inventronics

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Lighting Systems
Horticulture

Horticulture

Rebranding Our Products from
OSRAM to Inventronics

Important Information for Our Customers

Valued Customer, we are pleased to inform you about an important update: following the acquisition of OSRAM Digital Systems by Inventronics in 2023, to ensure continuity of the quality and reliability of the products you trust, **all OSRAM Digital Systems products will transition to the Inventronics brand starting in 2025**, with OSRAM-branded deliveries ending in **March 2026**.

Why this change?

This transition protects the value of the technology, expertise and innovation that power your products and lighting solutions. While the OSRAM name will continue to appear in the marketplace, the trusted knowledge, original teams and proven processes are now part of Inventronics – your dedicated partner in advanced lighting technology.

Inventronics not only ensures you keep the access to the proven performance, innovation, and reliability that have been integral to OSRAM Digital Systems in the past, **but expands its capabilities to provide system solutions in your target application at a global scale.**

What is changing?

New Branding

The OSRAM logo on labels, packaging, documents, and certificates will be replaced by the Inventronics logo

Same Products

Features, names, and in most cases, certification numbers will remain unchanged.

New EANs

Each existing product will receive a new EAN for the Inventronics version, ensuring traceability.

Further Development by Inventronics

All future developments of these products will be handled by Inventronics, leveraging the proven expertise and high quality you have come to expect from OSRAM.

Certifications and Documentation

Consistency Ensured: Since 2023, our products have been listed under "Inventronics" in CB and ENEC certifications. After the transition, rebranded products will retain their certifications, ensuring your existing luminaire certifications remain valid.

Rebranding Without Compromise: Thanks to close coordination with certification bodies, the rebranding will be transparent, with no changes to the technical core functionalities.

About Inventronics

Building a Brighter Future

Inventronics is a premier global producer of cutting-edge lighting solutions such as LED drivers, sensors, control systems, and LED modules. With a strong commitment to quality, reliability, and compliance with international standards, we deliver innovative and efficient solutions to our customers worldwide. The acquisition of OSRAM Digital Systems in Europe and Asia in 2023 has strengthened our portfolio, development, capabilities, and expanded our global reach.

4 Own production sites on three continents

5 R&D centers

16 Warehouses

100+ Countries products are sold

2500+ Employees

4000+ Standard lighting products

ALL FIELDS OF APPLICATION

Commercial

Retail

Architectural

Signage

Sports

Horticulture

Street and Area

Industrial

Inventronics Lighting Systems

Why Choose Us?

A Broad Portfolio Of Dependable Products

You benefit from industry-leading comprehensive portfolio of indoor and outdoor high-quality, energy-efficient products and systems as well technical expertise in all lighting applications from a single source.

A Customer-Focused, Service-Driven Collaborator

We develop for and together with you best fitting components and solutions – from standard to customized.

A Forward-Looking, Global Enterprise

We provide consulting, know-how, products, and services from a single source worldwide. Our customer proximity is our core – with on-site contacts and direct connections, you benefit from our global reach.

An Innovative Technology Leader

Through continuous research and development, we improve and extend our range of highly reliable solutions with advanced technologies that ensure you are one step ahead.

A Trusted Partner for Lighting Companies and beyond

We don't compete with our customers; we work with you to create value and make you more successful.

At Inventronics, we are committed to delivering superior lighting solutions and building lasting partnerships for a brighter future.

Light for
sustainable
growth!

We craft 'Spectrum Chefs' (dynamic 380-800nm tuning) with multi-channel drivers, 'Energy Savers' (97.5% efficiency), and 'Environment Guardians' (IP67 waterproofing) – so every plant savors a tailored light recipe, turning growers' harvests from weather-dependent to light-driven.

Expertise

At the core of every bountiful harvest lies precision lighting. As the global leader in agricultural LED drivers, Inventronics delivers durable, fully customizable systems that adapt to your crops' lifecycle needs: Our advanced Horticulture lighting systems deliver:

Evergreen reliability | **Dynamic spectrum control to boost yields** | **Energy effiency for cutting utility costs**

System Value

- Multi-channel drivers with Power Transfer enabling dynamic 380-800nm wavelength adjustments to optimize photosynthesis boost yields.
- 97%+ driver efficiency with high luminous efficacy cuts energy costs.
- Multi-protocol support (0-10V/Digital dimming/ D4i) enable adaptive lighting strategies and fully controlled environment for harvest guarantee.
- IP67-rated waterproof drivers ensure reliable operation in humid greenhouses and extreme-temperature environments, minimizing downtime.
- Flexible lighting scheme setting with a precise control system.

