

OSLON® Black 4 PowerStar IR

ILH-1x04-xxxx-SC2x1-WIR200.

At the heart of each PowerStar are 4 IR OSLON® Black Series LEDs from OSRAM Opto Semiconductors, which are today's smallest infrared LEDs with more than one watt of optical power. The small package with an integrated lens allows superior, compact arrangements of very high power density. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management.



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APPLICATIONS

- » Surveillance systems
- » IR illumination for cameras
- » Machine vision
- » Night vision light
- » Driver assistance systems

TECHNICAL FEATURES

LED Family	OSLON® Black LED
Lifetime	Up to 100,000 hours lifetime to 70% of original brightness
Mounting	Mounting holes using M3 screws allows easy installation
Dimensions	(L x W x H) with 50 degree lens 20mm x 20mm x 4.2mm (L x W x H) with 90 degree lens 20mm x 20mm x 4.0mm (L x W x H) with 150 degree lens 20mm x 20mm x 3.1mm
Connection	Available with 200mm connecting wires
Secondary Optics	A secondary optic can be fitted. Suitable options on page 6 or visit our website for a full range
Heatsinks	Required over 700mA. Suitable options on page 6 or visit our website for a full range
Power Supply	16-120W dimming and non-dimming. Suitable options on page 7 or visit our website for a full range
Chain	Powerstars can be linked together to produce longer chains
Current Range	

PRODUCT OPTIONS

ILS Part Number	IR centroid wavelength	Radiant intensity IF = 1 A, tp = 10 ms	Forward Voltage	Radiance Angle	Relevant OSRAM LED Data
ILH-IO04-85NL-SC201-WIR200.*	850nm	2000mW/sr	6.8-8.4 V	±40° (80°)	SFH4715A
ILH-IO04-85SL-SC211-WIR200.	850nm	3600mW/sr	12.6-14 V	±40° (80°)	SFH4715AS
ILH-IO04-85NB-SC201-WIR200.	850nm	2320mW/sr	6.2-7.4V	±40° (80°)	SFH4715B
ILH-IO04-85SL-SC201-WIR200.*	850nm	3080mW/sr	11.6-14V	±40° (80°)	SFH4715S
ILH-IW04-85NL-SC201-WIR200.*	850nm	680mW/sr	6.8-8.4V	±75° (150°)	SFH4716A
ILH-IW04-85SL-SC221-WIR200.	850nm	1400mW/sr	12.6-14 V	±75° (150°)	SFH4716AS
ILH-IW04-85NB-SC201-WIR200.	850nm	860mW/sr	6.2-7.4V	±75° (150°)	SFH4716B
ILH-IW04-85SL-SC211-WIR200.*	850nm	1120mW/sr	11.6-13.6 V	±75° (150°)	SFH4716S
ILH-IN04-85SL-SC211-WIR200.	850nm	4600mW/sr	12.6-14 V	±25° (50°)	SFH4717AS
ILH-IN04-85NL-SC201-WIR200.	850nm	2920mW /sr	7-9.2 V	±20° (50°)	SFH4718A
ILH-IN04-85SL-SC221-WIR200.	850nm	5400mW/sr	10.6-12.8 V	±25° (50°)	SFH4718AS A01
ILH-IN04-94CS-SC201-WIR200.	940nm	4480mW/sr	9.8-11.8V	±30° (60°)	SFH4722CS A01
ILH-IO04-94CS-SC201-WIR200.	940nm	3680mW/sr	9.8-11.8V	±40° (80°)	SFH4725CS A01
ILH-IO04-94SL-SC201-WIR200.*	940nm	3040mW/sr	11.6-14.2 V	±40° (80°)	SFH4725S
ILH-IW04-94SL-SC211-WIR200.*	940nm	1300mW/sr	11.6-14.2 V	±75° (150°)	SFH4726AS
ILH-IW04-94CS-SC201-WIR200.	940nm	1200mW/sr	9.8-11.8V	±75° (150°)	SFH4726CS A01
ILH-IW04-94SL-SC201-WIR200.*	940nm	1300mW/sr	10.6-12.8 V	±75° (150°)	SFH4726S
ILH-IN04-94SL-SC211-WIR200.*	940nm	4600mW/sr	10-12.4 V	±25° (50°)	SFH4727AS A01
ILH-IN04-94CS-SC201-WIR200.	940nm	6000mW/sr	9.8-11.8 V	±25° (50°)	SFH4728CS A01

Due to the special conditions of the manufacturing processes of LEDs, the typical data of technical parameters can only reflect overall statistical figures, and do not necessarily correspond to the actual parameters of each single product, which could differ from the typical data.

