RoHS

TALEXmodule STARK CLE 360 CLASSIC EM

STARK CLE

Product description

- Ideal for ceiling-mounted and wallmounted luminaires
- Based on annular and compact fluorescent lamps
- Efficiency of the module up to 127 lm/W
- SO version is compatible with SWITCH Sensor HF 5BP
- Integrated separate emergency LEDs controlled by EM powerLED
- High colour rendering index CRI > 80
- Small colour tolerance MacAdam 3①
- Small luminous flux tolerances
- Colour temperatures 3,000 and 4,000 K
- Self-cooling (no additional heat sink required)
- Push terminals for quick and simple wiring
- Simple installation (e.g. screws)
- Long lifetime: 50,000 hours
- 5-year guarantee

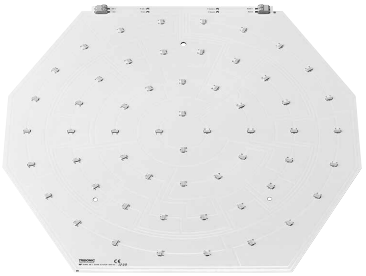
Technical data

Beam characteristic	120°
Ambient temperature ta	-30 ... +35 °C
Typ. tp point	65 °C
Risk group (EN 62471:2008)	0
Type of protection	IP00

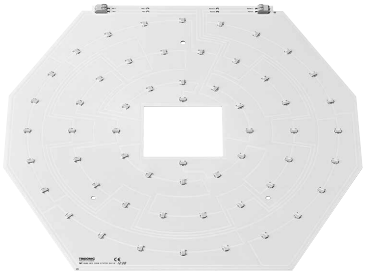
→

Standards, page 5

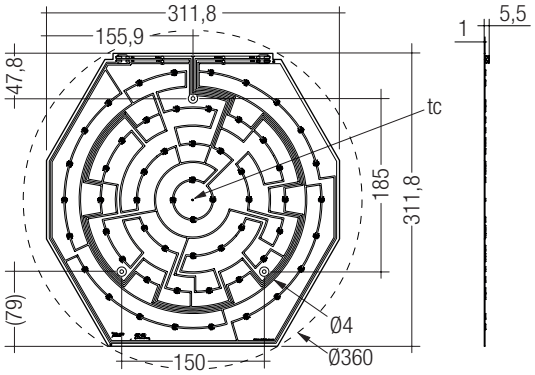
For colour temperatures and tolerances, page 7



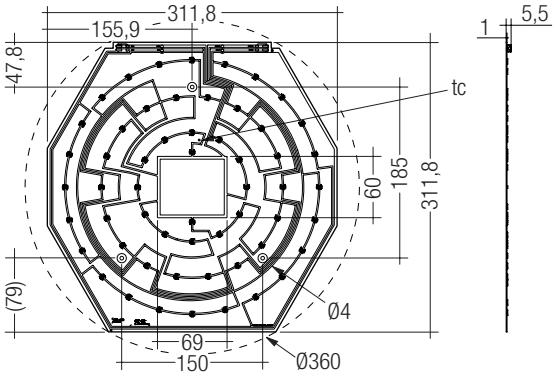
STARK-CLE-360-EM



STARK-CLE-360-EM-SO



STARK-CLE-360-EM



STARK-CLE-360-EM-SO

Ordering data

Type	Article number	Colour temperature	Packaging, carton	Weight per pc.
STARK-CLE-360-4000-830-CLA-EM	**28000114**	3,000 K	160 pc(s).	0.160 kg
STARK-CLE-360-4000-840-CLA-EM	**28000115**	4,000 K	160 pc(s).	0.160 kg
STARK-CLE-360-4000-830-CLA-EM-SO	**28000116**	3,000 K	160 pc(s).	0.153 kg
STARK-CLE-360-4000-840-CLA-EM-SO	**28000117**	4,000 K	160 pc(s).	0.153 kg

