

# OSLON® Black 1 PowerStar IR

ILH-1x01-xxxx-SC2x1-WIR200. Series

## Product Overview

At the heart of each PowerStar is an IR OSLON® Black Series LED from OSRAM Opto Semiconductors, which is today's smallest infrared LED 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. Available with 200mm wires as standard.

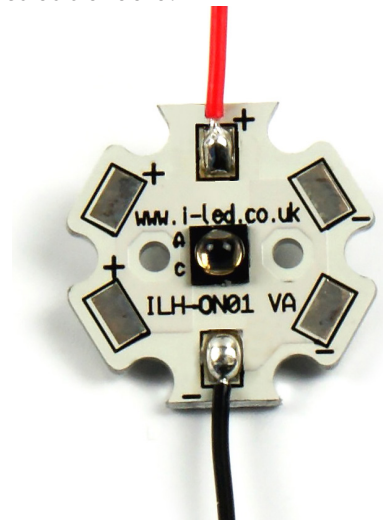
## Applications

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

## Technical Features

- OSLON® 1 IR PowerStars contain 1 OSRAM IR OSLON® Black Series LED with either a 50, 90 or 150 degree integrated silicone lens
- Up to 100,000 Hour lifetime to 70% of original brightness
- Mounting holes using M3 screws allows easy installation
- Size: (L x W x H) with 50° lens 20mm x 20mm x 4.2mm
- Size: (L x W x H) with 90° lens 20mm x 20mm x 4.0mm
- Size: (L x W x H) with 150° lens 20mm x 20mm x 3.1mm
- Secondary lens can be fitted – check options in suitable Lens and Reflector section
- Suitable Heatsinks available – check options in Heatsink section
- Matching Power Supply available - check options in Power Supply section
- PowerStars can be linked together to produce longer chains
- Suitable Thermal Interface Material available – check options in Thermal Interface Material section

\*This datasheet should be read in conjunction with the relevant OSRAM Opto Semiconductors data on the LED used



### Important Information and Precautions

- The PowerStar’s LED, when powered up, is very powerful. Although the light may appear off, however IR is invisible to the human eye and can still damage eyes. 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.
- PowerStars will overheat in operation if not attached to a suitable Heatsink. Over heating can cause failure or irreparable damage.
- Do not operate PowerStars with a Power Supply with unlimited current. Connection to constant voltage Power Supplies that are not current limited may cause the PowerStar to consume current above the specified maximum and cause failure or irreparable damage.
- PowerStars, when operated, can reach high temperatures thus there is risk of injury if they are touched.
- DO NOT HOT PLUG ON LED SIDE OF POWER SUPPLY.
- DO NOT TOUCH or PUSH on the LED as this can cause irreparable damage.

### Product Options

ILS Part Number	IR centroid wavelength	Radiant intensity IF = 1 A , tp = 10 ms§	Forward Voltage†	Radiance Angle	Relevant OSRAM LED Data Sheet
ILH-IO01-81SL-SC211-WIR200.	810nm	1040mW	2.65-3.2V	±45° (90°)	SFH4703AS
ILH-IN01-85NL-SC201-WIR200.	850nm	665mW	1.75-2.3V	±25° (50°)	SFH4718A
ILH-IN01-85SL-SC211-WIR200.	850nm	1230mW	2.95-3.4V	±25° (50°)	SFH4717AS
ILH-IO01-85NL-SC201-WIR200.	850nm	630mW	1.5-1.8V	±45° (90°)	SFH4715A
ILH-IO01-85SL-SC201-WIR200.	850nm	976mW	2.9-3.4V	±45° (90°)	SFH4715S
ILH-IO01-85SL-SC211-WIR200.	850nm	1340mW	3.2-3.6V	±45° (90°)	SFH4715AS
ILH-IW01-85NL-SC201-WIR200.	850nm	740mW	1.65-2.1V	±75° (150°)	SFH4716A
ILH-IW01-85SL-SC211-WIR200.	850nm	1030mW	2.9-3.4V	±75° (150°)	SFH4716S
ILH-IW01-85SL-SC221-WIR200.	850nm	1270mW	3.2-3.6V	±75° (150°)	SFH4716AS
ILH-IN01-94SL-SC211-WIR200.	940nm	1230mW	3.2-3.6V	±25° (50°)	SFH4727AS A01
ILH-IO01-94SL-SC201-WIR200.	940nm	990mW	2.9-3.4V	±45° (90°)	SFH4725S
ILH-IO01-94SL-SC211-WIR200.	940nm	1340mW	3.2-3.6V	±45° (90°)	SFH4725AS A01
ILH-IW01-94SL-SC201-WIR200.	940nm	990mW	2.9-3.4V	±75° (150°)	SFH4726S
ILH-IW01-94SL-SC211-WIR200.	940nm	1340mW	3.2-3.6V	±75° (150°)	SFH4726AS A01

