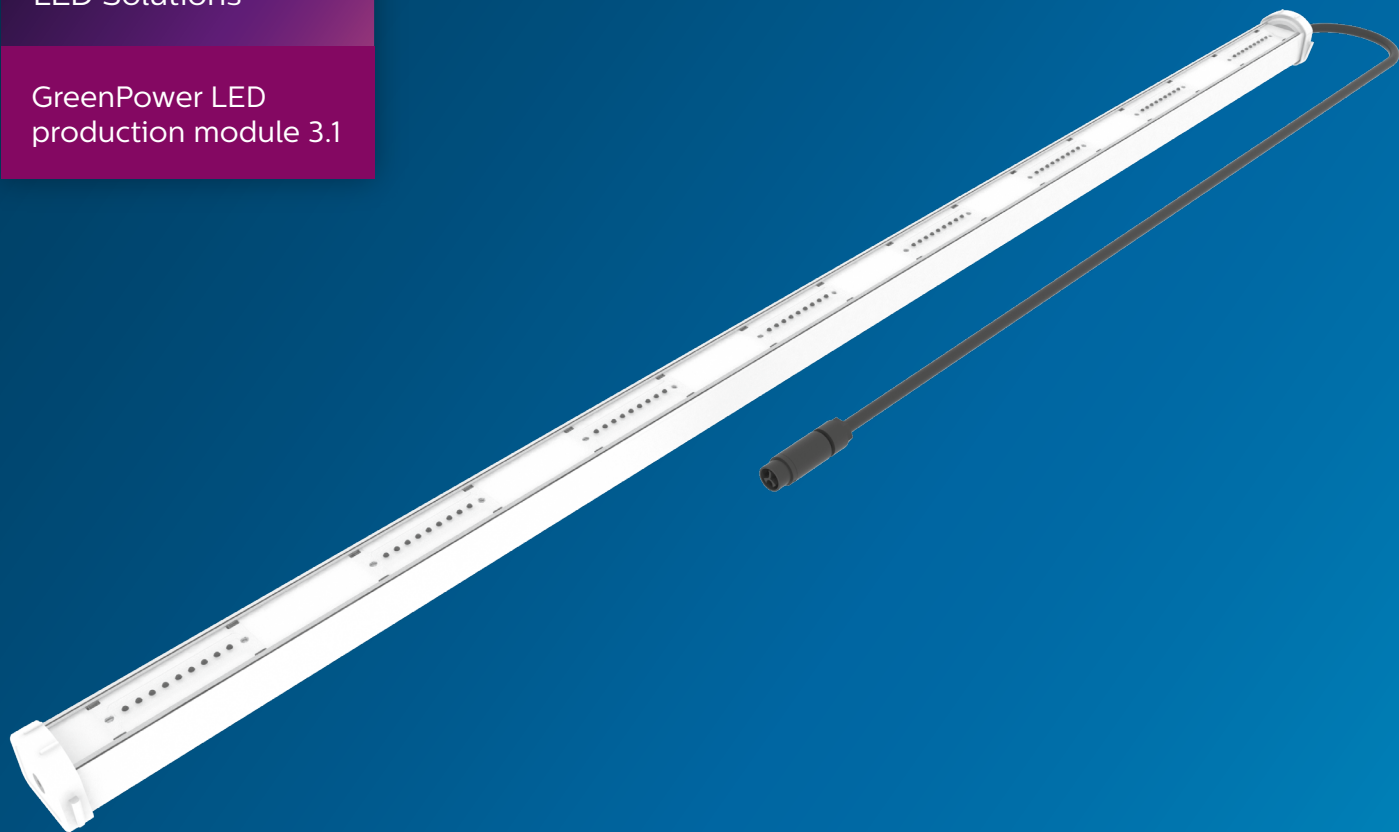


**PHILIPS**

Horticulture  
LED Solutions

GreenPower LED  
production module 3.1



## Application Guide

# Full control and flexibility to optimize multilayer crop cultivation

June 2022

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# Introduction

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Whether you use a multilayer system to grow the crispiest lettuce, the tastiest basil, or other vegetables or fruits, the GreenPower LED production module 3.1 enables you to optimize your lighting for every single crop to reach your business goals. Gain an edge in your market by tuning our dedicated light recipes to accommodate different growth stages, pre-harvest treatments, new crops. Thanks to the wide beam optics and high light output, this robust all-round module will prove to be a very economic investment.

The GreenPower LED production module 3.1 is available in different versions and lengths to fit your preferences. All available versions can be used as static (standard on-off) and are based on our proven light recipes. Next to that all versions are also compatible with the GrowWise Control System (GWCS) to allow color and light levels to be adjusted. The GWCS can be used as stand-alone system or can be integrated in your climate computer. The available lengths are 120, 150 and 240 cm.

**The GreenPower LED production module 3.1 is available for two regions:**

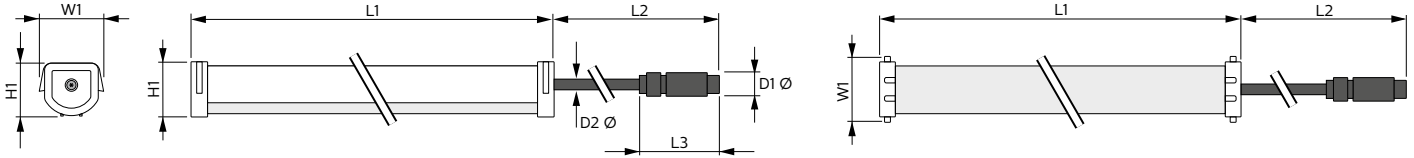
- International (EMEA, APAC, Russia)
- North America (NA)

For each region dedicated accessories (such as cabling, connectors) are available for an easy and quick installation.

This application guide describes all important technical and safety information of the GreenPower LED production module 3.1.

# Product information

## Dimensions



Product name	Product dimensions (mm/inch)										Product weight (kg/lbs)
	L1	W1	H1	L2	L3	D1Ø	INT		NA		
							D2Ø	mm <sup>2</sup>	D2Ø	AWG	
GPL production module L120	1200 / 47,2	56 / 2,20	44 / 1,73	800 / 31,5	64 / 2,52	19 / 0,75	8,0 / 0,31	2 x 1.0	7,7 / 0,30	2 x 18	1,25 / 2,8
GPL production module L150	1500 / 59,1	56 / 2,20	44 / 1,73	800 / 31,5	64 / 2,52	19 / 0,75	8,0 / 0,31	2 x 1.0	7,7 / 0,30	2 x 18	1,45 / 3,2
GPL production module L240	2400 / 94,5	56 / 2,20	44 / 1,73	800 / 31,5	64 / 2,52	19 / 0,75	8,0 / 0,31	2 x 1.0	7,7 / 0,30	2 x 18	2,05 / 4,5

## Technical specifications

The GreenPower LED production module 3.1 is available in different versions and lengths. All versions can be used as static (standard on-off) and are available in our proven light recipes. It is also possible to control all channels independently by means of the GrowWise Control System (GWCS). The Deep Red channel, Blue channel, White channel and Far Red channel are combined in different versions.

