



TALEXmodule SPOT TS 310 / TS 320 / TS 325 TALEXmodule SPOT

Product description

- Tunable white – LED module with adjustable colour temperature along the planck's curve^②
- High efficiency up to 85 lm/W
- High colour rendering index CRI > 90
- Low tolerances for colour temperature (MacAdams 3)
- Low tolerances for luminous flux
- Control via DMX, potentiometer or push-button
- High-power LED in chip-on-board technology (COB)
- Excellent thermal management^③
- Spotlights
- Downlights

Technical data

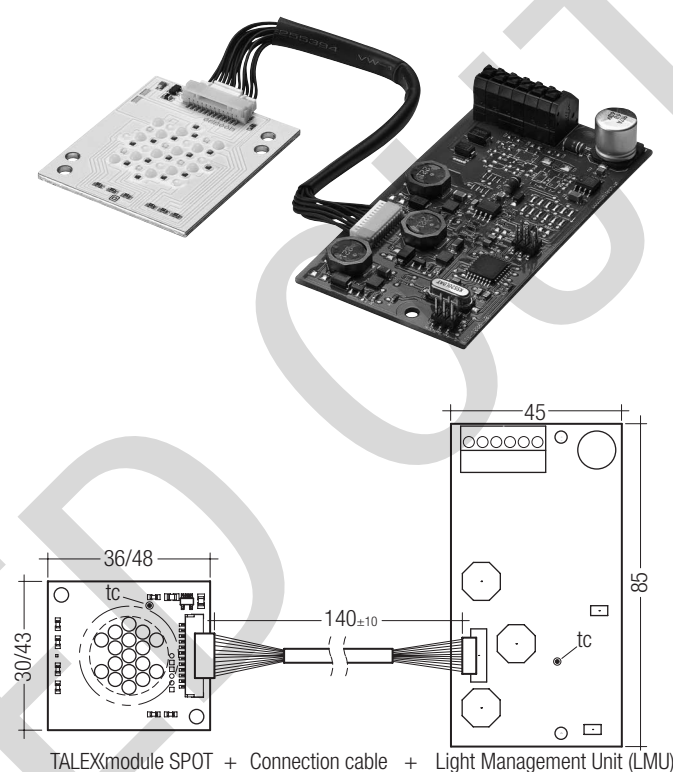
Beam characteristic	140°
Ambient temperature ta	10 ... 45 °C
tc max. LED	75 °C
tc max. LMU	75 °C
Risk group (EN 62471:2008)	0



Dimensional drawings, page 2

Standards, page 3

Colour temperatures and tolerances, page 6



Ordering data

Control	Type	Article number
DMX	LED TS 310 2700-6500K DMX	89601113
DMX	LED TS 320 2700-6500K DMX	89601098
DMX	LED TS 325 2700-6500K DMX	89601096
Potentiometer	LED TS 310 2700-6500K 1P	89601114
Potentiometer	LED TS 320 2700-6500K 1P	89601110
Potentiometer	LED TS 325 2700-6500K 1P	89601111
Push-button	LED TS 310 2700-6500K 1T	89601112
Push-button	LED TS 320 2700-6500K 1T	89601099
Push-button	LED TS 325 2700-6500K 1T	89601097

Packaging: 5 pieces/carton

Specific technical data

Type	Typ. luminous flux ^①	Colour rendering index CRI, 2,700 – 6,500 K ^①	Supply voltage DC, LMU ^③	Power consumption, typ. ^②	Power consumption, max. ^②
LED TS 310 2700-6500K	900 lm	> 90	48 V	13 W	15 W
LED TS 320 2700-6500K	2.000 lm	> 90	48 V	23 W	28 W
LED TS 325 2700-6500K	2.550 lm	> 90	48 V	34 W	40 W

^① Tolerance range for optical data: ±10 %.

^② Tolerance range for electrical data: ±15 %.

^③ Exceeding the max. operating voltage leads to an overload on the LMU.
This may in turn result in a significant reduction in lifetime or even in destruction of the LMU.
Tolerance range for the supply voltage: 48 V: +2 V / -0 V.

