Lupus Multiple spot LED-module for linear applications
11.3W 1240lm

LUPUS

Product description

- Multiple spot module for linear aluminium fixtures
- High power LEDs for constant current
- Simple connection with 2-pin connector
- Easy mounting with thermally conductive adhesive
- Made for serial connection
- Wide range of secondary optics

Technical parameters

Electrical and optical [1]

CCT	Min. luminous flux [lm]				Typ. forward voltage [V]				Typ. power consumpt. [W]				Efficacy [lm/W]			
	350mA	500mA	700mA	1A	350mA	500mA	700mA	1A	350mA	500mA	700mA	1A	350mA	500mA	700mA	1A
2200K	432	596	800	1080	11.3	11.5	2.92	12.0	3.96	5.76	8.20	12.0	109	104	98	90
2700K	412	568	760	1024	10.8	11.0	11.2	11.5	3.80	5.52	7.84	11.5	108	103	97	89
3000K	412	568	760	1024	10.8	11.0	11.2	11.5	3.80	5.52	7.84	11.5	108	103	97	89
4000K	456	628	840	1132	10.8	11.0	11.2	11.5	3.80	5.52	7.84	11.5	120	114	107	99
5700K	496	688	920	1240	10.6	10.8	11.0	11.3	3.72	5.40	7.68	11.3	133	127	119	110

[1] Flux values are presented at junction temperature T_J = 85°C. T_J can be calculated, see section 'Junction Temperature'.

Photometric

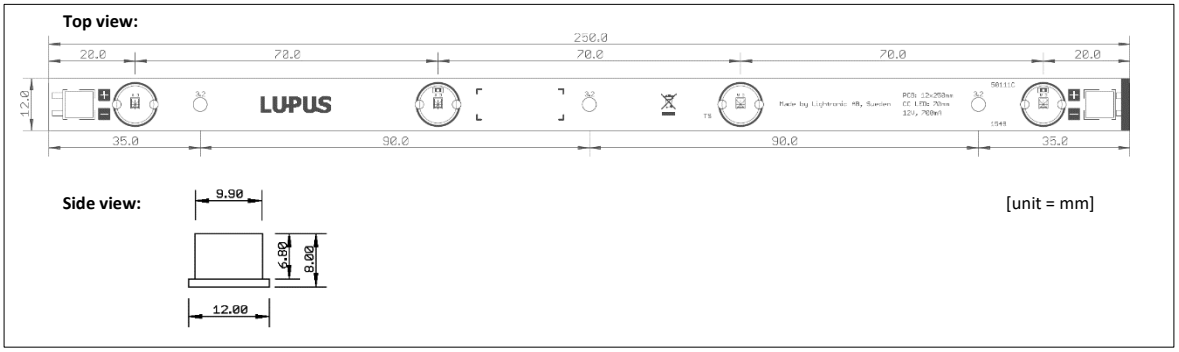
CCT	Colour consistency SDCM	Colour rendering index CRI	R9 value
2200K	3	> 80	> 50
2700K	3	> 90	> 50
3000K	3	> 90	> 50
4000K	3	> 90	> 50
5700K	3	> 90	> 50

Beam characteristics

Name	Digits in part # [2]	Angle [FWHM]	Type
No optics	No digits	120°	-
Real spot	N	18°	TIR Lens
Medium	M	24°	TIR Lens
Wide	W	31°	TIR Lens
Wide Wide	WW	36°	TIR Lens
Wide Wide Wide	WWW	45°	TIR Lens
Elliptic	E	19x48°	TIR Lens

[2] See chapter for Ordering data

Mechanical dimensions



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Handling

Electrical supply

The Lupus LED module must be connected to a constant current driver. Using constant voltage drivers will permanently damage the module. Lupus has no built-in polarity protection device. This means that reversed voltage will permanently damage the LEDs.

Lupus modules 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.

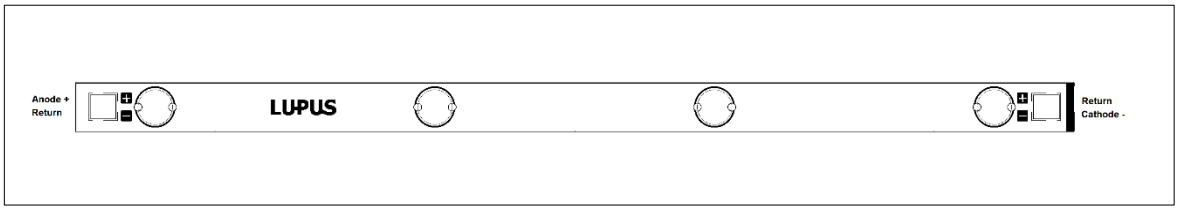
Several modules can be connected in series using linking cables. The last Lupus in a chain shall be fitted with a termination plug in the output plug.

