PHILIPS

Horticulture LED Solutions

Philips GreenPower LED toplighting force

HORTICOOP
SCANDINAVIA A/S

Unlock lighting intelligence

to steer your crop and energy consumption

Dynamic crop steering for improved business results

Unlock your lighting intelligence with the GreenPower LED toplighting force that is designed to optimize your business results. The advanced LED fixture offers a very high light output and precision steering in combination with the Philips GrowWise control system and has an excellent light efficacy. Whether you want to steer your crop based on its optimal light requirements, or you want to manage your energy consumption; the TLF offers the best options today. It opens new opportunities for the future in exact set-point/light control or wireless load balancing aFRR energy trading. These features can be seamlessly integrated with your existing climate computer, the tailored light recipes safeguard steering based on external factors like the amount of sunlight or fast changing energy prices. Manage your energy consumption, yield and adapt to the specific needs of the crop and its development stage.

The Quadro Beam lens ensures superb light uniformity, delivering a rectangular beam at high light output, for optimal fit in your greenhouse layout. This enables fewer fixtures for the same surface, a perfect choice for reduced installation costs and maximizing light efficiency.

When you want to generate the highest optimized light level with the fewest grow lights possible, the Philips GreenPower TLF 2, 3 and 4 channel fixture is your smart LED investment stepping into dynamic light control, unlocking the intelligent lighting potential in your greenhouse.

The current multichannel lighting options, including 1040W, 1170W, and 1400W fixtures, now include **new additions of 800W and 1040W fixtures** with 4-channel control, offering wider flexibility in light-plan design. By combining the TLF with a Philips GrowWise Control System, you have the flexibility to create dynamic light recipes to achieve the next level in crop optimalization. With light outputs up to 5150 µmol/s and an efficacy up to 4.3 µmol/J (at 50% input power) or up to 3.9 µmol/J (at 100% light output) this is the perfect choice for crops that need a lot of high efficient light.

Key benefits

NEW

- **4 Channel enabled "Exact light control" Red, Blue, White, Far-Red**
- Quadro Beam optics for superior light uniformity
- 2 and 3 Channel color control to steer crop development and energy consumption
- Simplified E-installation, no need of control wires
- Flexible zoning via possible via proven wireless control technology
- Max. plug power utilization and energy trading prepared
- Max. PPF of 5150 µmol/s with an energy efficacy up to 3.9 µmol/J at 100%

High light output combined with Quadro Beam lens for superior light uniformity

The TLF enables new high light output options, up to 5150 µmol/s. The newly developed Quadro Beam lens ensures uniformity in all directions even at high light outputs. This enables a light plan with fewer fixtures for the same surface, reducing installation costs.

The rectangular beam shape also provides a highly uniform light distribution at shorter distances between the LED fixture and the head of the crop. The IP 66 fixture design in combination with the flat glass cover makes cleaning extremely easy, reducing your cost of maintenance.

Light recipe set points explained

Exact set-point/fixture or real power control goes one step further and is generated from Philips GrowWise control in combination with the newly added 4 channel fixtures where GrowWise is your climate computer interface to secure the Exact set-points.

The in 2024 introduced 2 and 3 channel Philips fixtures, as first step into dynamic lighting, offer the ability to adapt your grow lighting to the specific needs of your crop and its development stage. This dynamic light (& power) recipe is built by putting several static light recipes (set-points) over time, creating the desired dynamic light recipe.

Examples

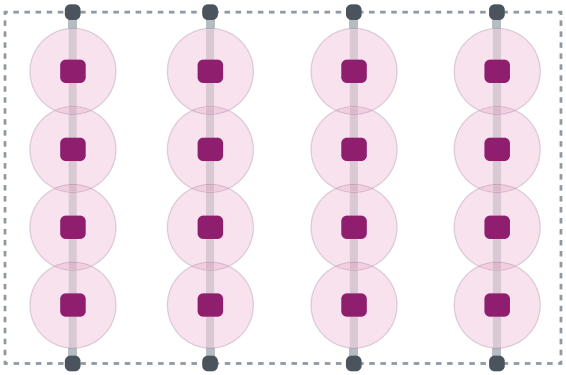
Deep Red White

Deep Red White Far Red

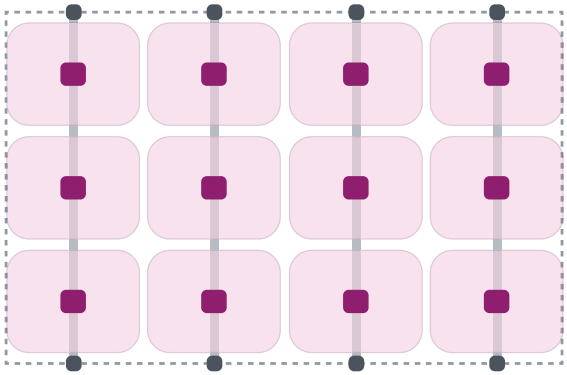
Far Red

White

Top view greenhouse



Standard Beam for optimal output/ efficiency



Quadro Beam for optimal uniformity with fewer grow lights/m^2 (reduced investment cost) and at lower distances between the grow light and head of the crop.

