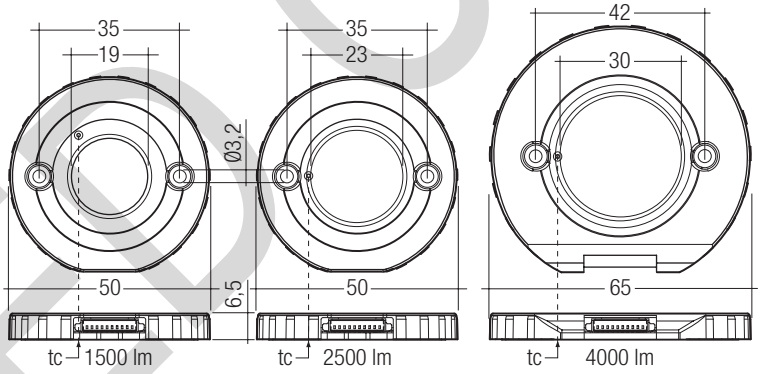
RoHS

TALEX(module STARK SLE SELECT

TALEX(module STARK SLE

Product description

- For spotlights and downlights
- High-flux LED module
- High colour rendering index CRI > 90
- Low tolerances for colour temperatures (MacAdams 3)
- Compact design
- Diameter: 50 / 65 mm
- Excellent thermal management①
- NTC for temperature control
- High-power LED module in chip-on-board technololgy (COB)
- Uniform distribution of light
- Plug connection
- Red-white technology
- Fixing holes for M3 screws
- Built-in LED module
- Cooling required
- Constant colour over the dimming range from 5 to 100 %
- Mixing Cap available accessory for 1,500 and 2,500 lm



Technical data

Beam characteristic	140°
Ambient temperature ta	-25 ... +55 °C
Typ. tc point	65 °C
Weight	15 g / 18 g
Risk group (EN 62471:2008)	0

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Accessories connection cable, page 2

Standards, page 3

Colour temperatures and tolerances, page 6

Ordering data

Colour temperature	Type	Article number
3,000 K	**STARK SLE 1500 930 SEL**	**89601328**
3,000 K	**STARK SLE 2500 930 SEL**	**89601323**
3,000 K	**STARK SLE 4000 930 SEL**	**89601318**
4,000 K	**STARK SLE 1500 940 SEL**	**89601329**
4,000 K	**STARK SLE 2500 940 SEL**	**89601324**
4,000 K	**STARK SLE 4000 940 SEL**	**89601319**

Packaging: 10 pieces/carton

Specific technical data

Type	Photometric code	Typ, luminous flux②	Typ, forward current③④⑤	Typ, forward voltage⑥	Power consumption module	Power consumption system	Efficacy of the module	Efficacy of the system	Colour rendering index CRI
STARK SLE 1500 930 SEL	930/3x9	1,500 lm	1,050 mA	17.4 V	18.3 W	20.7 W	82 lm/W	73 lm/W	90
STARK SLE 2500 930 SEL	930/3x9	2,500 lm	1,050 mA	29.4 V	30.9 W	34.9 W	81 lm/W	72 lm/W	90
STARK SLE 4000 930 SEL	930/3x9	4,000 lm	1,400 mA	34.8 V	48.7 W	55.1 W	82 lm/W	73 lm/W	90
STARK SLE 1500 940 SEL	940/3x9	1,500 lm	1,050 mA	17.4 V	18.3 W	20.7 W	82 lm/W	73 lm/W	90
STARK SLE 2500 940 SEL	940/3x9	2,500 lm	1,050 mA	29.4 V	30.9 W	34.9 W	81 lm/W	72 lm/W	90
STARK SLE 4000 940 SEL	940/3x9	4,000 lm	1,400 mA	34.8 V	48.7 W	55.1 W	82 lm/W	73 lm/W	90

All values at ta = 25 °C, tc = 65 °C.