§ Tolerance +/- 10%

* Product is NFND

MINIMUM AND MAXIMUM RATINGS

ILS Part Number	Operating Temperature at Tc-Point [°C]	Storage Temperature [°C]	Forward Current per Chip [mA]	Surge Current per chip [mA]*	Reverse Voltage [Vdc]
ILH-IO04-85NL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IO04-85SL-SC211-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO04-85NB-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IO04-85SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IW04-85NL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IW04-85SL-SC221-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW04-85NB-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IW04-85SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IN04-85SL-SC211-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN04-85NL-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IN04-85SL-SC221-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN04-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO04-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO04-94SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IW04-94SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW04-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW04-94SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IN04-94SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN04-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V

Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED module.

Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.

The temperature of the LED module must be measured at the Tc-Point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label.

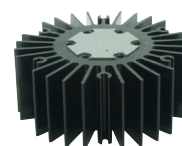
ACCESSORIES

Secondary Optics



LEDiL precision-engineered lenses and reflectors allow for rapid deployment of all types of light fixtures, including street lights, wall-wash, high-bay, sconces, emergency beacons, parking garage/low-bay, MR and AR downlights, and dock lights. Precision-engineered for maximum efficiency and durability, LEDiL lenses and reflectors are released alongside the latest products from our LED suppliers.

Heatsinks



ILS has a series of aluminium alloy heatsinks to be used with our standard range of PowerStars and PowerClusters. These heatsinks are supplied with fixing screws for the light engine and for fixing to a base plate. They also come with thermal interface material (TIM) attached to the top surface.

Suitable options on [page 6](#) or visit [our website](#) for a full range.

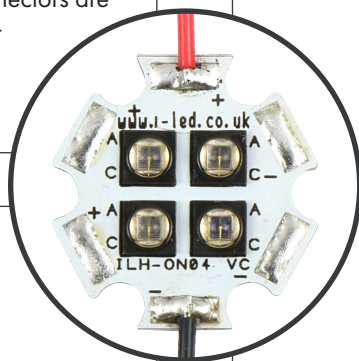
Power Supplies

ILS has a comprehensive range of standard power supplies. The table below shows the total number of ILS products each power supply can drive. Additional power supplies are being introduced so please call us or [check our website](#) for the latest offering. Suitable options on [page 7](#)



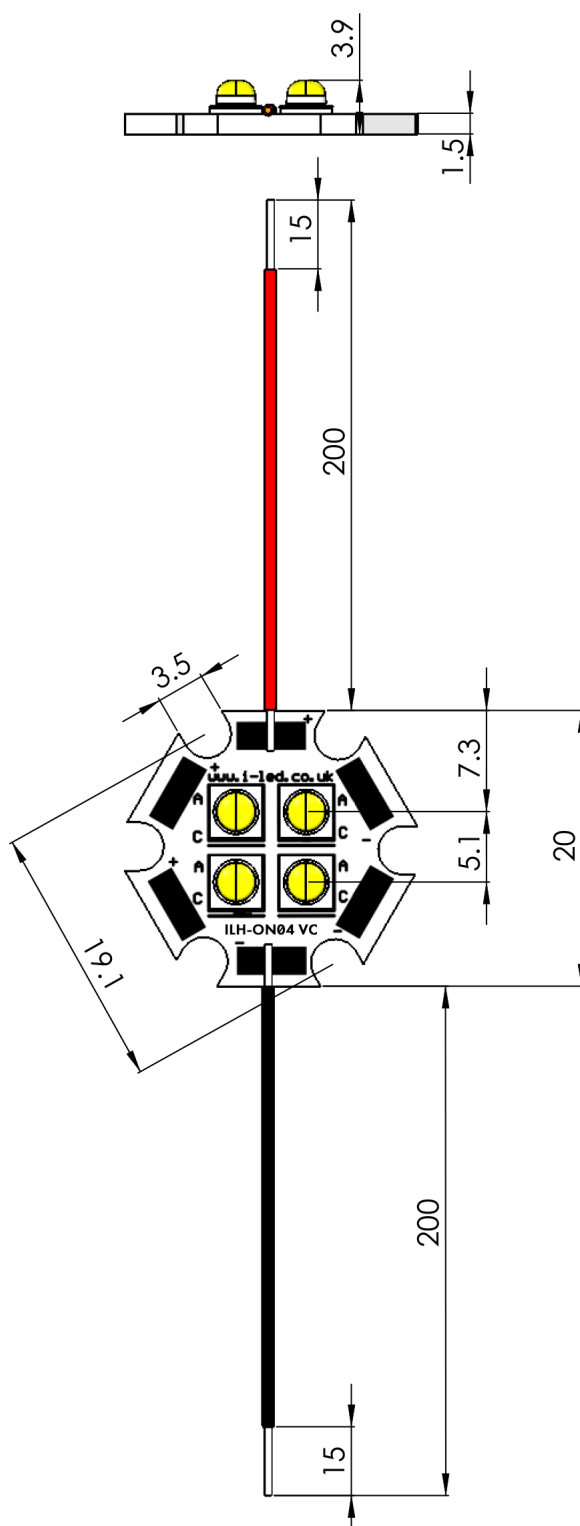
Thermal Interface Material (TIM)

