



Engine SLA AC G2 50mm SNC

Engine SLA ESSENCE

Product description

- Fits in most existing MR16 / GU10 halogen luminaires
- 10 W LED Equivalent to 50 W MR16 halogen with heigher lumen output
- Perfect solution for MR16 / GU10 replacement project
- Module with integrated electronic, heatsink and optics
- Compatible with leading and trailing edge phase cut dimmers
- Dimming range 0.1 to 100 % (depends on dimmer)
- Eye-catching lens optic with mirrors halogen facettes
- System luminous efficacy up to 85 lm/W
- Higher CRI, typical Ra = 92
- Colour temperatures 2,700 K, 3,000 K and 4,000 K
- High colour consistency (MacAdam 3)
- Beam Angle: spot degree (24°) or downlight (36°)
- Long life-time: L70B50 >50,000 h at tp = 75 °C
- 5-year guarantee



Standards, page 3

Colour temperatures and tolerances, page 3



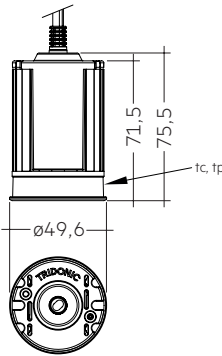


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Technical data

Rated supply voltage	220 – 240 V
Input voltage, AC	198 – 264 V
Mains frequency	50 / 60 Hz
Input current (at 230 V, 50 Hz)	45 mA
λ (at 230 V, 50 Hz)	$\geq 0,9C$
THD	< 23 %
Flicker	< 20 %
Output LF current ripple (< 120 Hz)	< 20 %
Ambient temperature t_a	-20 ... +40 °C
t_p rated	75 °C
t_c	90 °C
ESD classification	severity level 2
Risk group (IEC 62471:2008)	RG1
Classification acc. to IEC 62031	Built-in
Type of protection	IP20



t_c , t_p ... red marked

Ordering data

Type	Article number	Colour temperature	Packaging	Weight per pc.
SLA AC pc G2 50mm 700lm 927 24D SNC	28001934	2,700 K	80 pc(s).	0.172 kg
SLA AC pc G2 50mm 700lm 927 36D SNC	28001935	2,700 K	80 pc(s).	0.172 kg
SLA AC pc G2 50mm 700lm 930 24D SNC	28001936	3,000 K	80 pc(s).	0.172 kg
SLA AC pc G2 50mm 700lm 930 36D SNC	28001937	3,000 K	80 pc(s).	0.172 kg
SLA AC pc G2 50mm 700lm 940 24D SNC	28001938	4,000 K	80 pc(s).	0.172 kg
SLA AC pc G2 50mm 700lm 940 36D SNC	28001939	4,000 K	80 pc(s).	0.172 kg

Specific technical data

Type	Photometric code	Typ. luminous flux at $t_p = 75\text{ °C}^{\text{①}}$	Typ. intensity at $t_p = 75\text{ °C}^{\text{①}}$	Beam characteristics	Input power at $t_p = 75\text{ °C}^{\text{①}}$	Efficacy of the system at $t_p = 75\text{ °C}$	Colour rendering index CRI
SLA AC pc G2 50mm 700lm 927 24D SNC	927/359	710 lm	2.630 cd	24°	9,5 W	75 lm/W	> 90
SLA AC pc G2 50mm 700lm 927 36D SNC	927/359	710 lm	1.420 cd	36°	9,5 W	75 lm/W	> 90
SLA AC pc G2 50mm 700lm 930 24D SNC	930/359	760 lm	2.890 cd	24°	9,5 W	80 lm/W	> 90
SLA AC pc G2 50mm 700lm 930 36D SNC	930/359	760 lm	1.520 cd	36°	9,5 W	80 lm/W	> 90
SLA AC pc G2 50mm 700lm 940 24D SNC	940/359	810 lm	3.070 cd	24°	9,5 W	85 lm/W	> 90
SLA AC pc G2 50mm 700lm 940 36D SNC	940/359	810 lm	1.610 cd	36°	9,5 W	85 lm/W	> 90

^① Tolerance range for optical and electrical data: $\pm 10\%$.

1. Standards

EN 62031
EN 62471
EN 61547
EN 55015
EN 60598-1
EN 60598-2-2
EN 61000-3-2
EN 61000-3-3

1.1 Photometric code

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

1 st digit	2 nd + 3 rd digit	4 th digit	5 th digit	6 th digit		
Code	Colour temperature 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)		
7				70 – 79	Code	Luminous flux
8				80 – 89	7	≥ 70 %
9				≥90	8	≥ 80 %
				9	≥ 90 %	

1.2 Energy classification

Type	Energy classification
SLA AC G2 50mm SNC	A+

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.

