LP20-1400

Helvar Components

Linear **LED Module**, LP20 Series

Product code: 5184

400 mA, 44.8 W

- Cost-efficient slim 1400 mm (5 ft) linear module, high efficacy up to 186 lm/W at Tc = 65 °C (4000 K)
- Narrow width of 20 mm to suit various applications
- Modular product platform for design flexibility
- Zhaga compliant dimensions
- CCT 4000 K, other colour temperatures and CRI values available on request

	Nominal CCT [K]	Useful luminous flux at Tc = 65 °C Typ. [lm]	Luminous flux Tc = 25 °C Typ. [lm]	Forward voltage (V_f) Tc = 25 °C Min. [V]	Forward voltage (V_f) Tc = 25 °C Max. [V]	Luminous efficacy Tc = 65 °C Typ. [lm/W]	Luminous efficacy Tc = 25 °C Typ. [lm/W]	Power consumption Tc = 65 °C Typ. [W]	CRI
Very high efficacy @ 200 mA									
LP20-1400-840-7500lm	4000	4020	4280	110	120	186	195	22.4	> 80
Higher efficacy @ 300 mA									
LP20-1400-840-7500lm	4000	5805	6190	111.5	120	176	185	33.6	> 80
High efficacy @ 350 mA									
LP20-1400-840-7500lm	4000	7060	6615	113	120	171	181	38.4	> 80
Nominal @ 400 mA									
LP20-1400-840-7500lm	4000	**7470**	**7980**	**113.5**	**120**	**167**	**176**	**44.8**	**> 80**
High flux @ 500 mA									
LP20-1400-840-7500lm	4000	8725	9670	115	120	160	168	56	> 80

Electrical specifications

Direct current supply only	LP20-1400 Nominal current	LP20-1400 Maximum current
Operating Current [mA]	400	800
Operating Voltage, max. [V]	120 [1]	120 [2]

[1] *At 400 mA, Tc = 25 °C* [2] *At 800 mA, Tc = 25 °C*

IP rating IP00

Mounting restrictions per maximum Uout voltage in the circuit:

≤ 320 VDC	M3 screw or plastic rivet.
> 320 VDC	Only plastic rivet or M3 with plastic ring. No direct contact from metallic parts of the luminaire to the edges of the LED module.

Photometric specifications

Colour consistency at initial time	3 MacAdam steps
Colour Rendering Index	> 80
Beam angle	120 °
Photobiological risk group	RG1 unlimited
Energy efficiency class (2019/2015)	C

Operating Conditions and Characteristics

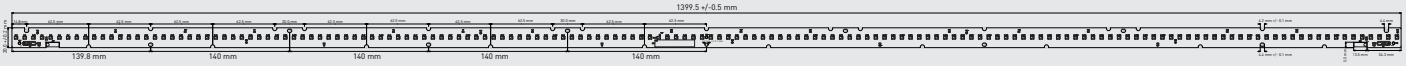
Tp point (performance measurements)	Tc = 65 °C
Max. temperature at Tc point	**85 °C**
Ambient temperature range	-40...+55 °C
Humidity	No condensation

Lumen maintenance specifications

Operating current	Temperature	L80B20
Very high efficacy **200 mA**	Tc ⩽ 85°C	> 80 000 h
Higher efficacy **300 mA**	Tc ⩽ 85°C	> 80 000 h
High efficacy **350 mA**	Tc ⩽ 85°C	> 80 000 h
Nominal **400 mA**	Tc ⩽ 85°C	> 80 000 h
High flux **500 mA**	Tc ⩽ 85°C	> 80 000 h

Lumen depreciation estimations in hours. Specified LxxBxx values are statistical and based on LED components' lumen maintenance values. Actual lumen maintenance may vary over individual LED modules.

Dimensions



Length	1399.5 ± 0.5 mm
Width	20.0 ± 0.2 mm

Wiring specifications

Connector type	Push-in connector
Wire size	0.2 - 0.75 mm^2 , solid connector
	0.2 - 0.75 mm^2 , fine-stranded
	0.25 - 0.34 mm^2 , fine-stranded (with ferrule)
Wire strip length	7 - 9 mm
Wire type	Solid core and fine-stranded

LP20 series LED modules are suited for built-in usage in luminaires. In order to have safe and reliable operation, the LED luminaires will need to comply with the relevant standards and regulations (e.g. IEC/EN 60598-1). The LED luminaire shall be designed to adequately protect the LED modules from dust, moisture and pollution. The luminaire manufacturer is responsible for the correct choice and installation of the LED module / LED driver combination according to the application and product datasheets. Operating conditions of the LED modules may never exceed the specifications as per the product datasheets.

