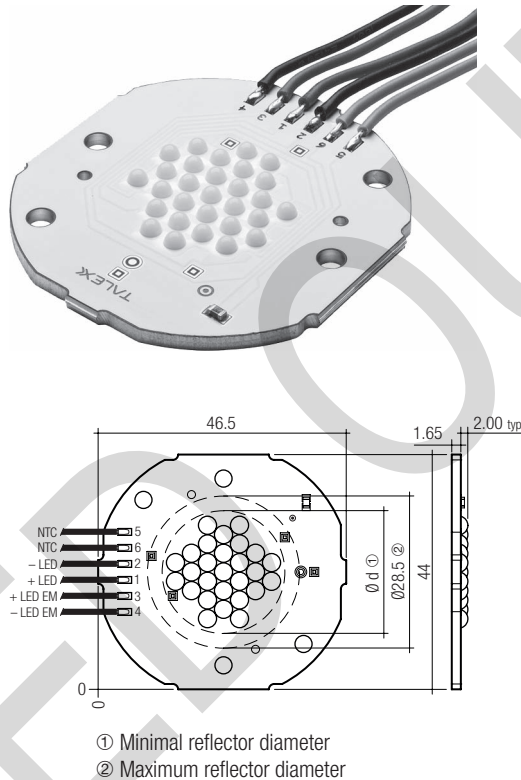




TALEXmodule SPOT P330-3 EM TALEXmodule SPOT

Product description

- Spotlights
- Downlights
- High-flux LED module
- Narrow colour temperature tolerance band
- Lifetime up to 50,000 hours
- Compact design
- Excellent thermal management^①
- NTC for temperature control
- High-power LED in chip-on-board technology
- Beam characteristic: 140°
- Uniform distribution of light
- Fixing holes for M3 screws
- Connection: Cable 300 mm
- Built-in LED module
- Cooling required



Technical data

Beam characteristic	140°
Ambient temperature t_a	-30 ... +55 °C
Typ. tc point	65 °C
Weight	0.015 kg
Risk group (EN 62471:2008)	0



Standards, page 2

Colour temperatures and tolerances, page 6

Ordering data

Colour temperature	Type	Article number
3,000 K	LED P330-3 EM 3000K 47x44	89601195
4,000 K	LED P330-3 EM 4000K 47x44	89601196

Packaging: 20 pieces/package, 360 pieces/carton

Specific technical data

Type	Photometric code	Typ. luminous flux at 350 mA ^{② ③ ④}	Typ. luminous flux at 1,050 mA ^{② ③ ④}	Typ. luminous flux at 1,400 mA ^{② ③ ④}	Typ. forward voltage ^{② ③}	Power consumption module	Typ. efficacy	Colour rendering index CRI
Normal operation								
LED P330-3 EM 3000K 47x44	830/4x9	–	2,010 lm	2,500 lm	28.8 V	30.2 W	69 lm/W	> 80
LED P330-3 EM 4000K 47x44	840/4x9	–	2,220 lm	2,760 lm	28.8 V	30.2 W	76 lm/W	> 80
Emergency operation – 350 mA								
LED P330-3 EM 3000K 47x44	830/4x9	150 lm	–	–	6,2 V	2.2 W	69 lm/W	> 80
LED P330-3 EM 4000K 47x44	840/4x9	160 lm	–	–	6,2 V	2.2 W	76 lm/W	> 80

All values for $t_a = 25$ °C, $t_c = 65$ °C.

^① If the maximum temperature limits are exceeded, the life of the module will be greatly reduced or the module may be damaged.

The temperature of the TALEXmodule SPOT at the tc point in the thermally stable state by mean of a temperature sensor or temperature-sensitive sticker as per EN 60598-1. For the precise position of the tc point see the drawing above.

^② At $t_c = 65$ °C

^③ Tolerance range for optical and electrical data: ± 15 %.

^④ Max. permissible surge current: 3 A, duration max. 10 μ s.

