LED LIGHT TECHNICAL INFORMATION

(MADE BY VOSSLOH-SCHWABE)

Image: LED module mounted on an aluminium heat sink

Image: The LED module as a stand alone twin assembly

- 6 different spectra available
- Module with high LED density for a compact luminaire assembly
- LED built-in module for integration into luminaires
- 88 high-efficiency LEDs
- Matching optics (IP65) and heat sinks
- Dimensions (without optics): 289x55x6 mm
- Operating current: up to 1050 mA (HP)
- On-board plug-in terminals
- Beam angle (without optics): 120°
- Wide 90° optics with integrated IP65 protection

When used for plant cultivation in greenhouses, LED technology is not only more energy efficient than conventional lighting, but also makes it possible to accelerate plant growth and improve plant quality.

Based on almost 100 years of experience with lighting technologies, Vossloh-Schwabe develops and manufactures LED solutions on proven industry platforms that can be individually tailored to suit your specific area of application.

MAXIMUM RATINGS

Exceeding the maximum ratings can lead to reduction of service life or destruction of the module.

		Operation temperature range at tc point		Storage temperature range		
Types	Operating current mA	°C min	°C max	°C min	°C max	Max. allowed repetitive peak current mA
HP-Typen	≤ 1050 mA	–30	+85	–30	+85	1600

ELECTRICAL CHARACTERISTICS

HP Types	LEDs	Typ. voltage DC 1050 mA V	Temperature coefficient mV/K	Typ. power consumption 1050 mA W
16B72R HP	88	48.6	-31.7	51.1
16B52R20FR HP		47.2	-30.1	49.6
72R16W850S2 HP		48.9	-30.4	51.4
60R12FR16W850S2 HP		48.1	-29.4	50.5
24R64W840S2 HP		61.4	-26.1	64.5
12R12FR64W850S2 HP		61.5	-29.4	63.5

Voltage and power consumption tolerance: ± 10%
Use of external LED constant current driver required.

OPTICAL CHARACTERISTICS

Optical Characteristics at tp = 50 °C without secondary optics.

				Photon flux and typ. efficiency*		Typ. luminous flux* (lm) and typ. efficiency (lm/W)		
HP Types	Colour	Correlated Colour Temperature K	Operating Current mA	µmol/s	µmol/J	lm	lm/W	CRI
16B72R HP	pink	N/A	1050	126	2.5	1410	28	N/A
16B52R20FR HP	pink			120	2.4	1100	22	N/A
72R16W850S2 HP	pinkish white	1650		129	2.5	3210	62	45
60R12FR16W850S2 HP	pinkish white	1800		125	2.5	3010	60	45
24R64W840S2 HP	pink	3500		144	2.2	8270	128	94
12R12FR64W850S2 HP	pink	4700		144	2.3	8290	130	89

* Production tolerance of photon flux and luminous flux: ±10 %, calculated in the range 280-800 nm
Effectiveness values calculated from typical values.