Wireless communication or communication using mains wires

With TLF you can choose if you want to control your fixtures using the existing mains wires as carrier (coded mains control) or you can choose for a wireless control interface which makes easy change of zones after installation possible. In both cases, wired (coded mains) or wireless, no additional control cables are required, simplifying installation and maintenance.

The wireless control option offers control of each compartment in the greenhouse separately to match the growth phase of the crop or different crops involved. Even after installation it gives flexibility in changing the division of control areas. A wireless installation also lowers installation cost for renovation of existing installations.

Wired communication

Easy Installation
No need for extra wiring, use existing power line

Reliable operation
Proven system in many projects worldwide

Future proof
Expandable with wireless system

Wireless communication

Lower installation cost

Flexible
Create multiple control areas

Future proof
Allow bidirectional feedback communication

Dynamic multi-channel color control

The multi-channel color controllability in combination with the Philips GrowWise control system allows growers to adjust the light spectrum dynamically for precision control in crop development and morphology and optimizes light output. Seamlessly integrated with existing climate computers, the tailored dynamic light recipes safeguards steering based on external factors like the amount of sunlight or fast changing energy prices to manage energy consumption and yield and adapt to the specific needs of the crop and its development stage.

Flexibility

Growers can independently control far-red light for special end-of-day treatments, or switch to the most energy-efficient spectrum when less efficient parts of the spectrum are not required. This flexibility is particularly useful for crops that have highly variable light demands like cucumber, chrysanthemum or strawberries, or for young plant production where specific light conditions during the darker seasons are vital.

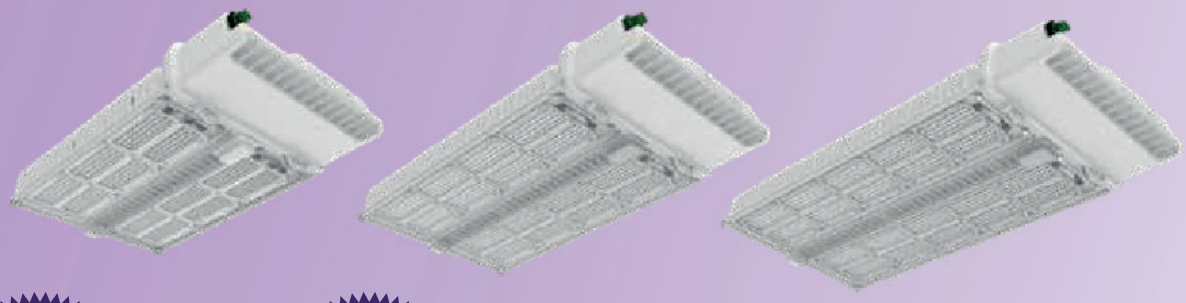
The **TLF fixtures** give you dynamic light steering capabilities to improve your crop quality and reduce energy consumption when needed. It operates in combination with the GrowWise control system, where setpoints can be programmed over a 24-hour cycle-time.

The **3-channel fixtures range** product range has a separate far-red channel that enables you to control far-red light independently from a basic light recipe. This feature is needed for end-of-day far-red light treatment. For some crops, like Chrysanthemum and Lisianthus, stretching can also be a challenge in the darker season when growing under full LED. The controllable far-red is a welcome feature to address this. When far-red is no longer needed you can use the full power of the module to apply more efficient parts of the spectrum which can be a choice focusing on one dynamic lighting solution for cucumber and tomato.

The toplighting force portfolio also covers specific **2 -channel** fixtures, which allow you to control specific white or blue, offering the possibility to adapt to the most efficient energy setting. With these specific fixtures, you can also grow using 100% deep-red (being the most efficient wavelength) and choose to set your own blue for crop steering purposes or set your own white light for crop inspection.

