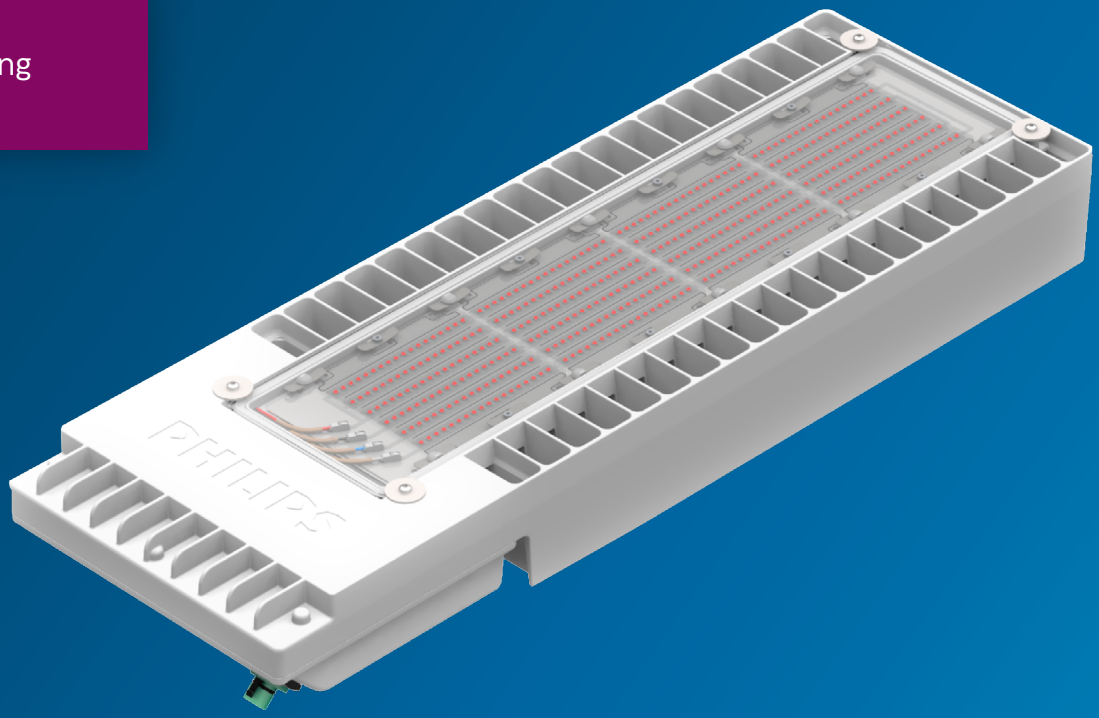
PHILIPS

Horticulture
LED Solutions

GreenPower
LED toplighting
compact



Application Guide

The easy switch **from HPS to LED toplighting**

July 2020

Contents

Introduction

Especially designed for your growth system, the GreenPower LED toplighting compact module is the best solution for an easy 1-to-1 HPS to LED replacement, using your existing HPS setup and trellis construction. The photon flux of up to 2650 µmol/s, the high photon efficacy of up to 3.6 µmol/J, the option to choose between standard beam or wide beam (WB) optics and to dim the light, helps you effectively optimize crop growth, enhance crop quality and cut operational costs, for various applications.

The Greenpower LED toplighting compact modules are available in 6 spectral versions and are equipped with a universal mains input. The toplighting compact generation 1.0 products are available in a Dimmable (D) product or a Static (S) (standard on-off) product. The toplighting compact generation 1.1 products are only available in a Dimmable (D) product. All products come in a single package (SP) or a multi package (MP). The dimmable products have the option to tune the photon flux up and down and need to be controlled via a Philips proprietary Coded Mains dimming protocol supported via the Philips GrowWise Control System (GWCS). If the toplighting compact generation 1.1 products are not controlled by the GWCS system, they will act as Static (standard on-off). The GrowWise Control System is needed to activate, steer and drive the dimmable functionality of the toplighting compact. The Quick installation and Application Guide of the GrowWise Control System is accessible via the Philips Horticulture Partner Portal. This complete universal mains GreenPower LED toplighting compact range is outlined in the next chapter.

For each type of installation, Trellis or C-profile mounted, dedicated accessories are available for an easy and quick installation.

This application guide describes all important technical and safety information of the GreenPower LED toplighting compact module generation 1.0 and 1.1.

Product information

Technical specifications

	Generation	Beam shape	Voltage (VAC)	Photon flux (µmol/s)	Power (W)	Efficacy[1] (µmol/J)
Optimized Performance						
GPL TLC 2000 DRB_LB 1.1D	1.1	WB	277-400	200-2000	645	3.1
GPL TLC 1950 DRW_LB 1.1D	1.1	WB	277-400	195-1950	645	3.0
GPL TLC 1900 DRW_MB 1.1D	1.1	WB	277-400	190-1900	645	2.9
GPL TLC 2200 DRB_LB 1.1D	1.1	SB	277-400	220-2200	645	3.4
GPL TLC 2150 DRW_LB 1.1D	1.1	SB	277-400	215-2150	645	3.3
GPL TLC 2100 DRW_MB 1.1D	1.1	SB	277-400	210-2100	645	3.3
GPL TLC 1650 DRW_VSN2 1.1D	1.1	SB	277-400	165-1650	645	2.6
Cost Effective						
GPL TLC 1800 DRB_LB 1.1D	1.1	SB	277-400	180-1800	590	3.1
GPL TLC 1800 DRW_LB 1.1D	1.1	SB	277-400	180-1800	610	3.0
GPL TLC 1800 DRW_MB 1.1D	1.1	SB	277-400	180-1800	620	2.9
GPL TLC 1800 DRB_LB1.0D	1.0	WB	277-400	180-1800	600	3.0
GPL TLC 1800 DRW_LB 1.0D	1.0	WB	277-400	180-1800	620	2.9
GPL TLC 1800 DRW_MB 1.0D	1.0	WB	277-400	180-1800	630	2.9
GPL TLC 1650 DRWFR1_LB 1.0D	1.0	WB	277-400	165-1650	590	2.8
GPL TLC 1650 DRWFR4_RSE 1.0D	1.0	WB	277-400	165-1650	590	2.8
GPL TLC 1800 DRB_LB 1.0S	1.0	WB	277-400	1800	600	3.0
GPL TLC 1800 DRW_LB 1.0S	1.0	WB	277-400	1800	620	2.9
GPL TLC 1800 DRW_MB 1.0S	1.0	WB	277-400	1800	630	2.9
GPL TLC 1650 DRWFR1_LB 1.0S	1.0	WB	277-400	1650	590	2.8
GPL TLC 1650 DRWFR4_RSE 1.0S	1.0	WB	277-400	1650	590	2.8
High Efficacy						
GPL TLC 1850 DRB_LB 1.1D	1.1	SB	200-400	185-1850	520	3.6
GPL TLC 1800 DRW_LB 1.1D	1.1	SB	200-400	180-1800	520	3.5
GPL TLC 1750 DRW_MB 1.1D	1.1	SB	200-400	175-1750	520	3.4
GPL TLC 1650 DRWFR_1 1.1D	1.1	SB	200-400	165-1650	520	3.2
GPL TLC 1650 DRWFR_RSE 1.1D	1.1	SB	200-400	165-1650	520	3.2
High Output[2]						
GPL TLC 2650 DRB_LB 1.1D	1.1	SB	400	265-2650	780	3.4
GPL TLC 2600 DRW_LB 1.1D	1.1	SB	400	260-2600	800	3.3
GPL TLC 2550 DRW_MB 1.1D	1.1	SB	400	255-2550	780	3.3
GPL TLC 2250 DRWFR_RSE 1.1D	1.1	SB	400	225-2250	710	3.2

