

# OSCONIQ P2226 33 LED Florence Mid Power Horticulture Recipe Board

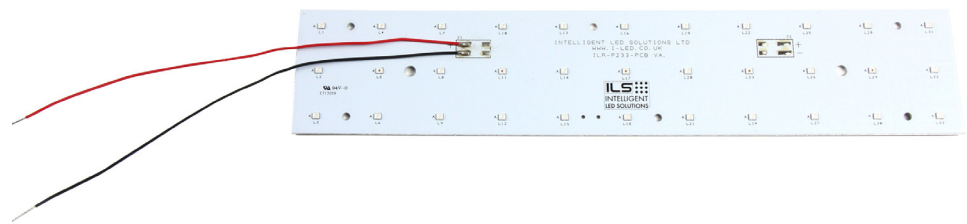
IHR-P233-xxxxxx-SC221.

## Product Overview

Intelligent Horticultural Solutions (IHS) has a range of LED Light Engines designed for the key stages of plant development from germination/seeding to flowering and fruiting. Working closely with OSRAM Opto Semiconductors, IHS has identified 8 key LED recipes and produced a range of bespoke light engines. There are recipes for Seeding, Biomass, Fruiting and Flowering, IHS also have recipes for those with no/limited sunlight in these variations. This datasheet contains recipes based on our 33 LED Horticultural Florence Board; the 33 LED Florence Board is a PCB featuring 33 OSCONIQ P2226 Mid-Power LEDs from OSRAM Opto Semiconductors.

## Applications

- Environmental Chambers
- Propagators
- Vertical Farms
- Indoor Farming
- Schools and Universities
- Research Institutes



## Technical Features

- Thin profile to maximise growing space
- Size: 280mm x 55mm x 3mm (length x width x height)
- Incorporating industry leading LEDs from OSRAM Opto Semiconductors
- Secondary Lens can be fitted – check suitable options in Lens and Reflector section
- Suitable Heatsinks available – check suitable options in Heatsink section
- Matching Power Supply available – check suitable options in Power Supply section

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

## Important Information and Precautions


- The LEDs when powered up, are very bright. Thus it is advised that you do not look directly at it. Turn the Florence Board away from you and do not shine into the eyes of others
- The Florence Board will overheat in operation if not attached to a suitable Heatsink. Overheating can cause failure or irreparable damage.
- The Florence Board, when operated, can reach high temperatures thus there is a 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 might cause irreparable damage


Our Florence boards are targeting 4 areas of horticulture: Biomass, Seeding, Flowering and Fruiting. Each of these areas has a version based on whether the application is for supplemental lighting or a dark room environment.

## Standard Product Options

Our Florence range of products are targeting 4 areas of horticulture: Biomass, Seeding, Flowering and Fruiting with supplemental versions of these available for those with limited/no sunlight available.

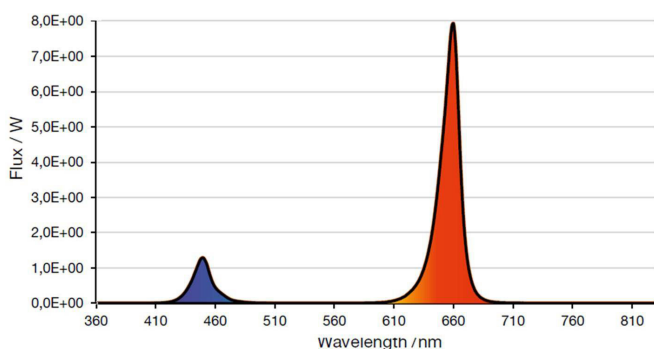
Each of these areas has a version based on whether the application is for an environment with existing daylight, or an environment with no or limited daylight.

 Products with this symbol have been designed to supplement already available daylight. We are assuming the end application gets enough good quality daylight and these products offer increases in critical wavelengths.

 Products with this symbol have been designed to replicate crucial wavelengths for their end application. We are assuming the end application has no daylight, and these products offer the only source of useable wavelengths.