Converter matrix – TALEX(module SPOT 330-3 EM

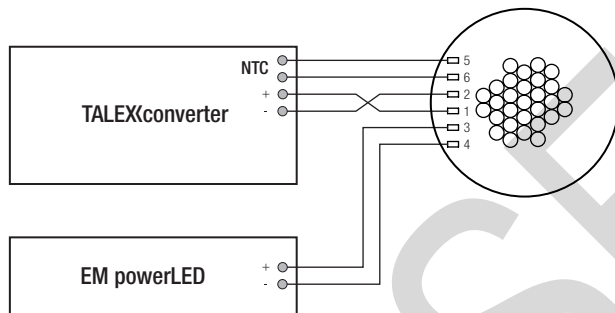
REMOTE LCI										IN-BUILT LCI							
Type		LCI 050/1050 T020		LCI 055/1400 T020		LCAI 050/1050 T020		LCAI 055/1400 T020		LCI 050/1050 R010		LCI 055/1400 R010		LCAI 050/1050 R010		LCAI 055/1400 R010	
Art. No.		86459218		86459219		86459247		86459248		86459216		86459217		86459245		86459246	

Assignable converter										Assignable converter							
Type		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
LED P330-3 EM 3000K 47x44		89601195	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LED P330-3 EM 4000K 47x44		89601196	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Converter matrix – TALEX(module SPOT P330-3 EM in emergency operation

Converter for emergency operation																
Type	EM powerLED 2 W BASIC screw-fix		EM powerLED 2 W BASIC clip-fix		EM powerLED 2 W ST screw-fix		EM powerLED 2 W ST clip-fix		EM powerLED 2 W PRO EZ-3 screw-fix		EM powerLED 2 W PRO EZ-3 clip-fix					
Article number	89899859		89899866		89899861		89899868		89800030		89800032					
Assignable converter																
Type	Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.	
TALEX(module SPOT P330-3 EM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Wiring diagram converter + Emergency device EM powerLED



Wiring

Cable: AWG24; length 300 mm

pin	1	2	3	4	5	6
function	+(LED)	-(LED)	+(EM)	-(EM)	NTC (LED)	NTC (LED)
colour	red	black	red	black	grey	grey

ACCES-
SORIES

TALEXAccessory Cover Spot

Product description

- Housing for LED modul
- Diameter: 50 mm



Ordering data

Type	Article number
P 330-3 EM LED cover white D50 LES 23 mm	88167489
Packaging: 20 pieces/packaging, 400 pieces/carton	

Standards

EN 62031

EN 62471

Photometric code

Key for photometric code, e. g. 830 / 559

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	McAdams after 25% of the lifetime (max.6000h)	Lumen maintenance after 25% of the lifetime (max.6000h)
7	67 – 76			Code
8	77 – 86			Remaining lumen
9	87 – ≥90			7 ≥ 70 %
				8 ≥ 80 %
				9 ≥ 90 %

Thermal design and heat sink

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

Therefore the TALEXmodule SPOT P330-3 EM needs to be mounted onto a heat sink.

Tridonic's excellent thermal design for the TALEXmodule SPOT products provides the lowest thermal resistance and therefore allowing new compact designs without sacrificing quality, safety and life time.

tc point, ambient temperature and lifetime

The temperature at tc reference point is crucial for the light output and life time of a TALEX product.

For TALEXmodule SPOT P330-3 EM a tc temperature of 65 °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.

Mounting instruction



TALEXmodule SPOT from Tridonic which have to be installed on a heat sink have to be connected with heat-conducting paste or heat conducting adhesive film and fixed with M3 screws with plastic washer.

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

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



EOS/ESD safety guidelines

The device / module contains components that are sensitive to electro-static 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/com/en/technical-docs.asp>

Temperature control

An NTC resistor is on the board of the TALEXmodule SPOT P330-3 EM to control the tc temperature during the operation.

Exact position see drawing on page 1.