SPECTURAL CHARACTERISTICS

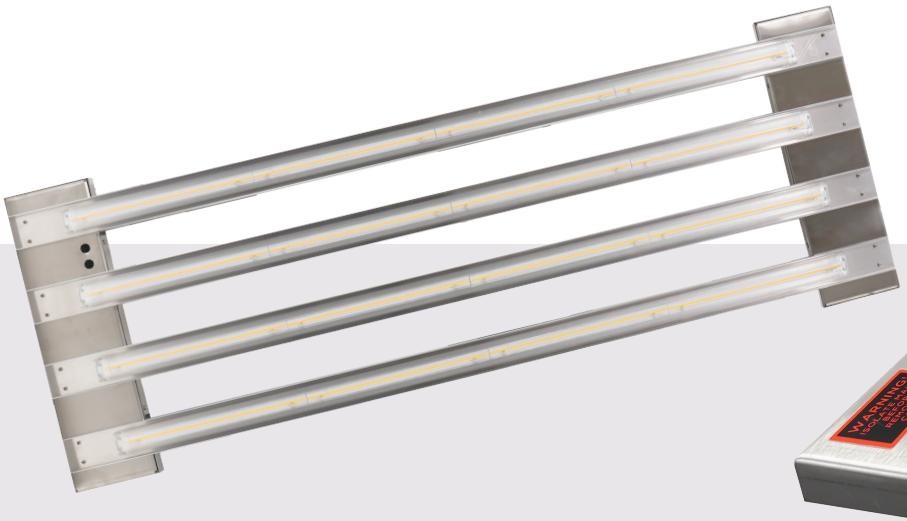
Spectral Characteristics at tp = 50 °C

HP Types	Spectral distribution related to µmol/s				Ratios		
	Blue 400–500 nm	Green 500–600 nm	Red 600–700 nm	Far red > 700 nm	Blue – Red	Blue – Green	Red – Far red
16B72R HP	21%	0%	79%	0%	01:03.8	N/A	N/A
16B52R20FR HP	22%	0%	61%	17%	01:02.8	N/A	01:00.3
72R16W850S2 HP	5%	11%	83%	1%	01:15.5	1:02	N/A
60R12FR16W850S2 HP	6%	11%	73%	10%	01:13.1	1:02	01:00.1
24R64W840S2 HP	14%	36%	48%	2%	01:03.4	1:2,6	N/A
12R12FR64W850S2 HP	19%	38%	33%	10%	01:01.8	1:02	01:00.3

* All charcteristics shown are for reference only and will not be guaranteed.

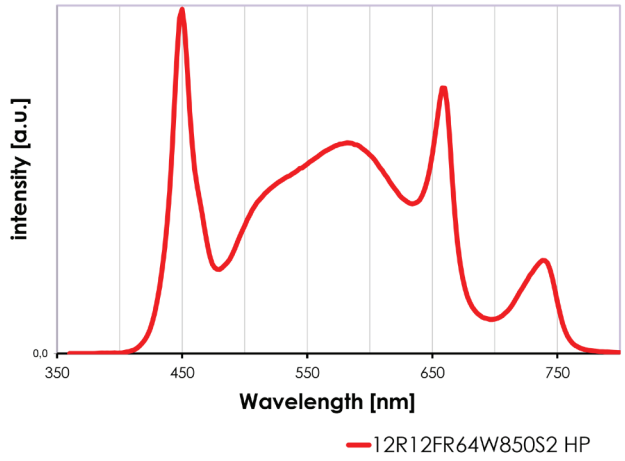
Technical Notes for Optics
Brilliant light distribution and surfaces
Highly efficient up to 92%
Material: PC, transparent
Suitable for luminaires with impact rating IK08/5J
Degree of protection: IP65 (incl. silicone gasket)
Dimensions (LxWxH): 318x84x11.75 mm
Max. allowed temperature: 100 °C

Technical Notes for Heat Sink
Material: aluminium EN AW-6060 (AlMgSi 0,5) T66 anodized
Fixing holes for PCB: for self-tapping screws M4, screw length: 6 mm
Fixing holes for optics: for self-tapping screws M4, screw length: 12 mm
2 additional blind holes for holding the index pins of the optics for easier positioning of the optics on the heat sink

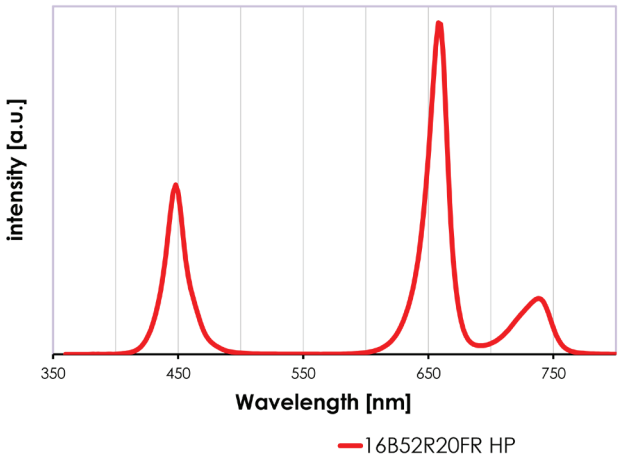


Images: The stand alone hanging light tray consists of 4x 1148mm LED rails, 1x dimming control box and both control box and light tray are fitted with eyelets for easy hanging from shelves or frame.