Lighting System Solutions

LED Driver

Sub-applications

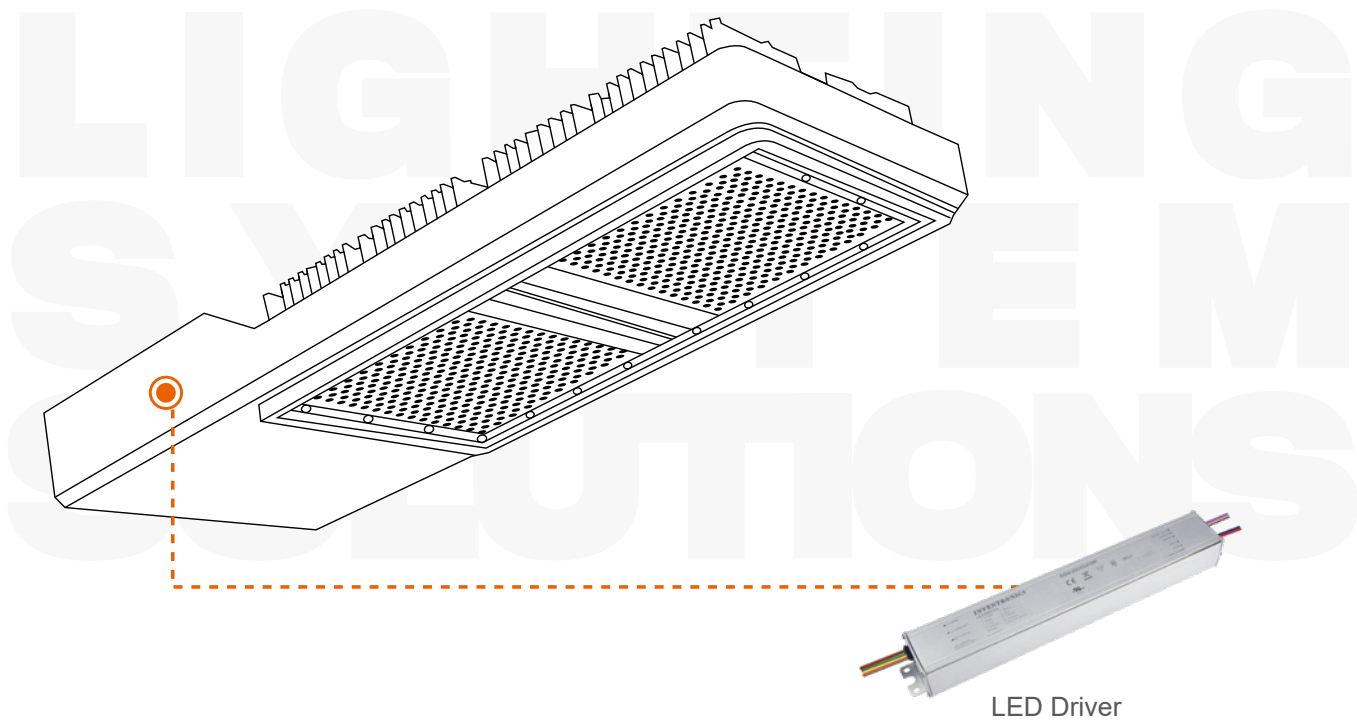Greenhouse | In farming | Animal Farming | Aqua Culture

A green lab nurturing natural wonders with artificial light.
Green house, the Netherlands

Inventronics Cases

Every tomato is nurtured by the gentle embrace of lighting, each bite a burst of sweetness.
Tomato Green house, Belgium

Product Portfolio

Lighting Systems – Horticulture

SOFTWARE

Software

Overview

Inventronics offers a comprehensive range of professional software solutions to support and configure its components.

T4T   **Apps**

Tuner4TRONIC

A software suite for OEMs that enables the configuration of all programmable OPTOTRONIC, ICUTRONIC, QUICKTRO NIC, and POWERTRONIC LED drivers during the luminaire manufacturing process.

DALI Wizard

A GUI tool for setting up, analyzing, and diagnosing DALI ECG installations, used in combination with the DALI Wizard control device.

PROGRAMMING TOOLS

Programming Tools

PRG-MUL2

Features
- Programmer for All Inventronics DALI and 0-10V Programmable Drivers
- Offline Programming Capability
- Automatic Programming Mode

PRG-NFC-H

Features
- For Use with Inventronics NFC Enabled Drivers
- Zhaga Book 24 Compliant
- USB Powered
- IP30
- Connects to Inventronics Multi-Programmer

PRG-NFC-D2

Features
- For Use with Inventronics NFC Enabled Drivers
- Zhaga Book 24 Compliant
- USB Powered
- IP42
- Connects to Inventronics Multi-Programmer Software

DALI magic

Features
- USB DALI converter for Tuner4TRONIC and DALI wizard software for Windows PC
- Pushbutton to test DALI dimming without need of connection to computer
- Powered by USB or by included universal power supply
- Integrated automatic DALI supply of up to 64 devices (up to 4 if powered by USB)

CONVERTERS

Converters

DALI-2
CNV-DALI2
DALI-2 Stadium/Stage Lighting Management Solutions

Features
- Convert DALI-2 Signal to 0/1-10V Dimming Signal
- Comply with DALI-2 Protocol
- Powered By Auxiliary Power with 3-Wire Connection to Driver

EUM-Mx
ESM-Mx

Advantages

- High Efficiency (Up to 96.5%)
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Programmability
- Input Voltage Range: 90 ~ 305Vac(EUM-Mx) 249-528Vac(ESM-Mx)
- Always-on Auxiliary Power: 12Vdc, 250mA, 3W (Transient Peak Power up to 10W)
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: IUVP, IOVP, OVP, SCP, OTP
- IP66 / IP67 and UL Dry / Damp / Wet Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5-Year Warranty

Dimming Functions

- Isolated 0-10V / PWM / 3-Timer-Modes Dimmable
- INV Digital Dimming, UART Based Communication Protocol
- Dim-to-Off with Standby Power

Safety Certifications

About EUM-Mx

The EUM-Mx series offers full power at a wide output current range and supply Controls-Ready features such as Dim-to-Off and an Always-On Auxiliary Power of 12Vdc, 250mA with a transient peak up to 10W to better power occupancy and day-light sensors. This provides a cost-optimized solution by removing the need for additional power packs and AC Relays. They offer a reliable performance with a high level of built-in surge protection and added Input Over Voltage (IOV) and Input Under Voltage (IUV) protection to help against poor power quality supplies to the LED driver. The MG series provides a global cable to reduce inventory SKUs, the MT Series are UL Class P recognized and the MB series are BIS certified to offer a solution for a wide range of applications and regions.

About ESM-Mx

The ESM-Mx family are high input voltage Controls-Ready drivers offering OEMs a cost-optimized solution. They provide design flexibility with full power at a wide output current range. Their Controls-Ready features such as Dim-to-Off and an Always-On Auxiliary Power of 12Vdc, 250mA with a transient peak up to 10W to better power occupancy and daylight sensors. The ESM-Mx operates on a vast array of lighting control networks via a 0-10V dimming input. These IP66/IP67 drivers have industry-leading built-in surge protection and longer lifetimes for harsh environmental applications. They provide the added convenience of UL Class P (MT series) and models with a global cable to reduce inventory SKUs (MG series).