The details of the 220 kΩ NTC (order number B57431V2223J062) you can find in the data sheet of the manufacturer AVX (Nr. NB12Q00224).

T	R ₂₅ = 220 kΩ, B _{25/100} = 4,500 K	
	R _t /R ₂₅	α
25 °C	1.0000	4,8 %/K
30 °C	0.78759	4,7 %/K
35 °C	0.62406	4,6 %/K
40 °C	0.49737	4,5 %/K
45 °C	0.39863	4,4 %/K
50 °C	0.32123	4,3 %/K
55 °C	0.26022	4,2 %/K
60 °C	0.21186	4,1 %/K
65 °C	0.17334	4,0 %/K
70 °C	0.14249	3,9 %/K
75 °C	0.11767	3,8 %/K
80 °C	0.097598	3,7 %/K
85 °C	0.081300	3,6 %/K

Typical heat sink surface

TALEXmodule SPOT P330-3 EM, 1,050 mA

ta	tc	R _{th, hs-a}
25 °C	65 °C	1.34 K/W
30 °C	65 °C	1.15 K/W
40 °C	65 °C	0.77 K/W
50 °C	65 °C	0.4 K/W

TALEXmodule SPOT P330-3 EM, 1,400 mA

ta	tc	R _{th, hs-a}
25 °C	65 °C	0.96 K/W
30 °C	65 °C	0.82 K/W
40 °C	65 °C	0.54 K/W
50 °C	65 °C	0.25 K/W

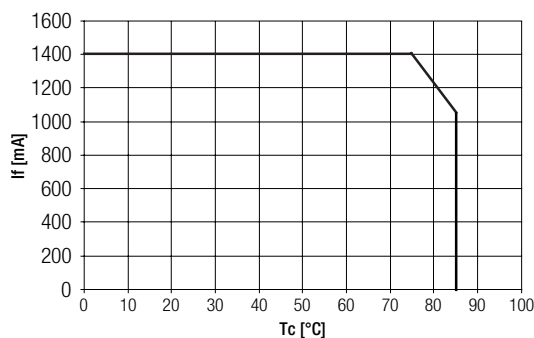
Notes

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. A thermal connection between TALEXmodule SPOT and heat sink with heat-conducting paste or heat conducting adhesive film is absolutely necessary.

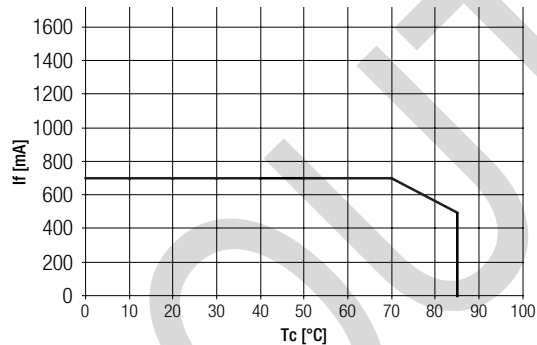
Thermal behaviour

storage temperature	-30–85 °C
operating temperature	-30–55 °C
tc max. (at typ. current)	85 °C

Normal operation Pin 1&2



Emergency operation Pin 3&4



Matrix temperature

f(soldering time) for the modules

Temperature	Max. time without heat sink	Max. time with optimized heat sink
330 °C	15 s	–
340 °C	12 s	–
350 °C	10 s	–
360 °C	5 s	15 s
370 °C	3 s	12 s
380 °C	2 s	10 s
390 °C	1 s	5 s

The values apply for soldering without heat sink. To reduce the duration of soldering it is recommended to pre-heat the module at ta max., e.g. on a plate.

Lifetime

tc temperature in °C	luminous flux in %	lifetime in h
25	80	60,000
	70	81,000
	50	132,000
45	80	44,000
	70	64,000
	50	110,000
65	80	32,000
	70	50,000
	50	91,000
75	80	25,000
	70	41,000
	50	81,000

Electrical supply/choice of converter

TALEXmodule SPOT 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 converter which complies with the relevant standards. The use of TALEX converters from Tridonic in combination with TALEXmodule SPOT guarantees the necessary protection for safe and reliable operation.