Specific technical data

Type[5]	Photo-metric code	Typ. luminous flux at tp 25 °C[2]	Typ. luminous flux at tp 65 °C[2]	Typ. forward current[2] [3] [4]	Typ. forward voltage	Typ. power consumption[2]	Luminous efficacy module at tp 25 °C	Luminous efficacy module at tp 65 °C	Luminous efficacy system at tp 65 °C	Colour rendering index CRI	Energy classification
Operating mode HE at 700 mA											
STARK-CLE-360-4000-830-CLA EM	830/3x9	2,600 lm	2,500 lm	700 mA	31.0 V	21.7 W	120 lm/W	115 lm/W	104 lm/W	> 80	A+
STARK-CLE-360-4000-840-CLA EM	840/3x9	2,750 lm	2,650 lm	700 mA	31.0 V	21.7 W	127 lm/W	122 lm/W	110 lm/W	> 80	A++
STARK-CLE-360-4000-830-CLA EM-SO	830/3x9	2,600 lm	2,500 lm	700 mA	31.0 V	21.7 W	120 lm/W	115 lm/W	104 lm/W	> 80	A+
STARK-CLE-360-4000-840-CLA EM-SO	840/3x9	2,750 lm	2,650 lm	700 mA	31.0 V	21.7 W	127 lm/W	122 lm/W	110 lm/W	> 80	A++
Operating mode HO at 1,050 mA											
STARK-CLE-360-4000-830-CLA EM	830/3x9	3,700 lm	3,550 lm	1,050 mA	32.5 V	34.1 W	110 lm/W	106 lm/W	95 lm/W	> 80	A+
STARK-CLE-360-4000-840-CLA EM	840/3x9	3,900 lm	3,750 lm	1,050 mA	32.5 V	34.1 W	114 lm/W	110 lm/W	99 lm/W	> 80	A+
STARK-CLE-360-4000-830-CLA EM-SO	830/3x9	3,700 lm	3,550 lm	1,050 mA	32.5 V	34.1 W	110 lm/W	106 lm/W	95 lm/W	> 80	A+
STARK-CLE-360-4000-840-CLA EM-SO	840/3x9	3,900 lm	3,750 lm	1,050 mA	32.5 V	34.1 W	114 lm/W	110 lm/W	99 lm/W	> 80	A+
Emergency mode at 600 mA (EM powerLED 2 W)											
STARK-CLE-360-4000-830-CLA EM	830/3x9	240 lm	235 lm	600 mA	3.1 V	–	–	–	–	–	A++
STARK-CLE-360-4000-840-CLA EM	840/3x9	250 lm	240 lm	600 mA	3.1 V	–	–	–	–	–	A++
STARK-CLE-360-4000-830-CLA EM-SO	830/3x9	240 lm	235 lm	600 mA	3.1 V	–	–	–	–	–	A++
STARK-CLE-360-4000-840-CLA EM-SO	840/3x9	250 lm	240 lm	600 mA	3.1 V	–	–	–	–	–	A++
Emergency mode at 1,000 mA (EM powerLED 4 W)											
STARK-CLE-360-4000-830-CLA EM	830/3x9	370 lm	355 lm	1,000 mA	3.2 V	–	–	–	–	–	A+
STARK-CLE-360-4000-840-CLA EM	840/3x9	385 lm	365 lm	1,000 mA	3.2 V	–	–	–	–	–	A+
STARK-CLE-360-4000-830-CLA EM-SO	830/3x9	370 lm	355 lm	1,000 mA	3.2 V	–	–	–	–	–	A+
STARK-CLE-360-4000-840-CLA EM-SO	840/3x9	385 lm	365 lm	1,000 mA	3.2 V	–	–	–	–	–	A+

[1] Central measurement over the whole module.

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

[3] Max. permissible repetitive peak current: 1,200 mA

[4] Max. permissible surge current: 2.5 A, duration max. 10 µs.

[5] HE ... high efficiency, Ho ... high output.