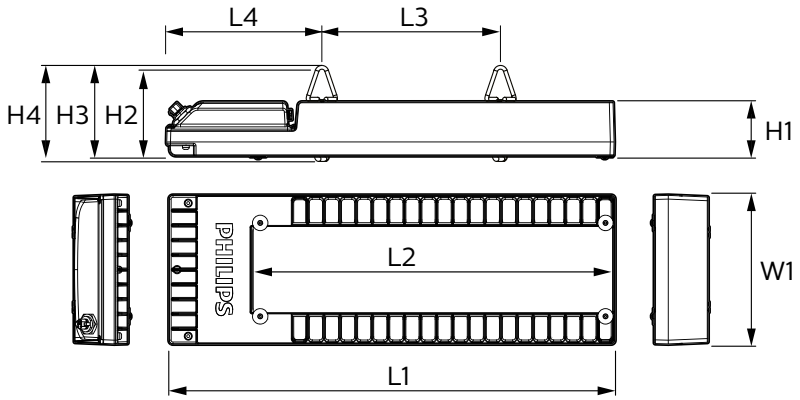
Note: The dimmable products have the option to tune the photon flux between 10% and 100%. The efficacy for dimmable products is given for 100% photon flux.

[1] Efficacy typical, Rated average lifetime and Max. case temperature, at $T_{ambient}$ = 25 °C / 77 °F.
[2] Not applicable for North America.

Legend:
GPL = GreenPower LED
TLC = toplighting compact
DR = Deep Red
B = Blue
LB = Low Blue
MB = Medium Blue
W = White
FR = Far Red
RSE = Rose
VSN2 = Vision 2
1.0 or 1.1 = Generation
S = Static
D = Dimmable
WB = Wide Beam
SB = Standard Beam

Specifications		
Optical		
Rated average lifetime[1,2]	36.000 hrs, L90 (90% photon flux maintenance)	
Electrical		
Input voltage toplighting compact modules	Product specific[3], 50/60Hz	
Power factor	> 0.98	
Inrush current	Negligable	
Total Harmonic Distortion	< 15%	
Earth Leakage Current	< 3.5mA	
Environment		
Ambient storage temperature	-40 - 85 °C ($T_{storage}$)	-40 - 185 °F ($T_{storage}$)
Ambient operating temperature	0 - 40 °C ($T_{operating}$)	32 - 104 °F ($T_{operating}$)
Max. case temperature[1]	65 °C (T_{case})	149 °F (T_{case})
Cooling	Passively air-cooled	
Relative humidity	5 - 95% RH, no condensation allowed during storage, operation and application	
Ingress protection rating	IP66	
Photobiological hazard[4]		
Radiation hazard - Retinal Blue	Risk Group 2	
Minimum viewing distance[5]	16 m, all versions	
All other radiation hazards[6]	Exempt group	

Dimensions



Product name	Product dimensions (mm)									Product weight (kg)	
	L1	L2	L3	L4	W1	H1	H2	H3	H4		With brackets (A)[7]
GP LED toplighting compact module	720	581	286	250	240	86	138	144	150	10.2	10.5

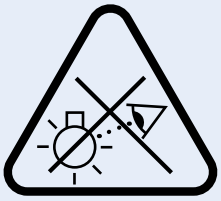
[1] Efficacy typical, Rated average lifetime and Max. case temperature, at $T_{ambient}$ = 25 °C / 77 °F.
[2] All measured lifetimes are industry standard measurements indicating average length of operation and not a performance claim specific to any individual product.
[3] Voltage is product specific and mentioned on product name and label, see page 4, 16 and 17.
[4] For more information about photobiological hazard see page 6.
[5] The luminaire should be positioned at minimum viewing distance, so that prolonged staring into the light source is not expected. Or wear approved protection glasses which specifically filter out blue radiation (400-500nm).
[6] Near ultraviolet hazard, Retinal thermal hazard and Infrared radiation hazard.
[7] See Accessory information.

Important

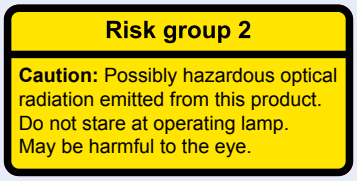
Influencing factors of light output
As ambient temperature increases, both the photon flux and the photon flux maintenance will decrease. Pollution or damage of optics will also impact the light output.

Thermal protection
The GreenPower LED toplighting compact module has a built-in thermal protection device. The ambient operating temperature is between 0˚C and 40˚C. If the temperature of the module becomes too high, at around 45˚C ambient, the module will dim, resulting in a lower photon flux. The module will dim deeper gradually with increasing ambient temperature. After returning to normal ambient operating temperature, the photon flux will tune up to nominal photon flux.

Photobiological hazard
Photobiological safety of lamps and lamp systems (IEC 62471).
This International Standard describes the photobiological safety of lamps and lamp systems including luminaires.



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.



Mind the minimum safe viewing distance or wear protection glasses, which specifically filter out blue radiation (400 - 500nm).

Light source not replaceable
The light source of this fixture is not replaceable. If the product becomes damaged or the light source reaches its end-of-life, the whole fixture needs to be replaced.

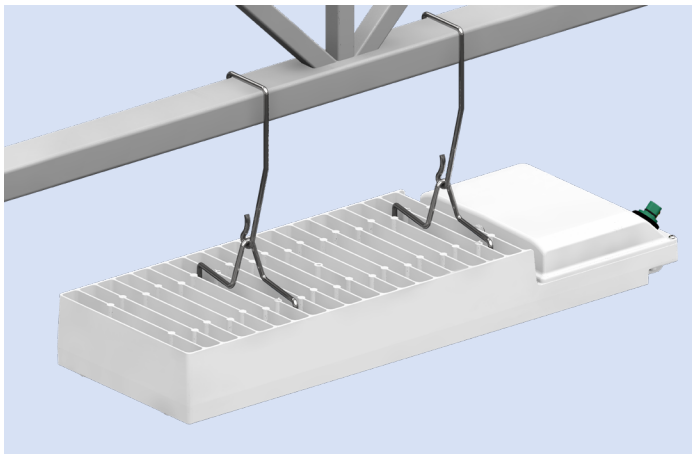
Not for outdoor use
Modules are not suited to outdoor use and are not intended to be installed in stairways and horizontal travel paths.

