Module SLA ready2apply SNC
Modules SLA ESSENCE

Product description

- LED replacement for MR 16 halogen spotlights
- 10 W LED Equivalent to 50 W MR16 halogen
- Semi-finished spot with low height (55 mm)
- Integrated heatsink; Integrated optics
- Eye-catching reflector lens optic which mirrors halogen facettes
- Higher Lumen Output than with traditional MR16 GU10 230V lamp
- 10 W, 2,700 K, 600 lm, CRI90
- MacAdam 3
- Beam Angle: spot degree (21°) or downlight (38°)
- Lifetime: 30,000 h
- 3-year guarantee

→

Standards, page 3

Colour temperatures and tolerances, page 5

TRIDONIC

Module SLA ready2apply SNC

Modules SLA ESSENCE

Technical data

Beam characteristic	21° / 38°
Ambient temperature range of LED module	-25 … +50 °C
tp rated of spotlight	60 °C (220 mA) / 65 °C (250 mA)
tc of spotlight	85 °C
Max. DC forward current	250 mA
Max. permissible LF current ripple	400 mA
Max. permissible peak current	800 mA / max. 10 ms
Insulation test voltage	0.5 kV
Risk group (EN 62471:2008) of LED module	1
ESD classification of LED module	severity level 4
Type of protection of LED module	IP20
Dimensions of LED module Ø x H	ø50 x 56 mm
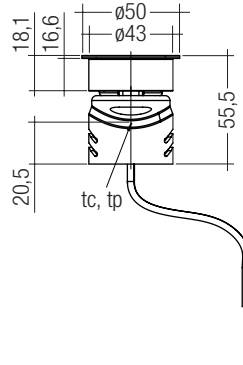
Ordering data

Type	Article number	Colour temperature	Packaging	Weight per pc.
SLA G1 50mm 600lm 927 38° SNC	**28001227**	2,700 K	10 pc(s).	0.13 kg
SLA G1 50mm 600lm 927 21° SNC	**28001228**	2,700 K	10 pc(s).	0.13 kg

Specific technical data

Type	Forward current	tp rated	Luminous flux at tp = 65 °C[1]	Power consumption at tp = 65 °C[1]	Min. forward voltage at tp rated[1]	Max. forward voltage at tp = 25 °C[1]	Efficacy at tp = 65 °C	Colour rendering index CRI	Energy classification
SLA G1 50mm 600lm 927 xx° SNC	220 mA	60 °C	610 lm	8.1 W	32.7 V	38.7 V	75 lm/W	90	A
	250 mA	65 °C	690 lm	9.5 W	33.2 V	39.3 V	73 lm/W	90	A

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

1. Standards

EN 62031
EN 62471
EN 61547
IEC 61000-4-2

1.1 Photometric code

Key for photometric code, e. g. 930 / 349

1st digit	2nd + 3rd digit	4th digit	5th digit	6th digit	
Code CRI	Colour tempera-ture in Kelvin x 100	McAdam initial	McAdam after 25% of the life-time (max.6000h)	Luminous flux after 25% of the life-time (max.6000h)	
				Code	Luminous flux
7 70 – 79				7	≥ 70 %
8 80 – 89				8	≥ 80 %
9 ≥90				9	≥ 90 %

2. Thermal details

2.1 tp point, ambient temperature and life-time

The temperature at tp reference point is crucial for the light output and life-time of a LED product.
The operating temperature of a LED product is crucial for the light output, the product life-time but also for the product safety.
The thermal limits can be checked at the tp/tc point.
On page 4 the lumen maintenance is shown in relation to the temperature at tp.
tp,rated shows the temperature at which the rated values are reached.
tc shows the thermal limit for safety reason und must never be exceeded under normal conditions.
For the interchangeablity with other Zhaga products, $t_{r,max}$ is specified directly at the thermal interface to the heatsink of the luminaire.

For SLA a tp temperature of max. 85 °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.

To check the tc / tp temperature, the temperature sensor has to be mounted on the marked position as stated in the drawing.
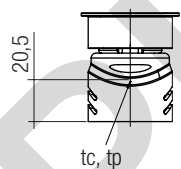
2.2 Storage and humidity

storage temperature	-30 ... +80 °C

Operation only in non condensing environment.
Humidity during processing of the module should be between 30 to 70 %.

2.4 Thermal design and heat sink

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

3. Installation / wiring

3.1 Electrical supply/choice of LED Driver

SLA modules 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 Driver which complies with the relevant standards. The use of LED Drivers from Tridonic in combination with SLA modules guarantees the necessary protection for safe and reliable operation.

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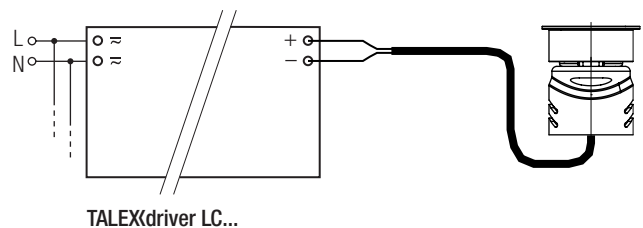• Overload protection
• Overtemperature protection

⚠ SLA modules must be supplied by a constant current LED Driver. Operation with a constant voltage LED Driver will lead to an irreversible damage of the module.

Wrong polarity can damage the SLA.

