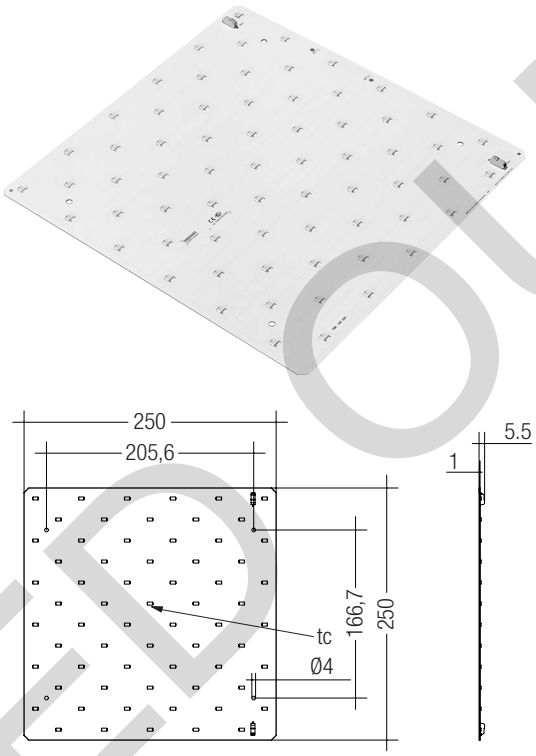
RoHS

TALEXmodule STARK QLE 250 CLASSIC

STARK QLE

Product description

- Ideal for linear and panel lights
- Luminous flux range from 1,190 – 1,470 lm
- LED system solution with outstanding system efficiency up to 121 lm/W, consisting of squared LED modules and dimmable LED control gear LCAI 080/0350
- Efficiency of the module up to 131 lm/W
- High colour rendering index CRI > 80
- Small colour tolerance MacAdam 3①
- Small luminous flux tolerances
- Colour temperatures 3,000 K and 4,000 K
- Perfectly uniform light, even if several LED modules are used together in a line
- Self cooling (no additional heat sink required)
- Push terminals for quick and simple wiring of LED module to LED module
- Simple installation (e.g. screws)
- Long lifetime: 50,000 hours
- 5-year guarantee



Technical data

Beam characteristic	120°
Ambient temperature ta	-30 ... +45 °C
Typ. tp point	45 °C
Risk group (EN 62471:2008)	0
Type of protection	IP00

Ordering data

Type	Article number	Colour temperature	Packaging carton	Weight per pc.
TALEXmodule STARK-QLE-250-1250-830-CLA	28000243	3,000 K	40 pc(s).	0.12 kg
TALEXmodule STARK-QLE-250-1250-840-CLA	28000244	4,000 K	40 pc(s).	0.12 kg

→

Standards, page 2

Colour temperatures and tolerances, page 5

Specific technical data

Type⑤	Photo-metric code	Typ. luminous flux at tp = 25 °C②	Typ. luminous flux at tp = 45 °C②	Typ. forward current②③④	Min. forward-voltage bei tp = 45 °C	Max. forward-voltage bei tp = 25 °C	Typ. power consumption bei tp = 45 °C	Efficacy of the module at tp = 25 °C	Efficacy of the module at tp = 45 °C	Efficacy of the system at tp = 45 °C	Colour rendering index CRI	Energy classifi-cation
Operating mode HE at 300 mA												
STARK-QLE-250-1250-830-CLA	830/369	1,210 lm	1,190 lm	300 mA	28.6 V	36.0 V	9.6 W	123 lm/W	123 lm/W	113 lm/W	> 80	A+
STARK-QLE-250-1250-840-CLA	840/369	1,280 lm	1,260 lm	300 mA	28.6 V	36.0 V	9.6 W	131 lm/W	131 lm/W	121 lm/W	> 80	A+
Operating mode HO at 350 mA												
STARK-QLE-250-1250-830-CLA	830/369	1,390 lm	1,370 lm	350 mA	29.0 V	36.3 V	11.3 W	120 lm/W	121 lm/W	111 lm/W	> 80	A+
STARK-QLE-250-1250-840-CLA	840/369	1,470 lm	1,450 lm	350 mA	29.0 V	36.3 V	11.3 W	127 lm/W	128 lm/W	118 lm/W	> 80	A+

① Central measurement over the complete module.