## Naming convention

GPL	PM	168	DRB LB	L120	3.1	SB
Subbrand	Product family	Photon flux (µmol/s)	Light recipe	Length (cm)	Generation	Version

Type	Static behaviour (no CM signal)			Dynamic behaviour (CM controlled)				Photon flux maximum / channel <sup>4</sup> ( $\mu\text{mol/s}$ )			
	Photon flux Typical	Power consumption	Efficacy typical <sup>1</sup>	Efficacy <sup>1</sup> at 50% dim <sup>2</sup>	Photon flux Typical Range	Power consumption (Maximum)	Efficacy typical <sup>1,3</sup>				
Color controllable	( $\mu\text{mol/s}$ )	(W)	( $\mu\text{mol/J}$ )	( $\mu\text{mol/J}$ )	( $\mu\text{mol/s}$ )	(W)	( $\mu\text{mol/J}$ )	DR	B	W	FR

PM 120											
GPL PM 168 DRB LB L120 3.1	168	51	3,3	3,4	0-168	70	up to 3,5	229	48,5	-	-
GPL PM 168 DRB HB L120 3.1	168	56	3,0	3,1	0-168	70	up to 3,5	229	97	-	-
GPL PM 168 DRBFR LB L120 3.1	168	51	3,3	3,5	0-168	70	up to 3,5	229	48,5	-	43,2
GPL PM 168 DRW LB L120 3.1	168	58	2,9	3,0	0-168	70	up to 3,5	229	-	89	-
GPL PM 168 DRWFR LB L120 3.1	168	58	2,9	3,0	0-168	70	up to 3,5	229	-	89	43,2
GPL PM 168 DRBWFR L120 3.1 C4	168	53	3,2	3,3	0-168	70	up to 3,5	171	48,5	89	43,2
GPL PM 168 DRBWFR R L120 3.1 C4	168	51	3,3	3,5	0-168	70	up to 3,5	229	97	89	86,4

PM 150											
GPL PM 210 DRB LB L150 3.1	210	64	3,3	3,4	0-210	88	up to 3,5	286	60,5	-	-
GPL PM 210 DRB HB L150 3.1	210	70	3,0	3,1	0-210	88	up to 3,5	286	121	-	-
GPL PM 210 DRBFR LB L150 3.1	210	64	3,3	3,5	0-210	88	up to 3,5	286	60,5	-	54
GPL PM 210 DRBFR_2 L150 3.1	210	72	2,9	3,1	0-210	88	up to 3,5	286	60,5	-	54
GPL PM 210 DRW LB L150 3.1	210	73	2,9	3,0	0-210	88	up to 3,5	286	-	111	-
GPL PM 210 DRWFR LB L150 3.1	210	73	2,9	3,0	0-210	88	up to 3,5	286	-	111	54
GPL PM 210 DRBWFR L150 3.1 C4	210	66	3,2	3,3	0-210	88	up to 3,5	214	60,5	111	54
GPL PM 210 DRBWFR R L150 3.1 C4	210	63	3,3	3,5	0-210	88	up to 3,5	286	121	111	108
GPL PM 280 DRBWFR L150 3.1 SB	280	88	3,2	3,5	0-280	88	up to 3,5	293	62	56,5	55,5
GPL PM 210 FR L150 3.1	210	88	2,4	2,8	0-210	88	up to 2,8	-	-	-	210

PM 240											
GPL PM 210 DRBFR LB L240 3.1	210	66	3,2	3,4	0-210	88	up to 3,5	229	97	-	86,4
GPL PM 210 DRW LB L240 3.1	210	76	2,8	2,9	0-210	88	up to 3,5	229	-	89	-
GPL PM 210 DRWFR LB L240 3.1	210	75	2,8	3,0	0-210	88	up to 3,5	229	-	89	86,4
GPL PM 210 DRBWFR L240 3.1 C4	210	66	3,2	3,4	0-210	88	up to 3,5	230	76	142	61,6

**Legend:**

**Product**

GPL = GreenPower LED  
PM = Production Module

**Light recipes**

DR = Deep Red  
B = Blue  
W = White  
FR = Far Red  
LB = Low Blue  
HB = High Blue

**Type**

SB = Standard Beam  
C4 = Four channel control  
R = Research

Specifications	Details
<b>Optical</b>	
Rated average lifetime <sup>1,5</sup>	36.000 hrs, L95 (95% flux maintenance)
<b>Electrical</b>	
Input voltage (except PM 210 FR L150)	120 - 277 V AC, 50-60 Hz
Input voltage PM 210 FR L150	200 - 277 V AC, 50-60 Hz
Power factor	> 0,9 at full load
Inrush current	3.0 A - 0.8 ms @ 120V 5.5 A - 0.8 ms @ 230V 7.0 A - 0.8 ms @ 277V
Standby power <sup>6</sup>	< 0.6W
<b>Control</b>	
Control channels	All channels independently controllable
Control protocol	Coded Mains (Philips patented)
Dimming range	0% (off) 1 - 100%

Specifications	Details
<b>Environment</b>	
Ambient storage temperature	-20 to 85 °C / -4 to 185 °F (T <sub>storage</sub> )
Ambient operating temperature	0 to 40 °C / 40 to 104 °F (T <sub>operating</sub> )
Max. case temperature <sup>1</sup>	70 °C / 158 °F (T <sub>case</sub> )
Cooling	Passively air-cooled
Relative humidity	5-95% RH, no condensation allowed during storage, operation and application
Ingress protection rating	IP66
UL/CSA rating	Wet locations
<b>Photobiological hazard<sup>7</sup></b>	
Radiation hazard - Retinal Blue	Risk Group 2 (Exempt group for PM 210 FR L150)
All other radiation hazards	Exempt group

<sup>1</sup> Efficacy typical / Rated average lifetime / Max. case temperature @ Tambient = 25 °C / 77 °F

<sup>2</sup> Based on 50% of the static flux and equal spectrum

<sup>3</sup> Depending on spectrum and total power

<sup>4</sup> Maximum photon flux is limited by the maximum power of the driver and is depending on spectral setting

<sup>5</sup> All measured lifetimes are industry standard measurements indicating average length of operation and not a performance claim specific to any individual product.

<sup>6</sup> only applies if controlled by GWCS

<sup>7</sup> For more information about photobiological hazard see page 6

## Important

### Influencing factors of light output

As ambient temperature increases, both the photon flux and the photon flux maintenance will decrease. Pollution or damage of optics will also impact the light output.

### Thermal protection

The ambient operating temperature range of the luminaire is 0 – 40 °C. A higher temperature might cause early failures to the driver and/or LED's. To prevent such early failures, a reliability loop is programmed in the driver. This reliability loop is triggered by a temperature sensor in the driver and will cause dimming behavior of the module. When the module is dimmed it will cool down and once a sufficiently low temperature is reached, it will automatically return to its previous setting. The dimming level depends on the temperature measured. At very high temperatures, the module will switch off completely. This reliability loop is only triggered at an ambient temperature above 40 °C or even higher.

### Power protection

The color controllable production modules will start blinking in case the sum of the requested channel levels is above the power limit. The software of the Philips GrowWise Control System ensures that this limit cannot be reached.