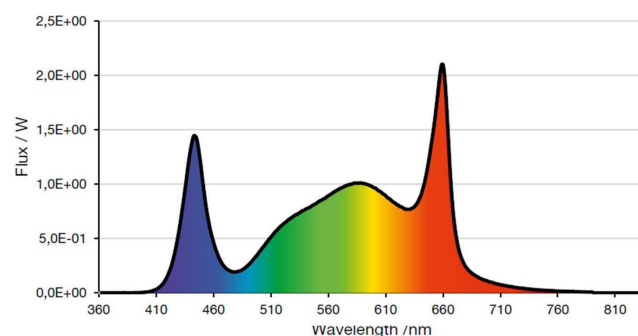
## Biomass with existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-4DB29HR-SC221.	4 Deep Blue 445nm	9.99W	5.45	52.35	72.3V	GDDASPA2.14
	29 Hyper Red 656nm		46.9			GHDASPA2.24



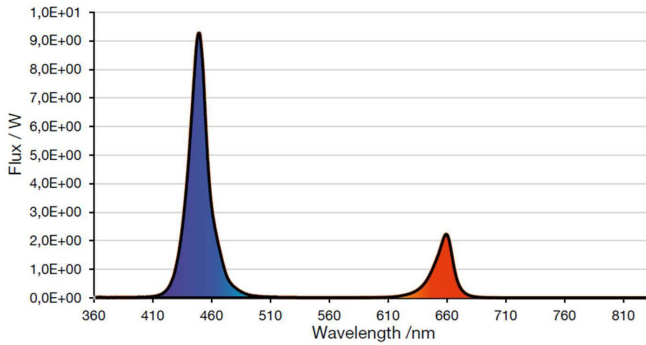
## Biomass without existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-27NW6HR-SC221.	6 Hyper Red 656nm	9.38W	9.70	45.57	89.55V	GHDASPA2.24
	27 Neutral White 4000K		35.87			GWDASPA2.EC



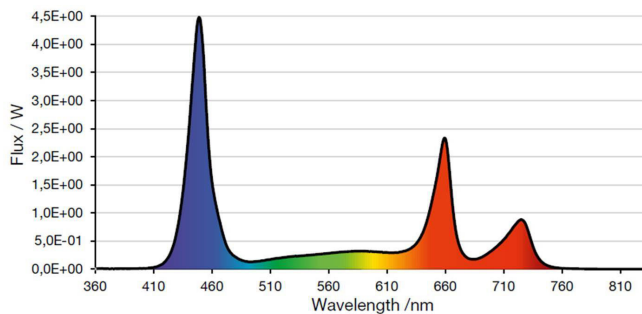
## Seeding with existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-5HR28DB-SC221.	28 Deep Blue 455nm	11.58W	38.17	46.26	90.3V	GDDASPA2.14
	5 Hyper Red 656nm		8.09			GHDASPA2.24



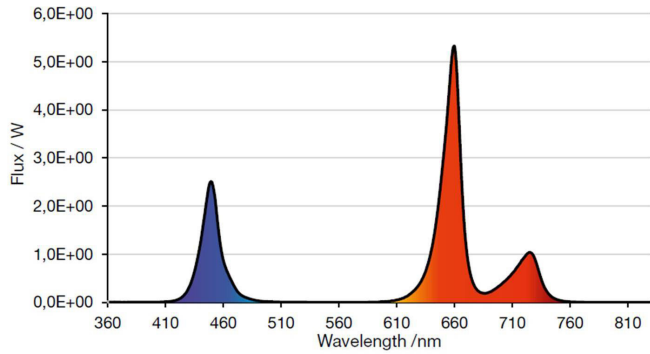
## Seeding without existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-11DB8N-W8HR5FR-SC221.	11 Deep Blue 455nm	9.65W	15	45.02	86.55V	GDDASPA2.14
	5 Far Red 730nm		6.45			GFDASPA2.24
	8 Neutral White 4000K		10.63			GWDASPA2.EC
	8 Hyper Red 656 nm		12.94			GHDASPA2.24



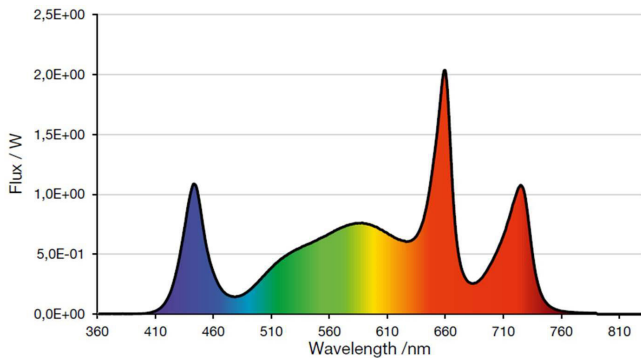
## Flowering with existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-19HR7DB-7FR-SC221.	19 Hyper Red 656 nm	9.06W	30.73	45.91	73.5V	GHDASPA2.24
	7 Deep Blue 455nm		9.54			GDDASPA2.14
	7 Far Red 730nm		5.64			GFDASPA2.24