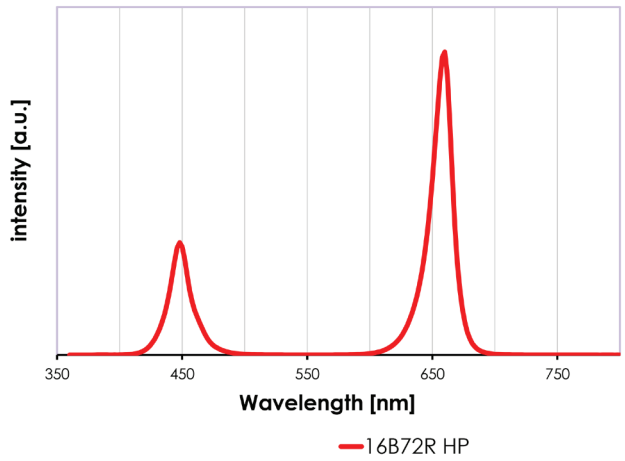
TECHNICAL GRAPHS



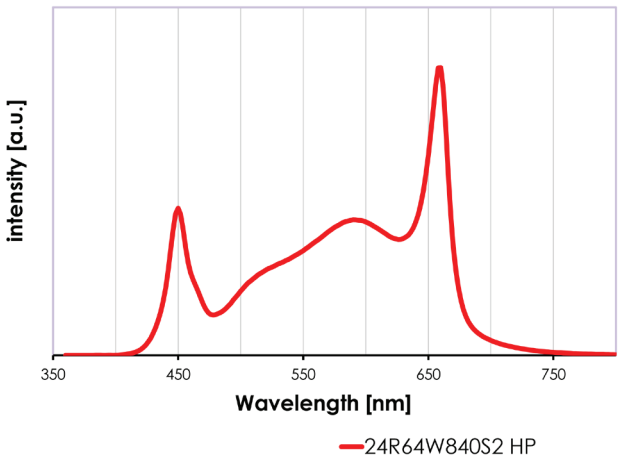
12R12FR64W850S2 HP



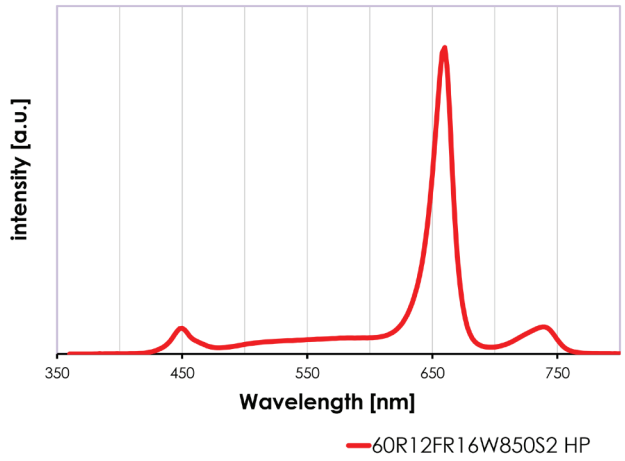
16B52R20FR HP



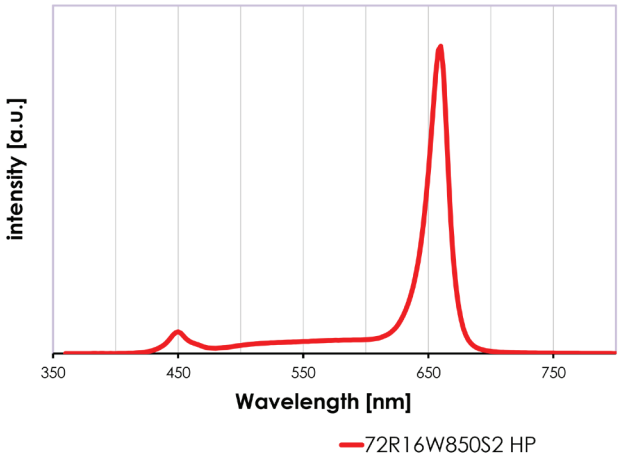
16B72R HP



24R64W840S2 HP



60R12FR16W850S2 HP



72R16W850S2 HP

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

LUGA LINE COB HORTICULTURE

Technical Notes
LED built-in module for integration into luminaires
Dimensions: 280x15 mm
Typ. driving current: 1050 mA (max.)
Beam angle: 120°

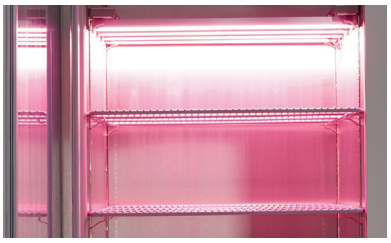
Spectrum "Leaf"

Recommendation for plants and vegetables which should have an optimized vegetative growth. Due increased spectral emission in the infrared (> 700 nm), as well as in the green (500–560 nm) spectral range, the growth of the plants or the vegetables can be positively influenced.

The slightly pink-coloured full spectrum light (white light with a colour rendering > 80) also shows an improved compatibility for the employees in the vicinity of the illumination solution.

Spectrum "Bloom"

"Bloom" shows an optimized effect on ornamental plants and young seedlings, which need support in the flowering or in the initial growth stage. The spectrum is characterized by its focus on the blue and red spectral range, which provides maximum efficiency in photosynthesis.



ELECTRICAL CHARACTERISTICS

Electrical Characteristics at tp = 65 °C

Type	Typ. voltage DC* (V) 1050 mA	Temperature coefficient mV/K	Typ. power consumption* (W) 1050 mA
DML059***FC1	17.9	–7	18.8

MAXIMUM RATINGS

Exceeding the maximum ratings can lead to reduction of service life or destruction of the module.