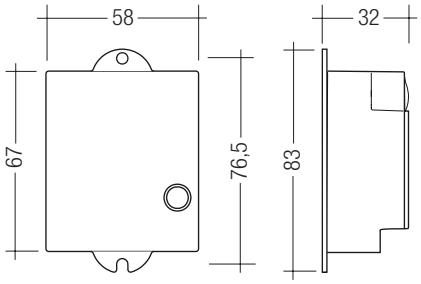
ACCES-SORIES

SWITCH Sensor HF 5BP

Automatic switching based on motion and light level

Product description

- Motion detector for luminaire installation
- Motion detection through glass and thin materials (except metal)
- For automatic on/off switching of electronic ballasts with corridor-FUNCTION
- “Bright-Out” function: luminaire is not switched on if there is adequate brightness
- Delay time, detection range and light value for the “Bright-Out” function can be set via 3 potentiometers
- Max. installation height 5 m
- Infinitely variable range (0.5 – 5.0 m)



Technical data

Rated supply voltage	230 – 240 V
Mains frequency	50 Hz
Power	< 0.5 W
Ambient temperature ta	-20 ... +75 °C
Storage temperature ts	-20 ... +75 °C
Humidity	min. 5 % ... max. 85 % at 30 °C
Type of protection	IP20
Casing material	PC, halogen-free
Casing colour	RAL 9016

Ordering data

Type	Article number	Packaging, carton	Weight per pcs.
SWITCH Sensor HF 5BP	**28000086**	4 pc(s).	0,079 kg

Specific technical data

Type	Dimensions LxWxH	Detection			Output, relay (L‘)	
		Detection angle	Transmission power	Frequency	L‘ (switched line)	Switching output (at 240 V AC max.)①
SWITCH Sensor HF 5BP	83x58x32 mm	160°	1 mW	5.8 GHz	230 – 240 V	1,000 W / 4 A (ohmic load)

① Inductive: 500 VA, cos phi > 0.5; capacitive: max. 2 ECG (à 54 W, max. 50 µF); inrush current: max. 160 A / 200 µs; up to 100.000 switching cycles.

LED control gear matrix – TALEXmodule STARK CLE CLASSIC

	IN-BUILT LCI					
Type	LCAI 055/1400 O010®		LCI 35W 700mA TEC C		LCI 050/1050 R010	
Ord. No.	24166471		87500196		86459216	
Voltage on the module (typ.)	32.5 V		31 V		32.5 V	
SELV	Yes		Yes		Yes	
	assignable LED control gear					
Type	Min.	Max.	Min.	Max.	Min.	Max.
STARK-CLE-360-4000	1	1	1	1	1	1

® Operated at 1,050 mA.

LED control gear matrix – TALEXmodule STARK CLE CLASSIC

	REMOTE LCI									
Type	LCAI 030/0700 A120		LCAI 050/1050 N020		LCI 030/0700 E020		LCI 050/1050 T020		LCI 035W 700mA TEC SR	
Ord. No.	86458900		24166469		24166314		86459218		87500197	
Voltage on the module (typ.)	31 V		32.5 V		31 V		32.5 V		31 V	
SELV	Yes		Yes		Yes		Yes		Yes	
	assignable LED control gear									
Type	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
STARK-CLE-360-4000	1	1	1	1	1	1	1	1	1	1

LED control gear matrix – TALEXmodule STARK CLE CLASSIC with EM powerLED 1 W

	BASIC				SELFTEST				PRO			
Type	EM powerLED 4 W BASIC CLIP-FIX		EM powerLED 4 W BASIC SCREW-FIX		EM powerLED 4 W ST CLIP-FIX		EM powerLED 4 W ST SCREW-FIX		EM powerLED 4 W PRO EZ-3 CLIP-FIX		EM powerLED 4 W PRO EZ-3 SCREW-FIX	
Ord. No.	89800121		89800122		89800123		89800124		89800125		89800126	
	assignable LED control gear											
Type	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
STARK-CLE-360-4000	1	1	1	1	1	1	1	1	1	1	1	1