If a converter other than Tridonic TALEXconverter is used, it must provide the following protection:

- Short-circuit protection
- Overload protection
- Overtemperature protection

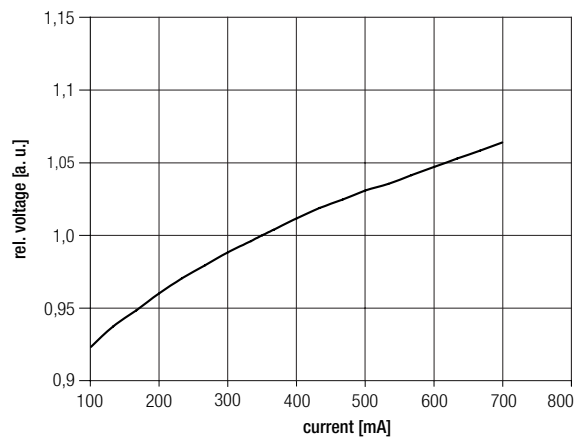


TALEXmodule SPOT P330-3 EM must be supplied by a constant current converter.

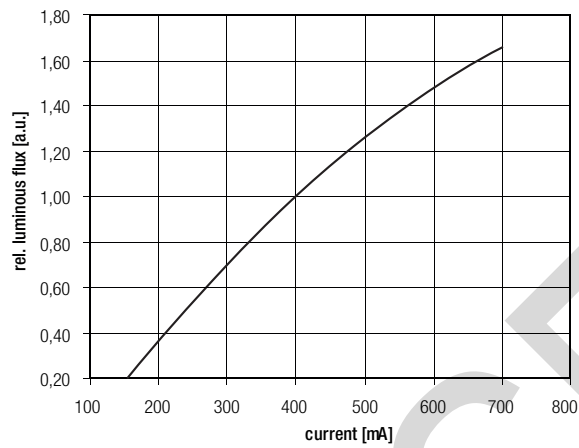
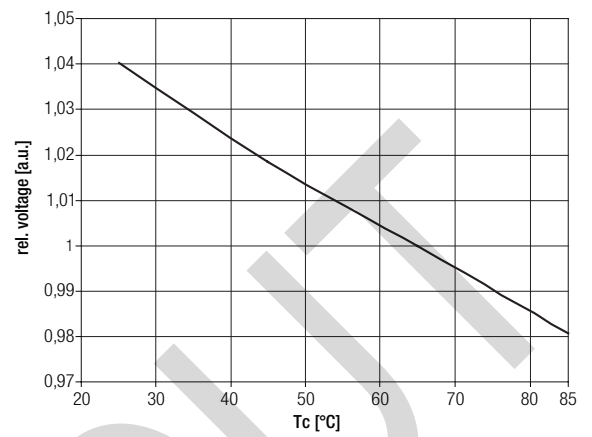
Operation with a constant voltage converter will lead to an irreversible damage of the module.

Wrong polarity can damage the TALEXmodule SPOT P330-3 EM.

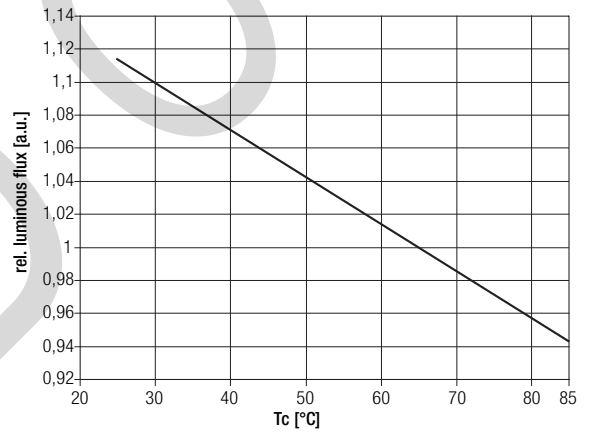
Relative forward voltage and relative luminous flux in emergency operation