Types		Operation temperature range at tc point		Ambient temperature range		Storage temperature range			
	Operating current mA	°C min	°C max	°C min	°C max	°C min	°C max	Max. allowed repetitive peak current (mA)	Max. permitted output voltage of operating device V
DML059***FC1	≤ 700	–40	95	–40	40	–40	105	1800	150
	> 700	–40	85						

OPTICAL CHARACTERISTICS

Optical Characteristics at tp = 65 °C

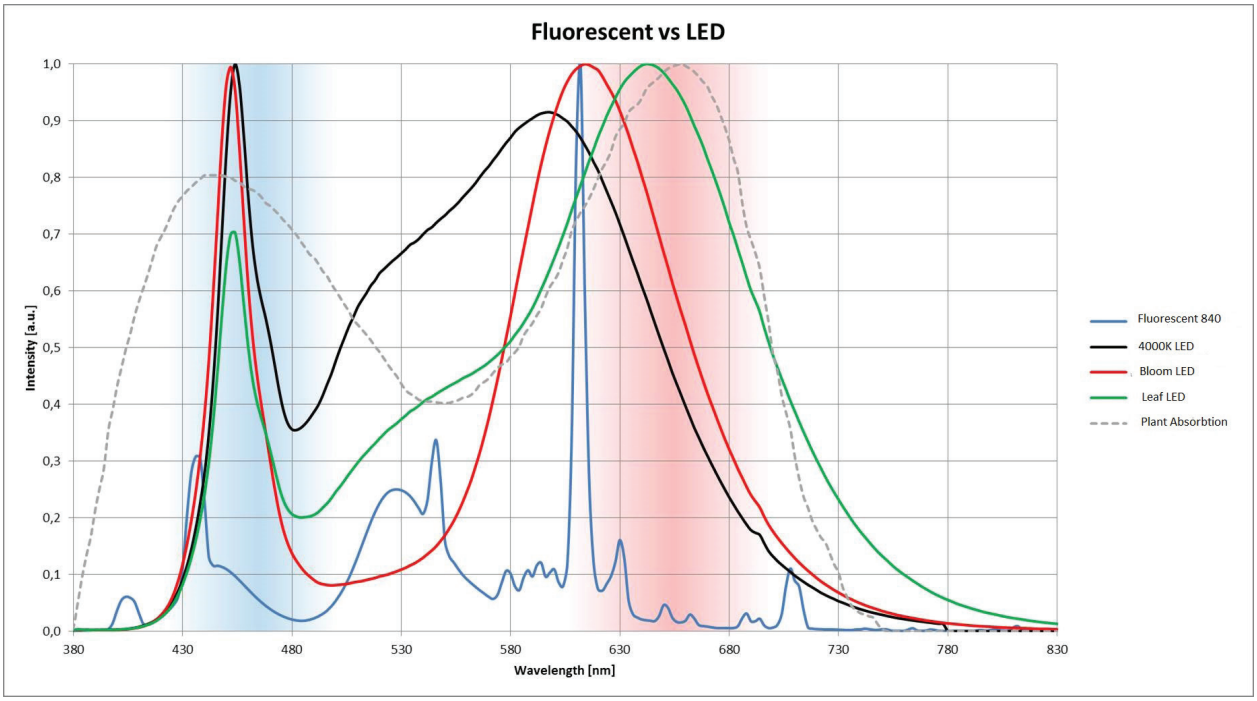
Type	Colour	Correlated Photocolour temp.* K	Operation Current mA	Typ. photon flux and efficiency**				Typ. luminous flux and efficiency**			
				PAR		BPAR					
				µmol/s	µmol/J	µmol/s	µmol/J	lm	Lm/W	Typ. CRI Ra	Photometric Code
DML059HAWFC1 (Bloom)	pink	1900	1050	33.1	1.8	34.8	1.9	1680	89	55	519
DML059HAJFC1 (Leaf)	pinkish white	2700	1050	28.7	1.5	33.3	1.8	1370	73	85	827

* Colour tolerance: 3 MacAdam | ** Production tolerance of photon flux and luminous flux: ± 10%, efficiency calculated from typical values | PAR: 400–700 nm; PBAR: 280–800 nm

SPECTURAL CHARACTERISTICS

Spectral Characteristics at tp = 65 °C

Type	Spectral distribution related to µmol/s				Ratios		
	400–500 nm (blue)	500–600 nm (green)	600–700 nm (red)	> 700 nm (far red)	blue – red	blue – green	red – far red
Bloom	16.90%	24.00%	56.60%	4.50%	01:03.2	01:01.4	01:00.1
Leaf	10.10%	22.50%	53.70%	13.70%	01:05.3	01:02.2	01:00.3



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