① If the max, temperature limits are exceeded, the life of the system will be greatly reduced or the system may be damaged, The temperature of the TALEX(module at the tc-point is to be measured in the thermally stable state with a temperature sensor or or temperature-sensitive sticker as per EN 60598-1, For the precise position of the tc point see the drawing above,

② Tolerance range for optical data: ±10 %,

③ Exceeding the max, operating current leads to an overload on the TALEX(module, This may in turn result in a significant reduction in lifetime or even destruction of the TALEX(module,

④ Max, permissible surge current: 3 A, duration max, 10 µs,

⑤ Tolerance range current: ±5 %,

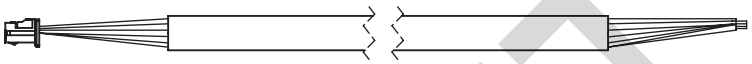
⑥ Tolerance range voltage: ±10 %,

ACCES-SORIES

TALEXXaccessories CONNECT 10PIN PLUG / 4PIN CRIMP

Product description

- Open wire ends for flexible use of the module
- 10-pin plug to 4 open wires
- Halogen free



Ordering data

Length	Type	Article number
0.5 m	**Connection cable 0.5m**	**24166485**
1 m	**Connection cable 1.0m**	**24166483**
2 m	**Connection cable 2.0m**	**24166484**

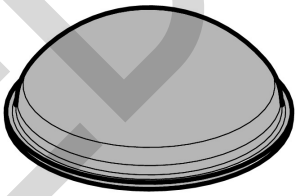
Packaging: 10 pieces/carton

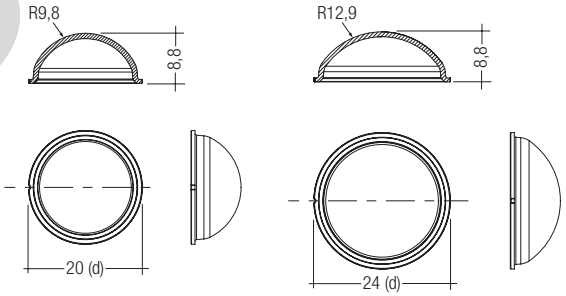
ACCES-SORIES

Mixing cap

Product description

- Mixing chamber for homogenous light distribution
- To push on the SLE housing
- Glow wire test acc. IEC 60695-2-11 at 700 °C passed





Ordering data

Type	Article number	Diameter d
LED Mixing Cap STARK SLE	**88167564**	20 mm
LED Mixing Cap STARK SLE	**88167565**	24 mm

Converter matrix – TALEX(module STARK SLE SELECT

		REMOTE LCI											
	Type	LCI 050/1050 N020		LCI 050/1050 T020		LCI 055/1400 T020		LCAI 050/1050 N020		LCAI 050/1050 T020		LCAI 055/1400 T020	
	Art. no.	24166468		86459218		86459219		24166469		86459247		86459248	
		Assignable converter											
Type		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
STARK SLE 1500 930 SEL	89601328	1	1	1	1	–	–	1	1	1	1	–	–
STARK SLE 2500 930 SEL	89601323	1	1	1	1	–	–	1	1	1	1	–	–
STARK SLE 4000 930 SEL	89601318	–	–	–	–	1	1	–	–	–	–	1	1
STARK SLE 1500 940 SEL	89601329	1	1	1	1	–	–	1	1	1	1	–	–
STARK SLE 2500 940 SEL	89601324	1	1	1	1	–	–	1	1	1	1	–	–
STARK SLE 4000 940 SEL	89601319	–	–	–	–	1	1	–	–	–	–	1	1

Converter matrix – TALEX(module STARK SLE SELECT

		IN-BUILT LCI											
	Type	LCI 050/1050 R010		LCI 055/1400 0010		LCI 055/1400 R010		LCAI 050/1050 R010		LCAI 055/1400 0010		LCAI 055/1400 R010	
	Art. no.	86459216		24166470		86459217		86459245		24166471		86459246	
		Assignable converter											
Type		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
STARK SLE 1500 930 SEL	89601328	1	1	–	–	–	–	1	1	–	–	–	–
STARK SLE 2500 930 SEL	89601323	1	1	–	–	–	–	1	1	–	–	–	–
STARK SLE 4000 930 SEL	89601318	–	–	1	1	1	1	–	–	1	1	1	1
STARK SLE 1500 940 SEL	89601329	1	1	–	–	–	–	1	1	–	–	–	–
STARK SLE 2500 940 SEL	89601324	1	1	–	–	–	–	1	1	–	–	–	–
STARK SLE 4000 940 SEL	89601319	–	–	1	1	1	1	–	–	1	1	1	1

Standards
EN 62031
EN 62471
EN 61347-1
EN 61547
EN 55015

Glow wire test according to IEC 60695-2-11
960 °C passed.