^④ If the max. temperature limits are exceeded, the life of the unit will be greatly reduced or the unit may be damaged.
The temperature of the TALEXmodule SPOT or the LMU at the tc-point is to be measured in the thermally stable state with a temperature sensor or a temperature sensitive sticker according to EN 60598-1.
For the precise position of the tc point see the above diagram.

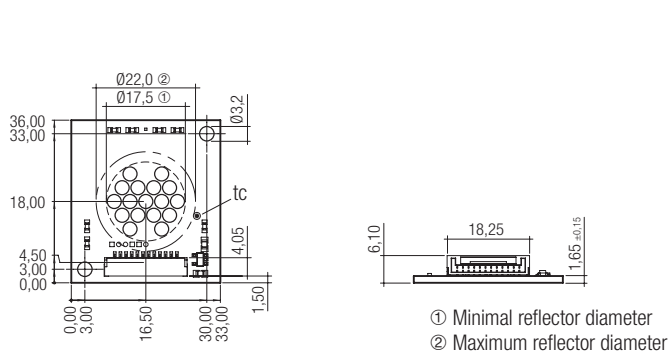
^⑤ Colour temperature and CRI according to CIE 1931.

^⑥ At tc = 65 °C and 2,700 K.

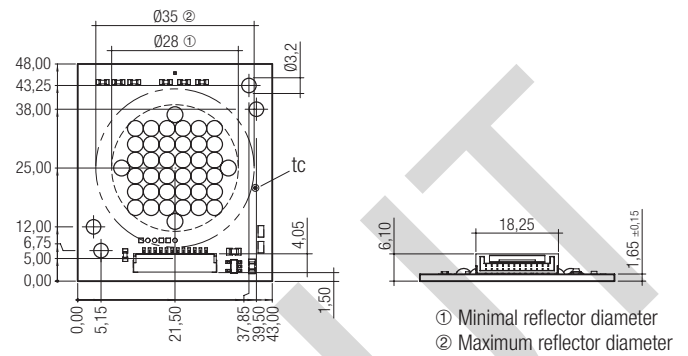
^⑦ Tunable white is based on the PI-LED[®] technology. PI-LED[®] is a trademark of Lumitech

All values at ta = 25 °C.

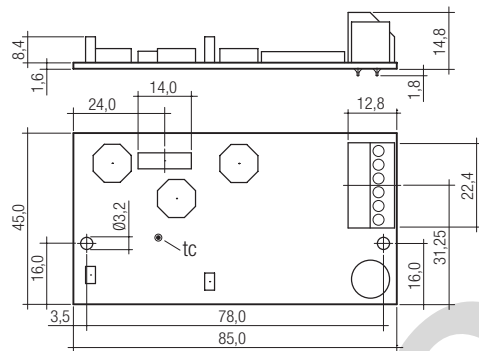
Dimensional drawings



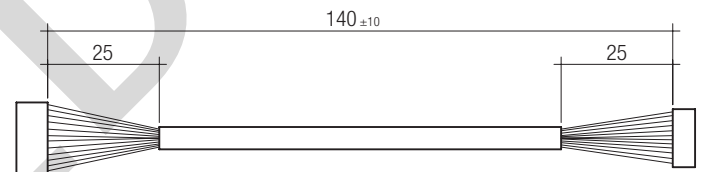
TALEXmodule SPOT TS 310



TALEXmodule SPOT TS 320 / TS 325

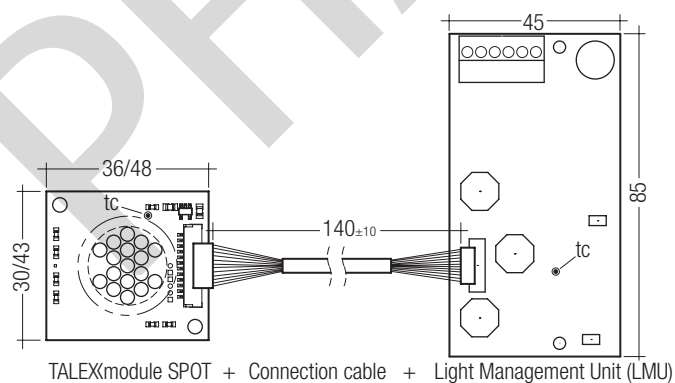


LMU



Connection cable

! The TALEXmodule SPOT TS components form a matched and calibrated unit. Therefore it is not allowed to separate and operate the components in different combinations.



