

LUXEON Sunplus Series 1 LED PowerStar

ILH-LX01-XXXX-SC201-WIR200.

Product Overview

At the heart of each PowerStar is a LUXEON SunPlus LED from LUMILEDS. The LUXEON SunPlus Series is purpose-built to enable ease of system design for Horticulture applications. The LUXEON SunPlus Series offers the only LEDs available today that are binned and tested based on Photosynthetic Photon Flux (PPF). The LUXEON SunPlus Series includes two different packages: LUXEON SunPlus 35 Line, which is 3.5mm x 3.5mm and LUXEON SunPlus 20 Line, which is 2.0mm x 2.0mm. The LUXEON SunPlus Series includes options for single driver solutions and multi-channel, color tuneable solutions. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.

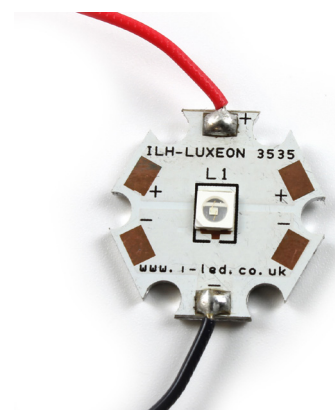
Applications

- Architectural Lighting
- Entertainment Lighting
- Tuneable Lighting
- Emergency Lighting
- Horticultural Lighting

Technical Features

- LUXEON LS01 PowerStars contain LUXEON SunPlus 20 LED with integral 150 degree silicone resin lens
- LUXEON LT01 PowerStars contain LUXON SunPlus 35 LED with integral 150 degree silicone resin lens
- Mounting holes using M3 screws allows easy installation
- Size (L x W x H): 20mm x 20mm x 2.95mm
- Available with 200mm connecting wires
- Secondary Lens can be fitted – check options in suitable Lens and Reflector section
- Suitable Heat Sinks available – check options in Heat Sink section
- Matching Power Supply available - check options in Power Supply section
- PowerStars can be linked together to produce longer chains
- Current Range LUXEON Sunplus 20 100-700mA
- Current Range LUXEON Sunplus 35 25-200mA

*This datasheet should be read in conjunction with the relevant LUMILED LUXEON SunPlus data on the LED used



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.
- PowerStars will overheat in operation if not attached to a suitable Heat Sink. Overheating 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 LUXEON SunPlus 35

ILS PART NUMBER	Colour	Wavelength *	Typical Wattage at 100mA	Forward Voltage	PPF/W TYPICAL (μmol/J)	Radiance Angle	Relevant LUMILEDs LED Data
ILH-LS01-DEBL-SC201-WIR200.	Royal Blue	445-455nm	1.07W	2.5-3.50 volts	2.00	150° (±75°)	L1 SP
ILH-LS01-PR02-SC201-WIR200.	Purple + 2.5% Blue	630nm	0.98W	2.5-3.50 volts	1.80	150° (±75°)	L1 SP
ILH-LS01-PR12-SC201-WIR200.	Purple + 12.5% Blue	630nm	0.98W	2.5-3.50 volts	2.02	150° (±75°)	L1 SP
ILH-LS01-PR25-SC201-WIR200.	Purple + 25% Blue	630nm	0.98W	2.5-3.50 volts	2.24	150° (±75°)	L1 SP
ILH-LS01-LIME-SC201-WIR200.	Lime	520nm	1.07W	2.5-3.50 volts	2.13	150° (±75°)	L1 SP

* Lumileds maintains a tolerance of ±6.5% on luminous flux measurements. PC Amber, Mint and Lime are binned by chromaticity coordinates. Far Red, Deep Red and Royal Blue are binned by peak wavelength. All other colours are binned by dominant wavelength.

Product Options LUXEON SunPlus 20

ILS PART NUMBER	Colour	Wavelength *	Typical Wattage at 350mA	Forward Voltage	PPF/W TYPICAL (μmol/J)	Radiance Angle	Relevant LUMILEDs LED Data
ILH-LT01-DEBL-SC201-WIR200.	Royal Blue	445-455nm	0.96W	2.75V	2.11	150° (±75°)	L1 SP
ILH-LT01-LIME-SC201-WIR200.	Lime	545nm	0.96W	2.75V	1.66	150° (±75°)	L1 SP
ILH-LT01-HYRE-SC201-WIR200.	Hyper Red	655nm	0.68W	1.95V	2.56	150° (±75°)	L1 SP
ILH-LT01-ULWH-SC201-WIR200.	Ultra White	6000K	0.96W	2.75V	1.57	150° (±75°)	L1 SP

* Lumileds maintains a tolerance of ±6.5% on luminous flux measurements. PC Amber, Mint and Lime are binned by chromaticity coordinates. Far Red, Deep Red and Royal Blue are binned by peak wavelength. All other colours are binned by dominant wavelength.

