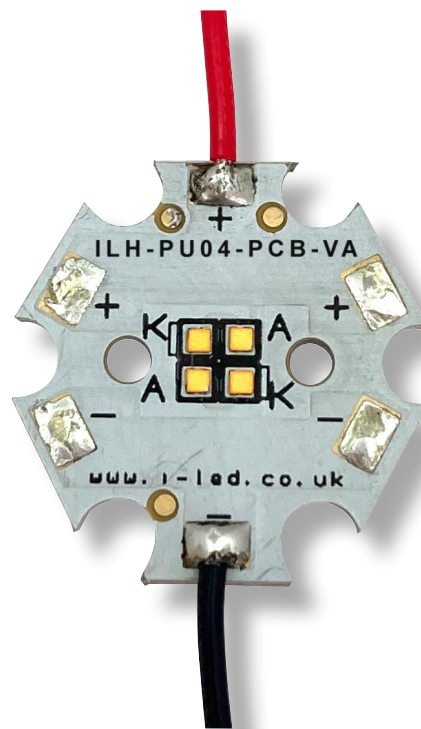




# OSLON Pure 1414 4 PowerStar Whites

ILH-PU01-xx90-SC221-WIR200.

At the heart of each PowerStar are 4 OSLON® Pure 1414 chip scale LEDs. OSLON® Pure 1414 LEDs can be driven up to 1000mA while OSRAM's latest power chip technology remains efficient even at the highest drive currents. The OSLON Pure® 1414, one of the best lumen density, excellent efficiency and color homogeneity. PowerStars are compact, powerful LED light sources built on aluminium substrates for optimal thermal management. Available with 200mm wires as standard.



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## APPLICATIONS

- » General lighting
- » Decorative lighting
- » Task lighting
- » Spot lighting
- » Downlighters
- » Retail lighting
- » Entertainment lighting

## TECHNICAL FEATURES

|                               |   |
|-------------------------------|---|
| <b>LED Family</b>             | OSLON® Pure 1414  |
| <b>Lifetime</b>               | Up to 100,000 hours lifetime to 70% of original brightness  |
| <b>Mounting</b>               | Mounting holes using M3 screws allow easy installation  |
| <b>Dimensions (L x W x H)</b> | 20 x 20 x 2.35mm  |
| <b>Wiring</b>                 | Available with 200mm connecting wires   |
| <b>Lenses</b>                 | A secondary lens can be fitted. Suitable options on <a href="#">page 6</a> or visit <a href="#">our website</a> for a full range  |
| <b>Heatsinks</b>              | Required over 350mA. Suitable options on <a href="#">page 6</a> or visit <a href="#">our website</a> for a full range             |
| <b>Power Supply</b>           | 4 - 75W dimming and non dimming. Suitable options on <a href="#">page 7</a> or visit <a href="#">our website</a> for a full range |
| <b>Chain</b>                  | PowerStars can be linked together to produce longer chains  |
| <b>Current Range</b>          | 10-1000mA   |
| <b>Thermal Resistance</b>     | 5.9K/W  |

## PRODUCT OPTIONS

| ILS Part Number             | Colour        | Colour Temp<br>(Degrees Kelvin) | Typical Power W § |          | Forward Voltage | Flux †<br>at 350mA | Radiance Angle | Relevant OSRAM<br>LED Data |
|-----------------------------|---------------|---------------------------------|-------------------|----------|-----------------|--------------------|----------------|----------------------------|
|                             |               |                                 | at 350mA          | at 700mA |                 |                    |                |                            |
| ILH-PU04-UW90-SC221-WIR200. | Ultra-Warm    | 1800K                           | 3.92W             | 7.84W    | 10.4-12V        | 280lm              | 120° (±60°)    | GW VJLPL1.CM               |
| ILH-PU04-HW90-SC221-WIR200. | Hot White     | 2700K                           | 3.92W             | 7.84W    | 10.4-12V        | 420lm              | 120° (±60°)    | GWVJLPL1.CM                |
| ILH-PU04-WM90-SC221-WIR200. | Warm White    | 3000K                           | 3.92W             | 7.84W    | 10.4-12V        | 420lm              | 120° (±60°)    | GWVJLPL1.CM                |
| ILH-PU04-QZ90-SC221-WIR200. | Quartz White  | 3500K                           | 3.92W             | 7.84W    | 10.4-12V        | 460lm              | 120° (±60°)    | GWVJLPL1.CM                |
| ILH-PU04-NW90-SC221-WIR200. | Neutral White | 4000K                           | 3.92W             | 7.84W    | 10.4-12V        | 460lm              | 120° (±60°)    | GWVJLPL1.CM                |
| ILH-PU04-WH90-SC221-WIR200. | White         | 5000K                           | 3.92W             | 7.84W    | 10.4-12V        | 480lm              | 120° (±60°)    | GWVJLPL1.CM                |
| ILH-PU04-UL90-SC221-WIR200. | Ultra White   | 6500K                           | 3.92W             | 7.84W    | 10.4-12V        | 460lm              | 120° (±60°)    | GWVJLPL1.CM                |

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 350mA pulse at 85 °C

## MINIMUM AND MAXIMUM RATINGS

| ILS Part Number             | Operating Temperature at<br>Tc-Point [ °C ] | Storage<br>Temperature [ °C ] | Forward Current per<br>chip [mA] | Reverse Voltage [Vdc]              |
|-----------------------------|---|-------------------------------|----------------------------------|------------------------------------|
| ILH-PU04-UW90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-HW90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-WM90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-QZ90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-NW90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-WH90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |
| ILH-PU04-UL90-SC221-WIR200. | -40 °C ~ 100 °C                             | -40 °C ~ 100 °C               | 10-1000mA                        | Not designed for reverse operation |

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.