EUM-Mx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 220Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
75	EUM-075S105Mx①	700 ~ 1050	36 ~ 107	90.5%	101,000 Tc= 70°C	142(125) × 67.5 × 36.5
	EUM-075S150Mx	1050 ~ 1500	25 ~ 72	89.5%		
	EUM-075S210Mx ★	1400 ~ 2100	18 ~ 54	89.0%		
100	EUM-100S105Mx	700 ~ 1050	48 ~ 143	92.5%	112,000 Tc= 70°C	148(131) × 67.5 × 36.5
	EUM-100S150Mx	1050 ~ 1500	34 ~ 95	92.5%		
	EUM-100S280Mx ★	1750 ~ 2800	17 ~ 54	91.0%		
150	EUM-150S105Mx	700 ~ 1050	72 ~ 214	93.5%	104,000 Tc= 70°C	178(161) × 67.5 × 36.5
	EUM-150S150Mx	1050 ~ 1500	50 ~ 143	93.0%		
	EUM-150S210Mx	1400 ~ 2100	36 ~ 107	92.5%		
	EUM-150S420Mx	2800 ~ 4200	18 ~ 54	91.5%		
200	EUM-200S105Mx	700 ~ 1050	95 ~ 286	93.5%	102,000 Tc= 70°C	188(171) × 67.5 × 36.5
	EUM-200S150Mx	1050 ~ 1500	67 ~ 190	93.5%		
	EUM-200S280Mx	1800 ~ 2800	36 ~ 111	93.0%		
	EUM-200S560Mx	3500 ~ 5600	18 ~ 57	92.0%		
240	EUM-240S105Mx	700 ~1050	115 ~ 343	94.0%	101,000 Tc= 70°C	218(201) × 67.5 × 38.5
	EUM-240S150Mx	1050 ~ 1500	80 ~ 229	93.5%		
	EUM-240S350Mx	2150 ~ 3500	35 ~ 111	93.0%		
	EUM-240S670Mx	4200 ~ 6700	18 ~ 57	92.5%		
320	EUM-320S105Mx	700 ~1050	153 ~ 457	94.5%	112,000 Tc= 70°C	243(224) × 80 × 44.5
	EUM-320S150Mx	1050 ~ 1500	107 ~ 305	94.0%		
	EUM-320S250Mx	1750 ~ 2500	64 ~183	94.0%		
	EUM-320S500Mx	2850 ~ 5000	32 ~ 112	93.5%		
	EUM-320S760Mx	5350 ~ 7600	21 ~ 60	92.5%		
400	EUM-400S150Mx	1050 ~ 1500	133 ~ 381	94.5%	113,000 Tc=70°C	262(243) × 90 × 43.5
	EUM-400S910Mx	7150 ~ 9100	24 ~ 56	94.0%		
480	EUM-480S140Mx	1050 ~ 1400	171 ~ 457	94.5%	102,000 Tc=70°C	262(243) × 90 × 43.5
	EUM-480S280Mx	2100 ~ 2800	86 ~ 228	94.0%		
	EUM-480S420Mx	3150 ~ 4200	57 ~ 152	94.0%		
	EUM-480S560Mx	4350 ~ 5600	43 ~ 110	94.0%		
	EUM-480S10AMx	8600 ~ 10000	24 ~ 56	94.0%		
680	EUM-680S170Mx	1250 ~ 1700	200 ~ 544	95.5%	107,000 Tc=70°C	275(250)×135 x 46
	EUM-680S240Mx	1800 ~ 2400	141.5 ~ 378	94.5%		
	EUM-680S350Mx	2600 ~ 3500	97.1 ~ 262	95.0%		
	EUM-680S560Mx	4200 ~ 5600	60.7 ~ 163	94.5%		
	EUM-680S840Mx	6300 ~ 8400	40.4 ~ 108	95.0%		
	EUM-680S15AMx	12600 ~ 15000	22.6 ~ 54	95.5%		
880	EUM-880S280Mx	1950 ~ 2800	157 ~ 452	95.0%	105,000 Tc= 70°C	275(250)×144 x 48.5
	EUM-880S420Mx	3000 ~ 4200	104 ~ 294	95.5%		
	EUM-880S700Mx	4900 ~ 7000	63 ~ 180	96.0%		
	EUM-880S11AMx	8000 ~ 11500	38 ~ 110	95.5%		
	EUM-880S20AMx	16300 ~ 20000	22 ~ 54	95.5%		

★ ：Class 2 Model

①：x=G are UL Recognized, ENEC and CCC, etc. models; x=T are UL Class P models.

ESM-Mx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
150	ESM-150S105Mx①	700 ~ 1050	72 ~ 214	93.5%	100,000 Tc=70°C	178(161)× 76.5× 38.5
	ESM-150S150Mx	1050 ~ 1500	50 ~ 143	93.0%		
	ESM-150S210Mx	1400 ~ 2100	36 ~ 107	92.5%		
	ESM-150S420Mx	2800 ~ 4200	18 ~ 54	92.0%		
240	ESM-240S105Mx	700 ~ 1050	115 ~ 343	94.0%	106,000 Tc= 70°C	218(201) × 76.5 × 38.5
	ESM-240S150Mx	1050 ~ 1500	80 ~ 229	93.5%		
	ESM-240S350Mx	2150 ~ 3500	35 ~ 111	93.0%		
	ESM-240S670Mx	4200 ~ 6700	18 ~ 57	92.5%		
320	ESM-320S105Mx	700 ~ 1050	153 ~ 457	95.0%	105,000 Tc= 70°C	243(224) × 85 × 44.5
	ESM-320S150Mx	1050 ~ 1500	107 ~ 305	94.5%		
	ESM-320S250Mx	1750 ~ 2500	64 ~ 183	94.5%		
	ESM-320S500Mx	2850 ~ 5000	32 ~ 112	94.0%		
	ESM-320S760Mx	5350 ~ 7600	21 ~ 60	94.0%		
480	ESM-480S140Mx	1050 ~ 1400	171 ~ 457	95.5%	100,000 Tc=70°C	262(243) × 90 × 43.5
	ESM-480S280Mx	2100 ~ 2800	86 ~ 228	95.5%		
	ESM-480S420Mx	3150 ~ 4200	57 ~ 152	95.0%		
	ESM-480S560Mx	4350 ~ 5600	43 ~ 110	95.0%		
	ESM-480S10AMx	8600 ~ 10000	24 ~ 56	95.0%		
680	ESM-680S170Mx/MGS	1250 ~ 1700	200 ~ 544	96.0%	102,000 Tc= 70°C	Mx: 275(250) ×135 x 46 MGS: 300(275) x 151 x 46
	ESM-680S240Mx/MGS	1800 ~ 2400	141.5 ~ 378	95.5%		
	ESM-680S350Mx/MGS	2600 ~ 3500	97.1 ~ 262	95.5%		
	ESM-680S560Mx/MGS	4200 ~ 5600	60.7 ~ 163	95.5%		
	ESM-680S840Mx/MGS	6300 ~ 8400	40.4 ~ 108	95.5%		
	ESM-680S15AMx/MGS	12600 ~ 15000	22.6 ~ 54	94.5%		
880	ESM-880S280Mx/MGS	1950 ~ 2800	157 ~ 452	96.0%	100,000 Tc= 70°C	Mx: 275(250)x144 x 48.5 MGS: 300(275) x 160 x 48.5
	ESM-880S420Mx/MGS	3000 ~ 4200	104 ~ 294	95.5%		
	ESM-880S700Mx/MGS	4900 ~ 7000	63 ~ 180	96.0%		
	ESM-880S11AMx/MGS	8000 ~ 11500	38 ~ 110	95.0%		
	ESM-880S20AMx/MGS	16300 ~ 20000	22 ~ 54	95.5%		
1200	ESM-1K2S350Mx/MGS	2600 ~ 3500	171 ~ 462	96.5%	101,000 Tc= 70°C	Mx: 310(285) × 141 × 48.5 MGS: 330(305) x 166.5 x 49.5
	ESM-1K2S525Mx/MGS	3950 ~ 5250	114 ~ 304	96.0%		
	ESM-1K2S740Mx/MGS	5550 ~ 7400	81 ~ 217	96.5%		