— Relative forward voltage at $T_c = 65\text{ °C}$

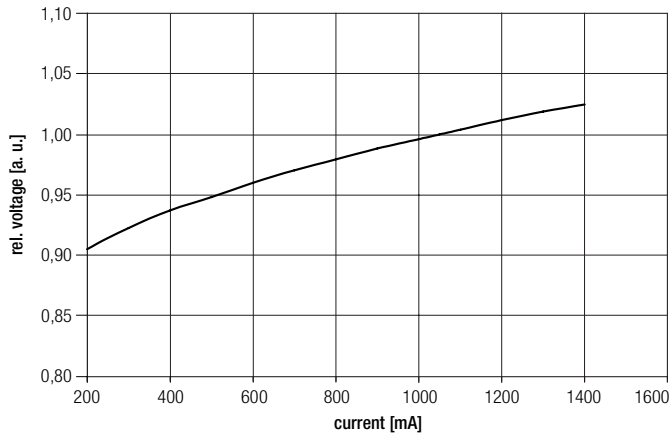


— Relative luminous flux at $T_c = 65\text{ °C}$

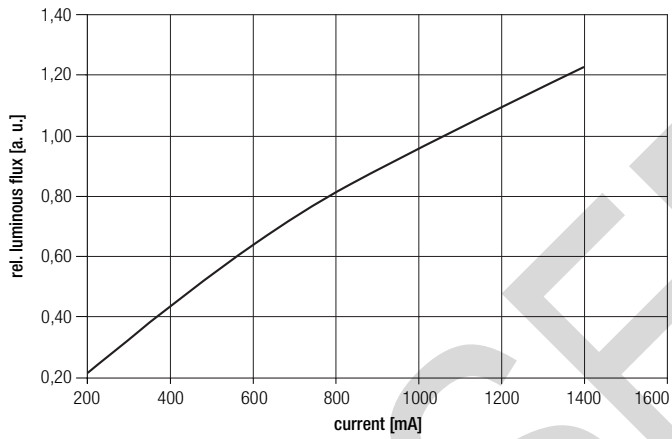
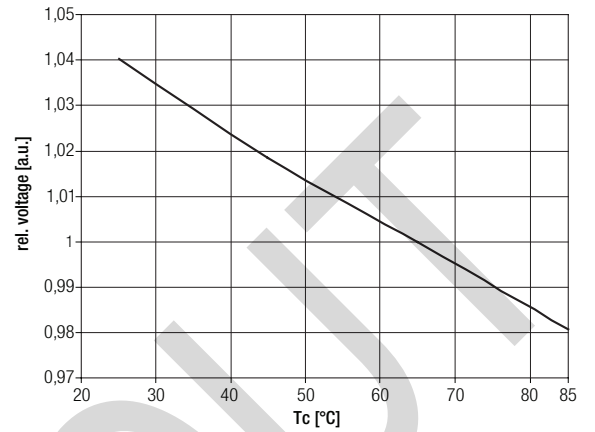


The diagrams based on statistic values.
The real values can be different.

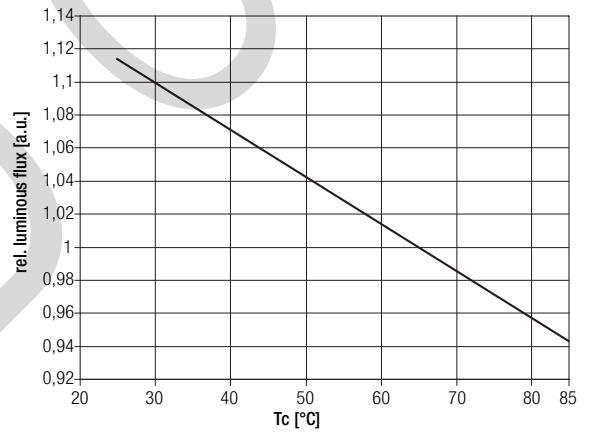
Relative forward voltage and relative luminous flux in normal operation