### Photobiological hazard

Photobiological safety of lamps and lamp systems (IEC/EN 62471).

This International Standard describes the photobiological safety of lamps and lamp systems including luminaires. The rating of the GreenPower LED production module 3.1 according to this standard can be found in the [technical specifications](#). Mind a safe application, or wear protection glasses, which filter out blue radiation (400–500 nm).



#### Risk Group 2:

Do not stare at the operating light source. The philosophical basis for this classification is that the lamp does not pose a hazard due to the aversion response to very bright light sources or due to the thermal discomfort.

#### Risk group 2

**Caution:** Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eye.

### Light source not replaceable

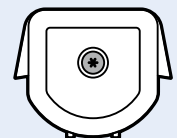
The light source of this luminaire is not replaceable. When the light source reaches its end-of-life, the entire luminaire needs to be replaced.

### Cable not replaceable

The external flexible cable or cord of this luminaire cannot be replaced. If the cord is damaged, the entire luminaire needs to be replaced.

### End Cap screw

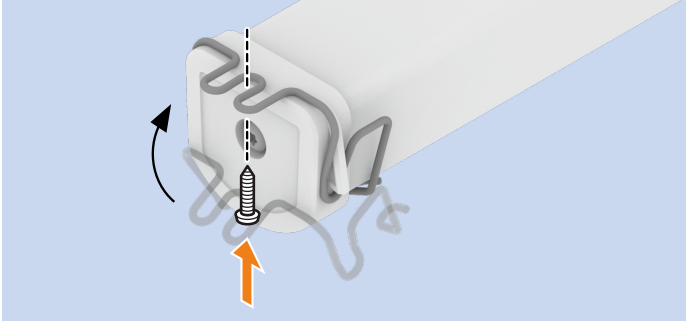
There is a hole in the end cap to perform a final leakage test during the assembly process in the factory. After the product has passed the test, the hole is closed with a Teflon seal and an M4 torque screw. This seal is for one time use only, if the screw is removed the IP66 rating of the product can no longer be guaranteed.



### For indoor use only

Modules are not suited to outdoor use and are not intended to be installed in stairways and horizontal travel paths.

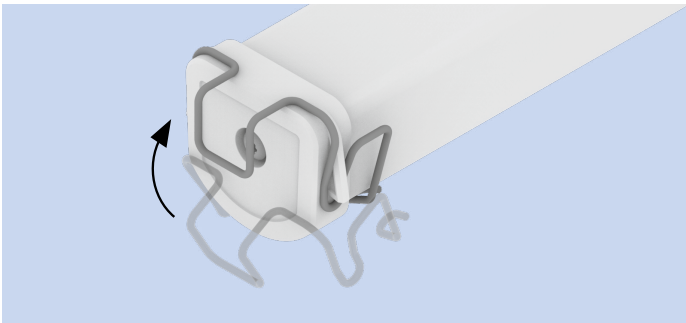
# Installation of the system



## Mounting options

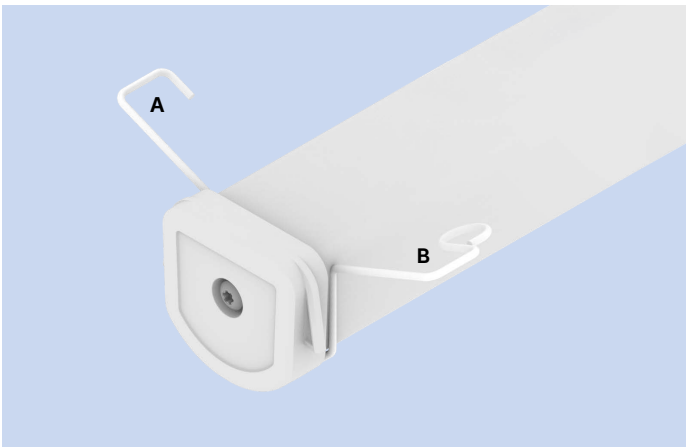
### GPL A PM bracket end screw M4

Mounting on the end cap. Screw the bracket against a top plate or frame by means of a self-tapping screw or bolt with a maximum diameter of  $\varnothing$  4.3 mm. It is also possible to place the flat protruding part of the bracket on a frame or to clamp it in a recess.



### GPL A PM bracket end hook 15

Mounting on the end cap. Place the bracket over a frame with a maximum width of 15 mm.

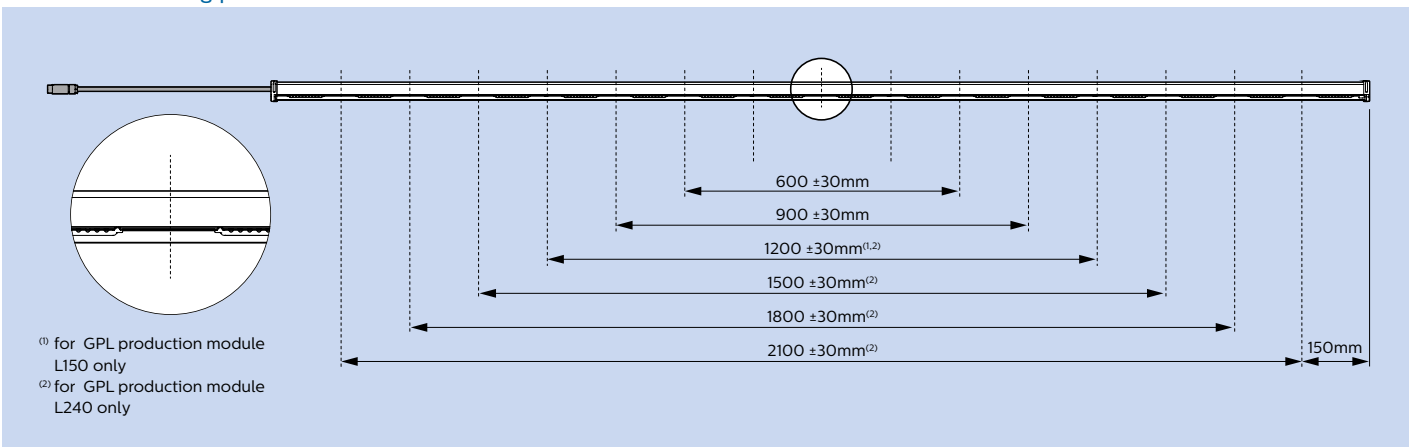


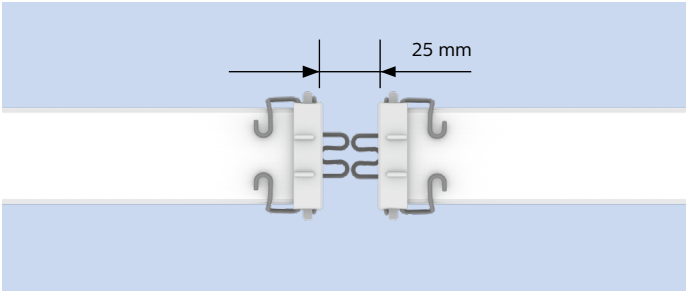
### GPL A PM bracket mid 15

Mounting between the end caps. Place side A over a frame with a maximum width of 15 mm. Then push side B over the frame so that it clicks. By means of side B the bracket can easily be disconnected.