① : x=G are UL Recognized, ENEC and CCC, etc. models; x=T are UL Class P models.

NSM-1K2Q

Advantages

- Non-Isolated Design with Low Residual Output Voltage
- Independent Four Output Channels
- Dynamic Power Transfer and Traditional Power Transfer Selectable
- Full Power at Wide Output Current Range (Constant Power)
- Input Voltage Range: 249 ~ 528Vac
- Adjustable Output Current (AOC)with Programmability
- Integrated Power Metering with High Accuracy up to ±1%
- Hold Time Adjustable
- Fade Time Adjustable
- Always-on Auxiliary Power: 12Vdc, 500mA
- Low Inrush Current
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: IUVP, IOVP, OVP, SCP, OTP, OPP
- 5 Years Warranty

About NSM-1K2Q

The NSM-1K2Q series is a 1200W, 4-channel, constant-current, programmable LED driver that operates from 249-528Vac input with excellent power factor.The dimming control supports two-way communication via Digital Dimming, a UART based communication protocol with power transfer features to enable high efficiency mutiple channel solution for Horticulture lighting.

Dimming Functions

- INV Digital Dimming, UART Based Communication Protocol
- Dim-to-Off

Safety Certifications

CE   CB

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
660	NSM-1K2Q200MG	1300 ~ 2000	200 ~ 500	95.5%	54,000 Tc=80°C	499(474) × 90 × 48.5
180		1400 ~ 2200	40 ~ 129			
180		1400 ~ 2200	40 ~ 129			
180		1400 ~ 2200	40 ~ 129			

NFM-Gx/Mx
NSM-Gx/Mx

Advantages

- Input Voltage Range: 180 ~ 528Vac (NFM-Gx/Mx),
  249 ~ 528Vac (NSM-Gx/Mx)
- Non-Isolated Class I Driver
- No Afterglow
- Ultra High Efficiency (Up to 97.5%)
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with NFC
- Adjustable Dimming Curve
- Hold Time Adjustable
- Fade Time Adjustable
- Always-on Auxiliary Power: 12Vdc, 250mA (Except DMX-RDM Mode)
- Minimum Dimming Level Supports 0.1% for DALI-2 and DMX-RDM (Gx Models)
- Minimum Dimming Level Supports 1% for 0-10V, PWM, Resistor, and Digital Dimming
- Controls Up to 44 fps
- Integrated Power Metering with High Accuracy Up to ±1%
- Low Inrush Current
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 10kV, CM 10kV
- All-Around Protection: OPP, IOVP, IUVP, OVP, SCP, OTP
- IP66 / IP67 and UL Dry / Damp / Wet Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5-Year Warranty

About NFM-Gx/Mx & NSM-Gx/Mx

The NFM family features a non-isolated design that delivers highly efficient performance. It incorporates an exceptionally wide input range from 180-528Vac and supports multiple dimming methods including DALI-2/D4i, DMX/RDM, 0-10V, and more. Available also for Input Voltage 249-528Vac (NSM-Gx/Mx).

Dimming Functions

- DALI-2 and D4i Certified (Gx Model)
- DALI-2 & DMX-RDM Dimmable & 0-10V & PWM & 3-Timer-Modes Dimmable & Resistor (Gx Model)
- Adjustable 0-10V & PWM & 3-Timer-Modes Dimmable & Resistor (Mx Model)
- INV Digital Dimming, UART Based Communication Protocol

Safety Certifications

NFM-Gx/Mx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
500	NFM-500S200Gx/Mx①	1000 ~ 2000	150 ~ 500	96.0%	120,000 Tc=70°C	262(245) × 76.5 × 38.5
680	NFM-680S270Gx/Mx	1360 ~ 2700	150 ~ 500	97.0%	120,000 Tc=70°C	275(256) × 90 × 43.5
880	NFM-880S350Gx/Mx	1760 ~ 3500	150 ~ 500	97.0%	120,000 Tc=70°C	275(253) × 108 × 44.5
1200	NFM-1K2S480Gx/Mx	2400 ~ 4800	150 ~ 500	97.5%	108,000 Tc=70°C	310(288) × 108 × 48.5