3.2 Wiring

Wiring example

TALEXXdriver LC...
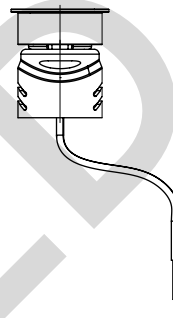
Main bundle

LED Driver	SLA ready2apply
LCAI 15W 150mA-400mA ECO slim	X

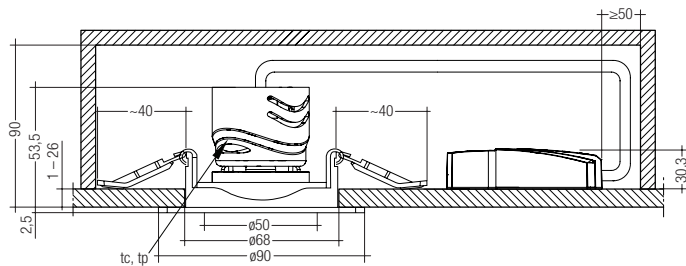Max. permitted operating current for SLA is 250 mA!

3.3 Wiring type and cross section

Cable type: VDE HO3VVH2-F
Cable length: 460 mm
Stripping length: 8 mm, not pre-tinned

3.4 Mounting instruction

⚠ For mounting the SLAready2apply products it is necessary to have a assemble ring which is not provided.

⚠ 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.

3.5 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.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

4. Life-time

4.1 Life-time, lumen maintenance and failure rate

The light output of an LED Module decreases over the life-time, 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 life-time 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.
n 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.

4.2 Lumen maintenance

Life-time declarations are informative and represent no warranty claim.

Forward current	tp temperature	L90B10	L80B10	L90B50	L80B50
220 mA	65 °C	21,000 h	>30,000 h	>30,000 h	>30,000 h
	75 °C	18,000 h	>30,000 h	27,000 h	>30,000 h
250 mA	65 °C	20,000 h	>30,000 h	30,000 h	>30,000 h
	75 °C	17,000 h	>30,000 h	26,000 h	>30,000 h

6. Photometric charcteristics

### 6.1 Coordinates and tolerances according to CIE 1931

The specified colour coordinates are measured integral after a settling time of 100 ms. The current impuls is 220 mA.

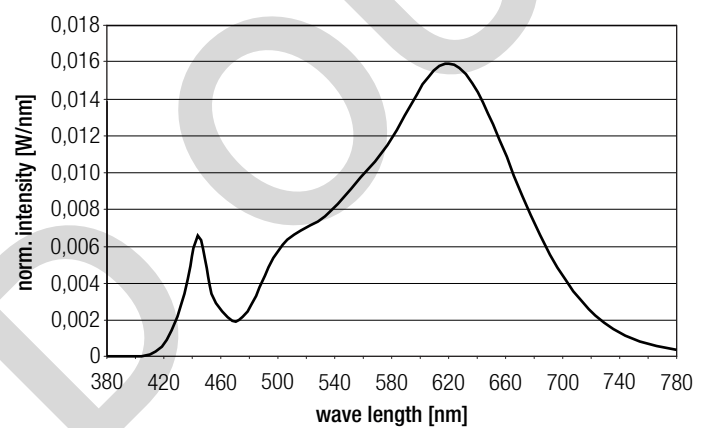| Module type	Current impulse
TALEXmodule SLA 10mm 1200lm 927 EXC	350 mA

The ambient temperature of the measurement is ta = 25 °C.
The measurement tolerance of the colour coordinates are ± 0.01.

2,700 K

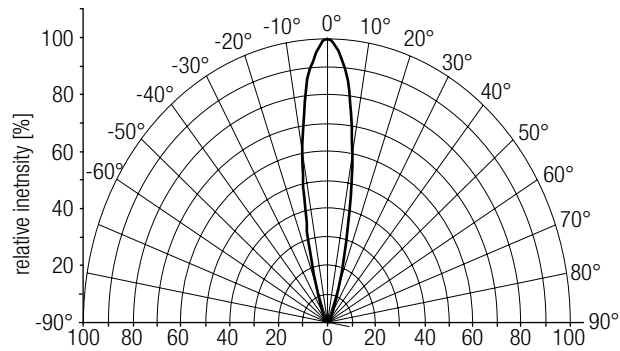|	x0	y0
Centre	0.4609	0.4108
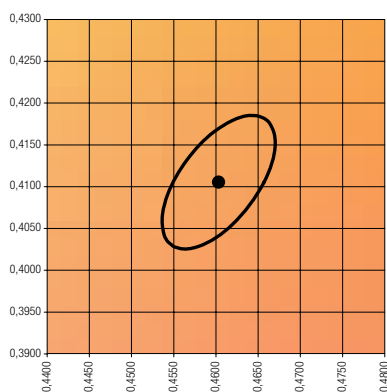
MacAdam ellipse: 3SDCM

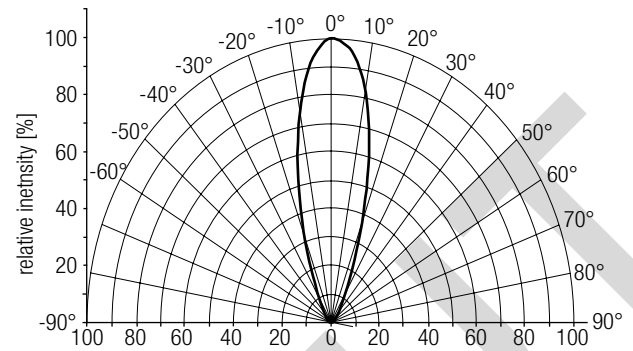## 6.2 Light distribution

Light distribution for 21°

Light distribution for 38°

6.3 Relative luminous flux vs. tp temperature