Photometric code

Key for photometric code, e. g. 830 / 449

1st digit		2nd + 3rd digit	4th digit	5th digit	6th digit	
Code	CRI	Colour temperature in Kelvin x 100	McAdams initial	McAdams after 25% of the lifetime (max.6000h)	Lumen maintanance after 25% of the lifetime (max.6000h)	
					Code	Remaining lumen
7	67 – 76				7	≥ 70 %
8	77 – 86				8	≥ 80 %
9	87 – ≥90				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 TALEX(module STARK SLE will be greatly reduced or the TALEX(module STARK SLE may be destroyed.

Therefore the TALEX(module STARK SLE needs to be mounted onto a heat sink.

Tridonic's excellent thermal design for the TALEX(module STARK SLE 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 TALEX(module STARK SLE 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

TALEX(module STARK SLE 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.

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 TALEX(module STARK SLE (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

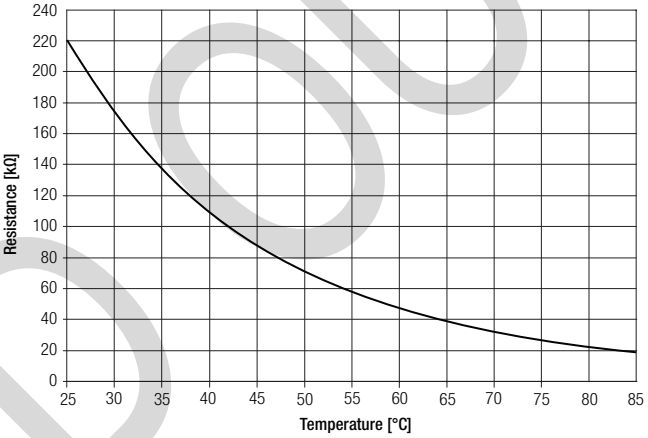
Max. torque for fixing: 0.5 Nm.

For further information please refer to to the brochure entitled "Technical Design-In-Guide SLE".

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

Temperature control
An NTC resistor is on the board of the TALEX(module STARK SLE to control the tc temperature during the operation with a resistor value of 220 kΩ.



Heat sink values

TALEX(module STARK SLE SELECT 1.500 lm

ta	tc	$R_{th, hs-a}$
25 °C	65 °C	1.7 K/W
35 °C	65 °C	1.1 K/W
45 °C	65 °C	0.6 K/W

TALEX(module STARK SLE SELECT 2,500 lm

ta	tc	$R_{th, hs-a}$
25 °C	65 °C	0.8 K/W
35 °C	65 °C	0.5 K/W
45 °C	65 °C	0.1 K/W

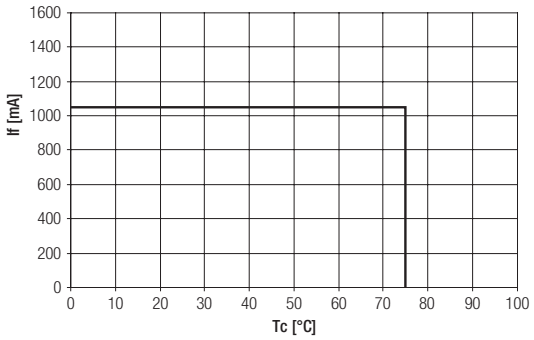
TALEX(module STARK SLE SELECT 4,000 lm

ta	tc	$R_{th, hs-a}$
25 °C	65 °C	0.3 K/W
35 °C	65 °C	0.1 K/W
45 °C	65 °C	–

Notes
The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. A thermal connection between TALEX(module STARK SLE and heat sink with heat-conducting paste or heat conducting adhesive film is absolutely necessary.
Additionally the TALEX(module STARK SLE has to be fixed on the heat sink with M3 screws to optimise the thermal connection.

Thermal behaviour

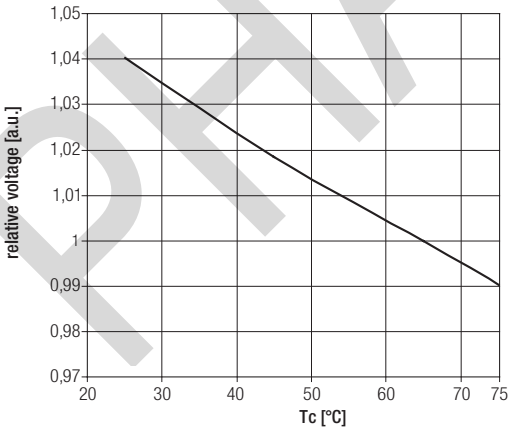
storage temperature	-30 ... +80 °C
operating temperature	+25 ... +55 °C
tc max. (at typ. current)	75 °C
max. humidity	0 ... 80 %