ILS has produced a range of high-performance, cost effective thermal interface materials to perfectly match their standard products. The product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the heatsink. ILS offers TIM in three options – double sided adhesive, single sided adhesive and non adhesive. Suitable options on [page 7](#) or visit [our website](#) for a full range.



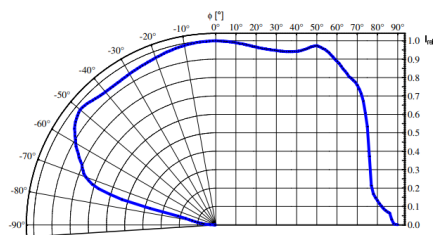
TECHNICAL DRAWINGS (MM)

PRODUCT DATASHEET » ILH-1x04-xxxx-SC2x1-WIR200.

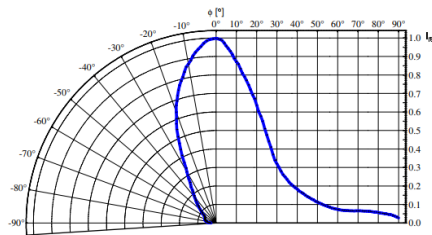


RADIATION OF SINGLE LED

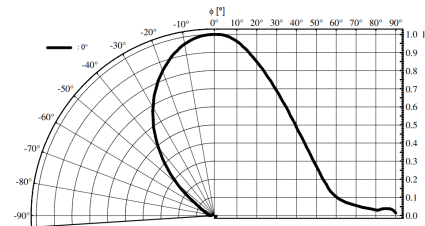
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SECONDARY OPTICS OPTIONS

ILS have a range of adaptor plates to complement their range of star and cluster products.

ILS Part Number: ILA-REF-ADP-STAR-01. RS No. 111-3733

Ordering Code	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
C12598_LENINA-M	M	35			PC	metal
CN14582_LENINA-S-DL	S	25	PC		PC	metal
CN14583_LENINA-M-DL	M	37	PC		PC	metal
CN14584_LENINA-W-DL	W	55	PC		PC	metal
CN14585_LENINA-XW-DL	WWW	71				white
CN14489_LENINA-S	S	12		PC	PC	white
CN14490_LENINA-M	M	21		PC	PC	white
CN14492_LENINA-XW	WWW	73		PC	PC	white
C12606_LENINA-DL	D	N/A	PC			clear
C12597_LENINA-S	S	23			PC	metal
C12599_LENINA-W	W	54			PC	metal
CN12600_LENINA-S	S	15		PC	PC	metal
CN12601_LENINA-M	M	29		PC	PC	metal
CN12602_LENINA-W	W	54		PC	PC	metal
CN12603_LENINA-S-DL	S	20		PC	PC	metal
CN12604_LENINA-M-DL	M	36		PC	PC	metal
CN12605_LENINA-W-DL	W	54		PC	PC	metal
CN12638_LENINA-S	S	16		PC	PC	metal
CN12639_LENINA-M	M	28		PC	PC	metal
CN12640_LENINA-W	W	50		PC	PC	metal
CN12641_LENINA-S-DL	S	20		PC	PC	metal
CN12642_LENINA-M-DL	M	33		PC	PC	metal
CN12643_LENINA-W-DL	W	52		PC	PC	metal
CN12644_LENINA-S	S	17		PC	PC	metal
CN12645_LENINA-M	M	21		PC	PC	metal
CN12646_LENINA-W	W	57		PC	PC	metal
CN12647_LENINA-S-DL	S	24		PC	PC	metal
CN12649_LENINA-W-DL	W	59		PC	PC	metal
CN12650_LENINA-S	S	17		PC	PC	metal
CN12651_LENINA-M	M	30		PC	PC	metal
CN12652_LENINA-W	W	48		PC	PC	metal
CN12653_LENINA-S-DL	S	22		PC	PC	metal
CN12654_LENINA-M-DL	M	35		PC	PC	metal
CN12655_LENINA-W-DL	W	50		PC	PC	metal
CN12656_LENINA-S	S	28		PC	PC	metal
CN12657_LENINA-M	M	44		PC	PC	metal
CN12658_LENINA-W	W	64		PC	PC	metal