Installation of the system

The GreenPower LED toplighting compact modules can be fitted very easily without the need for any tools and has been designed with the input and feedback of growers and installers, to achieve a simple and quick installation.

Trellis

The GreenPower LED toplighting modules can be installed by means of the use of the existing trellis girders, parallel to and right underneath the trellis rectangular steel profile. **The width and height of the rectangular steel profile must be known, in order to choose the correct trellis mounting bracket.** There are four types of mounting brackets. Type **(A)** is in the box and meant for hanging the module onto the other mounting brackets which are intended for specific applications. Type **(B)** is the bracket for centered mounting on a C-profile. Type **(C)** is for centered mounting on a trellis, while type **(D)** is for off-centered mounting on a trellis, see Accessory information. The brackets for trellis mounting, types **(C)** & **(D)** are available in 2 different types, for a 50 mm and 60 mm wide trellis rectangular profile.

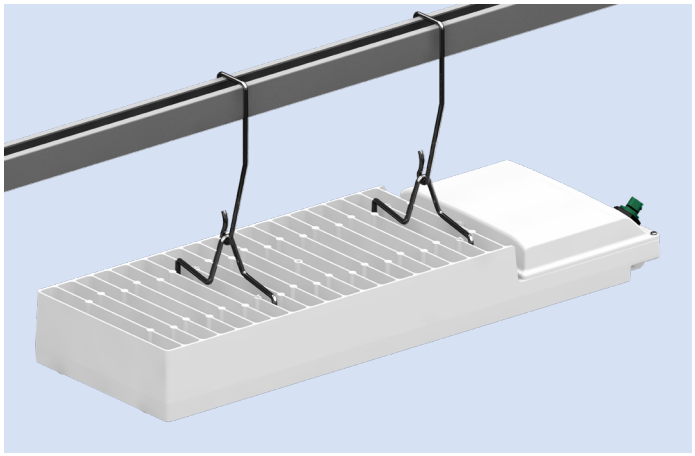


Trellis

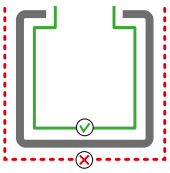
The installation steps for mounting are similar for all bracket types. As an example, they are explained for mounting on a C-profile, with bracket type **(B)**, in subchapter Installation steps. The minimal required distance between adjacent modules is 0.05 m. The minimal required distance between module and materials such as walls, ceilings and movable partitions is 0.2 m. Bracket types **(B)**, **(C)** and **(D)** are designed in such a way, that the distance between the bottom side of the profile and top side of the module, is equal to 0.2m. If using the double mount option with bracket type **(D)**, see Mounting options, the free distance between the modules is equal to 0.1m.

C-profile

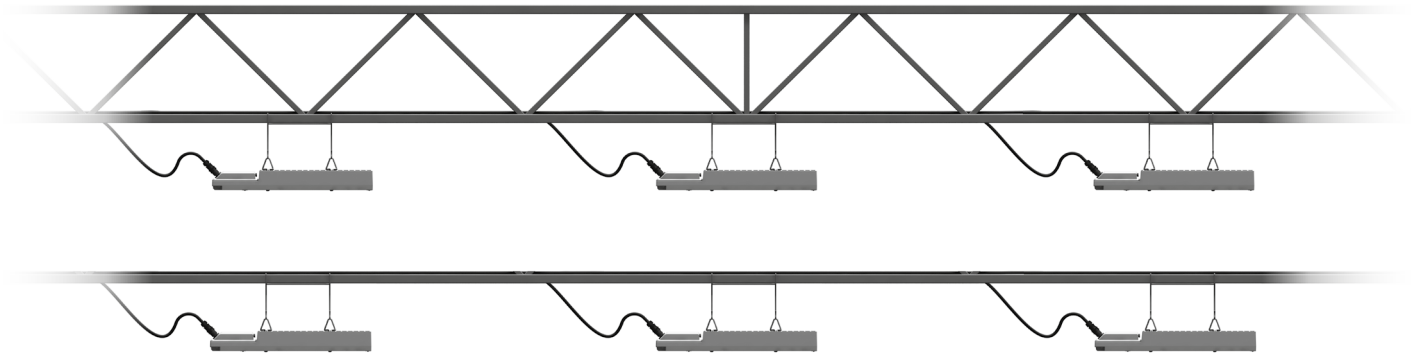
Mount 40x40 mm C-profiles to the green house structure at the required height. During assembly use a fixation which uses the inside of the C-profile (solid green line). Make sure that the deflection of the mounting profile is max 10 mm. **Pay attention to hooks mounted around the profile (dotted red line), as they could interfere with brackets type (B). Use the specific bracket (B) to mount the modules on the C-profile!** The minimal required distance between adjacent modules is 0.05 m. The minimal required distance between module and materials such as walls, ceilings and movable partitions is 0.2 m

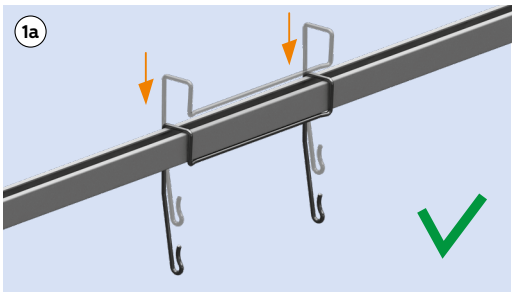


C-profile

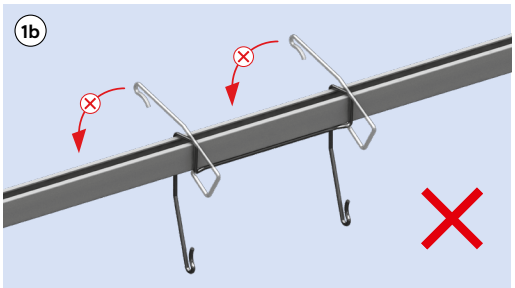


Installation steps

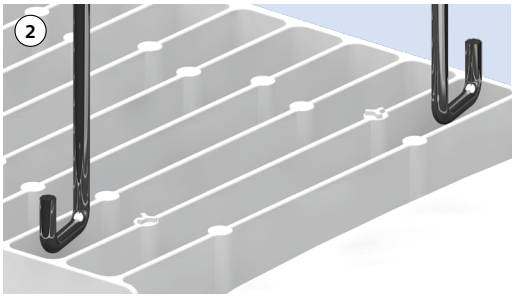




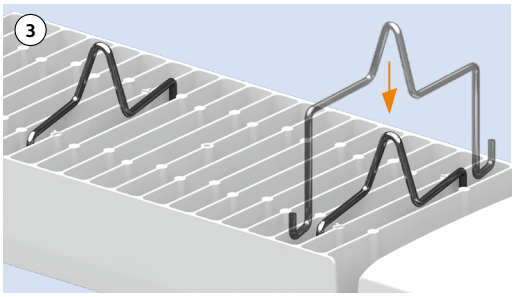
1a) Hook on bracket **(B)** to the C-profile by pressing in the direction as depicted by the 2 arrows in Fig.1a. Make sure that bracket (**B**) is firmly enclosing the profile, by assuring that the wire is clamped underneath the profile. Bracket (B) is used as an example, the same way of working holds for types (**C**) and (**D**).