Standards

EN 62031
EN 62471
EN 61347
EN 61547
EN 55015

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 TS will be greatly reduced or the TALEXmodule SPOT TS may be destroyed. Therefore the TALEXmodule SPOT TS 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 TS a tc temperature of max. 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.

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 plastic screws.

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

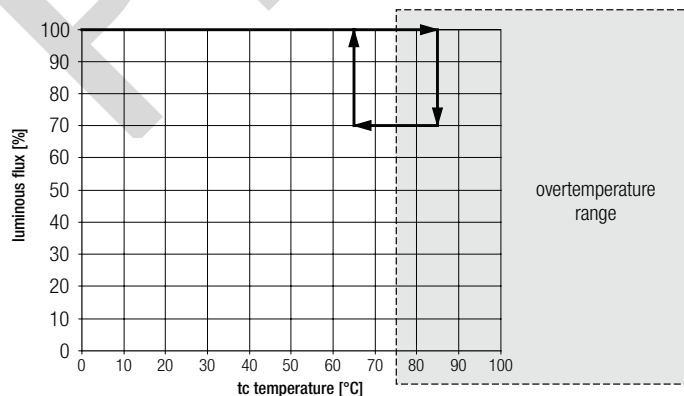
None of the components of the TALEXmodule SPOT (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

For further information please refer to the brochure entitled "TALEX installation instructions and guidelines".

Temperature monitoring

The power consumption and light output is automatically reduced, if the tc temperature on the LED module reaches 85 °C. The output will be set back to 100 % if the tc temperature on the LED module drops below 65 °C.

The output will be completely switched off if the power reduction does not lead to reduction of the tc temperature on the LED module.



Typical heat sink surface

TALEXmodule SPOT TS 310

ta	tc	R _{th, hs-a}	typical heat sink surface
25 °C	65 °C	3.5 K/W	190.5 cm ²
35 °C	65 °C	2.5 K/W	266.7 cm ²
45 °C	65 °C	1.5 K/W	444.4 cm ²

TALEXmodule SPOT TS 320

ta	tc	R _{th, hs-a}	typical heat sink surface
25 °C	65 °C	1.7 K/W	387.1 cm ²
35 °C	65 °C	1.2 K/W	571.4 cm ²
45 °C	55 °C	0.6 K/W	1,090.9 cm ²

TALEXmodule SPOT TS 325

ta	tc	R _{th, hs-a}	typical heat sink surface
25 °C	65 °C	1.1 K/W	606.1 cm ²
35 °C	65 °C	0.7 K/W	952.4 cm ²
45 °C	65 °C	0.3 K/W	2,222.2 cm ²

Notes

Values valid for: natural convection, heat sink material: aluminium ≥ 1 mm thick, R_{th, hs-a} = required thermal resistance of heat sink

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. Additionally the TALEXmodule SPOT has to be fixed on the heat sink with M3 plastic screws to optimise the thermal connection.

Thermal behaviour

storage temperature	-20 ... +80 °C
operating temperature	10 ... +45 °C
tc max. LED	75 °C
tc max. LMU	75 °C

Lifetime

tc temperature in °C	luminous flux in %	lifetime in h
25	80	29,000
	70	47,000
	50	91,000
45	80	28,000
	70	45,000
	50	87,000
65	80	26,000
	70	42,000
	50	81,000
75	80	23,000
	70	35,000
	50	75,000
85	80	15,000
	70	22,000
	50	49,000

Electrical supply/choice of converter

TALEXmodule SPOT TS from Tridonic are not protected against overvoltages, over-currents, 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 TS 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
- SELV



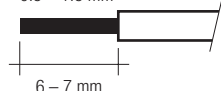
TALEXmodule SPOT TS must be supplied by a constant voltage converter. Operation with a constant current converter will lead to an irreversible damage of the LMU.