NSM-Gx/Mx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
680	NSM-680S200Gx/Mx	1360 ~ 2000	150 ~ 500	97.0%	120,000 Tc=70°C	262(245) × 76.5 × 38.5
880	NSM-880S270Gx/Mx	1760 ~ 2700	150 ~ 500	97.5%	120,000 Tc=70°C	275(256) × 90 × 43.5
1200	NSM-1K2S350Gx/Mx	2400 ~ 3500	150 ~ 500	Gx: 97.0% Mx: 97.5%	120,000 Tc=70°C	275(253) × 108 × 44.5
1500	NSM-1K5S480Gx/Mx	3000 ~ 4800	150 ~ 500	97.5%	120,000 Tc=70°C	310(288) × 108 × 48.5

global-mark

① : x = G are UL Recognized, ENEC and CCC, etc. models; x = T are UL Class P models

ESM-1K0D/1K2T

Product Name	Channel	Output Power (W)	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 220Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
ESM-1K0D610Mx ①	1	900	4600 ~ 6100	110 ~ 195	94.5%	119,000 Tc=70°C	349(324) × 144 × 48.5
	2	100	1850 ~ 2100	34 ~ 54			

Product Name	Channel	Output Power (W)	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
ESM-1K2T570Mx	1	930	4600 ~ 5700	81 ~ 202	95.0%	120,000 Tc=70°C	379(354) × 144 × 48.5
ESM-1K2T570Mx	2	135	1850 ~ 2100	45 ~ 73	95.0%		
ESM-1K2T570Mx	3	135	1850 ~ 2100	45 ~ 73	95.0%		

Advantages

- Three Independent Output Channels and Independent Dimming
- Independent Dimming and Dim-to-Off
- Power Transfer Settable When 100W Channel is Off Status (1K0D)
- 135W Channel Power Transfer (Optional) (1K2T Model)
- Ultra High Efficiency (Up to 95.0%)
- Input Voltage Range: 249 ~ 528Vac
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Programmability
- Maximum Dimming Level with 9V or 10V Selectable
- Fade Time Adjustable
- Always-on Auxiliary Power: 12Vdc, 250mA
- Low Inrush Current
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: IOVP, IUVP, OVP, SCP, OTP
- Hot-Plugging Protection
- Parallel LED Protection
- IP66 / IP67 and UL Dry / Damp / Wet Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5-Year Warranty

About ESM-1K0D/1K2T

Inventronics 1000W/1200W products with multiple channels support 2/3-channel luminaires, allowing separate adjustment of current for each channel. These products also offer auxiliary voltage and Dim-to-Off functionality for powering low-voltage wireless controls. Additionally, they feature a power transfer function when a 100W channel is dimmed to off.

Dimming Functions

- Isolated 0-10V/PWM/3-Timer-Modes Dimmable
- INV Digital Dimming, UART Based Communication Protocol
- Dim-to-Off with Standby Power

Safety Certifications

c᷁ᴿᵁus E328335   FC   ⟨⟨K   CE   CB

① : x = G are UL recognized, ENEC, etc. models; x = T are UL recognized, etc. models.

NFL-Mx

NEL

Advantages

- No Afterglow
- Hot-plugging Protection
- Parallel LED Protection
- Ultra High Efficiency (Up to 98.0%)
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Programmability
- Isolated 0-10V/PWM/Resistor/3-Timer-Modes Dimmable
- INV Digital Dimming, UART Based Communication Protocol
- Adjustable Dimming Curve
- Dim-to-Off with Standby Power ≤ 0.5W
- Minimum Dimming Level with 5% or 10% Selectable
- Hold Time Adjustable
- Fade Time Adjustable
- Always-on Auxiliary Power: 12Vdc, 250mA
- Low Inrush Current
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: IOVP, IUVP, OVP, SCP, OTP
- IP66/IP67 and UL Dry/Damp/Wet Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location
- 5 Years Warranty

Dimming Functions

- Isolated 0-10V/PWM/Resistor/3-Timer-Modes Dimmable
- INV Digital Dimming, UART Based Communication Protocol

About NFL-Mx

The NFL-1K0SxxxMx series is a 1000W, constant-current, programmable and IP66/IP67 rated LED driver that operates from 180-528Vac input with excellent power factor. Created for many lighting applications including high mast, sports, UV-LED, aquaculture and horticulture, etc. It provides an auxiliary voltage and dim-to-off functionality for powering low voltage, wireless controls. The dimming control supports 0-10V dimming as well as two-way communication via Digital Dimming, a UART based communication protocol. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input under voltage, input over voltage, output over voltage, short circuit, and over temperature.

Safety Certifications

Advantages

- Ultra High Efficiency (Up to 97%)
- Non-Isolated Design with Low Residual Output Voltage
- No Afterglow
- Adjustable Output Current (AOC) with Programmability
- Input Voltage Range: 180 ~ 457 Vac
- Always-on Auxiliary Power: 12Vdc, 250mA
- Dim-to-Off with Standby Power ≤0.5W
- Low Inrush Current
- Fade-Time Adjustable
- End-of-Life Indicator
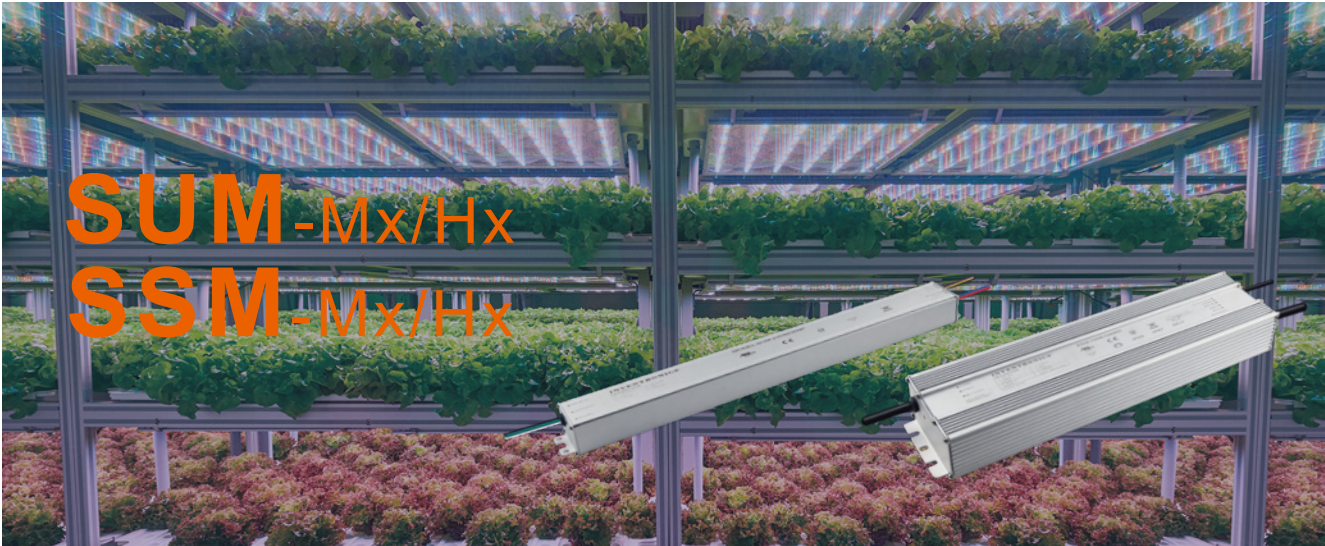- 5-Year Warranty