Ordering Code	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
CN12659_LENINA-S-DL	S	32		PC	PC	metal
CN12660_LENINA-M-DL	M	47		PC	PC	metal
CN12661_LENINA-W-DL	W	60		PC	PC	metal
CN12700_LENINA-S	S	15		PC	PC	metal
CN12701_LENINA-M	M	26		PC	PC	metal
CN12702_LENINA-W	W	56		PC	PC	metal
CN12703_LENINA-S-DL	S	16		PC	PC	metal
CN12704_LENINA-M-DL	M	30		PC	PC	metal
CN12706_LENINA-S	S	27		PC	PC	metal
CN12707_LENINA-M	M	40		PC	PC	metal
CN12708_LENINA-W	W	58		PC	PC	metal
CN12709_LENINA-S-DL	S	30		PC	PC	metal
CN12710_LENINA-M-DL	M	40		PC	PC	metal
CN12711_LENINA-W-DL	W	56		PC	PC	metal
CN12918_LENINA-S	S	17		PC	PC	metal
CN12919_LENINA-M	M	28		PC	PC	metal
CN12920_LENINA-W	W	50		PC	PC	metal
CN12921_LENINA-S-DL	S	18		PC	PC	metal
CN12922_LENINA-M-DL	M	32		PC	PC	metal
CN12923_LENINA-W-DL	W	58		PC	PC	metal
CN12932_LENINA-S	S	16		PC	PC	metal
CN12933_LENINA-M	M	30		PC	PC	metal
CN12934_LENINA-W	W	55		PC	PC	metal
CN12935_LENINA-S-DL	S	17.5	PC	PC	PC	metal
CN12936_LENINA-M-DL	M	30	PC	PC	PC	metal
CN12937_LENINA-W-DL	W	56	PC	PC	PC	metal
C12958_LENINA-XW	WWW	74			HRPC	white
CN12959_LENINA-XW	WWW	72		PC	HRPC	white
CN12960_LENINA-XW	WWW	74		PC	HRPC	white
CN12961_LENINA-XW	WWW	76		PC	HRPC	white
CN12962_LENINA-XW	WWW	73		PC	HRPC	white
CN12963_LENINA-XW	WWW	75		PC	HRPC	white
CN12966_LENINA-XW	WWW	72		PC	HRPC	white
CN12968_LENINA-XW	WWW	73		PC	HRPC	white
CN12969_LENINA-XW	WWW	72		PC	HRPC	white
CN12970_LENINA-XW-DL	WWW	70	PC	PC	HRPC	white
CN12971_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12973_LENINA-XW-DL	WWW	87	PC	PC	HRPC	white
CN12974_LENINA-XW-DL	WWW	73	PC	PC	HRPC	white
CN12975_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12976_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN12977_LENINA-XW-DL	WWW	68	PC	PC	HRPC	white
CN12978_LENINA-XW-DL	WWW	72	PC	PC	HRPC	white
CN12978_LENINA-XW-DL	WWW	74	PC	PC	HRPC	white
CN12979_LENINA-XW-DL	WWW	71	PC	PC	HRPC	white
CN13110_LENINA-S	S	24		PC	PC	metal
CN13111_LENINA-M	M	39		PC	PC	metal
CN13112_LENINA-W	W	64		PC	PC	metal
CN13113_LENINA-S-DL	S	26	PC	PC	PC	metal
CN13114_LENINA-M-DL	M	42	PC	PC	PC	metal
CN13115_LENINA-W-DL	W	61	PC	PC	PC	metal
CN13196_LENINA-S	S	10		PC	PC	metal
CN13197_LENINA-M	M	17		PC	PC	metal
CN13199_LENINA-S-DL	S	12	PC	PC	PC	metal
CN13200_LENINA-M-DL	M	22	PC	PC	PC	metal
CN13201_LENINA-W-DL	W	48	PC	PC	PC	metal