HANDLING OF THE LED MODULES

LED modules contain components (LED packages, chips) that are sensitive for mechanical stress, electrostatic discharge (ESD) and chemical contaminants. Improper handling of the modules might cause damage or even destruction of the LED modules. Damaged LEDs may show some unusual characteristics such as increase in leakage current, lowered turn-on voltage, or abnormal lighting of LEDs at low current. Please follow following instructions and the precautions given in the product datasheets while handling and assembling Helvar Components LED modules.

Storage conditions

- Unused LED modules are recommended to stored carefully in an original sealed ESD package preventing moisture, pollutants or ESD to cause damage the module.
- Storage temperature range: -20...+80 °C

Opening the package / resealing

- LED modules are kept in stable protected environment in the packaging, open the package only when you are ready to use the LED modules. If resealing of the original package is required remove excess air from the packaging and place the moisture absorber (silica-gel bag) in to the packaging and seal the ESD back with adhesive tape.

ESD precautions at luminaire assembly site

The LEDs are sensitive to the electrostatic discharge (ESD) and surge current. If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices.

- IEC / EN 61340-5-1: Protection of electronic devices from electrostatic phenomena – General Requirements describes procedures for protection for damage caused by electrostatic discharge while handling electronic devices, following list lists basic protective measures described in the standard.

ESD protection measures in handling and assembling LED modules

- Employee training for correct handling .
- Personnel grounding via wrist band / footwear.
- ESD protective clothing / shoes.
- Handle LED modules only in ESD protected areas and workplaces.

CHEMICAL CONSIDERATIONS

Chemical substances may cause damage the LED module by causing discoloration, loss of luminous flux or total failure of the module.

Avoid materials and substances containing:

- VOCs - Volatile Organic Compounds that may occur in adhesives or sealings, verify that the materials used in the luminaires are not causing VOCs
- Halogen compounds
- Chlorine
- Acetates
- Sulphuric compounds.

ELECTRIC & THERMAL CONSIDERATIONS

Wiring insulation

- According to recommendations in IEC / EN 60598.

Wire connections

- Please refer to LED driver datasheets connections diagram.
- Wrong polarity might damage the LED modules.

Choosing the LED driver

- To guarantee the safe and reliable operation of the LED modules the LED driver must be provided with open and short circuit protection.
- These LED modules are designed to be used with constant current output type LED driver.

Electrical design, electrical safety

During the design it is luminaire manufacturers responsibility to follow the international and national electric design regulations and recommendations for the electric safety and luminaire protection. Electric safety classification and protection class is depending on:

- Actual luminaire design and safety classification
- LED driver insulation
- LED driver output isolation.

ALWAYS CHECK AND FOLLOW EXACT REGULATIONS FROM LATEST RELEVANT IEC / EN STANDARDS.

Maximum ambient and tc temperature

- The maximum ambient temperature is a guideline given for built-in components such as LED modules. However, integrator must always ensure proper thermal management (i.e. mounting base of the module, possible heatsink, air flow etc.) so that the tc point does not exceed the tc max limit.
- Reliable operation is only guaranteed if the maximum tc point temperature is not exceeded under the conditions of use.
- Lifetime is only guaranteed if the maximum tc point temperature specified for lifetime is not exceeded under the conditions of use.

MECHANICAL CONSIDERATIONS

- While handling the LED modules avoid mechanical stress or pressure applied to the light emitting surface of the LEDs.
- Avoid dropping the modules.
- Bending of the modules is not permitted.
- Avoid touching the light emitting surface.
- Mechanical modifications (e.g. drilling, milling or sawing the module) are not permitted.

INSTALLATION CONSIDERATIONS

Helvar Components LED module series are basic isolated against ground and can be installed on properly insulated metal parts of the luminaire.

Please always follow regulations from IEC/EN 60598-1 for creepage and clearance requirements.

Information and conformity

Conformity & standards

Led modules for general lighting - safety specifications	IEC / EN 62031
Photobiological safety of lamps and lamp systems	IEC / EN 62471 TR IEC / EN 62778
Compliant with relevant EU directives	
CE marked	
RoHS / REACH compliant	

All data were deemed correct at time of creation. Helvar Components is not liable for errors or omissions.

Symbols

Built-in LED module that is designed to form a replaceable part built into a luminaire or an enclosure and not intended to be mounted outside a luminaire etc. without special precautions.