Minimum and Maximum Ratings LUXEON SunPlus 35 PowerStars

ILS PART NUMBER	Operating Temperature at Tc-Point [°C] *	Storage Temperature [°C] *	Forward Current per chip [mA] *	Reverse Voltage [Vdc] *
ILH-LS01-DEBL-SC201-WIR200.	135 °C max	- 40 to 135 °C	200mA max	LUXEON SunPlus 35 LEDs are not designed to be driven in reverse bias
ILH-LS01-PR02-SC201-WIR200.	135 °C max	- 40 to 135 °C	200mA max	LUXEON SunPlus 35 LEDs are not designed to be driven in reverse bias
ILH-LS01-PR12-SC201-WIR200.	135 °C max	- 40 to 135 °C	200mA max	LUXEON SunPlus 35 LEDs are not designed to be driven in reverse bias
ILH-LS01-PR25-SC201-WIR200.	135 °C max	- 40 to 135 °C	200mA max	LUXEON SunPlus 35 LEDs are not designed to be driven in reverse bias
ILH-LS01-LIME-SC201-WIR200.	135 °C max	- 40 to 135 °C	200mA max	LUXEON SunPlus 35 LEDs are not designed to be driven in reverse bias

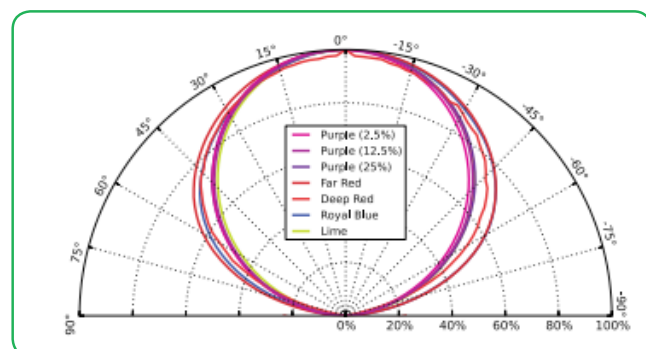
Minimum and Maximum Ratings LUXEON SunPlus 20 PowerStar

ILS PART NUMBER	Operating Temperature at Tc-Point [°C] *	Storage Temperature [°C] *	Forward Current per chip [mA] *	Reverse Voltage [Vdc] *
ILH-LT01-DEBL-SC201-WIR200.	135 °C max	- 40 to 135 °C	700mA max	LUXEON SunPlus 20 LEDs are not designed to be driven in reverse bias
ILH-LT01-LIME-SC201-WIR200.	135 °C max	- 40 to 135 °C	700mA max	LUXEON SunPlus 20 LEDs are not designed to be driven in reverse bias
ILH-LT01-HYRE-SC201-WIR200.	135 °C max	- 40 to 135 °C	700mA max	LUXEON SunPlus 20 LEDs are not designed to be driven in reverse bias
ILH-LT01-ULWH-SC201-WIR200.	135 °C max	- 40 to 135 °C	700mA max	LUXEON SunPlus 20 LEDs are not designed to be driven in reverse bias

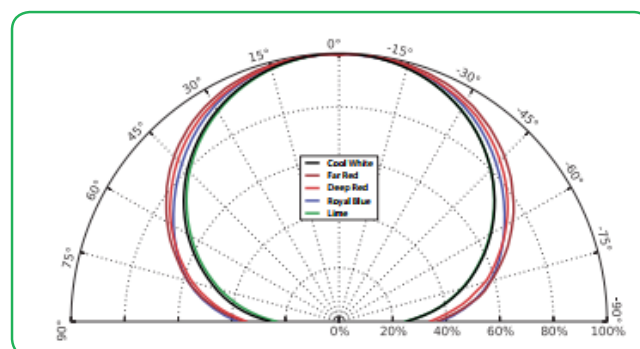
* Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED module. Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module. The temperature of the LED module must be measured at the Tc-Point according to EN60598-1 in a thermally constant status with a temperature sensor or a temperature sensitive label.