Ordering Code	Beam	FWHM	Material/Lens	Material/Holder	Material/Reflector	Colour
CN13201_LENINA-W-DL	W	47	PC	PC	PC	metal
CN13203_LENINA-XW-DL	W	69		PC	PC	white
CN13344_LENINA-S	S	22		PC	PC	metal
CN13345_LENINA-M	M	33		PC	PC	metal
CN13346_LENINA-W	W	51		PC	PC	metal
CN13347_LENINA-S-DL	S	23	PC	PC	PC	metal
CN13348_LENINA-M-DL	M	35	PC	PC	PC	metal
CN13349_LENINA-W-DL	W	52	PC	PC	PC	metal
CN13351_LENINA-XW	WWW	70		PC	HRPC	white
CN13352_LENINA-XW-DL	WWW	70	PC	PC	HRPC	white
CN14093_LENINA-S	S	40		PC	PC	metal
CN14094_LENINA-M	M	35		PC	PC	metal
CN14095_LENINA-W	W	67		PC	PC	metal
CN14096_LENINA-XW	WWW	76		PC		metal
CN14097_LENINA-XW-DL	WWW	77		PC		metal
CN14098_LENINA-W-DL	W	60		PC	PC	metal
CN14099_LENINA-M-DL	M	52		PC	PC	metal
CN14100_LENINA-S-DL	S	40	PC	PC	PC	metal
CN14101_LENINA-S	S	15		PC	PC	metal
CN14102_LENINA-M	M	28		PC	PC	metal
CN14103_LENINA-W	W	0		PC	PC	metal
CN14104_LENINA-XW	WWW	75		PC		metal
CN14105_LENINA-S-DL	S	0	PC	PC	PC	metal
CN14106_LENINA-M-DL	M	31		PC	PC	metal
CN14107_LENINA-W-DL	W	0	PC	PC	PC	metal
CN14108_LENINA-XW-DL	WWW	75	PC	PC	PC	metal

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HEATSINK OPTIONS

ILS Product		350mA	700mA	1000mA
No Heatsink, in free air				
ILA-HSINK-STAR-50X20MM				
ILA-HSINK-STAR-50X40MM				
ILA-HSINK-STAR-50X60MM				
ILA-HSINK-STAR-50X80MM				
ILA-HSINK-70X70X55MM				
ILA-HSINK-78X46X25MM				

KEY

	Operates under the recommended ILS junction temperature
	Operates under the recommended LED maximum junction temperature
	Not suitable for use
	Heatsink not designed for use with this product

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POWER SUPPLY OPTIONS

	IIS Driver Part Number	Rating Watts	Current	Output Volts	Dimming
	ILA-1 CH-LED-TESTER-PREC-01	16W	10-700mA	2-20V	
	IZC035-004F-4065C-SAL	4W	350mA	3-12V	
	IZC035-008F-5065C-SA	8W	350mA	3-36V	
	IZC035-017F-0067A-SA	17W	350mA	6-48V	
	IZC035-018T-9500A-SX	18W	350mA	15-52V	
	IZC050-018T-9500A-SX	18W	500mA	9-36V	
	IZC070-018T-9500A-SX	18W	700mA	6-26V	
	IZC070-035F-0067C-SA	35W	700mA	9-48V	
	IZC045-040A-9266C-SA	40W	450mA	30-89V	
	IZC095-040M-9067C-SAL	40W	950mA	25-42V	
	IZCVAR-040M-9020C-SAL	40W	350mA 500mA 600mA 700mA 900mA 1050mA	2-100V 2-80V 2-67V 2-57V 2-45V 2-40V	
	IZC070-050A-9267C-SA	50W	700mA	24-72V	
	IZC050-060F-9067C-QA	60W	500mA	40-110V	
	IZC070-075A-9267C-SA	75W	700mA	54-108V	
	IZC140-120M-9065C-SAL	120W	1400mA	54-108V	

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THERMAL INTERFACE MATERIAL OPTIONS

Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
ILA-TIM-STAR-0A	ILA-TIM-STAR-1A	ILA-TIM-STAR-2A
Other sizes are available, including customised parts		

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ASSEMBLY INFORMATION

- » The mounting of the PowerStar has to be on a metal heatsink.
- » In order to optimise the thermal management, the metal surface needs to be clean (dirt and oil free) and planar for the best contact with the LED module. A thermal grease or heat transfer material is highly recommended.