Place the bracket at any desired location between the two end caps. However make sure that the bracket is not placed in front of an LED group. The attached drawing indicates where it is allowed to place a 'GPL A PM bracket mid 15'. Example: Pitch 900  $\pm$ 30 mm, therefore all positions between 870 - 930 mm symmetrical to the center of the module are permitted. A pitch of 920 mm between the brackets symmetrical to the center of the module is permitted and a pitch of 860 mm is **not** permitted.

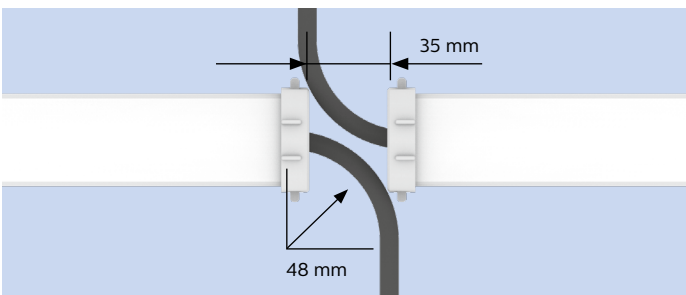
## Possible mounting positions for GPL A PM bracket mid 15



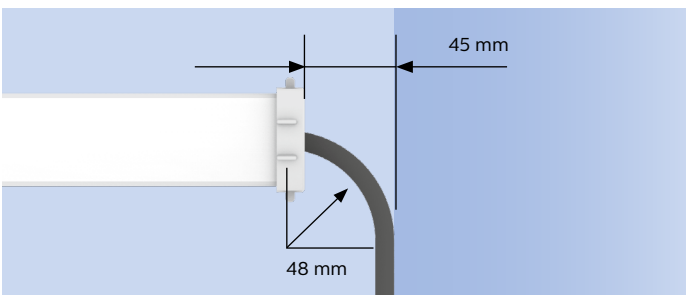


### Mounting distance between modules

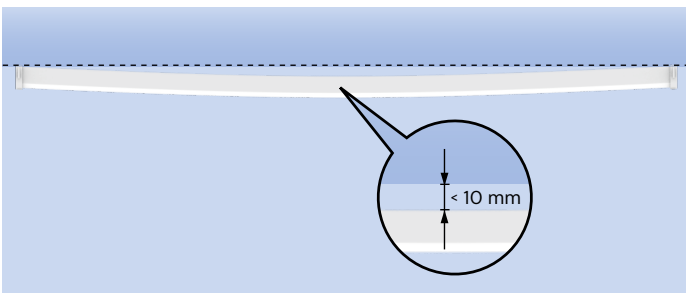
The required mounting distance between two modules, when using mounting bracket type 'screw M4', is 25 mm.



The minimum bending radius of the power cable is 48 mm. To guarantee this, the minimal mounting distance between two modules is 35 mm.



The minimum bending radius of the power cable is 48 mm. To guarantee this, the minimal mounting distance between a module and an object is 45 mm.



Depending on the length of the module and the selected mounting point, deflection of the module may occur. This slight deflection (up to 10 mm) has no negative influence on the light distribution.

### Important

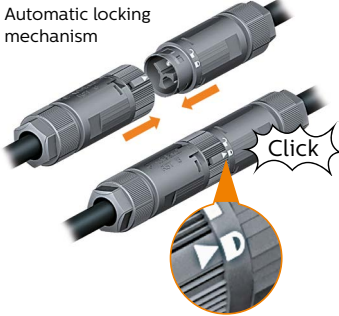
#### Light direction

Always mount the GreenPower LED production module horizontal so that the light direction is downwards.

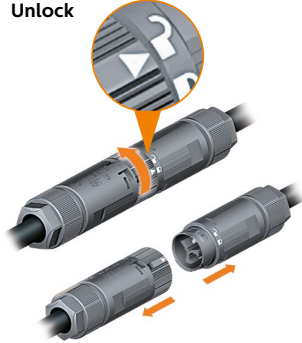




**Lock**  
Automatic locking  
mechanism



**Unlock**

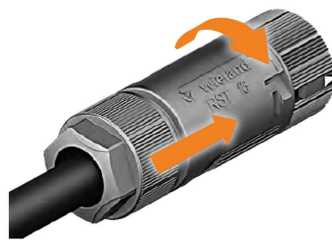


### Use of the connector

The connectors lock automatically when plugged together and give the user clear feedback on the correct end position. A slight rotation severs the connection easily.

### Wiring the connectors

The housing of the connector has been designed in three parts. Related technical information and installation instructions are available from the connector supplier Wieland Electric GmbH. Assembly instructions can be found [here](#).



### Pluggable connections



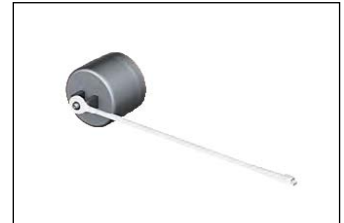
**Female connector**  
GPL A U Conn F RST16i2 Black 5-9.5mm  
[Datasheet](#)



**Male connector**  
GPL A U Conn M RST16i2 Black 5-9.5mm  
[Datasheet](#)



**Distribution block**  
GPL A U Distr 1-2 RST16i2 Black  
[Datasheet](#)



**Cover cap female**  
GP LED end cap for female 3.2  
[Datasheet](#)

## ⚠ Important

### IP66 and UL/CSA rating

When closing the connector, be certain the two snap tight for a tight seal. Any unused connector must be secured and sealed with a cover. Otherwise, the units are not protected from moisture and the IP66 and UL/CSA rating for wet locations will be void.

### Connector wire terminals

#### Power connector

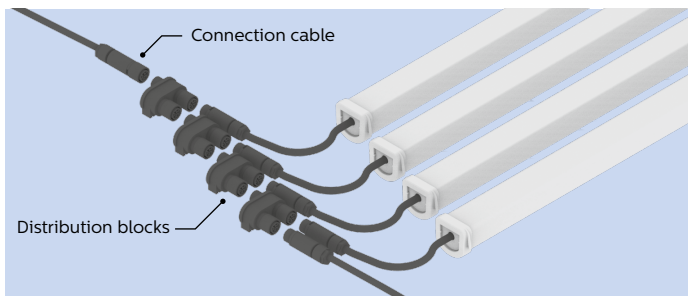
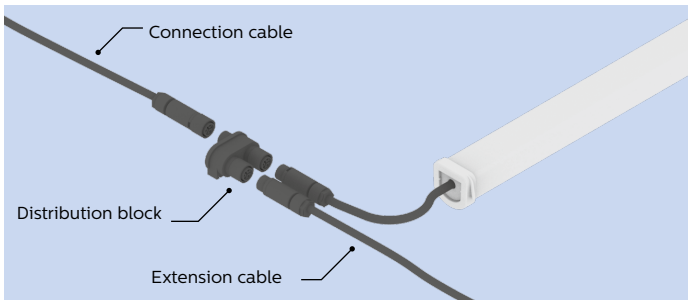
L	Line
N	Neutral

### Contact resistance

For all connectors the resistance per clamping point is according to EN 61535.