Wrong polarity can damage the TALEXmodule SPOT TS.

Terminal LMU

Cross section 0.5 – 1.5 mm²

wire preparation:
0.5 – 1.5 mm²



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/com/en/technical-docs.asp>

Functional description

DMX:

	CCT	Red-Phosphor-Blue	CIE
Kanal	Mode 1	Mode 2	Mode 3
1 Mode selection	1 – 100	101 – 200	201 – 255
2 Intensity	CCT	RED	CIE x, y
3 mixed	CCT 2.700 – 6.500 K	GREEN (Phosphor)	CIE Xvalue
4 mixed	n.a.	BLUE	CIE Yvalue

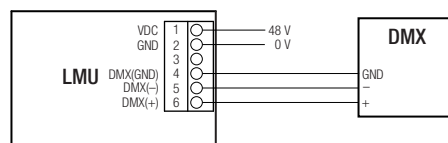
Potentiometer:

CCT	Brightness
Mode 1	Mode 2
2.700 – 6.500 K	10 % – 100 %

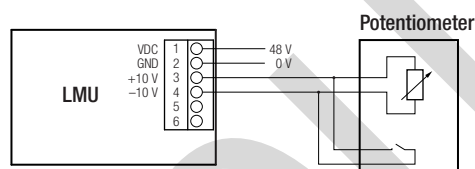
Push-button:

CCT	Brightness
Mode 1	Mode 2
2.700 – 6.500 K	10 % – 100 %

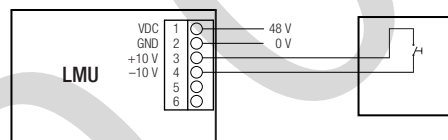
Wiring DMX



Wiring Potentiometer



Wiring push-button



Broadcast Mode:
125 addresses possible

Modechange via push button:

The following control device is recommended by Tridonic:
"Electronic potentiometer with pushbutton control"
Manufacturer: GIRA / www.gira.de, Article number 0308 00

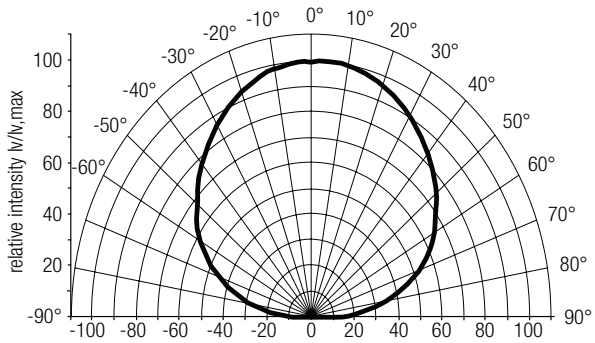
1x pressing the push-button: On/Standby
2x pressing the push-button: change of modus

For details see "Tridonic Tunable white system control guide" on www.tridonic.com

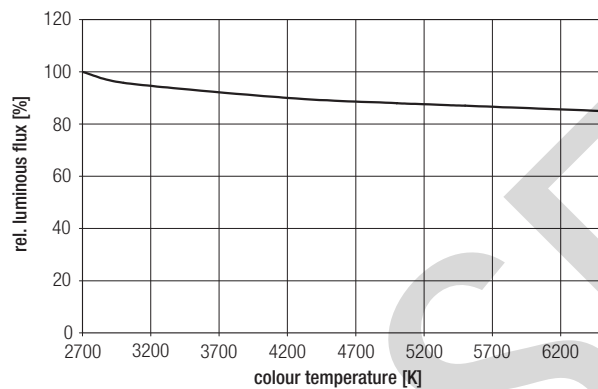
Optical characteristics TALEXmodule SPOT TS 2,700–6,500 K