For SLA a tp temperature of 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.

2.2 Storage and humidity

storage temperature	-30...+80 °C
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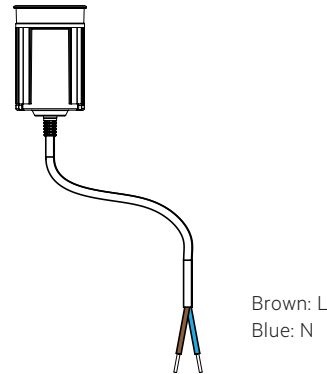
Operation only in non condensing environment.
Humidity during processing of the module should be < 85 %.

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

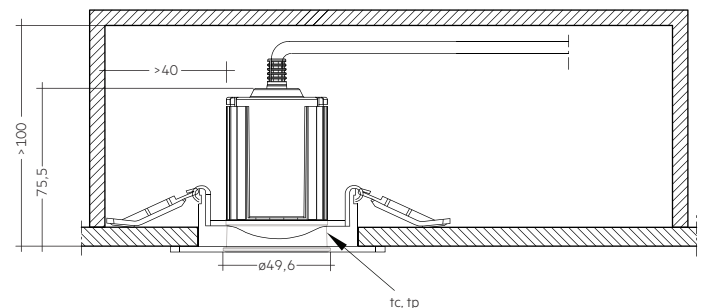
3.1 wiring



3.2 Wiring type and cross section

Cable type: VDE HO3VVH2-F 0.5 mm²
Cable length: 460 mm
Stripping length: 8 mm, pre-tinned

3.3 Mounting instruction



For mounting the 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.

3.4 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 guidelines 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 maintenance 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 initial luminous flux, respectively 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.

4.2 Lumen maintenance

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

tp temperature	L90B50	L90B10	L80B50	L80B10	L70B50	L70B10
75 °C	14,000 h	9,000 h	31,000 h	25,000 h	51,000 h	42,000 h
90 °C	12,000 h	7,000 h	25,000 h	20,000 h	39,000 h	34,000 h

4.3 Switching capability

25,000 cycles

Tested according to IEC 62717 Cl 10.3.3
30 s on / 30 s off

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current
Installation Ø	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²	I _{max} time
SLA AC pc G2 50mm 700lm 9xx xxD SNC	120	160	200	240	60	80	100	120	2 A 100 µs

5.2 Isolation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V_{AC} (or 1.414 x 1500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

6. Photometric characteristics

6.1 Coordinates and tolerances according to CIE 1931

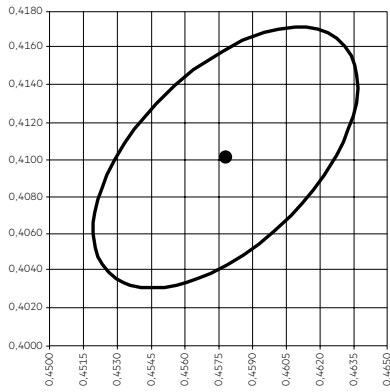
The specified colour coordinates are measured integral in thermal saturated stage at $t_p = 75\text{ °C}$.

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

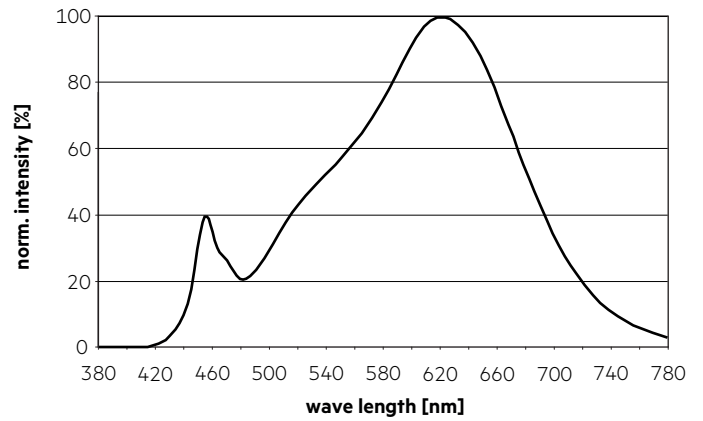
The measurement tolerance of the colour coordinates are ± 0.01 .