#### Resistance per clamping point

Contact resistance	<1.0 mΩ
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### System overview

The GreenPower LED production module 3.1 can be connected by means of a single connection cable or a combination of a connection cable with one or more distribution blocks and an extension cable. It is also possible to order a separate female connector to assemble a connecting cable or cable harness yourself. Always check the maximum allowed cable length with respect to the short circuit currents that can flow in fault conditions.

For more information see the [accessory information](#).

### Connecting the system

Connect all power connection cables to a junction box. Make sure all junction boxes are mounted to a rigid structure.

Cables must be secured by a cord grip / strain relief. Use a cord grip suitable for use with two conductor and type off cord suitable for the trade size of the junction box provided by others, if needed.

Any unused connector must be secured and sealed with an cover ([see ordering data](#)). Otherwise the IP66 rating will be void.

### Circuit breaker

Maximum allowed circuit breaker is 16 A, due to the connector rating. The maximum allowed luminaires per breaker is depending on the input voltage, the type of breaker, maximum power of the luminaire, the inrush current and the total length of the power line. Some examples can be found in the table.

Input voltage (V)	System configuration	Breaker type		Luminaire power (W)		Maximum # modules (divided over three lines)	Limit based on
				70	88		
120	L - N	15 A C-type	1 x 4p	70	88	60 (3x20)	Power
				70	88	48 (3x16)	Power
200	L - L	15 A C-type	1 x 3P	70	88	57 (3x19)	Power
				70	88	45 (3x15)	Power
			3 x 2P	70	88	102 (3x34)	Power
				70	88	81 (3x27)	Power
230	L - N	16 A C-type	1 x 4p	70	88	126 (3x42)	Power
				70	88	99 (3x33)	Power
240	L - L	15 A C-type	1 x 3P	70	88	69 (3x23)	Power
				70	88	54 (3x18)	Power
			3 x 2P	70	88	123 (3x41)	Power
				70	88	96 (3x32)	Power
240	L - N	16 A C-type	1 x 4p	70	88	129 (3x43)	Power
				70	88	102 (3x34)	Power
277	L - N	15 A C-type	1 x 4p	70 or 88	96	(3x32)	Inrush current

## Important

### Turn off and disconnect the power before installation.

Installation must be performed by a qualified electrician in accordance with all national and local electrical and construction codes and regulations.

- **DO NOT** attempt to install or use until you have read and understood the installation instructions of this product contained in the Quick Installation Guide, this Application Guide and safety labels.
- Make sure that power cords are routed in a manner that will prevent incidental damage.

### NEC

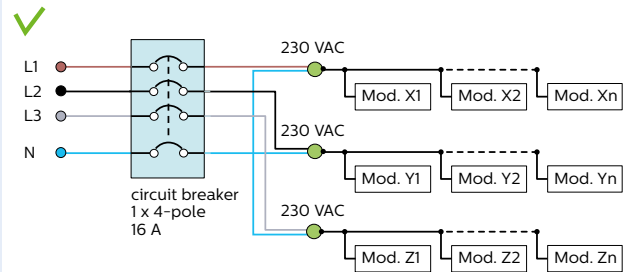
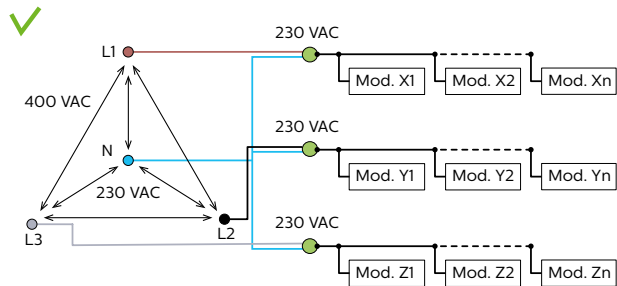
A circuit breaker of 15A is mandatory in the US, according to the National Electrical Code.

- Use wet-rated (IP66) junction boxes which are also suitable for the power cords used in the application.
- Use a strain-relief or power cord grip if needed.
- Use a cord grip suitable for use with two conductor and type of cord suitable for the trade size of the junction box provided by others, if needed.
- **DO NOT** connect to live power until installation is complete.
- **DO NOT** modify or alter the product; doing so will void the warranty.

# Connection examples

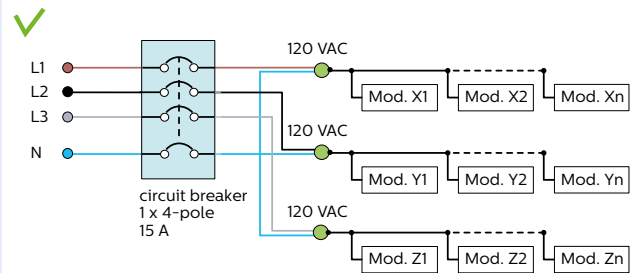
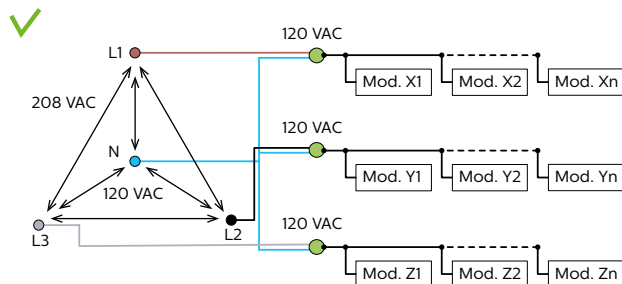
## EU 400 V grid

L-N 230 V

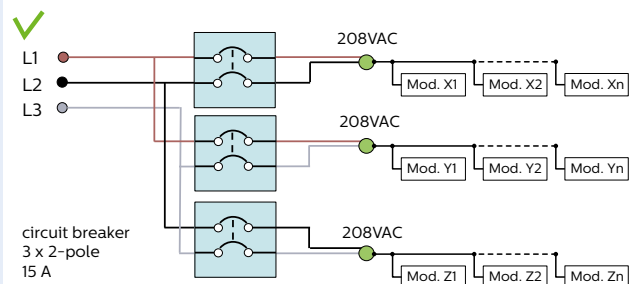
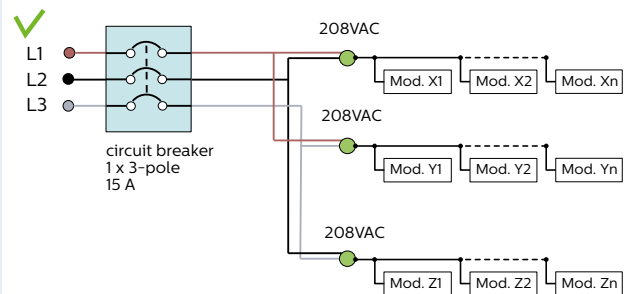
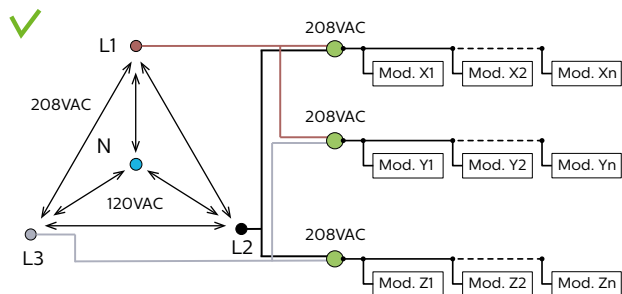