Mounting

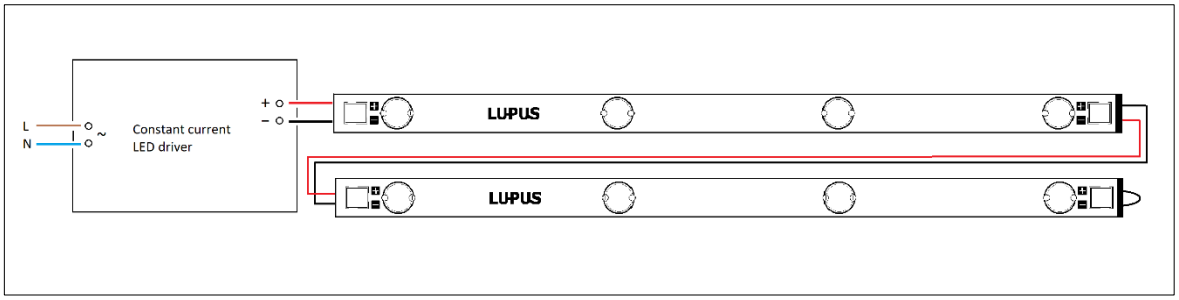
The back side of Lupus is equipped with thermally conductive tape around each LED . After the protective film of the tape has been removed the module can be attached to a flat heat-dissipating surface. A light force should be used when pressing evenly on the module to remove air bubbles between tape and substrate and to make the adhesives stick properly to the heatsink. The surface should be cleaned with isopropanol to remove any grease before adhesion. **Note! Adhesion on powder coated surfaces might be very weak. Always attach to a clean metal surface.**

Wiring

The LED driver should be connected using an input cable to the connector on the left side of the module. A termination plug should be inserted in the connector on the right on the last module of the chain.



Wiring example



Wiring types

Cables are available as accessories. This includes an input cable, different lengths of interconnect cables and a termination plug. A ‘quick connect’ board (part no EM-50137A) is also available. This makes it possible to use open end stripped wires to connect directly to a chain of Lupuses, instead of using the standard input cable. See https://lightronic.se/led-accessories/ for more information.

Removal and recycling

If Lupus is to be removed after it has been fitted with its adhesive tape there is always a risk of damaging the module, so be cautious. The removal is done by inserting the blade of a flat tool between its back side and the surface to which it is attached and slightly bending upwards. If the module survives the removal, a new tape can be attached, and the module can be re-used.

In order to recycle Lupus it should be discarded at a recycling station in the bin for electronics.

Technical data

LED type	LUXEON® Z ES
LED current, max	1000mA
Board temperature at TC point, max	80°C
Reverse voltage, max	Reversed voltage is not allowed
ESD sensitivity	>8kV (Class 3B HBM)
Thermal resistance $Rth_{J\text{-}A}$	10°C/W
PCB material	FR4 Tg130
Connector	1.5mm pitch WR-WTB max 1000mA

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Lifetime and thermal details

The lifetime of an LED module is defined by the time measured from when a certain number of LEDs is switched on and to the point when the percentage of its original lumen output has decreased to a certain level. It is most common to use L70B50 to represent the lifetime figure of an LED. The L value represents the remaining light level and the B value defines the quantity of the test objects that has failed. L70B50 means that 50% of the LEDs are below the 70% original light output.

Parameter	LED-current	Max temp at TC-point	Estimated lifetime
L70B50	1000mA	80°C when using optics	>60 000 hours
L70B50	1000mA	105°C without optics	>60 000 hours

To define the temperature of the module the power should be switched on long enough for the system to get a stable temperature, typically 60-90 minutes. Measurement can be done in two ways:

- Using a thermal logger with a thermocouple. The tip of the thermocouple should be glued to the TC point.
- Using a thermal imaging camera

By using a thermocouple; remove the secondary optics in order to measure the temperature at the TC point. The point is marked and located just below the LED. It is recommended to use a micro, AWG 40 or smaller, thermocouple in order to prevent light being absorbed by the sensor.

By using a thermal imaging camera; measurement should be done immediately after turning the LED off so that the emitting photons will not interfere with the sensor.

Junction temperature

The junction temperature T_J can be calculated by this formula:

$T_J = T_C + P \times 8$ where T_C is the temperature at the TC-point and P is the electrical power that is fed to the LED. P = Vf x If.

Energy efficiency class

CCT	Classification
2200K	F
2700K	F
3000K	F
4000K	E
5700K	E

Energy efficiency class is defined at nom. LED current 700mA. At other currents the energy efficiency class might be another.

Harmonizing standards

Standard	Description
IEC 62471	Photobiological safety of lamps and lamp systems
IEC 62778	Blue light hazards

Ordering data

Part number	CCT	Qty per carton
SM1-LUP2-22K8-xx	2200K	168 pcs
SM1-LUP2-27K9-xx	2700K	168 pcs
SM1-LUP2-30K9-xx	3000K	168 pcs
SM1-LUP2-40K9-xx	4000K	168 pcs
SM1-LUP2-57K9-xx	5700K	168 pcs

Accessories

A table with examples of accessories available for Lupus LED modules. More accessories can be found at https://lightronic.se/led-accessories/

Name	Part #	Specification	More information
Input cable	KAB-W-21-200	200 mm 2-pos, 1 connector, 1 open end, red-black	Lupus cables
Interconnect cable	KAB-W-22-xx	2-pos, connectors in each end, black-black, different lengths available	Lupus cables
Termination plug	KAB-W-20-END	Termination loop, black	Lupus cables
Constant current driver 30W	LD30C-PV2	250-700 mA CC, push-dim, 0-10V dim, 12/24V CV	Drivers

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