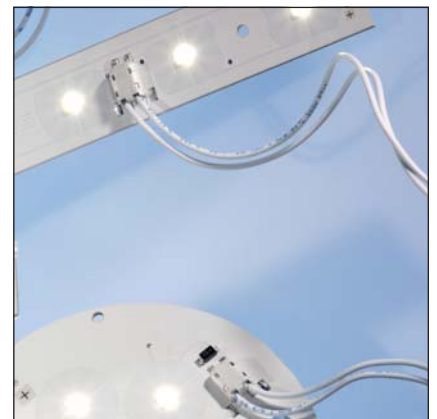




A New Lighting Experience



- long service lifetime due to optimal thermal management
- very high lumen output
- highly efficient (up to 90 lm/W)
- high colour rendering: CRI ~85
- easy connections due to "On-Board" connector
- attachment for lenses with different radiation angles

LED Modules HeliosFlood / HeliosLine

WU-M-399, -400

Typical Applications

- Integration in luminaires
- Architectural illumination
- Shop illumination
- Street lighting

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LED Modules HeliosFlood / HeliosLine

Technical Notes

Dimensions:

HeliosFlood: Ø 110 mm

HeliosLine: 280x25 mm

- Aluminium- PCB for optimum thermal management
- ESD protection class 2

Electrical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Type	Ref. No.	350 mA Voltage DC (V)		Power (W)	
		typ.	max.	typ.	max.
HeliosLine					
WU-M-399	All types	84	92	29.4	32.2
HeliosFlood					
WU-M-400	All types	84	92	29.4	32.2

Use of external LED constant current driver with max. 350mA (VS driver ECXe350mA/42W; Ref. No.: 186175) required.

Maximum Ratings

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

Type	Operation temperature range at t_c -point		Storage temperature range		Reverse voltage V
	°C min.	°C max.	°C min.	°C max.	
All types	-20	+65	-20	+85	5

Optical Characteristics

at junction temperature $t_j = 25\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temperature K	CRI R_g	Brightness bin**	Luminous flux at 350 mA lm	Radiation angle* °
WU-M-399-W	543913	white	4600...5600	70	D300	2400.0...2560.0	120
WU-M-399-W	543914	white	4600...5600	70	D320	2560.0...2720.0	120
WU-M-399-W	543915	white	4600...5600	70	D340	2720.0...2880.0	120
WU-M-399-W	543929	white	4600...5600	70	D360	2880.0...3040.0	120
WU-M-399-WWW	543916	warm white	2850...3200	85	D200	1600.0...1760.0	120
WU-M-399-WWW	543917	warm white	2850...3200	85	D220	1760.0...1920.0	120
WU-M-399-WWW	543918	warm white	2850...3200	85	D240	1920.0...2080.0	120
WU-M-399-WWW	543919	warm white	2850...3200	85	D260	2080.0...2240.0	120
HeliosFlood							
WU-M-400-W	543920	white	4600...5600	70	D300	2400.0...2560.0	120
WU-M-400-W	543921	white	4600...5600	70	D320	2560.0...2720.0	120
WU-M-400-W	543922	white	4600...5600	70	D340	2720.0...2880.0	120
WU-M-400-W	543923	white	4600...5600	70	D360	2880.0...3040.0	120
WU-M-400-WWW	543924	warm white	2850...3200	85	D200	1600.0...1760.0	120
WU-M-400-WWW	543926	warm white	2850...3200	85	D220	1760.0...1920.0	120
WU-M-400-WWW	543927	warm white	2850...3200	85	D240	1920.0...2080.0	120
WU-M-400-WWW	543928	warm white	2850...3200	85	D260	2080.0...2240.0	120

* On account of the complex manufacturing process of the modules the above values only represent statistical variables.

The values do not necessarily correspond exactly to the actual parameters of every single product which can vary from the typical specification.

** The reference numbers represent a single brightness group. In order to ensure availability please contact your sales prior to order.

Minimum order quantity: 24 pcs.

LED Modules HeliosFlood / HeliosLine

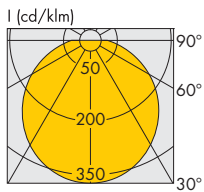
Operating Life

50,000 hrs. (lumen maintenance at 70 %)

$t_c = 55\text{ }^\circ\text{C}$, $I_f = 350\text{ mA}$

These values do not refer to the colour temperature.

Light Distribution Curve



Attachment optics with various radiation characteristics are available at Vossloh-Schwabe. Please find further information at www.vs-optoelectronic.com.