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

§ Tolerance +/- 10%

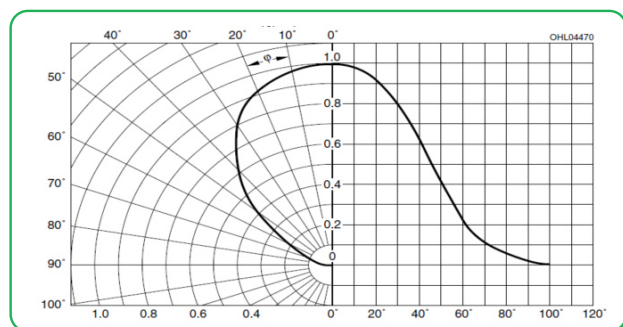
† Measured with 10ms pulse at 1A at 25°C

Minimum and Maximum Ratings

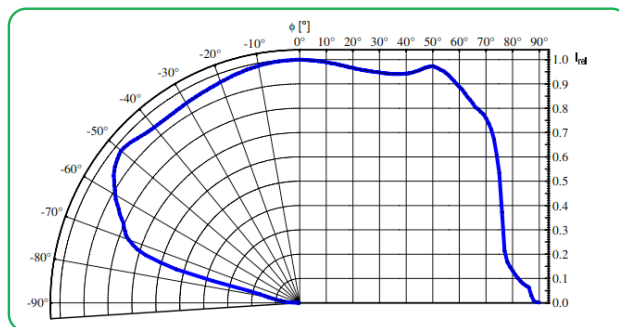
ILS Part Number	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Maximum Current per chip [mA]*	Surge Current per chip [mA]*	Reverse Voltage [Vdc]*
ILH-IO01-81SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	2000mA	1.2V
ILH-IN01-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	1000mA	5.0V
ILH-IN01-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IO01-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO01-85SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO01-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	3000mA	1.0V
ILH-IW01-85NL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	2000mA	5.0V
ILH-IW01-85SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IW01-85SL-SC221-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	3000mA	1.0V
ILH-IN01-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IO01-94SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IO01-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V
ILH-IW01-94SL-SC201-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1000mA	5000mA	1.0V
ILH-IW01-94SL-SC211-WIR200.	-40 °C -125 °C	-40 °C -125 °C	1500mA	5000mA	5.0V

\* 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.

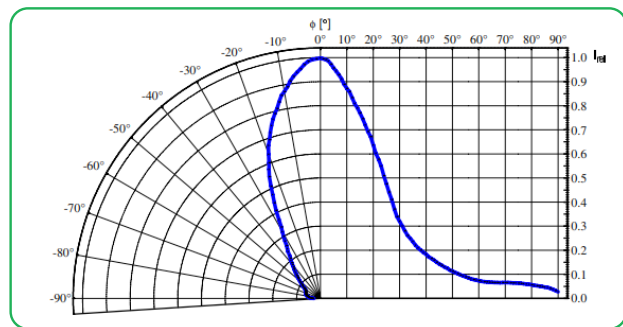
Radiation of single LED (IO)