② Tolerance range for optical and electrical data: ±10 %.

③ Max. permissible repetitive peak current: 900 mA.

④ Max. permissible surge current: 1.5 A, duration max. 10 µs.

⑤ HE ... high efficiency, HO ... high output.

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

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 TALEXmodule STARK QLE will be greatly reduced or the TALEXmodule STARK QLE may be destroyed.

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

For TALEXmodule STARK QLE a tp temperature of 45 °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 tp 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.

Mounting instruction

None of the components of the TALEXmodule STARK QLE (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 with 4 screws per module.
In order not to damage the modules only rounded head screws and an additional plastic flat washer should be used.

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.

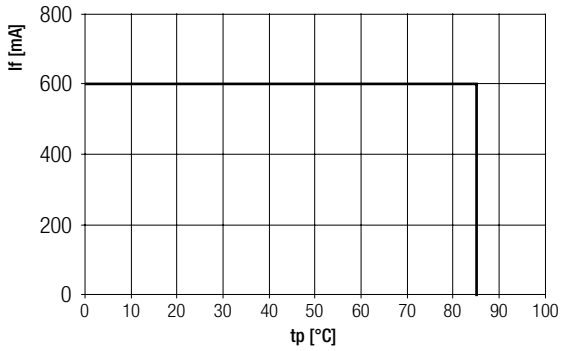
EOS/ESD safety guidelines

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-data.asp

Thermal behaviour

storage temperature	-40 ... +85 °C
operating temperature ta	-30 ... +45 °C
tp (at typ. current)	45 °C
tc max. (at typ. current)	85 °C
max. humidity*	0 ... 80 %

* not condensating



Life time, 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 maintenace 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 inital luminous flux, respectivly 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.

Lumen maintenance for TALEXmodule STARK QLE

Forward current	tp temperature	L90 / F10	L90 / F50	L80 / F10	L80 / F50	L70 / F10	L70 / F50
300 mA	35 °C	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h
	45 °C	52,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h
	55 °C	36,000 h	54,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h
350 mA	35 °C	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h
	45 °C	50,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h
	55 °C	35,000 h	52,000 h	>60,000 h	>60,000 h	>60,000 h	>60,000 h

Selection of the LED control gear

TALEXmodule STARK QLE can be operated either from LED control gears or from LED control gears with LV output voltage.

TALEXmodule STARK QLE are basic isolated against ground and can be mounted directly on earthed metal parts of the luminaire also when used in conjunction with the LED control gear LCAI 080/0350. In this case the light emitting side of the module has to be protected against direct touch (test finger). This is typically achieved by means of a non removable light distributor over the module.

Electrical supply/choice of LED control gear

TALEXmodule STARK QLE 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 control gear which complies with the relevant standards. The use of TALEXconverter from Tridonic in combination with TALEXmodule STARK QLE guarantees the necessary protection for safe and reliable operation.

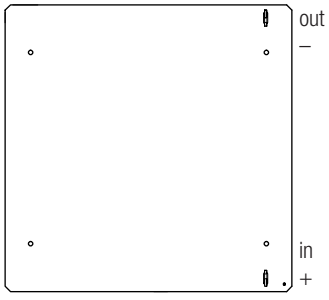
If a LED control gear other than Tridonic TALEXconverter is used, it must provide the following protection:
- Short-circuit protection
- Overload protection
- Overtemperature protection

TALEXmodule STARK QLE must be supplied by a constant current LED control gear.
Operation with a constant voltage LED control gear will lead to an irreversible damage of the module.

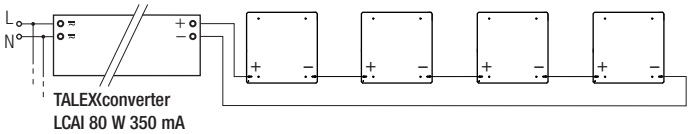
Wrong polarity can damage the TALEXmodule STARK QLE.

With parallel wiring tolerance-related differences in output are possible (thermal stress of the module) and can cause differences in brightness.
If one module fails, the remaining modules may be overloaded.