LED control gear matrix – TALEXmodule STARK CLE CLASSIC with EM powerLED 2 W

	BASIC				SELFTEST				PRO			
Type	EM powerLED 2 W BASIC CLIP-FIX		EM powerLED 2 W BASIC SCREW-FIX		EM powerLED 2 W ST CLIP-FIX		EM powerLED 2 W ST SCREW-FIX		EM powerLED 2 W PRO EZ-3 CLIP-FIX		EM powerLED 2 W PRO EZ-3 SCREW-FIX	
Ord. No.	89899866		89899859		89899868		89899861		89800032		89800031	
	assignable LED control gear											
Type	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
STARK-CLE-360-4000	1	1	1	1	1	1	1	1	1	1	1	1

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

Photometric code

Key for photometric code, e. g. 830 / 349

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. 6,000h)	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 CLE will be greatly reduced or the TALEXmodule STARK CLE may be destroyed.

tp 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 CLE a tp temperature of 65 °C has to be complied in order to achieve an optimum between 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 CLE (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 3 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-docs.asp

Heat sink values

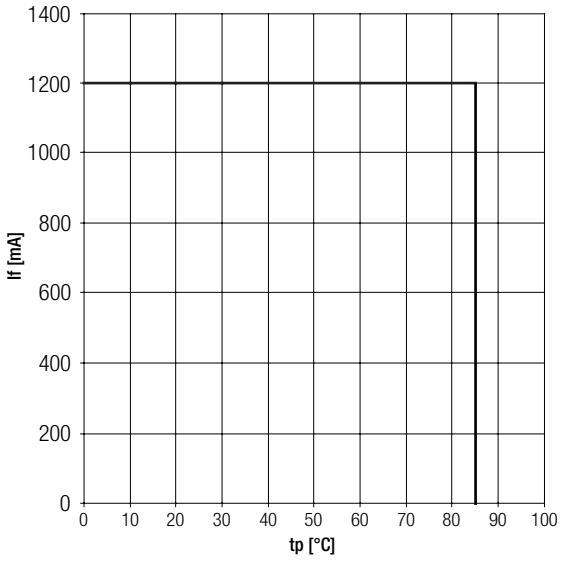
TALEXmodule STARK-CLE-360

ta	tp	Forward current	$R_{th,\ hs\text{-}a}$	Cooling area
35 °C	65 °C	700 mA		self-cooling
35 °C	65 °C	1,050 mA		self-cooling
45 °C	65 °C	700 mA		self-cooling
45 °C	65 °C	1,050 mA		–

Thermal behaviour

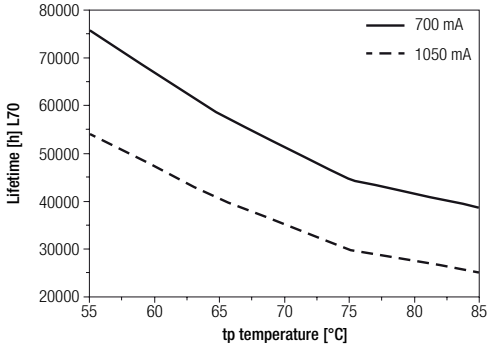
storage temperature	-40 ... +85 °C
operating temperature ta	-30 ... +35 °C
tp (at typ. current)	65 °C
tc max. (at typ. current)	85 °C
max. humidity*	0 ... 80 %

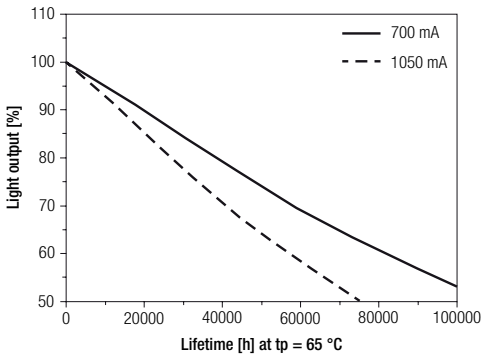
* not condensating



Lumen maintenance

tp temperature in °C	forward current in mA	luminous flux in %	operating time in h
65	700	80	35,000
		70	55,000
		50	> 100,000
	1,050	80	25,000
		70	40,000
		50	75,000





Electrical supply/choice of LED control gear

TALEXmodule STARK CLE 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 CLE 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:

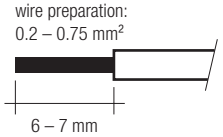
- Short-circuit protection
- Overload protection
- Overtemperature protection

TALEXmodule STARK CLE 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 CLE.