NEW

Additions to the family are the 4-channel, in 800W and 1040W fixtures offering the possibility for "exact light control" for example, the specific 100% deep-red "set-point" (red boost). The 4 -channel range with controllable red, white, blue and far-red supports a full light recipe flexibility, which is very welcome for young plant breeding. This fixture range further unlocks lighting intelligence, being a luminaire system component operating together with a GrowWise control system supported by newly introduced GrowWise algorithms. These algorithms will automatically adjust your lighting system to real-time factors such as growing conditions, energy prices or market demand changes, helping you to improve your business case.



NEW **800W - 4CH**

NEW **1040W - 4CH**

1170W

1400W

- **DIM** 10%-100% for efficacy increase
- **Multi Channel 10%-100% control**
- Controllable via **GrowWise** control system
- Easy to Mount Easy to connect
- Wireless Control
- Mains wire Control
- Input Voltage 277-400V or 400V
- Negligible Start-up current
- High PF 0,98
- Low THD < 10%
- No moving parts
- IP 66 Rating
- 0 - 40°C Tamb
- Standard & **Quadro Beam** optics
- Gore-Tex™ Vent

Product specification set-point data

One channel DIM

Beam	Spectral version		Deep Red/White types (DRW)	Broad
	Spectral code (factory-set light recipe)		**LB**	**VSN2**
Standard beam	Typical photon flux	µmol/s	**3600***	
	Power consumption (max)	W	**1040**	
	Efficacy @ max power	µmol/J	3,5	
	Efficacy at 50% (dimmed)	µmol/J	3,8	
	Mains voltage[2]	V	480	
	Control interface		CC1 | WC1	
		CH1	DRW	
Quadro Beam	Typical photon flux	µmol/s	**3600***	**2760**
	Power consumption (max)	W	**1040**	**1040**
	Efficacy @ max power	µmol/J	3,5	2,7
	Efficacy at 50% (dimmed)	µmol/J	3,8	2,9
	Mains voltage[2]	V	480	277-400
	Control interface		CC1 | WC1	CC1
		CH1	DRW	VSN2

2-channel control

Beam	Spectral version		Deep Red/White types (DRW)					
	Spectral code(factory-set light recipe)				**LB**			**2_LB**
Standard beam	Typical photon flux	µmol/s	**4010**	**3800**	**3600**	**4280**	**5150**	**3600**
	Power consumption (max)	W	**1040**	**1040**	**1040**	**1170**	**1408**	**1040**
	Efficacy @ max power	µmol/J	3,9	3,7	3,5	3,7	3,7	3,5
	Efficacy at 50% (dimmed)	µmol/J	4,3	4,2	3,8	4,2	4,0	3,8
	Mains voltage[2]	V	277-400	277-400	277-400	**277-400**	**400**	**277-400**
	Control interface		CC2 | WC2	CC2 | WC2	CC2 | WC2	**CC2 | WC2**	**CC2 | WC2**	**CC2 | WC2**
		CH1	DR	DR	DR	**DR**	**DR**	DR
		CH2	W	W	W	**W**	**W**	W
Quadro Beam	Typical photon flux	µmol/s	**4010**	**3800**	**3600**	**4280**	**5150**	**3500**
	Power consumption (max)	W	**1040**	**1040**	**1040**	**1170**	**1408**	**1040**
	Efficacy @ max power	µmol/J	3,9	3,7	3,5	3,7	3,7	3,4
	Efficacy at 50% (dimmed)	µmol/J	4,3	4,2	3,8	4,2	4,0	3,7
	Mains voltage[2]	V	277-400	277-400	277-400	277-400	**400**	277-400
	Control interface		CC2 | WC2	CC2 | WC2	CC2 | WC2	CC2 | WC2	**CC2 | WC2**	CC2 | WC2
		CH1	DR	DR	DR	DR	**DR**	DR
		CH2	W	W	**W**	**W**	**W**	W

