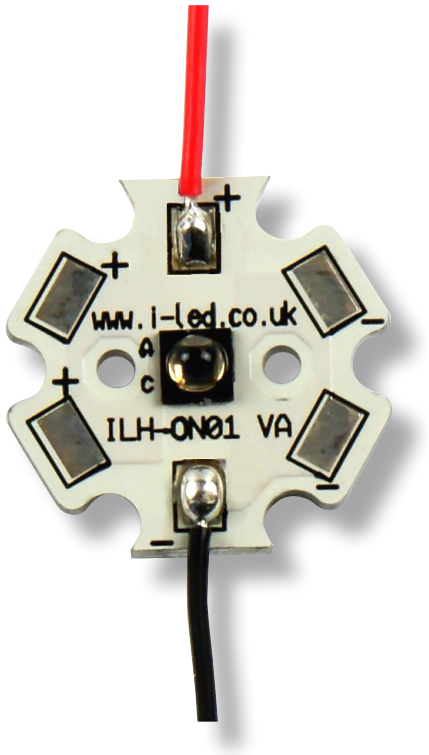
OSLON® Black 1 PowerStar IR

ILH-Ix01-xxxx-SC2x1-WIR200. Series

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.



CONTENTS

APPLICATIONS

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

TECHNICAL FEATURES

LED Family	OSRAM IR OSLON® Black Series
Lifetime	Up to 100,000 hours lifetime to 70% of original brightness
Mounting	Mounting holes using M3 screws allow easy installation
Dimensions	(L x W x H) with 50° lens 20mm x 20mm x 4.2mm (L x W x H) with 80° lens 20mm x 20mm x 4.0mm (L x W x H) with 150° lens 20mm x 20mm x 3.1mm
Wiring	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 350mA. Suitable options on page 8 or visit our website for a full range
Power Supply	5-108W non-dimming. Suitable options on page 9 or visit our website for a full range
Chain	PowerStars can be linked together to produce longer chains

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-IO01-85NL-SC201-WIR200.*	850nm	500 mW/sr	1.7-2.2 V	±40° (80°)	SFH4715A
ILH-IO01-85SL-SC211-WIR200.	850nm	900mW/sr	3.15-3.5 V	±40° (80°)	SFH4715AS
ILH-IO01-85NB-SC201-WIR200.	850nm	580mW/sr	1.55-1.85V	±40° (80°)	SFH4715B
ILH-IO01-85SL-SC201-WIR200.*	850nm	770mW/sr	2.9-3.4 V	±40° (80°)	SFH4715S
ILH-IW01-85NL-SC201-WIR200.*	850nm	170mW/sr	1.7-2.2 V	±75° (150°)	SFH4716A
ILH-IW01-85SL-SC221-WIR200.	850nm	350mW/sr	3.15-3.5 V	±75° (150°)	SFH4716AS
ILH-IW01-85NB-SC201-WIR200.	850nm	215mW/sr	1.55-1.85V	±75° (150°)	SFH4716B
ILH-IW01-85SL-SC211-WIR200.*	850nm	280mW/sr	2.9-3.4 V	±75° (150°)	SFH4716S
ILH-IN01-85SL-SC211-WIR200.	850nm	1150mW/sr	3.15-3.5 V	±25° (50°)	SFH4717AS
ILH-IN01-85NL-SC201-WIR200.	850nm	730mW /sr	1.75-2.3 V	±20° (50°)	SFH4718A
ILH-IN01-85SL-SC221-WIR200.	850nm	1350mW/sr	2.65-3.2 V	±25° (50°)	SFH4718AS A01
ILH-IN01-94CS-SC201-WIR200.	940nm	1120mW/sr	2.45-2.95V	±30° (60°)	SFH4722CS A01
ILH-IO01-94CS-SC201-WIR200.	940nm	920mW/sr	2.45-2.95V	±40° (80°)	SFH4725CS A01
ILH-IO01-94SL-SC201-WIR200.*	940nm	760mW/sr	2.65-3.2 V	±40° (80°)	SFH4725S
ILH-IW01-94SL-SC211-WIR200.*	940nm	325mW/sr	2.9-3.4 V	±75° (150°)	SFH4726AS
ILH-IW01-94CS-SC201-WIR200.	940nm	350mW/sr	2.45-2.95V	±75° (150°)	SFH4726CS A01
ILH-IW01-94SL-SC201-WIR200.*	940nm	325mW/sr	2.65-3.2 V	±75° (150°)	SFH4726S
ILH-IN01-94SL-SC211-WIR200.*	940nm	1150mW/sr	2.5-3.1 V	±25° (50°)	SFH4727AS A01
ILH-IN01-94CS-SC201-WIR200.	940nm	1500mW/sr	2.45-2.95 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%
† Measured with 20mS 700mA pulse at 25˚C
* NFND