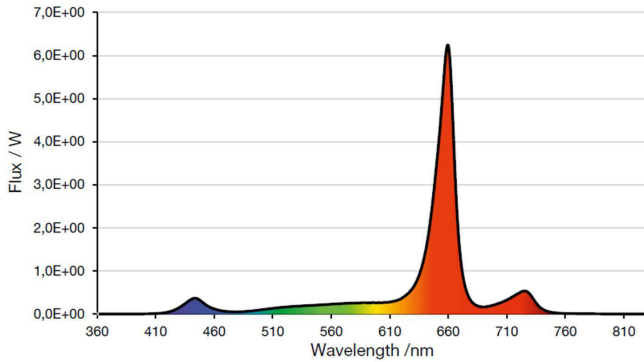
## Flowering without existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-19NW7HR-7FR-SC221.	19 Neutral White 4000K	8.35W	25.24	42.2	82.5V	GWDASPA2.EC
	7 Hyper Red 656 nm		11.32			GHDASPA2.24
	7 Far Red 730nm		5.64			GFDASPA2.24



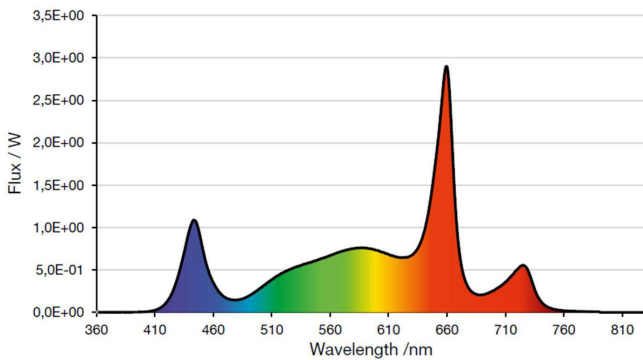
## Fruiting with existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-23HR7N-W3FR-SC221.	23 Hyper Red 656 nm	9.15W	37.19	48.91	74.1V	GHDASPA2.24
	7 Neutral White 4000K		9.3			GWDASPA2.EC
	3 Far Red 730nm		2.42			GFDASPA2.24



## Fruiting without existing daylight

IHS Part Number	LED Recipe	Total Optical Power (W)	Individual Photal Flux (umol)	Combined Photal Flux (umol)	Forward Voltage	Relevant OSRAM LED Data
IHR-P233-19NW10HR4FR-SC221.	19 Neutral White 4000K	8.83W	25.24	44.63	82.95V	GWDASPA2.EC
	10 Hyper Red 656 nm		16.17			GHDASPA2.24
	4 Far Red 730nm		3.22			GFDASPA2.24



## Minimum and Maximum Ratings

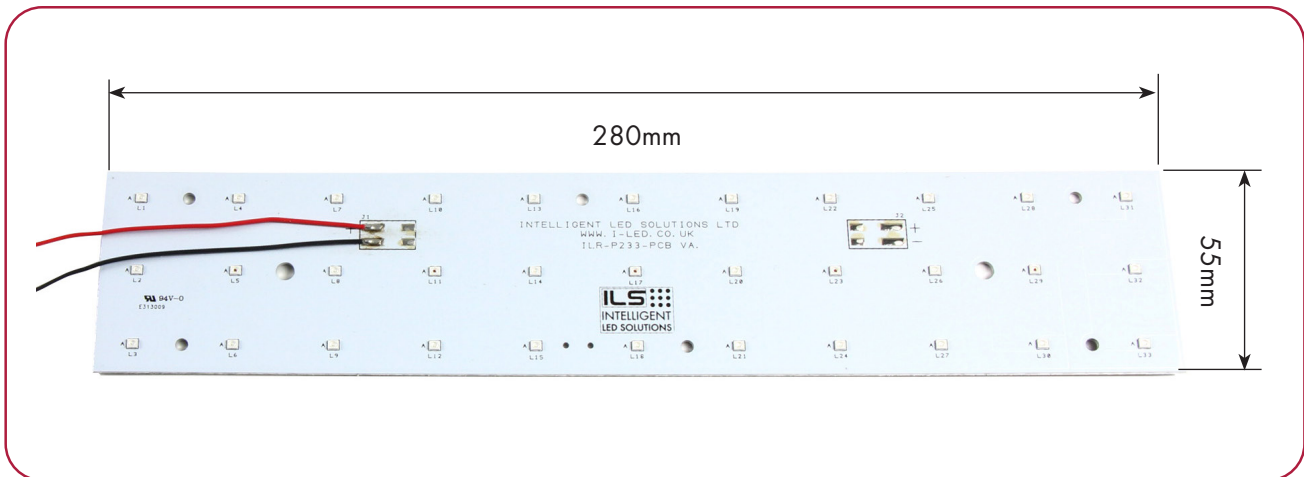
IHS Part Number	Operating Temperature at Tc-Point [°C]*	Storage Temperature [°C]*	Forward Current per chip	Reverse Voltage [Vdc]*
IHR-P233-4DB29HR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-27NW6HR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-5HR28DB-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-11DB8NW8HR5FR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-19HR7DB7FR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-19NW7HR7FR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-23HR7NW3FR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	Not designed for reverse operation
IHR-P233-19NW10HR4FR-SC221.	-40 °C -125 °C	-40 °C -125 °C	30 - 250mA	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.