3-channel control

Beam	Spectral version		Deep Red/White types (DRW)	Deep Red/White/Far Red types (DRWFR)[1]			
	Spectral code (factory-set light recipe)		**MB**	**F1**		**F6**	
Standard beam	Typical photon flux	µmol/s	**3700**	**3600**	**3800**	**4170**	**5050**
	Power consumption (max)	W	**1040**	**1040**	**1040**	**1170**	**1408**
	Efficacy @ max power	µmol/J	3,6	3,5	3,7	3,6	3,6
	Efficacy at 50% (dimmed)	µmol/J	3,9	3,9	4,1	4,1	4,0
	Mains voltage[2]	V	**277-400**	**277-400**	277-400	**277-400**	400
	Control interface		**CC3 | WC3**	**CC3 | WC3**	CC3 | WC3	CC3 | WC3	CC3 | WC3
		CH1	**DR**	DR	DR	DR	DR
		CH2	**B**	W	**W**	W	W
		CH3	**W**	FR	**FR**	FR	FR
Quadro Beam	Typical photon flux	µmol/s	**3600**	**3500**	**3800**	**4170**	**5050**
	Power consumption (max)	W	**1040**	**1040**	**1040**	**1170**	**1408**
	Efficacy @ max power	µmol/J	3,5	3,4	3,7	3,6	3,6
	Efficacy at 50% (dimmed)	µmol/J	3,8	3,8	4,1	4,1	4,0
	Mains voltage[2]	V	**277-400**	277-400	**277-400**	277-400	400
	Control interface		**CC3 | WC3**	**CC3** | WC3	**CC3** | WC3	CC3 | WC3	CC3 | WC3
		CH1	**DR**	DR	DR	DR	DR
		CH2	**B**	W	W	W	W
		CH3	**W**	FR	FR	FR	FR

4-channel control

Beam	Spectral version		Deep Red/Blue/White/Far Red types (DRBWFR)[1]			
	Spectral code (factory-set light recipe)			**RBWF**		
Standard beam	Typical photon flux	µmol/s	**3800**	**3900**	**2760**	**3000**
	Power consumption (max)	W	**1040**	**1040**	**800**	**800**
	Efficacy @ max power	µmol/J	3,7	3,8	3,5	3,8
	Efficacy at 50% (dimmed)	µmol/J	4,1	4,2	3,8	4,2
	Input Power[2]	V	**400**	400	277-400	277-400
	Control interface		CC4 | WC4	CC4 | WC4	CC4 | WC4	CC4 | WC4
		CH1	DR	DR	DR	DR
		CH2	B	B	B	B
		CH3	W	W	W	W
		CH4	FR	FR	FR	FR
Quadro Beam	Typical photon flux	µmol/s	**3800**	**3900**	**2760**	**3000**
	Power consumption (max)	W	**1040**	**1040**	**800**	**800**
	Efficacy @ max power	µmol/J	3,7	3,8	3,5	3,8
	Efficacy at 50% (dimmed)	µmol/J	4,1	4,2	3,8	4,2
	Input Power[2]	V	400	400	277-400	277-400
	Control interface		CC4 | WC4	CC4 | WC4	CC4 | WC4	CC4 | WC4
		CH1	DR	DR	DR	DR
		CH2	B	B	B	B
		CH3	W	W	W	W
		CH4	FR	FR	FR	FR

Quick reference data

Light distribution			Standard Beam - beam angle 120° Quadro Beam - beam angle 150x135°
Color Controllable			10% - 100% (controllable per channel4)
Dimensions	800W	cm	**L:** 58,1 **W:** 36,4 **H:** 13,0
	1040W / 1170W	cm	**L:** 70,3 **W:** 36,4 **H:** 13,0
	1400W	cm	**L:** 82,5 **W:** 36,4 **H:** 13,0
Weight	800W	kg	13
	1040W/1170W	kg	15
	1400W	kg	17
Power factor			0.98
Total Harmonic Distortion		%	< 10
Rated Average Lifetime[3]		hrs	36.000 - Q95
Ingress protection rating			IP66 / wet locations
Cooling			Passively cooled
Approval marks			CE, ENEC, UL/CSA, RCM, PSE, IC/FCC
Mains connector			Wieland RST20i3 Green

Legend

DRW =	Deep Red/ White
DRWFR =	Deep Red/ White + Far-red
RBWF =	Deep Red/Blue/White/Far-red
LB =	light recipe, with low blue content
2_LB =	light recipe with increased white and low blue content
MB =	light recipe, with medium blue content
VSN2 =	vision spectrum, human centric white light
FR 1 =	Far Red light recipe 1 (backwards compatible setpoint product)
R 6 =	Deep-Red White light recipe including far-red
RBWF =	4 channel exact control in cobination with GrowWise
PF =	power factor
THD =	total harmonic distortion

Notes

1. The published value represents the total photon flux from 400-800nm
2. 50 - 60 Hz
3. Lifetime and maintenance values are given at an ambient temperature of 25°C / 77°F.
4. In combination with GrowWise control system Version 4.0 or higher. Dimming the llight output increases the efficacy of the product.

* Available late 2025, please consult your Key Account Manager for details.

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Forhandler:

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