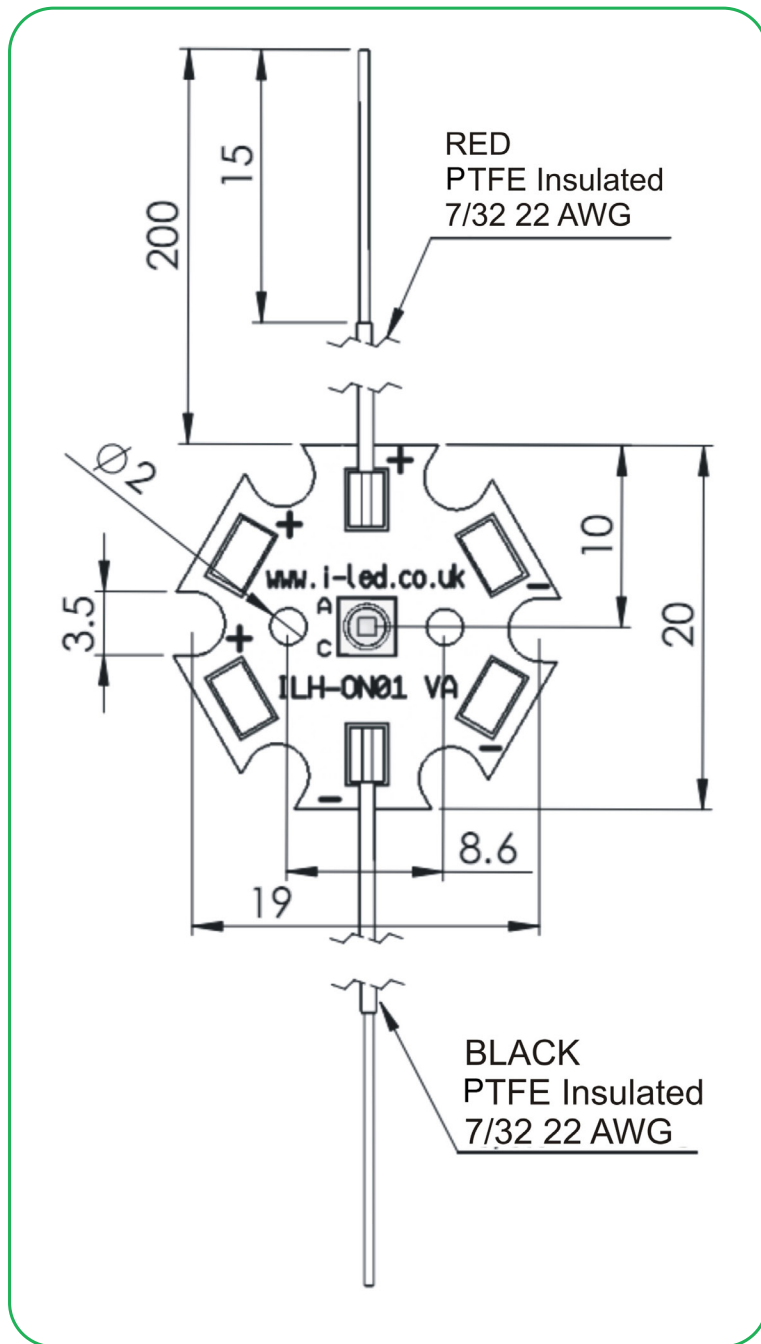
Radiation of single LED (IW)



Radiation of single LED (IN)



Technical Drawing with Cables (mm)



3D drawing files are available on request from ILS. Please call or email

**OSLON® 1 PowerStar IR Lens**

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 product releases from our LED suppliers. You select the best LED for the application; choose LEDiL and you're selecting the best optical solution as well.