Radiation of single LED

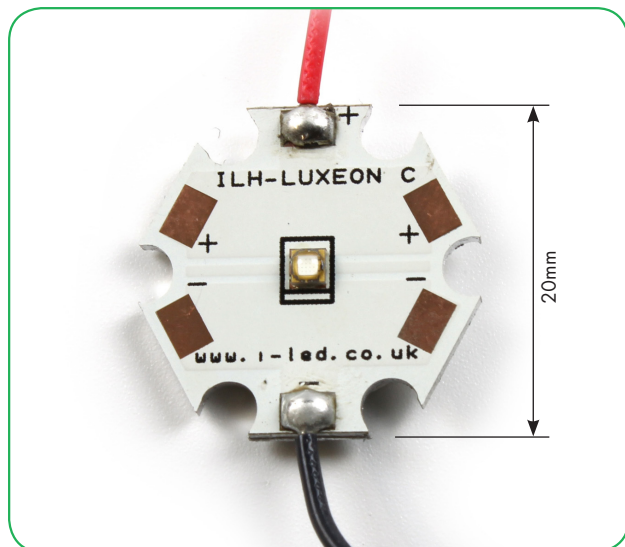
LUXEON SunPlus 35 LED



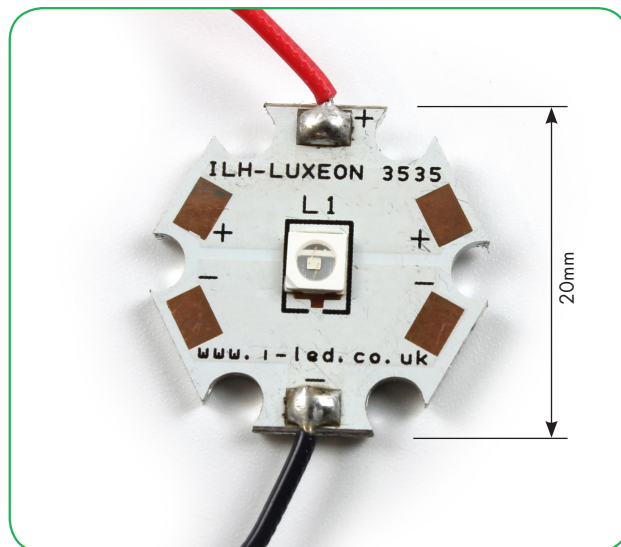
LUXEON SunPlus 20 LED



LUXEON SunPlus 20 LED Technical Drawing with Cables (mm)



LUXEON SunPlus 35 LED Technical Drawing with Cables (mm)



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

LUXEON SunPlus Lens and Reflector Options

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.



Currently LEDiL are testing various optics with the LUXEON SunPlus range, this datasheet will updated soon

LUXEON SunPlus Heat Sink Options

ILS has recently introduced a series of Aluminium Alloy Heat Sinks to be used with our standard range of PowerStars and PowerClusters. These Heat Sinks 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. Available in Black, Red, Silver and Blue colour variants. More versions will be introduced over the coming months and we are also happy to manufacture custom Heat Sinks to your request.

ILS Product		No Heat Sink, in free air	ILA-HSINK-STAR-50X20MM-K.	ILA-HSINK-STAR-50X40MM-K.	ILA-HSINK-STAR-50X60MM-K.	ILA-HSINK-STAR-50X80MM-K.	ILA-HSINK-70X70x55mmMM-K.	ILA-HSINK-78X46X25MM-K.
LUXEON SunPlus 35 1 LED PowerStar	150mA							
	200mA							
LUXEON SunPlus 20 1 LED Power Star	350mA							
	700mA							

	Operates under the recommended ILS junction temperature
	Operates under the recommended LED maximum junction temperature
	Not suitable for use
N/A	Heat Sink not designed for use with this product




LUEXON 1 SunPlus Power Supply Options

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.

Options for LUXEON SunPlus 35 PowerStar

ILS Driver Part No.	Rating	Constant Current output	LED Driver Forward Voltage	
IZC015-005F-0067C-QA	5W	150mA	20-33	

Options for LUXEON SunPlus 20 PowerStar

ILS Driver Part No.	Rating	Constant Current output	LED Driver Forward Voltage	
IZC015-005F-0067C-QA	5W	150mA	20-33	
IZC035-005F-0067C-QA	5W	350mA	2-12	
IZC070-005F-0067C-QA	5W	700mA	2-5	
IZC035-008F-5065C-SA	8W	350mA	3-36	
IZC070-008F-5065C-SA	8W	700mA	3-12	
IZC035-017F-0067A-SA	17W	350mA	6-48	
IZC035-018T-9500A-SX	18W	350mA	15-52	
IZC050-018T-9500A-SX	18W	500mA	9-36	
IZC070-018T-9500A-SX	18W	700mA	6-26	

ILS Driver Part No.	Rating	Constant Current output	LED Driver Forward Voltage	
IZC035-035F-9067C-QA	35W	350mA	40-80	
IZC070-035F-0067C-SA	35W	700mA	9-48	
IZC045-040A-9266C-SA	40W	450mA	30-89	
IZC070-050A-9267C-SA	50W	700mA	24-72	
IZC050-060F-9067C-QA	60W	500mA	40-110	
IZC070-075A-9267C-SA	75W	700mA	54-108	

Thermal Interface Material Options

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

Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the Heat Sink.

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

Product	Non Adhesive	Single Sided Adhesive	Double Sided Adhesive
Star	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.
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 LUXEON SunPlus 1 PowerStar has to be on a metal Heat Sink.
- 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 LUXEON SunPlus 1 PowerStar.
- The LUXEON SunPlus 1 PowerStars, 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 data sheet 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.

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.