## NA 208 V grid

L-N 120 V

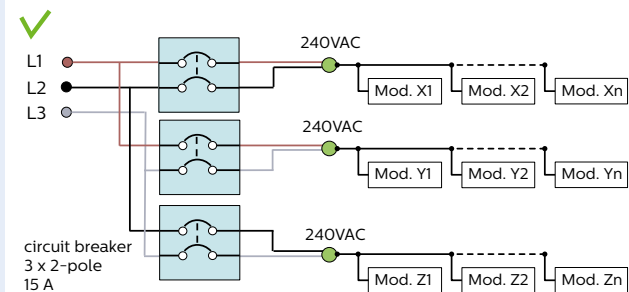
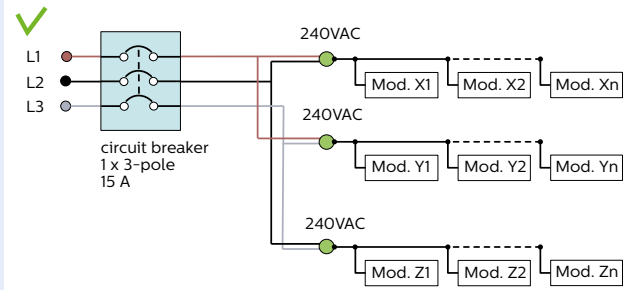
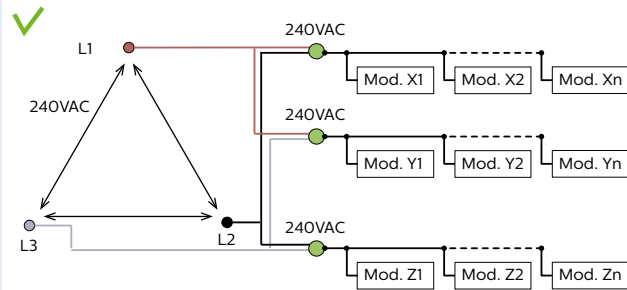


L-L 208 V



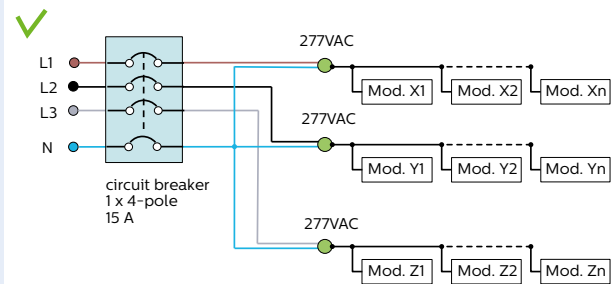
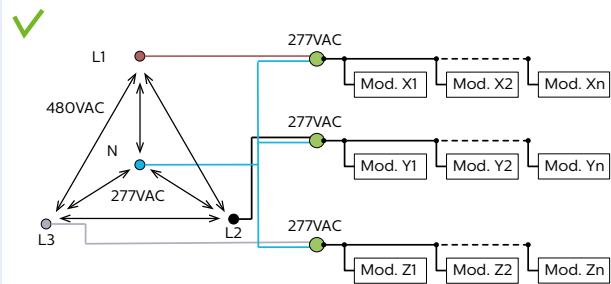
## NA 240 V grid

### L-L 240 V



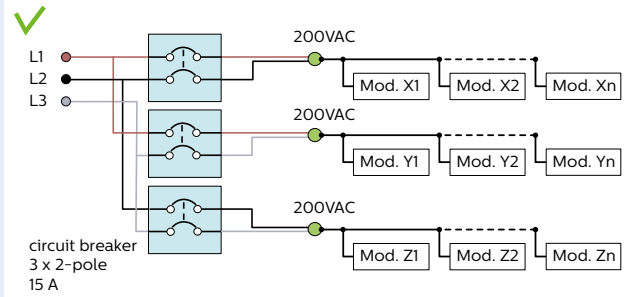
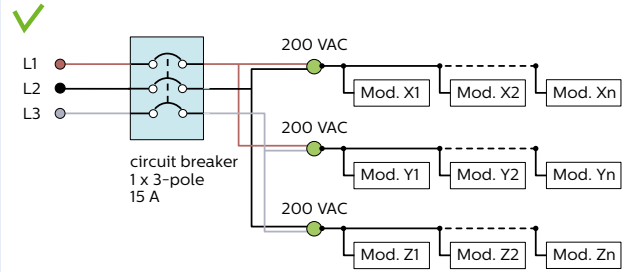
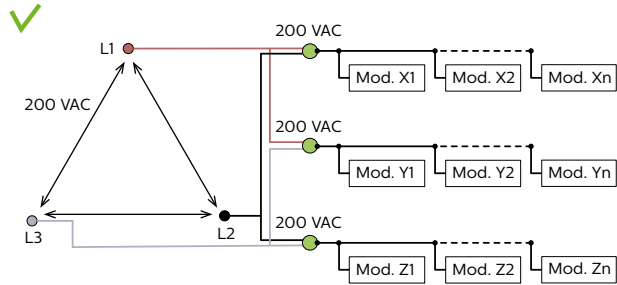
## NA 480 V grid

### L-N 277 V



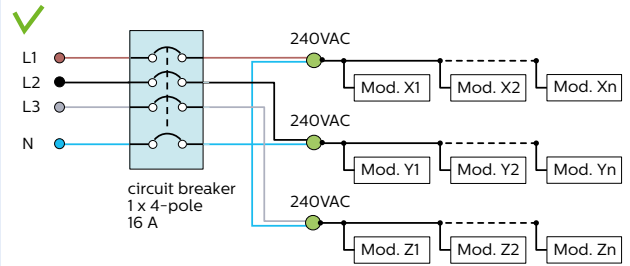
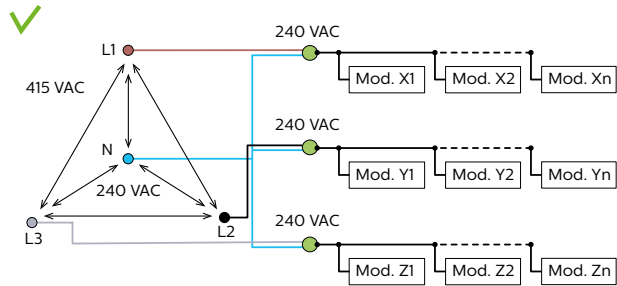
## JP 200 V grid

L-L 200 V



## AU 415 V grid

L-N 240 V



# Controlling the luminaire

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The GreenPower LED production module 3.1 is available in different versions which can be used as static (standard on-off) and are based on our proven light recipes. Next to that all versions are also compatible with the GrowWise Control System (GWCS) to allow color and light levels to be adjusted. The GWCS can be used as stand-alone system or can be integrated in your climate computer.

## **Coded Mains**

The color controllable luminaires need to be controlled via a Philips proprietary Coded Mains dimming protocol supported by the Philips GrowWise Control System (GWCS). The GrowWise Control System is needed to activate, steer and drive the controllable LED channels of these luminaires.