## Technical Drawing with cables (mm)



**Full technical drawing to follow**

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

## 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 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	Size	Height	Family	FWHM	Material	Colour	Fastening
FS15626_FLORENCE-3R-IP-Z90	W	321.0 x 79.0mm	9.4mm	Florence	+/- 90	PC	Clear	Screw
FS15786_FLORENCE-3R-IP-Z60	W	321.0 x 79.0mm	9.4mm	Florence	+/- 60	PC	Clear	Screw
FS15847_FLORENCE-3R-IP-O	O	321.0 x 79.0mm	9.4mm	Florence	+/- 85 + 40	PC	Clear	Screw

## Heatsink Options

IHS has a series of Aluminium Alloy Heatsinks to be used with our standard range of PowerStars, PowerClusters and PowerLinear Engines. With these Heatsinks it is advised to attach these using M3 Taptite screws and a thermal interface material (can be viewed in the Thermal Interface Material section on page 8). More versions will be introduced over the coming months and we are also happy to manufacture custom Heatsinks to your request.

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

IHS Product	Current	no Heatsink in free air	ILA-HSINK-FLORENCE-340-VA	ILA-HSINK-FLORENCE-680-VA
OSCONIQ P2226 33 LED Florence Board	100mA			
	200mA			
	250mA			

## Drivers

IHS has a comprehensive range of standard Power Supplies. The table below shows forward voltage of each LED driver please consult the product options table to find the forward voltage of the PowerStar used.


Additional Power Supplies are being introduced so please call us or check our website for the latest offering.

To determine how many PowerStars can be used with each LED driver you will need the following. Forward voltage of the PowerStar and forward voltage of the LED Driver.

For example IHR-P233-19NW10HR4FR-SC221.. forward voltage of 82.95V (this can be found under Product Options page 2-5) and IZC035-017F-0067A-SA has an output voltage of 40-110V

To determine the minimum number of PowerStars this driver can run take the minimum output voltage of the Driver 40V and divide by the forward minimum voltage of the Florence Board  $82.95V - 40.00 \div 82.95 = 0.48$  Florence Boards. If the sum delivers a figure such as 2.3 or 7.7 when working out the minimum, you will need to round up the figure.

To determine the maximum number of Florence Boards this driver can run take the maximum forward voltage 48.00V and divide this by the maximum forward voltage of the Florence Board  $82.95V - 110.00 \div 82.95 = 1.32$  Florence Boards. If the sum delivers a figure such as 2.3 or 7.7 when working out the maximum, you will need to round the figure down.

IHS Driver Part Number	Rating	Current	Forward Voltage	Dimming	Image
IZC050-060F-9067C-QA	60W	500mA	40-110V	No	

## Thermal Interface Material Options

IHS has 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 Heatsink.

Product	Single Sided Adhesive
Florence LED Board	ILA-TIM-FLORENCE-280X55-1A

Other sizes are available, including customised parts.

## Assembly Information

- The mounting of the Florence LED Board 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 Florence LED Board.
- The Florence LED Board, 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 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 IHS

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

Intelligent Horticultural Solutions is a division of Intelligent Group Solutions, focusing on providing LED solutions to the rapidly evolving and highly important horticultural lighting market.

All trademarks recognised.