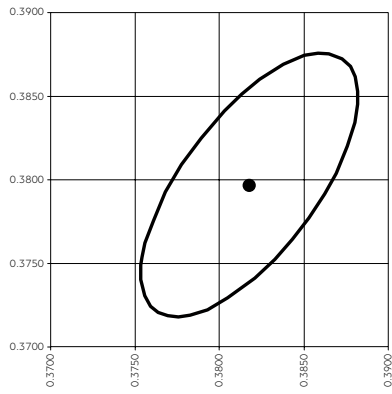


— MacAdam Ellipse: 3SDCM

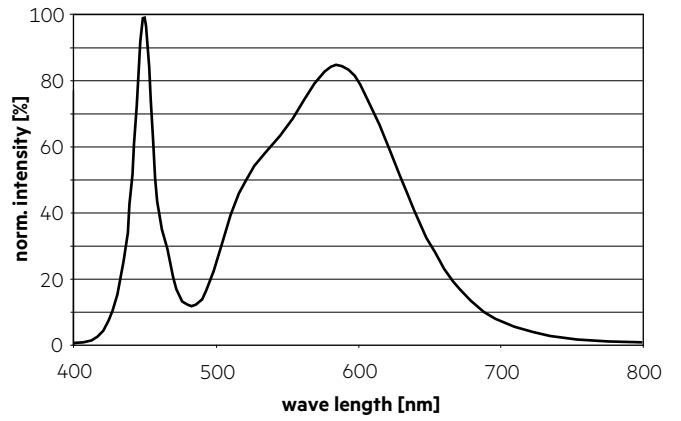


4,000 K, CRI 70

	x0	y0
Centre	0.3818	0.3797

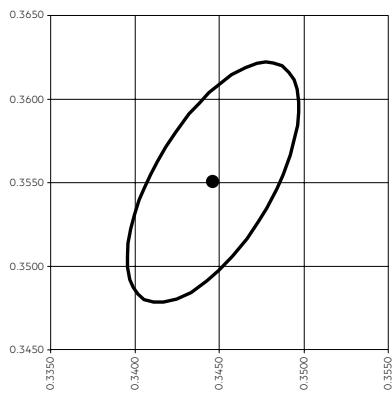


— MacAdam Ellipse: 3SDCM

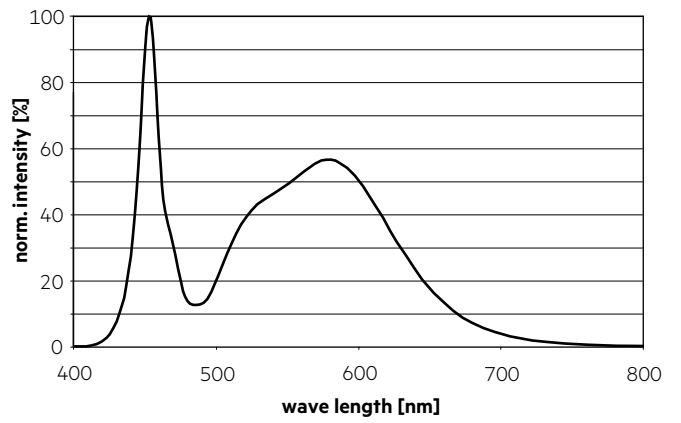


5,000 K, CRI 70

	x0	y0
Centre	0.3446	0.3551



— MacAdam Ellipse: 3SDCM



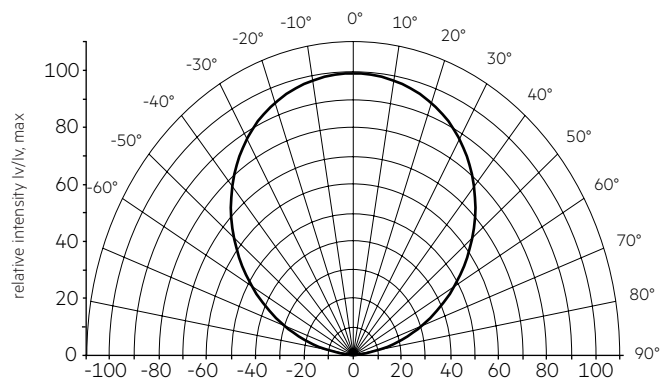
6.2 Spectral G-Index

CCT	CRI	G-Index
2,200 K	70	2.2
2,700 K	70	1.8
3,000 K	70	1.5
4,000 K	70	1.1
5,000 K	70	0.7

Based on typical spectral distribution measured at 25°C and Irated.

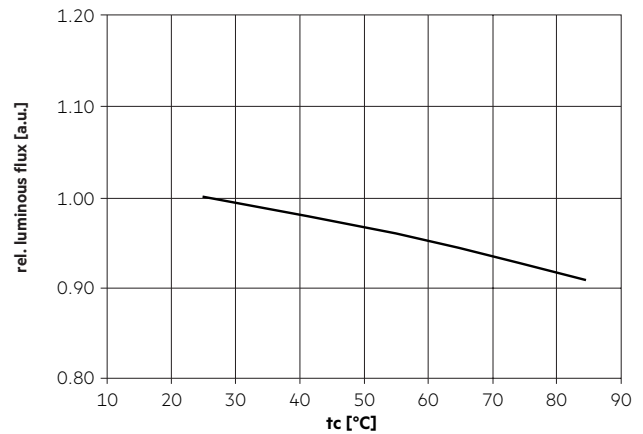
6.2 Light distribution

RLE 3x8 6000lm HP HE EXC3 OTD modules are designed to be compatible with IP6x lenses (e.g. LEDiL Strada-IP-24). This allows multiple light distributions.

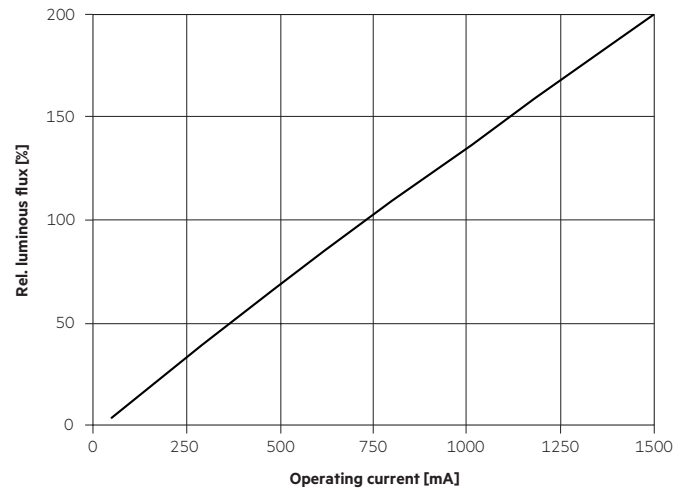


! The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 4.

6.3 Relative luminous flux vs. tc temperature



6.4 Relative luminous flux vs. operating current



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 → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.