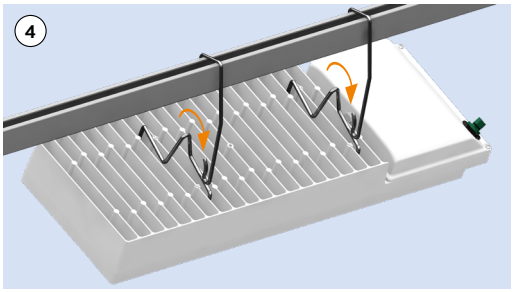
1b) IMPORTANT: Do not apply force on the arms of the brackets (Fig. 1b). This could lead to deformation of the bracket, an insufficient fixation to the profile, and eventually a possible safety risk!



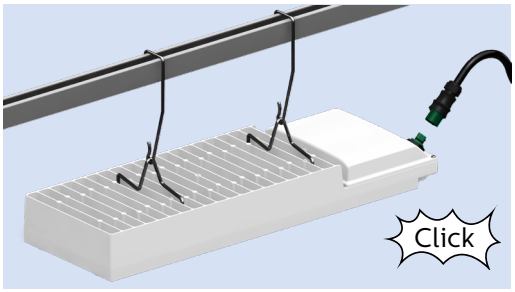
2) The module has two standard included brackets **(A)**, to install between the heatsink ribs. Position the bracket (**A**) between the marked rib (Fig.2 ✇). Make sure that one of the two hooks is already hooked against the rib surface.



3) Firmly press the V-shaped part between the ribs with your hand palm downwards, as depicted with an arrow. Pull the V-shaped part in opposite direction with your finger(s). Verify that both hooks are enclosed against the rib surface. Repeat these steps for the second bracket. The clear markings denote the pitch between the brackets and must be followed. Not following these markings could lead to a non-level module and a moment imbalance!

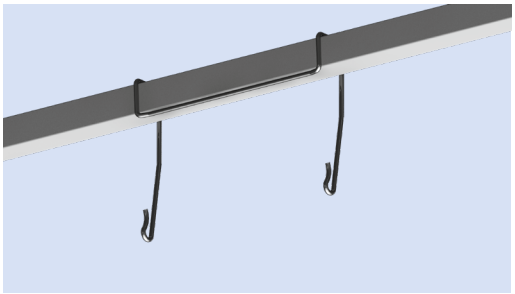


4) Hold the module firmly with two hands and position both V-shaped parts of bracket (**A**) over both hooks of bracket (**B**).

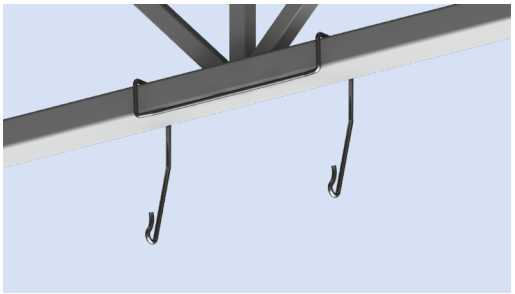


5) Connect the female connector of the main power cable and connect this main power cable to the power grid. Make sure to relief the stress from the cable connections, by introducing a loop (see install pictures at the top of page 8). Always mount the Greenpower LED toplighting module horizontal so that the light direction is downwards.

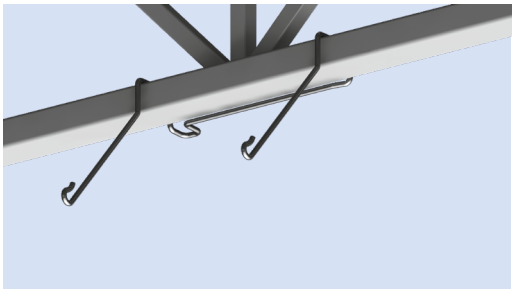
Mounting options



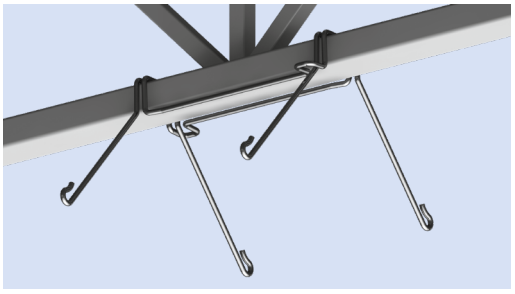
C-profile



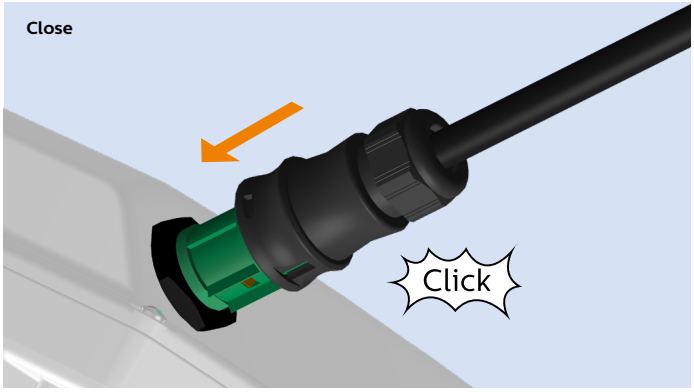
Trellis



Trellis high-wire



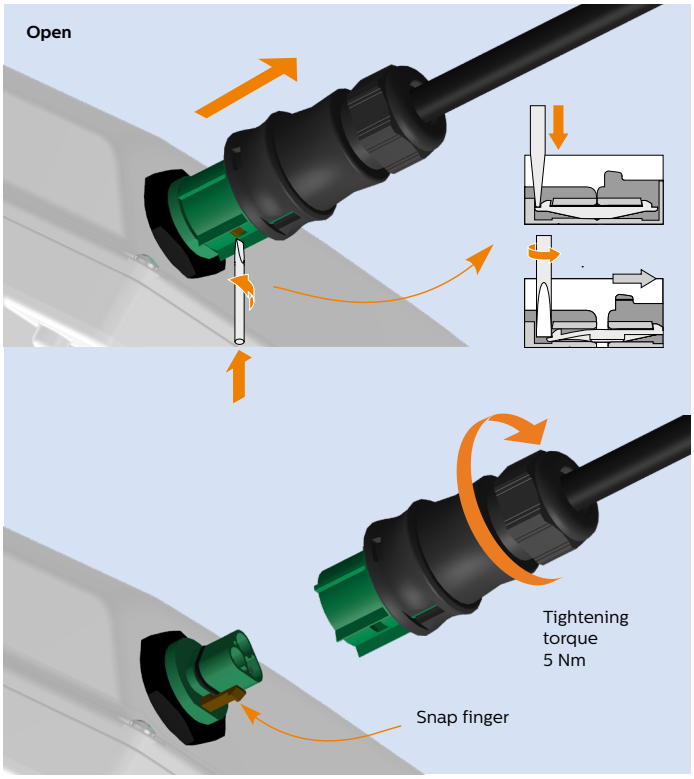
Trellis double mount



Use of the connector

The female RST20i 3-pole connector of the main power cable and the male RST20i 3-pole connector of the toplighting compact module lock automatically when plugged together and give clear feedback on the correct end position. Plug and push both connectors until it clicks. Ensure that it clicks to guarantee a correct electrical connection and ingress protection.