## **GrowWise Control System**

The GrowWise Control System enables easy creation and execution of customized light recipes on dimmable and color controllable modules. Via the Modbus TCP/IP interface, the GrowWise Control System can be seamlessly integrated to your climate control or greenhouse management system to simplify operation.

## **Commissioning / Calibration**

When the installation of the control components and luminaires is completed, and all connections are made, the GrowWise Control system will be set up to the customer specific situation (commissioning) and, if desired, the system can also be calibrated.

## **Factory setting**

When the luminaire is powered up for the first time, the luminaire will start in the factory setting (start up behaviour). The factory setting is different for each type.

## **Coded Mains signal**

When the luminaire receives a coded mains signal, the luminaire will dim the individual channels to the requested level. The response time after sending a new setpoint can take up to 6 seconds. When starting up the luminaire, it takes 25 to 30 seconds before the first coded mains signal can be decoded.

## **Switch off the luminaire**

The luminaire can either be switched off by setting all channels to 0% (stand-by mode) or by switching off the main power. After switching on the power again, the luminaire will return to the latest received coded mains signal. If no coded mains signal is received within 5 minutes, the luminaire returns to the factory setting.

For more information see the Quick Installation Guide and Application Guide of the GrowWise Control System.

# Accessory information

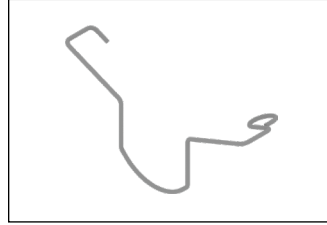
## Mounting bracket for module



**Mounting bracket end screw**  
GPL A PM Bracket End Screw M4



**Mounting bracket end hook**  
GPL A PM Bracket End Hook 15



**Mounting bracket mid**  
GPL A PM Bracket Mid 15

## Pluggable connections



**Female connector**  
GPL A U Conn F RST16i2 Black 5-9.5mm  
[Datasheet](#)



**Male connector**  
GPL A U Conn M RST16i2 Black 5-9.5mm  
[Datasheet](#)

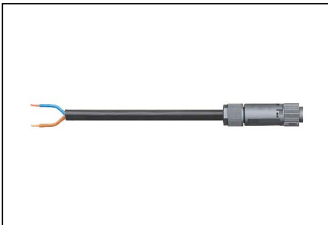


**Distribution block**  
GPL A U Distr 1-2 RST16i2 Black  
[Datasheet](#)

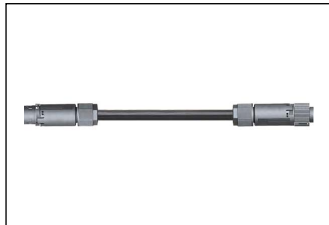


**Cover cap female**  
GP LED end cap for female 3.2  
[Datasheet](#)

## Cables



**Connection cable**  
GPL A U Cable C RST16i2 L200 PSE  
[Datasheet](#)



**Extension cable**  
GPL A U Cable E RST16i2 L200 PSE  
[Datasheet](#)

Region	Type	Product description	Nominal cross section conductor	Cable end 1	Cable end 2	Total length
CE	Connection cable	GPL A U Cable C RST16i2 L200 CE	1.5 mm <sup>2</sup>	Stripped wire	Female connector	2 m
	Extension cable	GPL A U Cable E RST16i2 L200 CE	1.5 mm <sup>2</sup>	Male connector	Female connector	2 m
NA	Connection cable	GPL A U Cable C RST16i2 L200 NA	AWG 16	Stripped wire	Female connector	2 m
	Extension cable	GPL A U Cable E RST16i2 L200 NA	AWG 16	Male connector	Female connector	2 m

# Ordering data (except NA)

## Modules

Product description	12 NC	MOQ (pcs)	Box dimensions
Static			L x W x H (cm)
<b>PM 120</b>			
GPL PM 168 DRB LB L120 3.1	9290 021 00535	10	134.5 x 37.5 x 11.5
GPL PM 168 DRB HB L120 3.1	9290 021 00536	10	134.5 x 37.5 x 11.5
GPL PM 168 DRBFR LB L120 3.1	9290 021 00537	10	134.5 x 37.5 x 11.5
GPL PM 168 DRW LB L120 3.1	9290 021 00534	10	134.5 x 37.5 x 11.5
GPL PM 168 DRWFR LB L120 3.1	9290 021 00538	10	134.5 x 37.5 x 11.5
GPL PM 168 DRBWFR L120 3.1 C4	9290 021 00548	10	134.5 x 37.5 x 11.5
GPL PM 168 DRBWFR R L120 3.1 C4	9290 021 00546	10	134.5 x 37.5 x 11.5
<b>PM 150</b>			
GPL PM 210 DRB LB L150 3.1	9290 021 00540	10	164.5 x 37.5 x 11.5
GPL PM 210 DRB HB L150 3.1	9290 021 00541	10	164.5 x 37.5 x 11.5
GPL PM 210 DRBFR LB L150 3.1	9290 021 00542	10	164.5 x 37.5 x 11.5
GPL PM 210 DRBFR_2 L150 3.1	9290 021 00533	10	164.5 x 37.5 x 11.5
GPL PM 210 DRW LB L150 3.1	9290 021 00539	10	164.5 x 37.5 x 11.5
GPL PM 210 DRWFR LB L150 3.1	9290 021 00543	10	164.5 x 37.5 x 11.5
GPL PM 210 DRBWFR L150 3.1 C4	9290 021 00549	10	164.5 x 37.5 x 11.5
GPL PM 210 DRBWFR R L150 3.1 C4	9290 021 00547	10	164.5 x 37.5 x 11.5
GPL PM 280 DRBWFR L150 3.1 SB	9290 021 00532	10	164.5 x 37.5 x 11.5
GPL PM 210 FR L150 3.1	9290 021 00627	10	164.5 x 37.5 x 11.5
<b>PM 240</b>			
GPL PM 210 DRBFR LB L240 3.1	9290 021 00545	10	254.5 x 37.5 x 11.5
GPL PM 210 DRW LB L240 3.1	9290 021 00609	10	254.5 x 37.5 x 11.5
GPL PM 210 DRWFR LB L240 3.1	9290 021 00544	10	254.5 x 37.5 x 11.5
GPL PM 210 DRBWFR L240 3.1 C4	9290 021 00550	10	254.5 x 37.5 x 11.5

## Accessories

Product description	12 NC	MOQ (pcs)	Box dimensions (cm)
<b>Mounting bracket for module</b>			
GPL A PM Bracket End Screw M4	9290 021 00095	100	20 x 15 x 10
GPL A PM Bracket End Hook 15	9290 021 00096	100	20 x 15 x 10
GPL A PM Bracket Mid 15	9290 021 00097	100	20 x 15 x 10
<b>Pluggable connections</b>			
GPL A U Conn F RST16i2 Black 5-9.5mm	9290 021 00099	40	20 x 17,5 x 12
GPL A U Conn M RST16i2 Black 5-9.5mm	9290 021 00101	40	20 x 17,5 x 12
GPL A U Distr 1-2 RST16i2 Black	9290 021 00098	40	20 x 17,5 x 12
GPL A U Cover F RST16 Black	9290 015 54006	36	16.6 x 12.4 x 13.5
<b>Cables</b>			
GPL A U Cable C RST16i2 L200	9290 021 00102	10	31 x 28 x 11
GPL A U Cable E RST16i2 L200	9290 021 00103	10	31 x 28 x 11