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

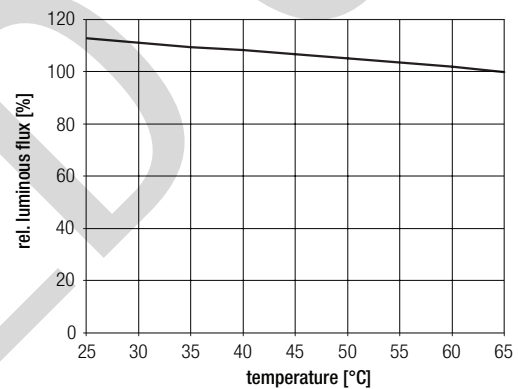
TALEXmodule SPOT TS 2,700–6,500 K: Light distribution



Relative luminous flux vs. colour temperature



Relative luminous flux vs. temperature

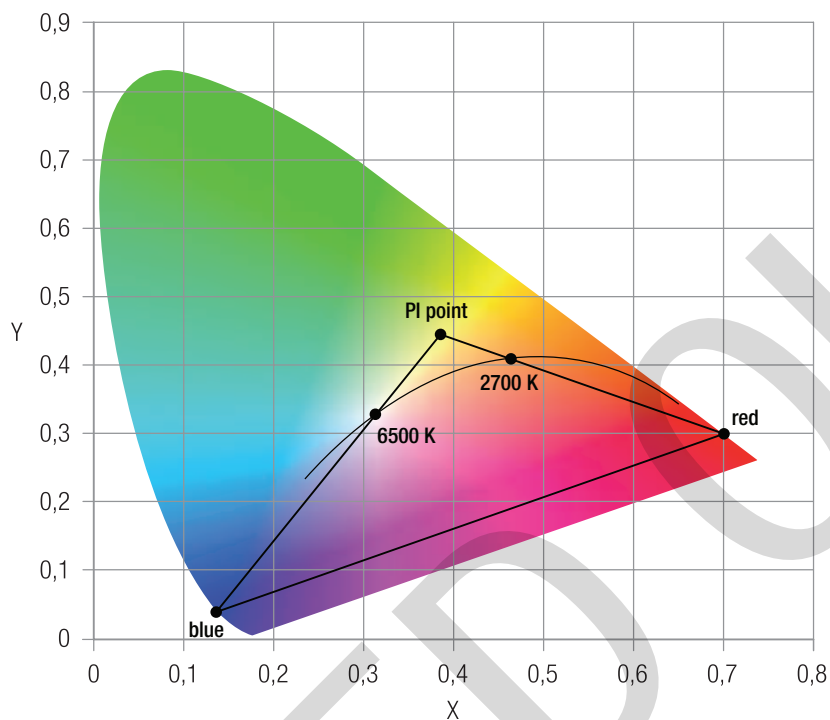


The diagrams are based on statistic values.

Coordinates and tolerances according to CIE 1931

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

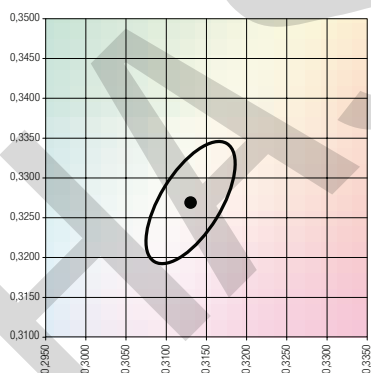
The measurement tolerance of the colour coordinates are ± 0.01 .



6,500 K

	x0	y0
Centre	0.3130	0.3270

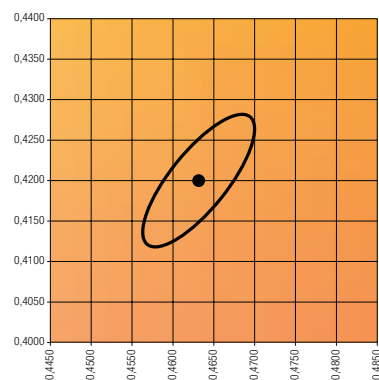
MacAdam ellipse: 3SDCM



2,700 K

	x0	y0
Centre	0.4630	0.4200

MacAdam ellipse: 3SDCM



Colour spectrum at different colour temperatures