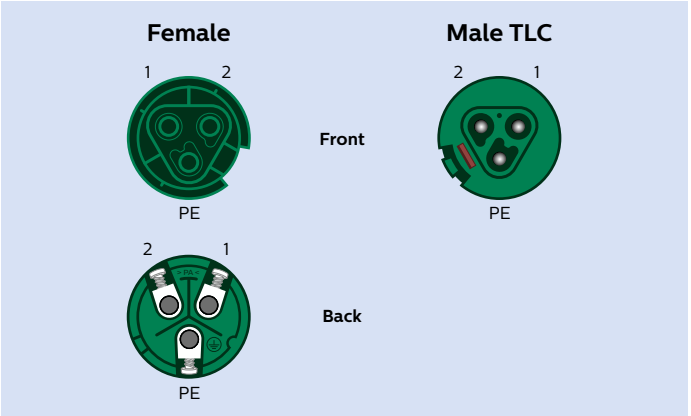
The connectors are not for current interrupting, never connect or disconnect the connectors under load!



For unlocking the female connector of the main power cable and the male connector of the toplighting compact, press and twist the snap finger, by means of a DIN 5264A 3.5mm screwdriver.

Wiring connectors and custom cables

The housing of the female connector has been designed in three parts. In case of assembling a field installable main power cable assembly, use cable diameters between 10-14 mm. Make sure the screw connection is tightened with a torque of 5 Nm. Always keep ingess protection IP66 in mind, this also needs to be secured during assembly. Follow the assembly instructions, which are available from the connector supplier Wieland Electric GmbH - www.wieland-electric.com



For Line to Line and Line to Neutral voltage configurations, several options are presented with respect to the pins of the female connector of the main power cable and the male RST20i-3pole connector of the toplighting compact module.

Pin	Line to Line voltage			Line to Neutral voltage		
1	L1	L1	L2	L1	L2	L3
2	L2	L3	L3	N	N	N
PE	PE	PE	PE	PE	PE	PE

Legend:
L = Line N = Neutral PE = Protective Earth

Examples of max. number of interconnected modules

There are several options for connecting the toplighting compact modules to the mains, between 200V~ and 400V~, and determining the maximum number of interconnected modules, which depend on the power consumption of the toplighting compact module, the number of circuit breakers, the circuit breaker type (1-pole/2-pole/3-pole or 4-pole), the tripping current of the circuit breakers, the cross-section (mm^2) and material of the cable conductors, the total length of the cable conductors and the use of an earth leakage protection (RCD)[1]. Examples for the maximum number of interconnected modules, are presented below. Always check the maximum allowed/protected cable length[1]. These tables only give indication about the maximum allowed interconnected toplighting compact modules. A certified electrical installer must make the final decision, based on the local electrical codes and standards.

USA/Canada

Mains Voltage (AC)	Power (W)	System	Max # of modules per phase pair					
			20A B-type		32A B-type		40A B-type	
			1x3P	3X2P	1x3P	3X2P	1x3P	3X2P
	645	L-N	6		10	10	13	
	630	L-N	7		11	11	14	
	620	L-N	7		11	11	14	
277 V	610	L-N	7		11	11	14	
	600	L-N	7		11	11	14	
	590	L-N	7		12	12	15	
	520	L-N	8		13	13	17	
	645	L-N	8	NA	13	13	17	NA
	630	L-N	8		14	14	17	
	620	L-N	8		14	14	17	
347 V	610	L-N	9		14	14	18	
	600	L-N	9		14	14	18	
	590	L-N	9		15	15	18	
	520	L-N	10		17	17	21	
	645	L-L	5	9	9	15	11	11
	630	L-L	5	10	9	16	11	11
	620	L-L	5	10	9	16	11	11
400 V	610	L-L	6	10	9	16	12	12
	600	L-L	6	10	9	17	12	12
	590	L-L	6	10	10	17	12	12
	520	L-L	7	12	11	19	14	14

Note: If 40A circuit breakers are considered, a minimum cable diameter of $4mm^2$ is required.

[1] A multiplication factor of √3 can be used for determining the maximum protected cable length, if short circuit between Line-Protective Earth or Line-Earth is not possible (IEC60364).

Legend:
L = Line
N = Neutral
NA = Not Applicable
2P = 2 Pole breaker type
3P = 3 Pole breaker type
RCD = Residual-Current Device

EU/ROW (except Japan)

Mains Voltage (AC)	Power (W)	System	Max # of modules per phase pair							
			16A C-type		20A B-type		32A B-type		40A B-type	
			1x3P	3x2P	1x3P	3X2P	1x3P	3X2P	1x3P	3X2P
380 V	645	L-L	4	7	5	9	8	15	10	18
	630	L-L	4	7	5	9	8	15	11	19
	620	L-L	4	7	5	9	9	15	11	19
	610	L-L	4	7	5	9	9	15	11	19
	600	L-L	4	8	5	10	9	16	11	20
	590	L-L	4	8	5	10	9	16	11	20
	520	L-L	5	9	6	11	10	18	13	23
400 V	800	L-L	3	6	4	8	7	12	9	16
	780	L-L	3	6	4	8	7	13	9	16
	710	L-L	4	7	5	9	8	14	10	18
	645	L-L	4	7	5	9	9	15	11	19
	630	L-L	4	8	5	10	9	16	11	20
	620	L-L	4	8	5	10	9	16	11	20
	610	L-L	4	8	6	10	9	16	12	20
	600	L-L	4	8	6	10	9	17	12	21
	590	L-L	5	8	6	10	10	17	12	21
	520	L-L	5	9	7	12	11	19	14	24

Note: If 40A circuit breakers are considered, a minimum cable diameter of 4mm^2 is required.

Legend:
L = Line
N = Neutral
NA = Not Applicable
2P = 2 Pole breaker type
3P = 3 Pole breaker type

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.
- Use wet-rated (IP66) junction boxes which are also suitable for the power cords used in the application.
- Make sure all junction boxes are mounted to a rigid structure.
- Use a strain-relief or power cord grip if needed.
- Use a cord grip suitable for use with three conductor and type off 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.

Possible "LED glow effect" in standby or after switch-off of the module, when used as dimming.
For Coded Mains Dimmable products, the light output is adjustable between 10 and 100%. Switch-on and switch-off should preferably be done via a mains switch.
When installing Coded Mains Dimmable products in combination with the GrowWise Control System (GWCS), the user interface will not allow dim values below 10%.
Also, standby mode will not be available as a standard default setting.