Wiring type and cross section

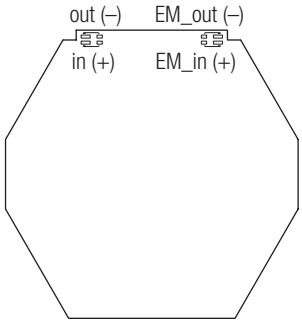
The wiring can be solid cable with a cross section of 0.2 to 0.75 mm². For the push-wire connection you have to strip the insulation (6–7 mm).
Loosen wire through twisting and pulling.



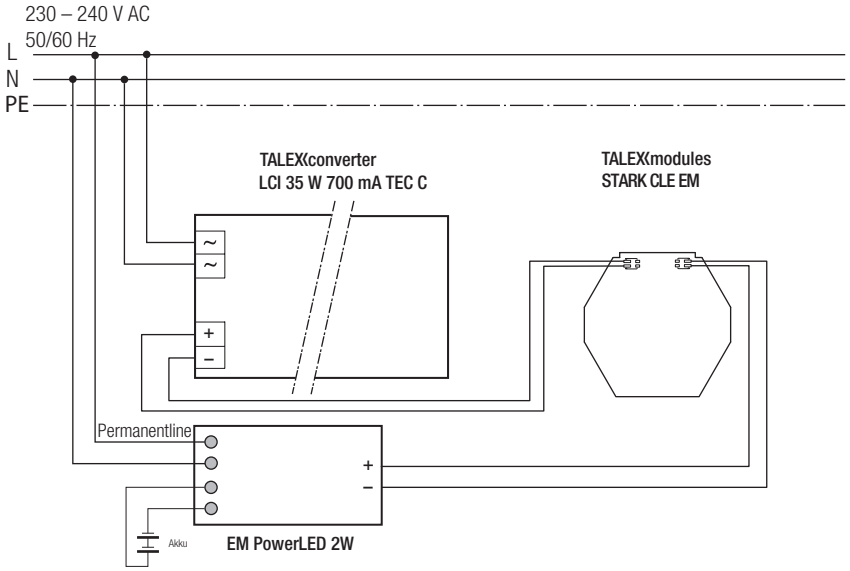
Release of the wiring

Press down the “push button” and remove the cable from front.