Wiring

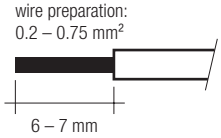


Wiring examples



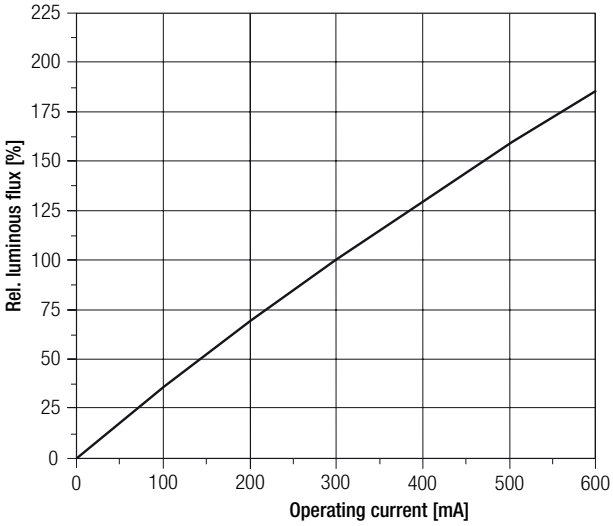
Wiring type and cross section

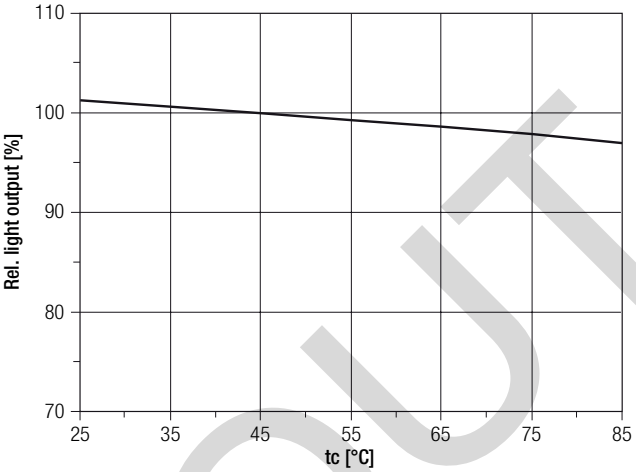
The wiring can be solid cable with a cross section of 0.2 to 0.75 mm². For the push-wire connection you have to strip the insulation (6–7 mm).

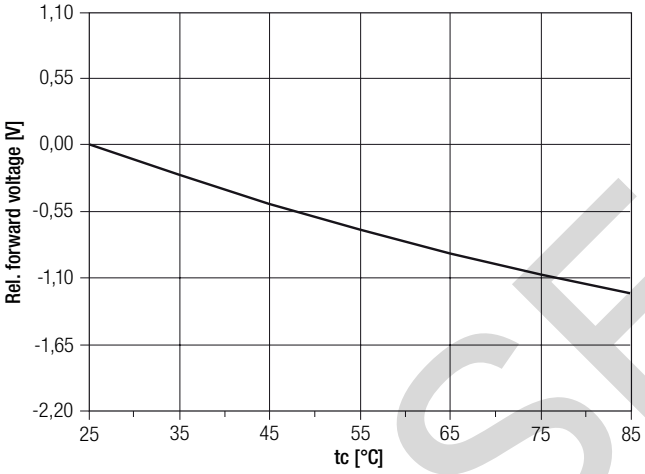


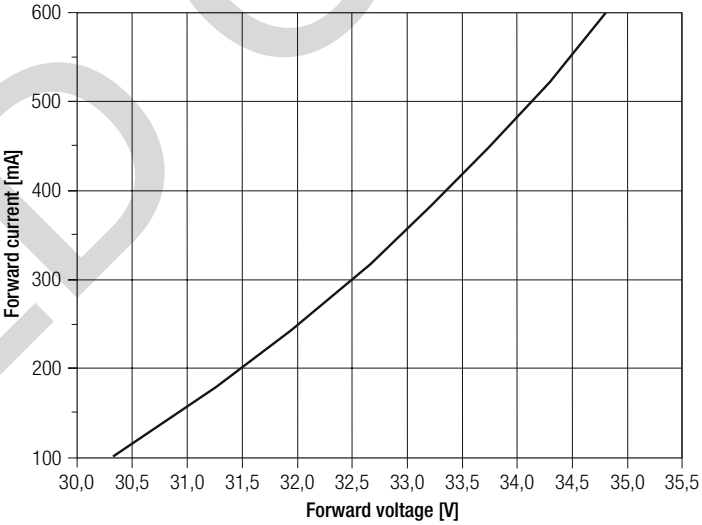
Inserting stranded wires / removing wires by lightly pressing on the push button.