2,700 K

	x0	y0
Centre	0.4578	0.4101

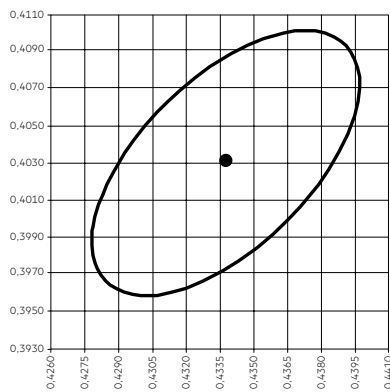


MacAdam ellipse: 3SDCM

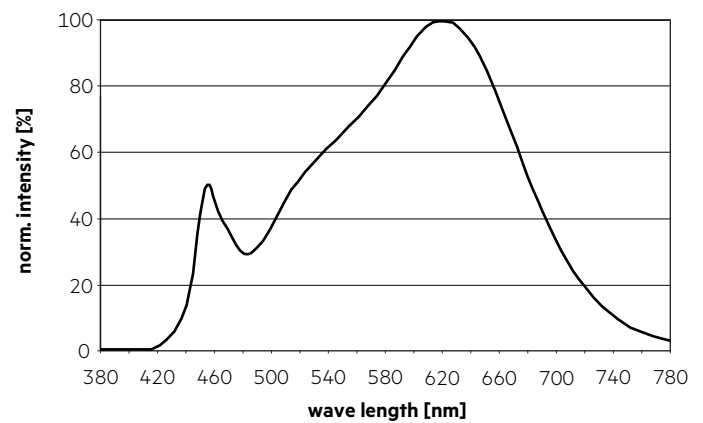


3,000 K

	x0	y0
Centre	0.4338	0.4030

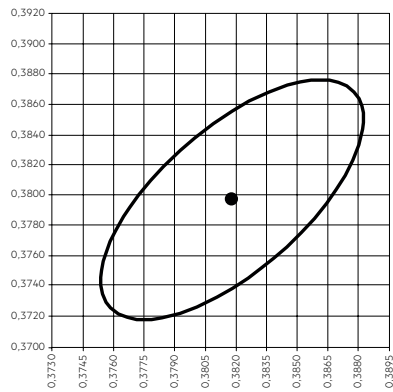


MacAdam ellipse: 3SDCM

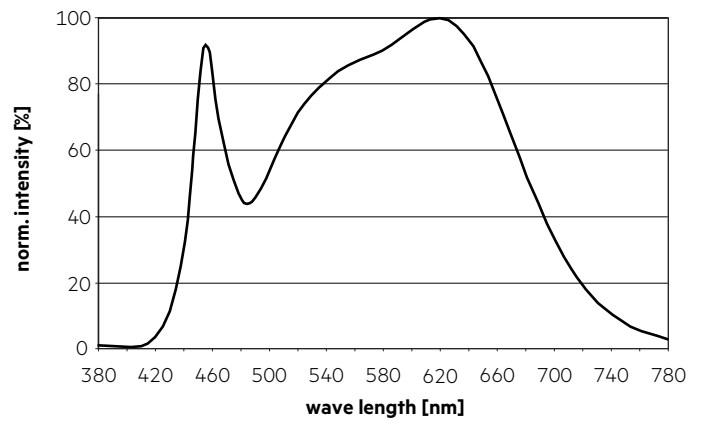


4,000 K

	x0	y0
Centre	0.3818	0.3797

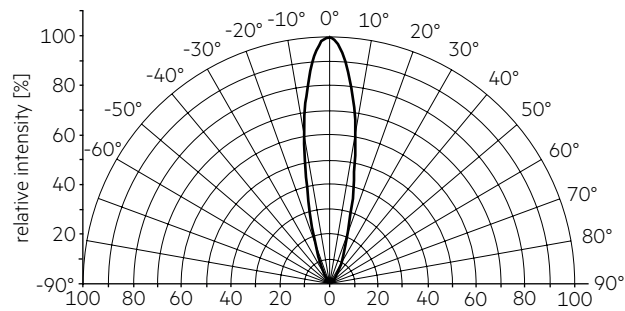


MacAdam ellipse: 3SDCM

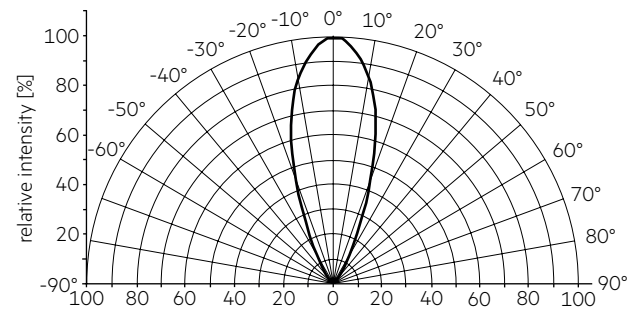


6.2 Light distribution

Light distribution for 24D



Light distribution for 36D



6.3 Relative luminous flux vs. tp temperature