### Legend:

GP = GreenPower	W = White	R = Research	U = Universal	E = Extension
PM = Production Module	FR = Far Red	C4 = Four Channel Control	F = Female	
DR = Deep Red	LB = Low Blue	SB = Standard Beam	M = Male	
B = Blue	HB = High Blue	A = Accessory	C = Connection	



# Ordering data North America (NA)

## Modules

Product description	12 NC	6 NC	MOQ (pcs)	Box dimensions
Static				L x W x H (cm)
<b>PM 120</b>				
GPL PM 168 DRB LB L120 3.1 NA	9290 021 00553	365387	10	134.5 x 37.5 x 11.5
GPL PM 168 DRB HB L120 3.1 NA	9290 021 00554	365395	10	134.5 x 37.5 x 11.5
GPL PM 168 DRBFR LB L120 3.1 NA	9290 021 00556	365411	10	134.5 x 37.5 x 11.5
GPL PM 168 DRW LB L120 3.1 NA	9290 021 00552	365379	10	134.5 x 37.5 x 11.5
GPL PM 168 DRWFR LB L120 3.1 NA	9290 021 00555	365403	10	134.5 x 37.5 x 11.5
GPL PM 168 DRWFR L120 3.1 C4 NA	9290 021 00565	365528	10	134.5 x 37.5 x 11.5
GPL PM 168 DRWFR R L120 3.1 C4 NA	9290 021 00563	365494	10	134.5 x 37.5 x 11.5
<b>PM 150</b>				
GPL PM 210 DRB LB L150 3.1 NA	9290 021 00557	365429	10	164.5 x 37.5 x 11.5
GPL PM 210 DRB HB L150 3.1 NA	9290 021 00558	365445	10	164.5 x 37.5 x 11.5
GPL PM 210 DRBFR LB L150 3.1 NA	9290 021 00561	365478	10	164.5 x 37.5 x 11.5
GPL PM 210 DRW LB L150 3.1 NA	9290 021 00559	365452	10	164.5 x 37.5 x 11.5
GPL PM 210 DRWFR LB L150 3.1 NA	9290 021 00560	365460	10	164.5 x 37.5 x 11.5
GPL PM 210 DRWFR L150 3.1 C4 NA	9290 021 00566	365536	10	164.5 x 37.5 x 11.5
GPL PM 210 DRWFR R L150 3.1 C4 NA	9290 021 00564	365502	10	164.5 x 37.5 x 11.5
GPL PM 280 DRWFR L150 3.1 SB NA	9290 021 00551	365361	10	164.5 x 37.5 x 11.5
<b>PM 240</b>				
GPL PM 210 DRBFR LB L240 3.1 NA	9290 021 00562	365486	10	254.5 x 37.5 x 11.5
GPL PM 210 DRWFR L240 3.1 C4 NA	9290 021 00567	365551	10	254.5 x 37.5 x 11.5

## Accessories

Product description	12 NC	6 NC	MOQ (pcs)	Box dimensions (cm)
<b>Mounting bracket for module</b>				
GPL A PM Bracket End Screw M4	9290 021 00095	347112	100	20 x 15 x 10
GPL A PM Bracket End Hook 15	9290 021 00096	347104	100	20 x 15 x 10
GPL A PM Bracket Mid 15	9290 021 00097	347096	100	20 x 15 x 10
<b>Pluggable connections</b>				
GPL A U Conn F RST16i2 Black 5-9.5mm	9290 021 00099	347310	40	20 x 17,5 x 12
GPL A U Conn M RST16i2 Black 5-9.5mm	9290 021 00101	347336	40	20 x 17,5 x 12
GPL A U Distr 1-2 RST16i2 Black	9290 021 00098	347302	40	20 x 17,5 x 12
GPL A U Cover F RST16 Black	9290 015 54006	324210	36	16.6 x 12.4 x 13.5
<b>Cables</b>				
GPL A U Cable C RST16i2 L200	9290 021 00104	347344	10	31 x 28 x 11
GPL A U Cable E RST16i2 L200	9290 021 00105	347351	10	31 x 28 x 11

### Legend:

GP = GreenPower	W = White	R = Research	U = Universal	E = Extension
PM = Production Module	FR = Far Red	C4 = Four Channel Control	F = Female	
DR = Deep Red	LB = Low Blue	SB = Standard Beam	M = Male	
B = Blue	HB = High Blue	A = Accessory	C = Connection	

# Crop protection and cleaning products

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## **Use of cleaning agents, crop-protection products and other chemicals (e.g. pesticides, fungicides and insecticides)**

Philips Horticulture GreenPower LED products are engineered to meet the highest standards in daily usage and are compatible with the most commonly used crop-protection products and cleaning agents in the field. However, if crop-protection products and cleaning agents are used in concentrations above the values prescribed by the supplier(s) of such crop-protection products and/or cleaning agents, this may damage the protective surfaces of the GreenPower LED products, which will render the warranty invalid.

Please ensure that you take the following instructions into account when cleaning the GreenPower LED products and your facility, or when using crop protectors.

## **Cleaning GreenPower LED products**

- Turn off and disconnect the power before cleaning the product.
- Use a soft damp cloth and a cleaning agent, e.g. green/soft soap or ethanol, to remove dust or dirt from the GreenPower LED product.
- Do not use rough or coarse-grained materials, scouring pads, bleach or solvents, as they could scratch or damage the GreenPower LED product.
- Do not wipe the GreenPower LED product with a dirty cloth as this may leave a residue, scratch the lenses or reduce the light output.

# Compliance with international standards

The GreenPower LED production module 3.1 has been tested for and complies with the following international standards:

Test	Stress type	Standard
Mechanical integrity	Static cable pull	
	Dynamic cable pull	
	Bump test	IEC 68-2-29 Eb
	Vibration test	IEC 68-2-6
Endurance	Cold temperature storage	IEC 68-2-1 Ab
	High temperature storage	IEC 68-2-2 Bb
	Damp heat (temp. humidity)	IEC 68-2-30 Db
	Temperature shock	IEC 68-2-14 Nb
	Ingress protection	IEC 60529 IP66
Quality / Environment	Environmental standard	ISO 14001
	Toxic materials	RoHS
EMC	Generated disturbances to the environment	EN55015
		IEC 61000-3-2
		IEC 61000-3-3
		FCC part 15B: 2021-06 Class B
	ANSI C63.4: 2014	
	Immunity	EN61547
Safety		UL8800
		UL8750
		IEC62471
		IEC62778
		IEC60598-1
		IEC60598-2-1
		CSA C22.2 No 250.13
Approval marks	Approval marks GreenPower LED production module	ENEC
	Declaration of conformity	CE
		CSA
		PSE
		RCM
UL		



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Philips Horticulture LED Solutions visit:  
[www.philips.com/horti](http://www.philips.com/horti)

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