— Relative forward voltage at $T_c = 65\text{ °C}$



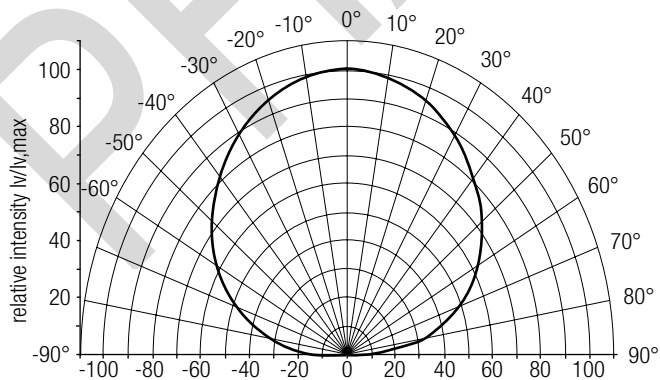
— Relative luminous flux at $T_c = 65\text{ °C}$



Optical characteristics TALEXmodule SPOT P330-2

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

TALEXmodule SPOT P330-3 EM 140°: Light distribution

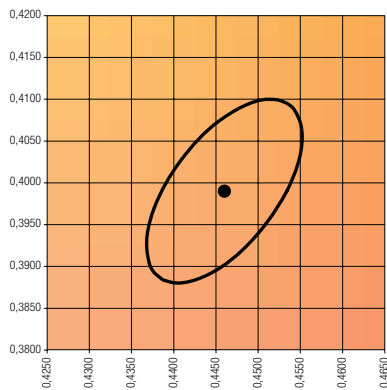


Coordinates and tolerances according to CIE 1964

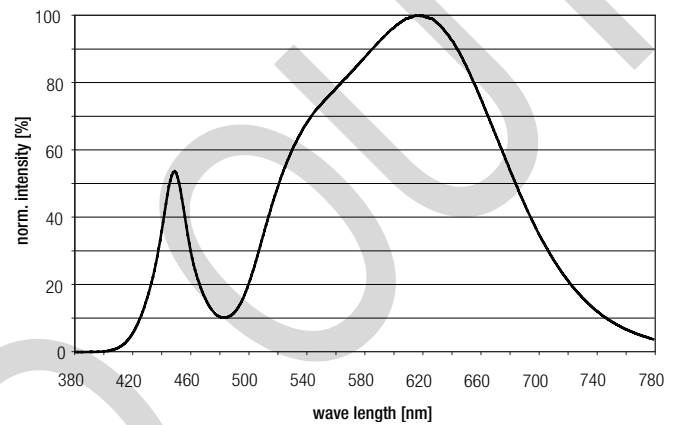
The specified colour coordinates are measured by a current impulse of 1,050 mA and a duration of 100 ms.
The ambient temperature of the measurement is $t_a = 25^\circ\text{C}$.
The measurement tolerance of the colour coordinates are ± 0.01 .

3,000 K

	x0	y0
Centre	0,4460	0,3990

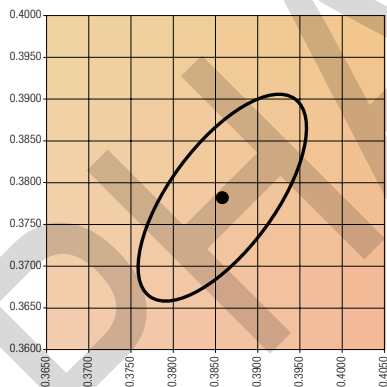


MacAdam ellipse: 4SDCM



4,000 K

	x0	y0
Centre	0,3860	0,3780



MacAdam ellipse: 4SDCM