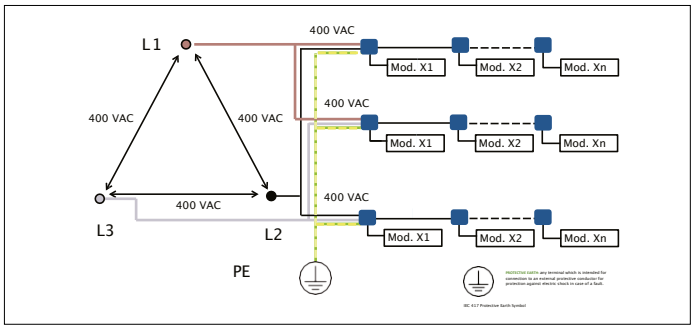
The reason for this setting is that the LEDs in these modules can show a slight 'glow effect' when being in standby (0% dimming) or when switching off the mains in a standby situation. This is a result of a very small capacitive leakage current, resulting in a visible 'glow' when being in standby or a visible 'glow' for several minutes after switching off the mains while being in standby. This effect will not damage the module and does not lead to an unsafe situation.

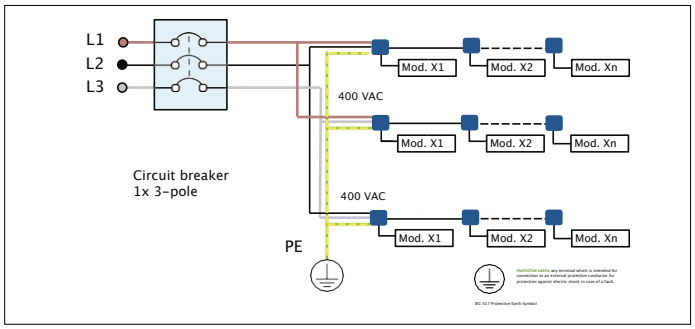
If needed, there are three options to go to zero light:

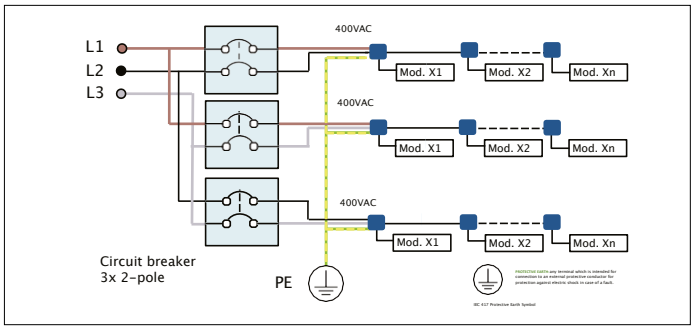
- In the situation where the system is connected to a climate computer, the mains power should be switched by this climate computer. When light should be turned off, the climate computer can switch off the modules, resulting in no glow nor standby losses. This is the preferred solution.
- Activate standby mode in the GrowWise Control System and accept the glow-effect and standby losses. Please consult your Signify representative to get this option activated.
- In case of a standalone GrowWise Control System (GWCS), the end user/installer will need to install a separate (hardware) switch, to switch off mains power to the modules. There will be no glow effect nor standby losses.

Connection examples

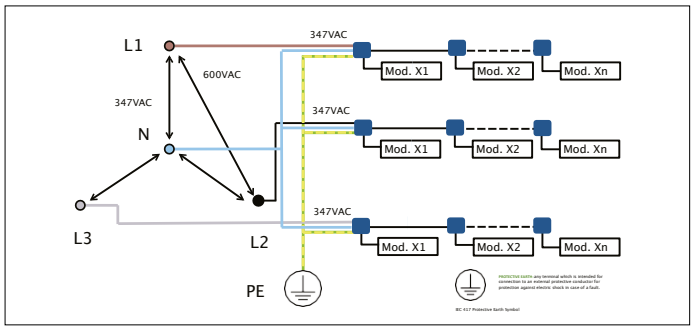
L-L 400 V

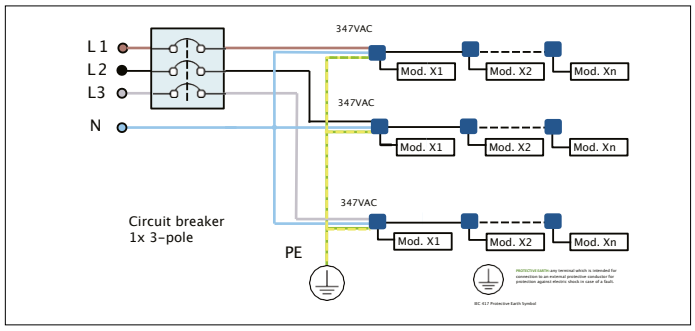




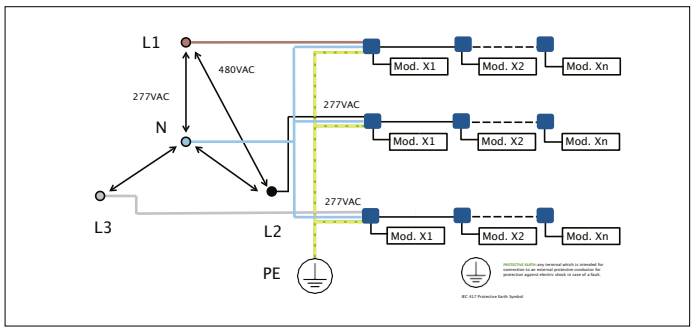


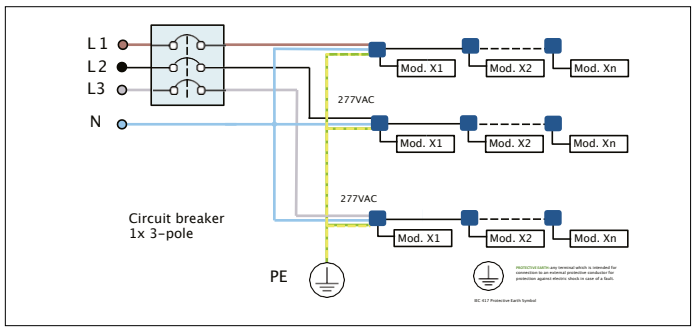
L-N 347 V





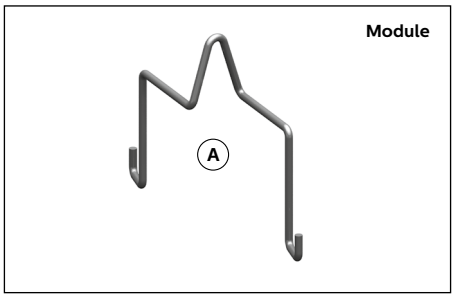
L-N 277 V





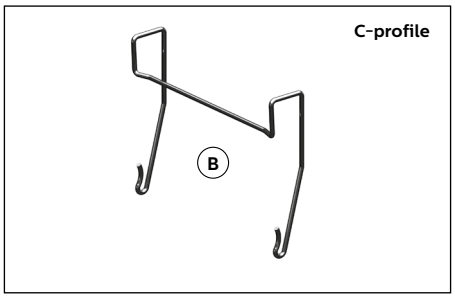
Accessory information

Mounting bracket for module

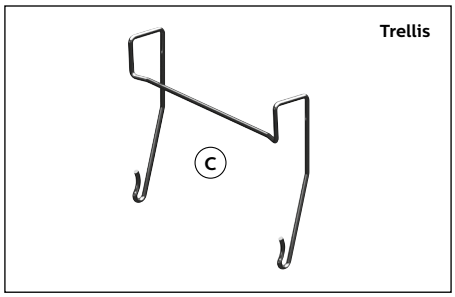


GPL TLC BRACKET Module 1.0[1]