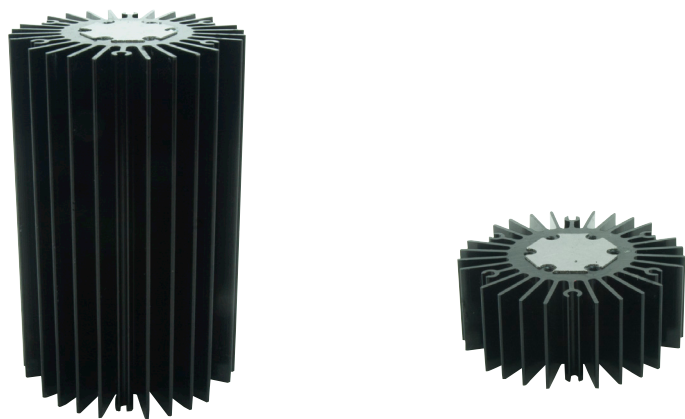
Ordering Code	Beam	Dimensions	Height	Family	FWHM	Material/ Lens	Material/ Holder	Colour	Fastening
CP13069_IRENE-IR-4	Rectangular	22mmØ	14.3mm	IRENE	65+65°	PC	PMMA	White	Glue, Pin
CP13070_IRENE-IR-8	Rectangular	22mmØ	14.3mm	IRENE	30+30°	PC	PMMA	White	Glue, Pin
CP13071_IRENE-IR-12	Rectangular	22mmØ	14.3mm	IRENE	25+25°	PC	PMMA	White	Glue, Pin
CP13072_IRENE-IR-16	Rectangular	22mmØ	14.3mm	IRENE	15+15°	PC	PMMA	White	Glue, Pin
CP13073_IRENE-IR-25	Rectangular	22mmØ	14.3mm	IRENE	16+16°	PC	PMMA	White	Glue, Pin
CA11837_LAURA-M-PIN	Medium	22 x22mm	13.1mm	LAURA	30°	PMMA	PC	White	Glue, Pin
CA11959_LAURA-RS-PIN	Real Spot	22 x22mm	13.1mm	LAURA	8°	PMMA	PC	White	Glue, Pin
CA11960_LAURA-D-PIN	Diffused	22 x22mm	13.1mm	LAURA	15°	PMMA	PC	White	Glue, Pin
CA12011_LAURA-SS-PIN	Super Spot	22 x22mm	13.1mm	LAURA	11°	PMMA	PC	White	Glue, Pin
CA12012_LAURA-O-PIN	Oval	22 x22mm	13.1mm	LAURA	40x12°	PMMA	PC	White	Glue, Pin
FP11429_LISA2-WWW-PIN	Wide	10mmØ	7.0mm	LISA2	80°	PMMA	PC	Black	Glue, Pin
FP13025_LISA2-W-PIN	Wide	10mmØ	7.0mm	LISA2	35°	PMMA	PC	Black	Glue, Pin
FP13026_LISA2-WW-PIN	Wide	10mmØ	7.0mm	LISA2	45°	PMMA	PC	Black	Glue, Pin
FP13028_LISA2-M-PIN	Medium	10mmØ	7.0mm	LISA2	20°	PMMA	PC	Black	Glue, Pin
FP13029_LISA2-WW-CLIP	Wide	10mmØ	7.0mm	LISA2	45°	PMMA	PC	Black	Clips
FP13030_LISA2-M-CLIP	Medium	10mmØ	7.0mm	LISA2	20°	PMMA	PC	Black	Clips
FO13031_LISA2-W-CLIP	Wide	10mmØ	7.0mm	LISA2	35°	PMMA	PC	Black	Clips
FA11027_TINA-WW	Wide	16mmØ	9.5mm	TINA	60°	PMMA	PC	Black	Pin, Tape
FA11204_TINA-O	Oval	16mmØ	9.5mm	TINA	35x15°	PMMA	PC	Black	Pin, Tape
FA11205_TINA-D	Diffused	16mmØ	9.5mm	TINA	16°	PMMA	PC	Black	Pin, Tape
FA11206_TINA-M	Medium	16mmØ	9.5mm	TINA	30°	PMMA	PC	Black	Pin, Tape
FA11207_TINA-W	Wide	16mmØ	9.5mm	TINA	50°	PMMA	PC	Black	Pin, Tape
FA11208_TINA-RS	Real Spot	16mmØ	9.5mm	TINA	13°	PMMA	PC	Black	Pin, Tape
CA12374_TINA2-RS	Real Spot	16mmØ	9.5mm	TINA	14°	PMMA	PC	Black	Pin, Tape
CA12376_TINA2-SS	Super Spot	16mmØ	9.5mm	TINA	20°	PMMA	PC	Black	Pin, Tape
CA12377_TINA2-M	Medium	16mmØ	9.5mm	TINA	30°	PMMA	PC	Black	Pin, Tape
CA12378_TINA2-W	Wide	16mmØ	9.5mm	TINA	45°	PMMA	PC	Black	Pin, Tape
CA12379_TINA2-O	Oval	16mmØ	9.5mm	TINA	35+15°	PMMA	PC	Black	Pin, Tape

**OSLON® 1 PowerStar IR Heatsink Options**

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. More versions will be introduced over the coming months and we are also happy to manufacture custom Heatsinks to your request.