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-IO01-85NL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IO01-85SL-SC211-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO01-85NB-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IO01-85SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IW01-85NL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IW01-85SL-SC221-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW01-85NB-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IW01-85SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IN01-85SL-SC211-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN01-85NL-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	2000mA	3000mA	5V
ILH-IN01-85SL-SC221-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN01-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO01-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IO01-94SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IW01-94SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW01-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IW01-94SL-SC201-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1000mA	5000mA	5V
ILH-IN01-94SL-SC211-WIR200.*	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V
ILH-IN01-94CS-SC201-WIR200.	-40 °C - 125 °C	-40 °C - 125 °C	1500mA	3000mA	5V

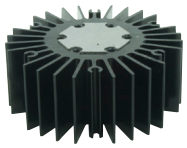
Exceeding maximum ratings for operating and storage temperature will reduce expected life time or destroy the LED module.
Exceeding maximum ratings for operating voltage will cause hazardous overload and will likely destroy the LED module.
The temperature of the LED module must be measured at the Tc-Point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

ACCESSORIES

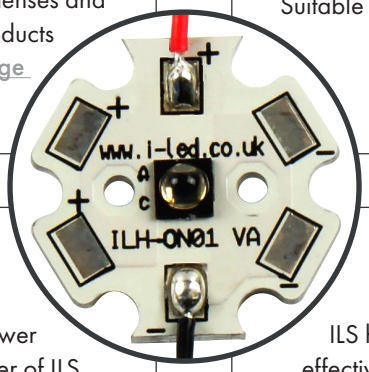
Secondary Optics Options

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 products from our LED suppliers. Suitable options on page 6 or visit our website for a full range.

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.



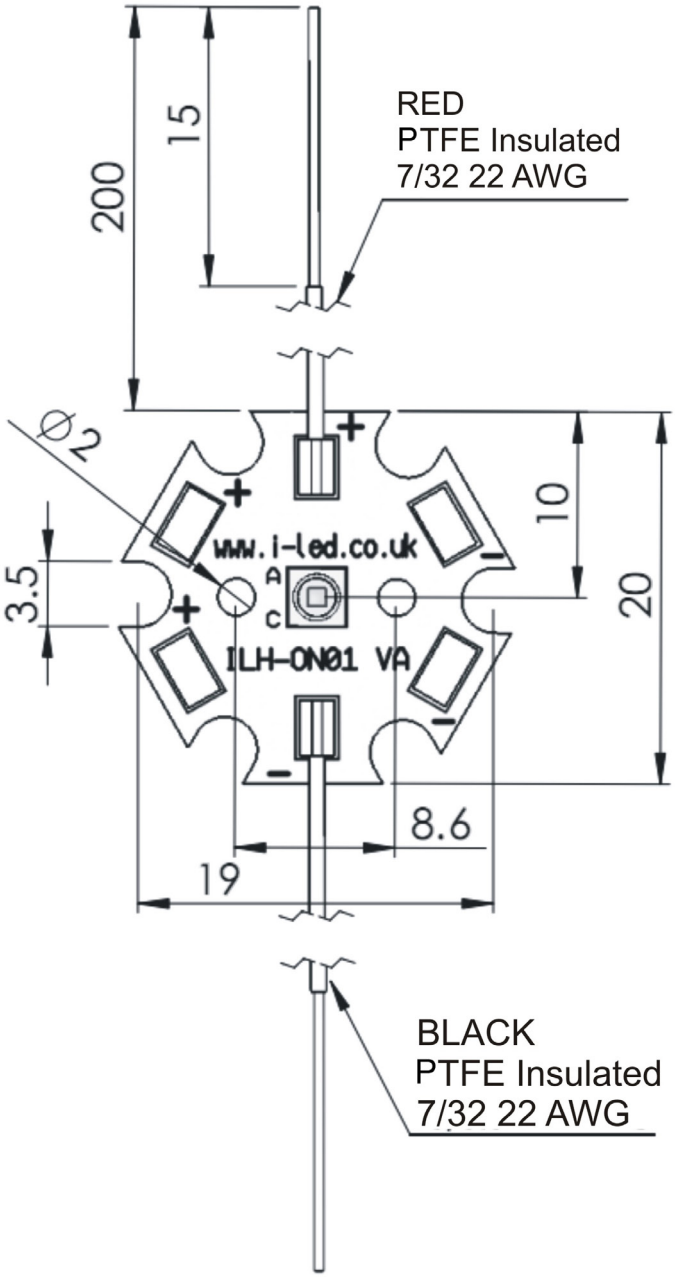
Power Supplies

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)

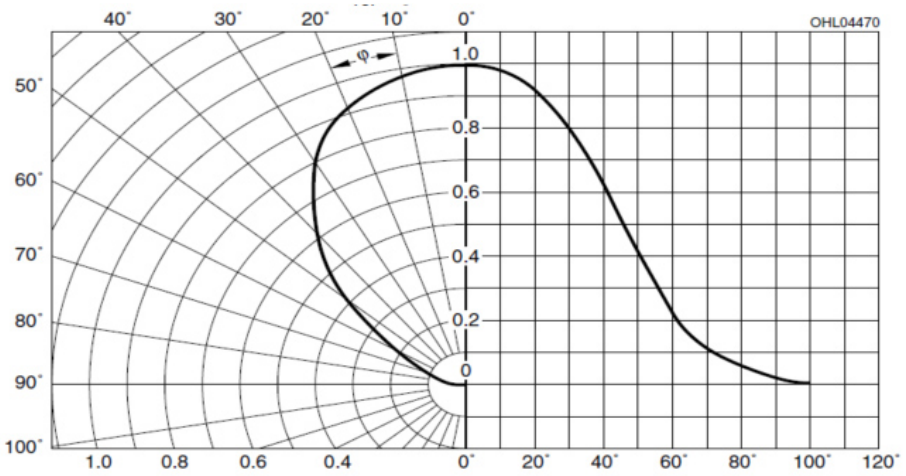
ILS has produced a range of high-performance, cost effective thermal interface materials to perfectly match their standard products. Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the heatsink. ILS offers TIM in three options – 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)