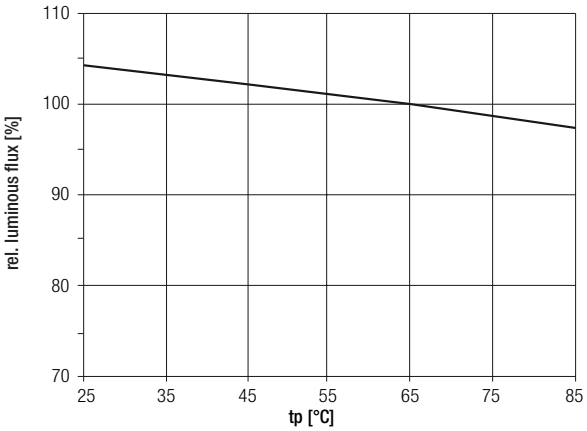
Wiring



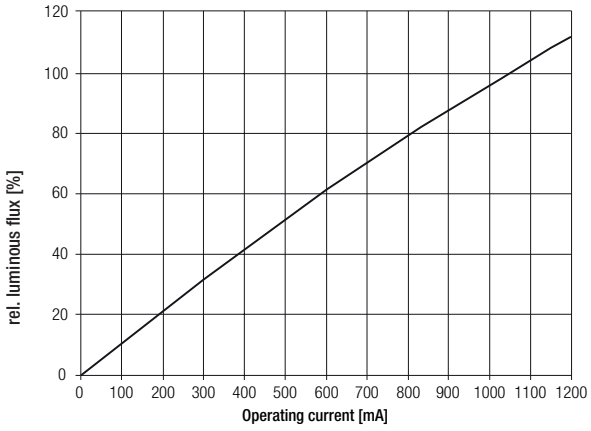
Wiring examples



Relative luminous flux



Relative luminous flux vs. operating current

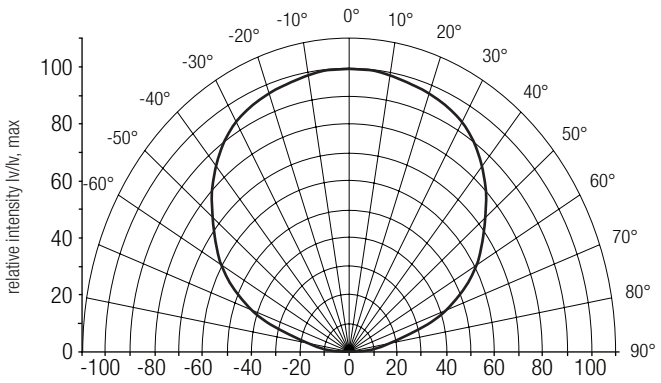


The diagrams based on statistic values.
The real values can be different.

Optical characteristics TALEX(module STARK CLE

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

Light distribution



The colour temperature is measured central 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. 5 cm) should be used.

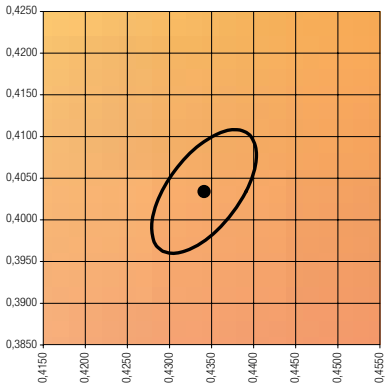
For further information see Design-in Guide, 3D data and photometric data on www.tridonic.com or on request.

Coordinates and tolerances according to CIE 1931

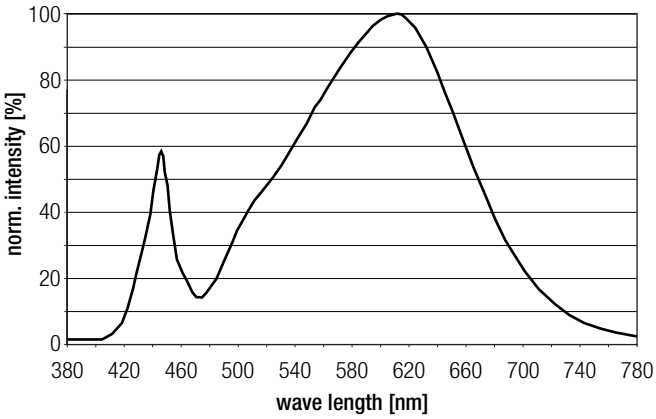
The specified colour coordinates are measured central by a current impulse with typical values of module and a duration of 100 ms.
The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

3,000 K

	x0	y0
Centre	0.4344	0.4032

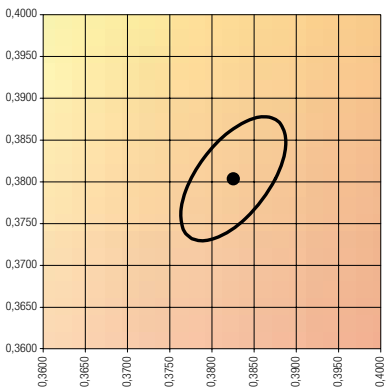


—— MacAdam ellipse: 3SDCM



4,000 K

	x0	y0
Centre	0.3828	0.3803



—— MacAdam ellipse: 3SDCM