IMPORTANT INFORMATION AND PRECAUTIONS



The PowerStar's LED, when powered up, is very bright. Thus it is advised that you do not look directly at it. Turn the PowerStar away from you and do not shine into the eyes of others.



PowerStar's, when operated, can reach high temperatures thus there is risk of injury if they are touched.



PowerStar's will overheat in operation if not attached to a suitable heatsink. Overheating can cause failure or irreparable damage.



DO NOT HOT PLUG ON LED SIDE OF POWER SUPPLY.



Do not operate PowerStar's with a power supply with unlimited current. Connection to constant voltage power supplies that are not current limited may cause the PowerStar's to consume current above the specified maximum and cause failure or irreparable damage.



DO NOT TOUCH or PUSH on the LED as this can cause irreparable damage.

SAFETY INFORMATION



The LED module itself and all its components must not be mechanically stressed.



Assembly must not damage or destroy conducting paths on the circuit board.



The mounting of the module is carried out by attaching it at the mounting holes. Metal mounting screws must be insulated with synthetic washers to prevent circuit board damage and possible short circuiting.



To avoid mechanical damage to the connecting cables, the boards should be attached securely to the intended substrate. Heavy vibration should be avoided.



Observe correct polarity! Depending on the product, incorrect polarity will lead to emission of red or no light. The module can be destroyed!



Pay attention to standard ESD precautions when installing the PowerStas.



The PowerStar's, as manufactured, have no conformal coating and therefore offer no inherent protection against corrosion. Damage by corrosion will not be accepted as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.



For outdoor usage, a housing is definitely required to protect the board against environmental influences. The design of the housing must correspond to the IP standards in the application. It is also the responsibility of the user to ensure any housings or modifications keep the T_c junction temperature to within stated ranges.



To also ease the luminaire/installation approval, electronic control gear for LED or LED modules should carry the CE mark and be ENEC certified. In Europe the declarations of conformity must include the following standards: CE: EC 61374-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61374-2-13 and IEC/EN 62384.



The evaluation of eye safety occurs according to the standard IEC 62471:2006 ("photobiological safety of lamps and lamp systems"). Within the risk grouping system of this CIE standard, the LED specified in this datasheet falls into the class "moderate risk" (exposure time 0.25s). Under real circumstances (for exposure time, eye pupils, observation distance), it is assumed that no endangerment to the eye exists from these devices. As a matter of principle, however, it should be mentioned that intense light sources have a high secondary exposure potential due to their blinding effect. As is also true when viewing other bright light sources (e.g. headlights), temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment and even accidents, depending on the situation.

FURTHER INFORMATION

The values contained in this datasheet can change due to technical innovation. Any such changes will be made without separate notification.

If you require further assistance or have a specific or custom enquiry, please contact the ILS team via email or phone. Alternatively please visit our website for more product information and to see our full ranges.



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ABOUT ILS

ILS offers a high level of technical skill, professionalism and commercial understanding to companies requiring market-leading optoelectronics solutions. Offering conceptual advice, electronics design and manufacturing capability, we use high quality production resources both in-house and in Asia, providing project support from prototyping to mass production. We also understand the need to provide cost effective solutions and we do so using high quality components to ensure that the end product's reliability and quality is uncompromised. Apart from LEDs in the visible spectrum, we have a wide range of Infrared, UV LEDs, UV tubes, and lasers.

ILS is a division of Intelligent Group Solutions Ltd (IGS) a well-established respected industry leading optoelectronics solutions provider. Much of IGS' business comes from providing semi-custom or custom products both in component and sub-assembly form, and from providing design support and prototyping within the European market place. We can deliver production displays to wherever in the world that the customer's manufacturing or assembly is being undertaken.

INTELLIGENT GROUP SOLUTIONS DIVISIONS