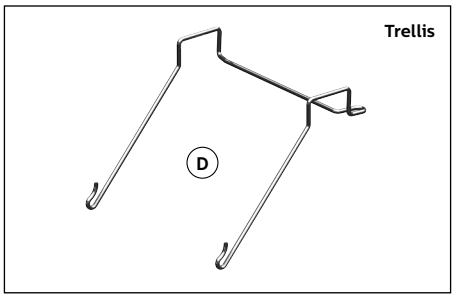
Mounting bracket for specific applications



GPL TLC BRACKET C 40x40[2]

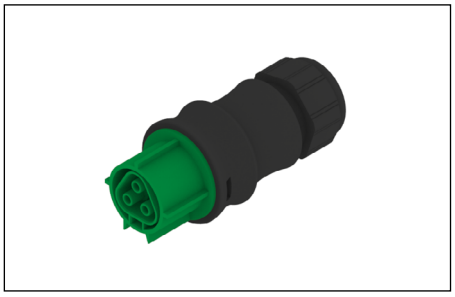


GPL TLC BRACKET TRE 50x30/25 Center[3] **/**
GPL TLC BRACKET TRE 60x40/30 Center[4]



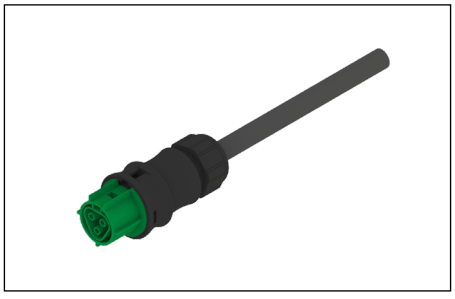
GPL TLC BRACKET TRE 50x25 Angle[5] **/**
GPL TLC BRACKET TRE 50x30 Angle[5] **/**
GPL TLC BRACKET TRE 60x30 Angle[5] **/**
GPL TLC BRACKET TRE 60x40 Angle[5]

Female connector



GPL toplighting female connector

Main power cable



GPL toplighting main power cable[6]

Note: Bracket types **(B)**, **(C)** and **(D)** are designed in such a way, that the distance between the bottom side of the profile and top side of the module, is equal to 0.2m.

Legend:
GPL = GreenPower LED
TLC = Toplighting Compact module
C = C- profile
TRE = Trellis

[1] Galvanised steel wire ø6.0 mm. Service article only. Is included in initial delivery box.
[2] Galvanised steel wire ø6.0 mm. Suitable for C-profiles; 40 x 40 mm.
[3] Galvanised steel wire ø6.0 mm. Suitable for trellis rectangular steel profiles; 50 x 25 & 50 x 30 mm.
[4] Galvanised steel wire ø6.0 mm. Suitable for trellis rectangular steel profiles; 60 x 30 & 60 x 40 mm.
[5] Galvanised steel wire ø7.0 mm. Only suitable for specific denoted trellis rectangular steel profile dimensions.
[6] 3x 2.08mm² (AWG14) copper wire conductors, 2m (6.6ft) UL approved cable, available for American markets.

Ordering data

GPL toplighting compact

Product description	12 NC	6 NC	MOQ
Optimized Performance			
GPL TLC 2000 DRB_LB 277-400V 1.1D WB MP	9290 021 00160	363051	1 (40 pcs)
GPL TLC 2000 DRB_LB 277-400V 1.1D WB SP	9290 021 00166	363119	1
GPL TLC 1950 DRW_LB 277-400V 1.1D WB MP	9290 021 00161	363069	1 (40 pcs)
GPL TLC 1950 DRW_LB 277-400V 1.1D WB SP	9290 021 00167	363127	1
GPL TLC 1900 DRW_MB 277-400V 1.1D WB MP	9290 021 00162	363077	1 (40 pcs)
GPL TLC 1900 DRW_MB 277-400V 1.1D WB SP	9290 021 00168	363135	1
GPL TLC 2200 DRB_LB 277-400V 1.1D MP	9290 021 00201	363366	1 (40 pcs)
GPL TLC 2200 DRB_LB 277-400V 1.1D SP	9290 021 00207	363416	1
GPL TLC 2150 DRW_LB 277-400V 1.1D MP	9290 021 00202	363374	1 (40 pcs)
GPL TLC 2150 DRW_LB 277-400V 1.1D SP	9290 021 00208	363424	1
GPL TLC 2100 DRW_MB 277-400V 1.1D MP	9290 021 00203	363382	1 (40 pcs)
GPL TLC 2100 DRW_MB 277-400V 1.1D SP	9290 021 00209	363432	1
GPL TLC 1650 DRW_VSN2 277-400V 1.1D MP	9290 021 00211	363606	1 (40 pcs)
GPL TLC 1650 DRW_VSN2 277-400V 1.1D SP	9290 021 00213	363622	1
Cost Effective			
GPL TLC 1800 DRB_LB 277-400V 1.1D MP	9290 021 00245	363663	1 (40 pcs)
GPL TLC 1800 DRB_LB 277-400V 1.1D SP	9290 021 00251	363770	1
GPL TLC 1800 DRW_LB 277-400V 1.1D MP	9290 021 00246	363671	1 (40 pcs)
GPL TLC 1800 DRW_LB 277-400V 1.1D SP	9290 021 00252	363788	1
GPL TLC 1800 DRW_MB 277-400V 1.1D MP	9290 021 00247	363689	1 (40 pcs)
GPL TLC 1800 DRW_MB 277-400V 1.1D SP	9290 021 00253	363796	1
GPL TLC 1800 DRB_LB 277-400V 1.0D MP	9290 021 00005	346270	1 (40 pcs)
GPL TLC 1800 DRB_LB 277-400V 1.0D SP	9290 021 00117	346460	1
GPL TLC 1800 DRW_LB 277-400V 1.0D MP	9290 021 00008	346304	1 (40 pcs)
GPL TLC 1800 DRW_LB 277-400V 1.0D SP	9290 021 00120	346494	1
GPL TLC 1800 DRW_MB 277-400V 1.0D MP	9290 021 00009	346312	1 (40 pcs)
GPL TLC 1800 DRW_MB 277-400V 1.0D SP	9290 021 00121	346502	1
GPL TLC 1650 DRWFR1_LB 277-400V 1.0D MP	9290 021 00011	346338	1 (40 pcs)
GPL TLC 1650 DRWFR1_LB 277-400V 1.0D SP	9290 021 00123	346528	1
GPL TLC 1650 DRWFR4_RSE 277-400V 1.0D MP	9290 021 00013	346353	1 (40 pcs)
GPL TLC 1650 DRWFR4_RSE 277-400V 1.0D SP	9290 021 00125	346544	1
GPL TLC 1800 DRB_LB 277-400V 1.0S MP	9290 021 00061	346163	1 (40 pcs)
GPL TLC 1800 DRB_LB 277-400V 1.0S SP	9290 021 00108	346361	1
GPL TLC 1800 DRW_LB 277-400V 1.0S MP	9290 021 00064	346197	1 (40 pcs)
GPL TLC 1800 DRW_LB 277-400V 1.0S SP	9290 021 00111	346395	1
GPL TLC 1800 DRW_MB 277-400V 1.0S MP	9290 021 00065	346205	1 (40 pcs)
GPL TLC 1800 DRW_MB 277-400V 1.0S SP	9290 021 00112	346403	1
GPL TLC 1650 DRWFR1_LB 277-400V 1.0S MP	9290 021 00067	346239	1 (40 pcs)
GPL TLC 1650 DRWFR1_LB 277-400V 1.0S SP	9290 021 00114	346437	1
GPL TLC 1650 DRWFR4_RSE 277-400V 1.0S MP	9290 021 00069	346254	1 (40 pcs)
GPL TLC 1650 DRWFR4_RSE 277-400V 1.0S SP	9290 021 00116	346452	1
High Efficacy			
GPL TLC 1850 DRB_LB 200-400V 1.1D MP	9290 021 00173	363184	1 (40 pcs)
GPL TLC 1850 DRB_LB 200-400V 1.1D SP	9290 021 00181	363283	1
GPL TLC 1800 DRW_LB 200-400V 1.1D MP	9290 021 00174	363192	1 (40 pcs)
GPL TLC 1800 DRW_LB 200-400V 1.1D SP	9290 021 00182	363291	1
GPL TLC 1750 DRW_MB 200-400V 1.1D MP	9290 021 00175	363200	1 (40 pcs)
GPL TLC 1750 DRW_MB 200-400V 1.1D SP	9290 021 00183	363317	1
GPL TLC 1650 DRWFR_1 200-400V 1.1D MP	9290 021 00176	363226	1 (40 pcs)
GPL TLC 1650 DRWFR_1 200-400V 1.1D SP	9290 021 00184	363333	1
GPL TLC 1650 DRWFR_RSE 200-400V 1.1D MP	9290 021 00288	364059	1 (40 pcs)
GPL TLC 1650 DRWFR_RSE 200-400V 1.1D SP	9290 021 00289	364067	1