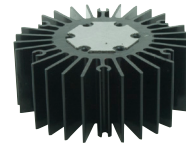
## ACCESSORIES

### Lenses



LEDiL precision-engineered lenses 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 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.

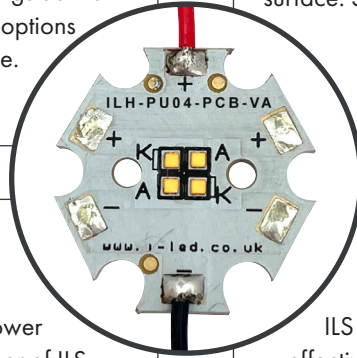
### Power Supplies

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)

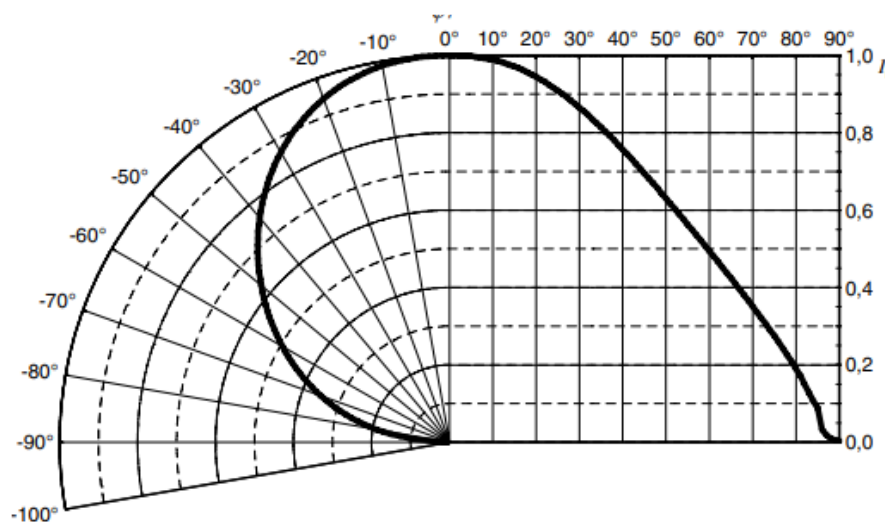
ILS has produced a range of high-performance, cost effective Thermal Interface Materials to perfectly match their standard products. Our product fills the air pockets between the two surfaces, forming a continuous layer to conduct heat away from the LED to the heatsink. ILS offers TIM in three options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

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





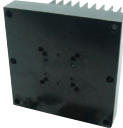

### RADIATION OF SINGLE LED



## LENS OPTIONS

Currently there are no lens options for this LED PowerStar.

## HEATSINK OPTIONS








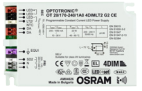



| ILS Product              |   | 350mA  | 700mA  | 1000mA |
|--------------------------|---|--------|--------|--------|
| No Heatsink, in free air |   | Yellow | Red    | Red    |
| ILA-HSINK-STAR-50X20MM   |    | Green  | Yellow | Yellow |
| ILA-HSINK-STAR-50X40MM   |    | Green  | Yellow | Yellow |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

### 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 | Current    | IIS Driver Output Voltage  | Dimming                                     |
|---|--------------------------------|--------|------------|--|---|
|    | IZC035-008F-5065C-SA           | 8W     | 350mA      | 3-36V  | None  |
|    | OTe 10/220...240/700 PC        | 10W    | 700mA      | 7-14V  | Phase Cut Dimming                           |
|    | OTI-DALI-10/220-240/700-NFC    | 10W    | 150-700mA  | 2.5-45V  | DALI  |
|    | OTi DALI 15/220...240/1A0 NFC  | 15W    | 150-1050mA | 7.5-54V  | DALI  |
|    | OTi DALI 15/220...240/1A0 LT2  | 15W    | 150-1050mA | 7.5-54V  | DALI  |
|    | IZC035-017F-0067A-SA           | 17W    | 350mA      | 6-48V  | None  |
|    | OT20/170-240/1A0-1DIMLT2-G1-CE | 20W    | 200-1050mA | 10-38V   | ADIM  |
|   | OT20/170-240/1A0-4DIMLT2-G2-CE | 20W    | 200-1050A  | 10-38V   | 4DIM / AstroDIM / DALI / MainsDIM / StepDIM |
|  | IZC050-018T-9500A-SX           | 18W    | 500mA      | 9-36V  | Mains Dimming                               |
|  | IZC070-018T-9500A-SX           | 18W    | 700mA      | 6-26V  | Mains Dimming                               |
|  | IZCVAR-040M-9020C-SAL          | 40W    | 350-1050mA | 350mA 2-100V, 500mA 2-80V, 600mA 2-67V, 700mA 2-57V, 900mA 2-45V, 1050mA 2-40V | 0-10V, PWM and Resistance                   |

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## THERMAL INTERFACE MATERIAL OPTIONS

| Non Adhesive    | Single Sided Adhesive | Double Sided Adhesive |
|-----------------|-----------------------|-----------------------|
| ILA-TIM-STAR-OA | 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.



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



PowerStars 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 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.



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 PowerStars.



The 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 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 info and to see our full ranges.



Unit 2, Berkshire Business Centre,  
Berkshire Drive, Thatcham,  
Berkshire, RG19 4EW  
+44 (0)1635 294606

[info@i-led.co.uk](mailto:info@i-led.co.uk)

<https://i-led.co.uk>

## 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