ILS Product		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
OSLON® 1 IR PowerStar	350mA	Green	Green	Green	Green	Green	Green	Green
	700mA	Yellow	Green	Green	Green	Green	Green	Green
	1000mA	Red	Green	Green	Green	Green	Green	Green
OSLON® 4 IR PowerStar	350mA	Green	Green	Green	Green	Green	Green	Green
	700mA	Red	Yellow	Yellow	Green	Green	Green	Green
	1000mA	Red	Yellow	Yellow	Yellow	Green	Green	Green
OSLON® 9 IR PowerStars	350mA	Red	Red	Red	Red	Green	Green	Green
	700mA	Red	Red	Red	Red	Yellow	Yellow	Yellow
	1000mA	Red	Red	Red	Red	Red	Yellow	Red
OSLON® 16 IR PowerCluster	350mA	Red	Red	Red	Red	Yellow	Yellow	Green
	700mA	Red	Red	Red	Red	Red	Red	Red
	1000mA	Red	Red	Red	Red	Red	Red	Red


- 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



## OSLON® 1 PowerStar IR Power Supply Options

ILS has a comprehensive range of standard Power Supplies. Additional Power Supplies are being introduced so please call us or check our website for the latest offering.

ILS Driver Part Number	Rating (Watts)	Current (mA)	Forward Voltage	
ILA-1CH-LED-TESTER-USB-01	1.75W	50-350mA	5V	
ILA-1CH-LED-TESTER-PREC-01	16W	10-700mA	2-20V	
IZC035-004F-4065C-SAL	4W	350mA	3-12V	
IZC070-004F-4065C-SAL	4W	700mA	2-6V	
IZC035-008F-5065C-SA	8W	350mA	3-36V	
IZC070-008F-5065C-SA	8W	700mA	3-12V	
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	

ILS Driver Part Number	Rating (Watts)	Current (mA)	Forward Voltage	
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	

### Thermal Interface Material Options

ILS have produced a range of High-performance, cost effective Thermal Interface Materials to match perfectly their standard products.

These products fill the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the Heatsink.

ILS offer TIM in three options – double sided adhesive, single sided adhesive and non adhesive.

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
<b>Star</b>	ILA-TIM-STAR-0A	ILA-TIM-STAR-1A	ILA-TIM-STAR-2A.
25x25mm Cluster	ILA-TIM-CLUSTER-25x25-0A	ILA-TIM-CLUSTER-25x25-1A	ILA-TIM-CLUSTER-25x25-2A.
30x30mm Cluster	ILA-TIM-CLUSTER-30x30-0A	ILA-TIM-CLUSTER-30x30-1A	ILA-TIM-CLUSTER-30x30-2A.
300x20mm Strip	ILA-TIM-STRIP-300x20-0A	ILA-TIM-STRIP300x20-1A	ILA-TIM-STRIP-300x20-2A.



Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
25x15mm Strip	ILA-TIM-STRIP-25x15-0A	ILA-TIM-STRIP-25x15-1A	ILA-TIM-STRIP-25x15-2A.
58x58mm Square	ILA-TIM-SQUARE-58X58-0A	ILA-TIM-SQUARE-58X58-1A	ILA-TIM-SQUARE-58X58-2A.

Other sizes are available, including customised parts

### Assembly Information

- The mounting of the OSLO<sup>®</sup> 1 PowerStar IR 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.

### 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 OSLO<sup>®</sup> 1 PowerStar IRs.
- The OSLO<sup>®</sup> 1 PowerStar IRs, 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<sub>c</sub> 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.
- Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 and IEC 62471.

### For further information please contact ILS

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