Product description	12 NC	6 NC	MOQ
High Output			
GPL TLC 2650 DRB_LB 400V 1.1D MP	9290 021 00218		1 (40 pcs)
GPL TLC 2650 DRB_LB 400V 1.1D SP	9290 021 00226		1
GPL TLC 2600 DRW_LB 400V 1.1D MP	9290 021 00219		1 (40 pcs)
GPL TLC 2600 DRW_LB 400V 1.1D SP	9290 021 00227		1
GPL TLC 2550 DRW_MB 400V 1.1D MP	9290 021 00220		1 (40 pcs)
GPL TLC 2550 DRW_MB 400V 1.1D SP	9290 021 00228		1
GPL TLC 2250 DRWFR_RSE 400V 1.1D MP	9290 021 00221		1 (40 pcs)
GPL TLC 2250 DRWFR_RSE 400V 1.1D SP	9290 021 00229		1

Accessories

Product description	12 NC	6 NC	MOQ
Mounting bracket for module			
GPL TLC BRACKET Module 1.0[1]	9290 021 00019	347062	20
GPL TLC BRACKET C 40x40[2]	9290 021 00018	347054	20
GPL TLC BRACKET TRE 50x30/25 Center[3]	9290 021 00014	347005	20
GPL TLC BRACKET TRE 60x40/30 Center[4]	9290 021 00015	347013	20
GPL TLC BRACKET TRE 50x25 Angle[5]	9290 021 00128	347070	20
GPL TLC BRACKET TRE 50x30 Angle[5]	9290 021 00016	347021	20
GPL TLC BRACKET TRE 60x30 Angle[5]	9290 021 00129	347088	20
GPL TLC BRACKET TRE 60x40 Angle[5]	9290 021 00017	347039	20
Power connector for module			
GPL toplighting female connector	9290 009 15506		100
Power cable for module			
GPL toplighting main power cable[6]	9290 015 16206	304188	50

Single Packaging GPL toplighting compact

Box dimensions	Pcs per box	Pallet dimensions	Pcs per pallet
0.81 m x 0.34 m x 0.195 m	1	1.8 m x 0.77 m x 1.325 m	24

Multi Packaging GPL toplighting compact

Box dimensions	Pcs per box	Pallet dimensions	Pcs per pallet
-	-	1.35 m x 0.77 m x 1.176 m	40

Legend:

GPL	= GreenPower LED	RSE	= Rose
TLC	= Toplighting Compact	S	= Static
DR	= Deep Red	D	= Dimmable
B	= Blue	C	= C- profile
LB	= Low Blue	TRE	= Trellis
MB	= Medium Blue	MP	= Multi package
W	= White	SP	= Single package
FR	= Far Red	MOQ	= Minimum Order Quantity
1.0 or 1.1	= Generation	WB	= Wide Beam
VSN2	= Vision 2		

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[5] Galvanised steel wire ø7.0 mm. Only suitable for specific denoted trellis rectangular steel profile dimensions.
[6] 3x 2.08mm² (AWG14) copper wire conductors, 2m (6.6ft), UL approved cable, available for American markets.

Crop protection and cleaning products

Use of cleaning agents, crop protection products and other chemicals

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 products in the field. However, there are some crop protection products and cleaning agents that may damage the protective surfaces of the GreenPower LED products and should be avoided.

Please ensure that you take the following instructions into account when cleaning the GreenPower LED products, 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 to remove dust or dirt from the GreenPower LED product.
- Do not use rough or coarse-grained materials, scouring pads, bleach or solvents.
- The use of a non-approved cleaning product or solvent 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 glass plate or reduce the light output.

Compliance with international standards

The GreenPower LED toplighting compact module 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 variable 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	EN 55015
		IEC 61000-3-2
		IEC 61000-3-3
	Immunity	IEC 61547
Safety		IEC 60598
		IEC 62471
		UL 8800
		CSA c22.2 No. 250.0-08
Approval marks	Approval marks GreenPower LED toplighting compact	ENEC
	Declaration of conformity	CE
		cULus
		FCC
		EAC
		RCM

Document order number: 4422 952 01629 B
07/2020
Data subject to change

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