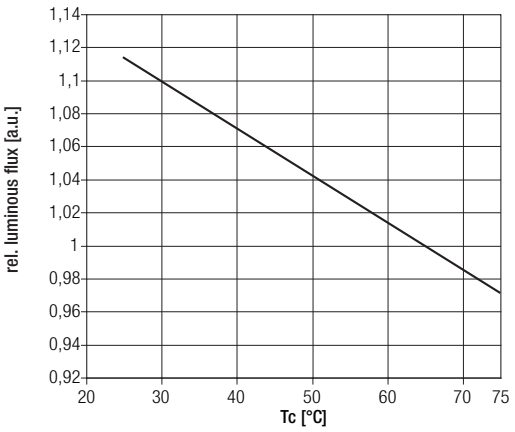


Lifetime

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

Relative forward voltage and relative luminous flux





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

Electrical supply/choice of converter

TALEXmodule STARK SLE 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 STARK SLE 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 STARK SLE 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 STARK SLE.

Wiring

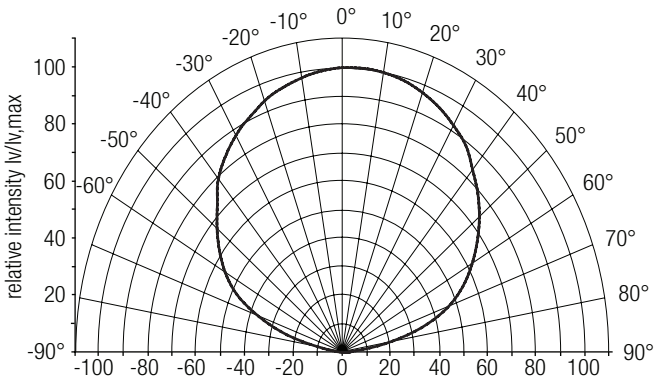
Cable: see page 2 (Accessories)

colour	red	black	grey	grey
function	+ LED	- LED	NTC	NTC

Optical characteristics TALEX(module STARK SLE

The optical design of the TALEX(module STARK SLE product line ensures optimum homogenity for the light distribution.

Light distribution

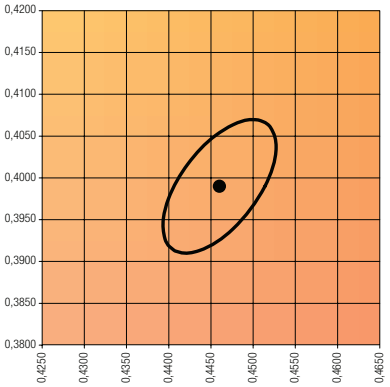


Coordinates and tolerances according to CIE 1964

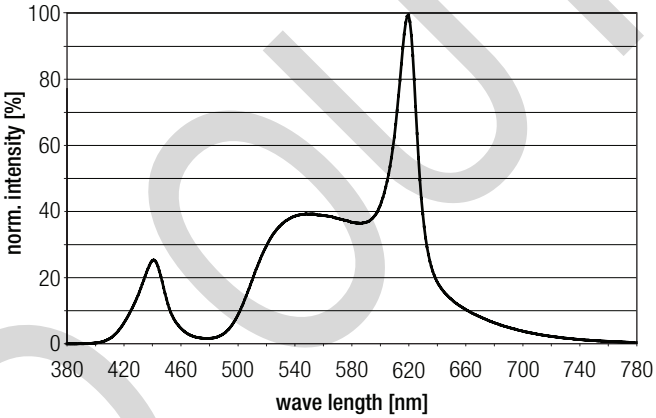
The specified colour coordinates are measured by a current impulse with typical values of module and a duration of 100 ms.
The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

3,000 K

	x0	y0
Centre	0,4460	0,3990

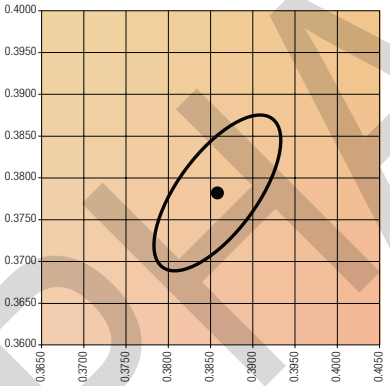


MacAdam ellipse: 3SDCM



4,000 K

	x0	y0
Centre	0,3860	0,3780



MacAdam ellipse: 3SDCM