Relative forward voltage and luminous flux



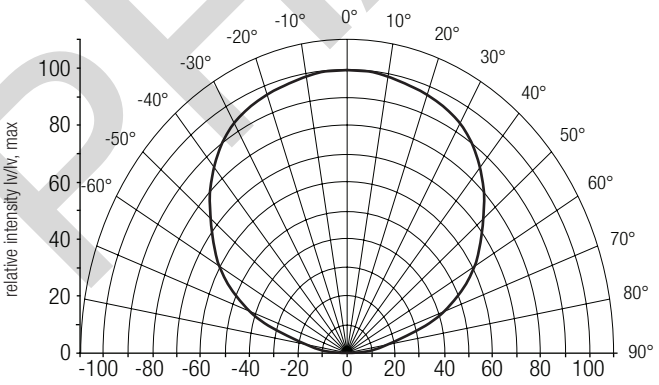






The diagrams are based on statistic values.
The real values can be different.

Light distribution



For further information see Design-in Guide, 3D data and photometric data on www.tridonic.com or on request.

Optical characteristics TALEX(module STARK QLE

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

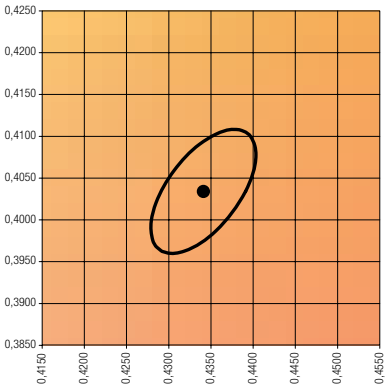
The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 7.
To ensure an ideal mixture of colours and a homogenious light distribution a suitable optic (e. g. PMMA diffuser) and a sufficient spacing between module and optic (typ. 6 cm) should be used.

Coordinates and tolerances according to CIE 1931

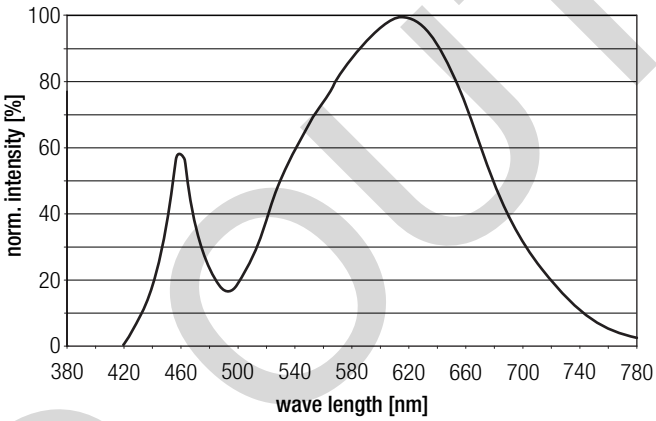
The specified colour coordinates are central measured by a current impulse with typical values of module and a duration of 100 ms.
The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

3,000 K

	x0	y0
Centre	0,4344	0,4032

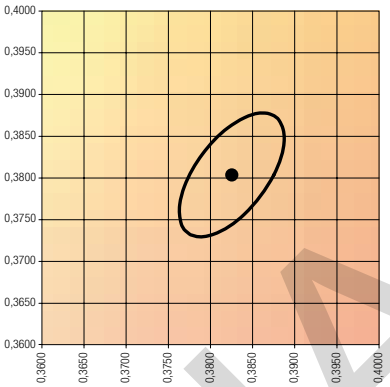


MacAdam Ellipse: 3SDCM



4,000 K

	x0	y0
Mittelpunkt	0,3828	0,3803



MacAdam Ellipse: 3SDCM