400W / 600W Features

- 43mm Width (Mx Model) / 40.5mm Width (MP Model)
- Maximum Dimming Level with 9V or 10V Selectable
- Isolated 0-10V / 10V PWM/Resistor / 3-Timer-Modes Dimmable
- IP65 and UL Dry/Damp Location (MF Model)
- IP66 / IP67 and UL Dry / Damp / Wet Location (MG/MT Models)
- IP20 (MP Model)
- Suitable for Luminaires with Protection Class I
- Input Surge Protection: DM 4 kV, CM 6 kV

1000W Features

- 90mm Width
- Maximum Dimming Level with 9V or 10V Selectable
- Minimum Dimming Level with 5% or 10% Selectable
- INV Digital Dimming, UART Based Communication Protocol
- Isolated 0-10V / PWM / Resistor / 3-Timer-Modes Dimmable
- IP66 / IP67 and UL Dry/Damp/Wet Location
- All-Around Protection: IOVP, IUVP, OVP, SCP, OTP
- Input Surge Protection: DM 6kV, CM 10kV

About NEL

The NEL family is a non-isolated, slim product designed for the horticulture industry and other applications requiring a linear form factor with a wide input voltage range of 180-457Vac. They provide high efficiency to reduce electricity consumption.

Safety Certifications

Output Power (W)	Product Name	Adjustable Current Range (mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
1000	NFL-1K0S400Mx	200 ~ 4000	150 ~ 500	98.0%	120,000 Tc = 70°C	328 x 90 x 43.5

Output Power (W)	Product Name	Output Current (mA)	Output Voltage Range (Vdc)	Eff.@ 400Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
400	NEL-400S140MP	730 ~ 1400	150 ~ 550	97.0%	102,000 Tc= 70°C	452 × 40.5 × 40
	NEL-400S140Mx ①	730 ~ 1400	150 ~ 550	97.0%	120,000 Tc=70°C	MF: 452(431) × 43 × 38 MG/MT: 462(441) × 43 × 38
600	NEL-600S220Mx	1100 ~ 2200	150 ~ 550	96.5%	103,000 Tc= 70°C	MF: 452(431) × 43 × 38 MG/MT: 462(441) × 43 × 38
1000	NEL-1K0S400Mx	2000 ~ 4000	150 ~ 500	97.5%	114,000 Tc= 70°C	310(291) × 90 × 43.5

①: P = Push Terminals ; x = F are UL Class P, ENEC, CE, etc. models with flying leads; x = G are UL Recognized, ENEC, CE, etc. models; x = T are UL Class P models

ntronics

About SUM-Mx/Hx

The SUM family encompasses slim products tailored for the horticulture industry and other applications that require a linear form factor and can operate within an input voltage range of 90-305Vac. They provide high efficiency to reduce electricity consumption.

About SSM-Mx/Hx

The SSM family are slim products for the horticulture industry and other applications requiring a linear form factor with an input voltage range of 249-528Vac. They provide high efficiency to reduce electricity consumption.

SUM-Mx/Hx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 220Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
110	SUM-110S105Mx①/HF	700 ~ 1050	80 ~ 157	Mx:91.5% HF:91.0%	120,000 Tc=70°C	MF/HF: 210(186) × 43.5 × 31.5 MG/MT: 220(196) × 43.5 × 31.5
	SUM-110S260Mx/HF	1950 ~ 2600	30 ~ 56	Mx:91.0% HF:90.5%	120,000 Tc=70°C	
220	SUM-220S530Mx/HF	4100 ~ 5300	30 ~ 54	94.0%	120,000 TC=70°C	MF/HF: 296(272) × 43.5 × 31.5 MG/MT: 306(282) × 43.5 × 31.5
330	SUM-330S690Mx/HF	6100 ~ 6900	34 ~ 54	Mx:95.5% HF:95.0%	103,000 TC=70°C	MF/HF: 396(372) × 43.5 × 31.5 MG/MT: 406(382) × 43.5 × 31.5
440	SUM-440S920Mx/HF	8200 ~ 9200	34 ~ 54	94.0%	117,000 TC=70°C	MF/HF: 426(402) × 43.5 × 31.5 MG/MT: 436(412) × 43.5 × 31.5
760	SUM-760S15AMx	14000 ~ 15800	34 ~ 54	95.5%	102,000 Tc=70°C	379(354) × 90 × 48.5
1000	SUM-1K0S400Mx	3200 ~ 4000	175 ~ 312	95.0%	110,000 Tc=70°C	414(389) × 90 × 48.5
	SUM-1K0S840Mx	6720 ~ 8400	84 ~ 149	95.0%	110,000 Tc=70°C	414(389) × 90 × 48.5
	SUM-1K0S21AMx	18500 ~ 21000	34 ~ 54	95.5%	110,000 Tc=70°C	414(389) × 90 × 48.5
1500	SUM-1K5S600Mx	4000 ~ 6000	175 ~ 375	96.0%	104,000 Tc=70°C	489(464) × 90 × 48.5
	SUM-1K5S12AMx	10000 ~ 12500	84 ~ 150	96.0%	104,000 Tc=70°C	489(464) × 90 × 48.5
	SUM-1K5S31AMx	28000 ~ 31500	34 ~ 54	96.0%	104,000 Tc=70°C	489(464) × 90 × 48.5