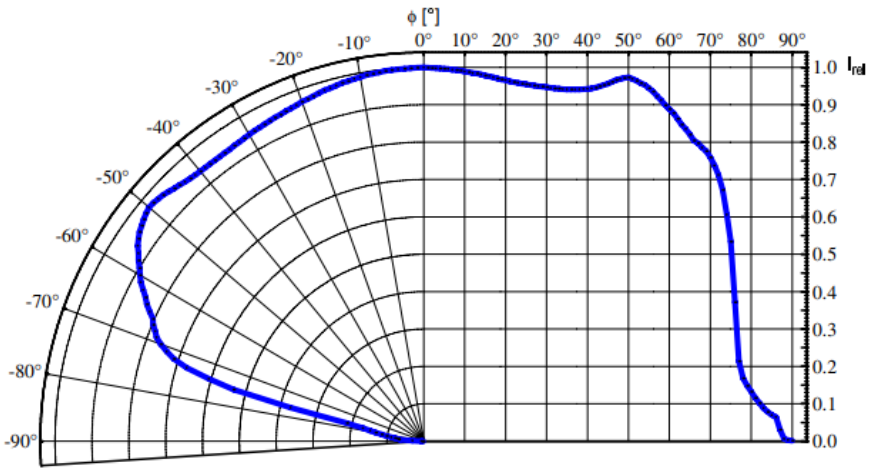


RADIATION OF SINGLE LED

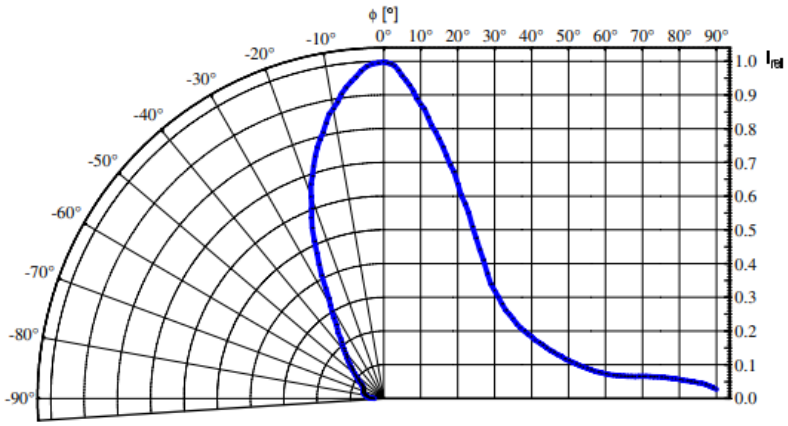
Radiation of single LED (IO)



Radiation of single LED (IW)



Radiation of single LED (IN)



SECONDARY OPTICS 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 down lights, 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
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

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HEATSINK OPTIONS

ILS Product		OSLON 1 PowerStars		
		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

	ILS Driver Part Number	Rating	Current	LED Driver Voltage	Dimming
	ILA-1CH-LED-TESTER-USB-01	5W	50-350mA	2-5V	No
	IZC035-004F-4065C-SAL	4W	350mA	3-12V	No
	IZC070-004F-4065C-SAL	4W	700mA	2-6V	No
	IZC035-008F-5065C-SA	8W	350mA	3-36V	No
	IZC070-008F-5065C-SA	8W	700mA	3-12V	No
	OTe 10/220...240/700 PC	10W	700mA	7-14V	Phase-cut
	OTi DALI 10/220...240/700 NFC I	10W	150-700mA	2.5-45V	DALI
	IZC035-017F-0067A-SA	17W	350mA	6-48V	No
	OTi QBM 20/220...240/500 NFC S	20W	200-500mA	20-50V	Bluetooth
	OTi QBM 40/220...240/1A0 NFC S	40W	500-1050mA	20-50V	Bluetooth
	IT-FIT-4/220-240/400-CS-I	4W	100-400mA	2.5-10V	No
	IT-FIT-7/220-240/700-CS-I	7W	350-700mA	2.5-11V	No
	IT-FIT-11/220-240/500-CS-I	11W	350-500mA	11-21V	No
	IT-FIT-15/220-240/700-CS-I	11W	550-700mA	11-21V	No

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

LED modules, when operated, can reach high temperatures thus there is risk of injury if they are touched.

LED modules 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 LED modules with a power supply with unlimited current. Connection to constant voltage power supplies that are not current limited may cause the PLED module 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 LED modules.

The LED modules, 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 Tc 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.

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