SSM-Mx/Hx

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
220	SSM-220S530Mx①/HF	4100 ~ 5300	34 ~ 54	94.5%	116,000 TC=70°C	MF/HF: 336(312) × 43.5 × 31.5 MG/MT: 346(322) × 43.5 × 31.5
330	SSM-330S690Mx/HF	6100 ~ 6900	34 ~ 54	Mx: 95.0% HF: 94.5%	108,000 TC=70°C	MF/HF: 416(392) × 43.5 × 31.5 MG/MT: 426(402) × 43.5 × 31.5
440	SSM-440S920Mx/HF	8200 ~ 9200	34 ~ 54	95.0%	108,000 TC=70°C	MF/HF: 426(402) × 43.5 × 31.5 MG/MT: 436(412) × 43.5 × 31.5
760	SSM-760S15AMx	14000 ~ 15800	34 ~ 54	95.0%	111,000 Tc=70°C	379(354) × 90 × 48.5
1000	SSM-1K0S400Mx	3200 ~ 4000	175 ~ 312	96.0%	100,000 Tc=70°C	414(389) × 90 × 48.5
	SSM-1K0S840Mx	6720 ~ 8400	84 ~ 149	95.5%	100,000 Tc=70°C	414(389) × 90 × 48.5
	SSM-1K0S21AMx	18500 ~ 21000	34 ~ 54	96.0%	100,000 Tc=70°C	414(389) × 90 × 48.5
1500	SSM-1K5S600Mx	4000 ~ 6000	175 ~ 375	96.0%	100,000 Tc=70°C	489(464) × 90 × 48.5
	SSM-1K5S12AMx	10000 ~ 12500	84 ~ 180	95.5%	100,000 Tc=70°C	489(464) × 90 × 48.5
	SSM-1K5S31AMx	28000 ~ 31500	34 ~ 54	96.0%	100,000 Tc=70°C	489(464) × 90 × 48.5

① : x = G are UL Recognized, CE, etc. models; x = T are UL Recognized, CE(built-in-use), etc. models; x = F are UL Recogized, CE(built-in-use) etc. models with flying leads.

SUM-MGS/MGR
SSM-MGS/MGR

Advantages

- Ultra High Efficiency (Up to 96%)
- Full Power at Wide Output Current Range (Constant Power)
- Input Voltage Range: 90 ~ 305Vac(SUM-MGS/MGR), 249 ~ 528Vac(SSM-MGS/MGR)
- Adjustable Output Current (AOC) with Programmability
- INV Digital Dimming, UART Based Communication Protocol
- Minimum Dimming Level with 5% or 10% Selectable
- Maximum Dimming Level with 9V or 10V Selectable
- Fade Time Adjustable
- Always-on Auxiliary Power: 12Vdc, 250mA
- Hot-plugging Protection
- Parallel LED Protection
- Low Inrush Current
- Output Lumen Compensation
- End-of-Life Indicator
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: IOVP, IUVP, OVP, SCP, OTP
- 5-Year Warranty

SUM-MGS/SSM-MGS Version Features

- Panel Mount Connectors Facilitate Installation
- IP66/IP67 and UL Dry/Damp/Wet Location
- TYPE HL, for Use in a Class I, Division 2 Hazardous (Classified) Location

SUM-MGR/SSM-MGR Version Features

- Mount Connectors Facilitates Installation
- Rotary Switch+RJ12 Connector
- IP66 and UL Dry/Damp/Wet Location

About SUM-MGS/MGR & SSM-MGS/MGR

The SUM-MGS/MGR series is a constant-current, programmable LED driver that operates from 90-305Vac input designed for many lighting applications, including high mast, sports, UV-LED, aquaculture, horticulture, etc. It provides panel mount connectors to facilitate installation. It offers a rotary switch, RJ12 connector, and dim-to-off functionality. The dimming control supports 0-10V dimming and two-way communication via Digital Dimming, a UART-based communication protocol. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure a trouble-free operation, protection is provided against input surge, input under-voltage, input over-voltage, output over-voltage, short circuit, and over-temperature. Available also for Input Voltage 249-528Vac (SSM-MGR/MGS).

Dimming Functions

- Isolated 0-10V/PWM/Resistor/3-Timer-Modes Dimmable
- Dim-to-Off with Standby Power ≤ 0.5W

Safety Certifications

c ℞ᵁᴸ us   FC   CE   CB   ⬧   global-mark

SUM-MGS/MGR

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 220Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
760	SUM-760S15AMGS	14000 ~ 15800	34 ~ 54	95.5%	102,000 Tc=70°C	415(390) × 108 × 48.5
	SUM-760S15AMGR	14000 ~ 15800	34 ~ 54	95.5%	102,000 Tc=70°C	415(390) × 108 × 48.5
1000	SUM-1K0S400MGS	3200 ~ 4000	175 ~ 312	95.0%	110,000 Tc=70°C	450(425) × 108 × 48.5
	SUM-1K0S840MGS	6720 ~ 8400	84 ~ 149	95.0%		
	SUM-1K0S20AMGS	18500 ~ 20000	34 ~ 54	95.5%		
	SUM-1K0S400MGR	3200 ~ 4000	175 ~ 312	95.0%	110,000 Tc=70°C	450(425) × 108 × 48.5
	SUM-1K0S840MGR	6720 ~ 8400	84 ~ 149	95.0%		
	SUM-1K0S20AMGR	18500 ~ 20000	34 ~ 54	95.5%		

SSM-MGS/MGR

Output Power (W)	Product Name	Full-power Current Range(mA)	Output Voltage Range (Vdc)	Eff.@ 480Vac	Lifetime (hours)	Dimensions (L×W×H)(mm)
760	SSM-760S15AMGS	14000 ~ 15800	34 ~ 54	95.0%	111,000 Tc=70°C	415(390) × 108 × 48.5
	SSM-760S15AMGR	14000 ~ 15800	34 ~ 54	95.0%	111,000 Tc=70°C	415(390) × 108 × 48.5
1000	SSM-1K0S400MGS	3200 ~ 4000	175 ~ 312	96.0%	100,000 Tc=70°C	450(425) × 108 × 48.5
	SSM-1K0S840MGS	6720 ~ 8400	84 ~ 149	95.5%		
	SSM-1K0S20AMGS	18500 ~ 20000	34 ~ 54	96.0%		
	SSM-1K0S400MGR	3200 ~ 4000	175 ~ 312	96.0%	100,000 Tc=70°C	450(425) × 108 × 48.5
	SSM-1K0S840MGR	6720 ~ 8400	84 ~ 149	95.5%		
	SSM-1K0S20AMGR	18500 ~ 20000	34 ~ 54	96.0%		

PU-10Kx05KBxA

■ Features

- 90-305Vac Working Input Voltage
- Uoc=10kV & In=5kA
- Certified for both EN 61643-11 - T2 & T3
- Protection Mode for TN, TT and IT-Systems
- Available for Series & Parallel Installation
- Available for Class I & Class II luminaires
- Double Thermally Protected
- End-of-life LED Indicator
- High Temperature, 85℃ MaximumSurface Temp
- Input Over Voltage Protection at 440Vac with 48 Hours
- IP66 / IP67

SPD G3

■ Features

- Mains Voltage to 320Vac
- Suitable for Luminaries of Protection Class I/II
- Fully LED Driver Protection by Up <2kV
- High Surge Protection of Up to 20 kV / 10 kA (L-N); Comply with IEC 61643-11 - T3
- Maximum Surge Protection of Up to 20 kA; Comply with IEC 61643-11 - T2
- TÜV Approved Acc. to IEC 61643-11 – T2 & T3
- IP20(SPD G3)
- IP65(SPD P5 G3)

SPD G3   SPD P5 G3

PU-20Kx10KTxx

■ Features

- Compatible with Inventronics LED Drivers
- 90-305Vac Working Input Voltage
- 15 kA Maximum, 10 kA Nominal (15 strikes) Surge Current Rating Using Industry Standard 8/20μs Wave
- UL1449 Type 4, EN 61643-11 – Surge Protective Devices T2 & T3
- IEEE C62.41.2 Location Category C High
- High Temperature, 85℃ Maximum Ambient
- Flameproof Plastic Enclosure
- IP66

E467129

PU-20KS10KHT

■ Features

- Compatible with Inventronics LED Drivers
- 90-305Vac Working Input Voltage
- DM, CM Surge Protection Mode
- Maximum Discharge Current (Imax) 20kA, 8/20μs
- Nominal Discharge Current (In) 10kA, 8/20μs
- UL1449 Type 5 Recognized Component
- IEEE C62.41.2 Location Category C High Exposure
- High Temperature, 85℃ Maximum Surface Temp Rating

E467129

PS-20KS10KHT

■ Features

- Compatible with Inventronics LED Drivers
- 249-528Vac Working Input Voltage
- DM, CM Surge Protection Mode
- Maximum Discharge Current (Imax) 20kA, 8/20μs
- Nominal Discharge Current (In) 10kA, 8/20μs
- UL1449 Type 5 Recognized Component
- IEEE C62.41.2 Location Category C High Exposure
- High Temperature, 85℃ Maximum Surface Temp Rating

E467129

Planta Seed Brick

Advantages

- 2 standard color mixes recipes for different applications
- Module efficacy: up to 3.6 µmol/J (@rated conditions)
- PF up to 85 µmol/s (@rated conditions)
- Average lifetime (L90B10): up to 70,000 (up to temperature at Tp = 60 °C)
- Thermal protection by NTC on the LED Module
- Maximum working voltage 550 V for the system
- Geometry according to Zhaga Book 15

- Customized solutions (color-mix & form factor) possible
- Perfect fit to OPTOTRONIC HC and Industry Drivers
- Compatible to standard outdoor and industry optics, e.g. Ledil Strada series

Safety Certifications

CE

Product Name	EAN
PlantaSeed R90B10	4062172242394
PlantaSeed R30W70	4062172242417

Please note: Until the end of March 2026, deliveries may still include products under the OSRAM brand. Same products, same quality, different logo.

More Technical Data

Planta Seed Linear

Advantages

- 5-year system warranty when paired with OPTOTRONIC constant current LED power supplies
- 120° viewing angle per module
- Available module length: 1 ft/280 mm or 2 ft/560mm
- Dimensions: 280 mm or 560 mm x 20 mm x 6 mm
- Dimmable by OPTOTRONIC LED driver
- For operation with suitable OPTOTRONIC control gears
- Geometry according to Zhaga Book 7 L28W2 and L56W2
- Lifetime (L85 B10): up to 60,000 h (temperature at tc = 80 °C)
- Max. working voltage: 250 V
- Max. working voltage: 60 V (to be operated only on SELV LED control gear)
- PF up to 80 µmol/s (@rated conditions)

- Adjustable luminous flux, efficacy and lifetime
- Future-proof thanks to Zhaga conformity
- High homogeneity thanks to small LED pitch
- Optimized LED layout to deliver uniform light output
- Perfect fit to OPTOTRONIC HC and Industry Drivers
- SELV or non-isolated modules for easy luminaire design
- System guarantee in combination with OPTOTRONIC control gear and match with other driver portfolio
- Type of protection: IP00

Safety Certifications

CE

Product Name	EAN
Planta Seed PL-LIN-RW 280x20 LV/HV	4062172356855
Planta Seed PL-LIN-RWFR 280x20 LV/HV	4062172356879
Planta Seed PL-LIN-RW 560x20 LV	4062172356893
Planta Seed PL-LIN-RW 560x20 HV	4062172356916
Planta Seed PL-LIN-RWFR 560x20 LV	4062172356930
Planta Seed PL-LIN-RWFR 560x20 HV	4062172356954

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More Technical Data

Notes

inventronics