Mechanical Dimensions

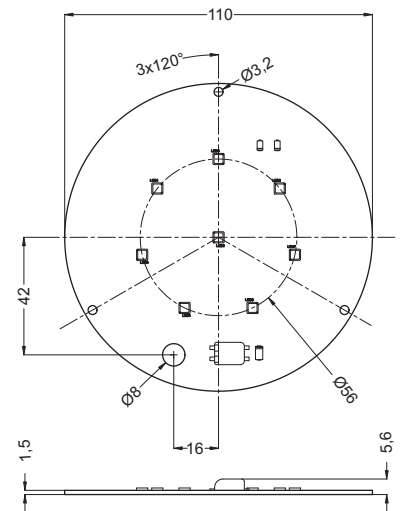
For electrical connection the "On-Board" connector can be used.

Permissible cable cross section:

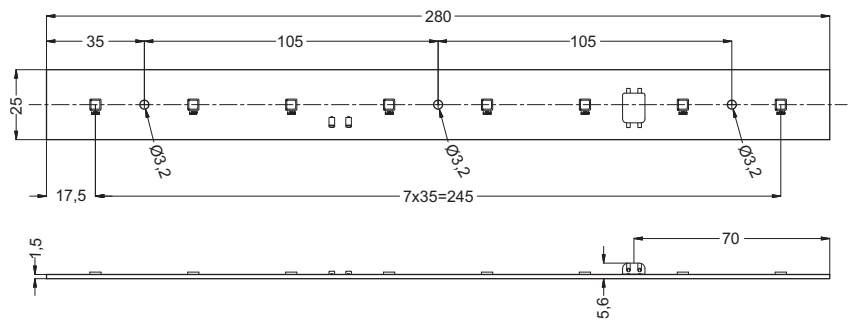
- solid wire: 18, 20, 22 AWG
- prebond stranded wire: 18 and 20 AWG
- stranded wire: 18 AWG

Max. insulation outer diameter: 2.10 mm

Strip length: $7 \pm 1\text{ mm}$



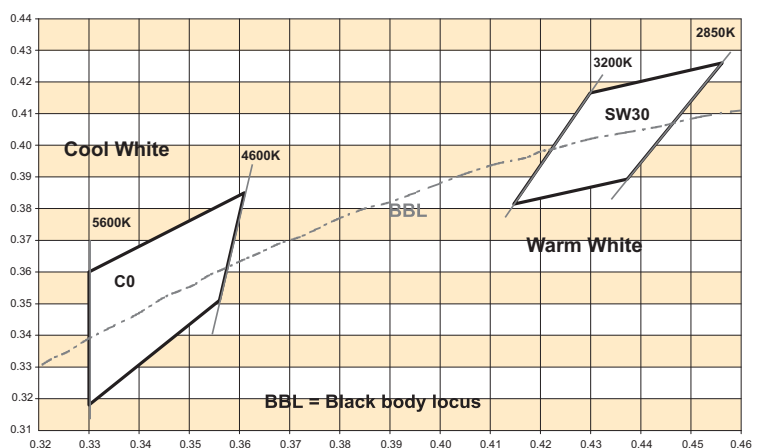
HeliosFlood



HeliosLine

Bins

The standard shipping format regarding the reference numbers on page 2 includes all chromaticity coordinate groups.



LED Modules HeliosFlood / HeliosLine

Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advice must be observed; non-observance can result in the destruction of the LED assembly modules, fire and/or other hazards.

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED modules. See VS's application notes on ESD protection.
- LED assembly modules must not be subjected to any undue mechanical stress, e. g.:
 - do not treat as bulk cargo
 - avoid shear and compressive forces during handling and installation
 - do not damage circuit paths
- LED assembly modules are designed for attachment using a thermally conductive adhesive, an adhesive foil (Ref. No. 545094 for HeliosLine; Ref. No. 545096 for HeliosFlood) or M3 screws. Please observe the manufacturer's technical data provided at www.3M.com/converter. Products equipped with adhesive transfer tape must only be applied to dry and clean surfaces that are free from grease, oil, silicone or other soiling. It is therefore recommended to clean the substrate with isopropyl alcohol (IPA). Please ensure a full-surface bond over the entire contact area when sticking the module to the substrate. The following substances are regarded as critical for creating an adhesive bond:
 - Polyefins (polyethylene, polypropylene)
 - Rubber
 - Powder-coated materials
 - Silicone rubber
 - Teflon

- Owing to the varying application options and different types of surface as well as ambient conditions, VS accepts no liability for the quality of the adhesive bond achieved when mounting these products. Prior to sticking a VS product, care must be taken to check whether the material in question is actually suitable for the intended purpose under consideration of all possible application-relevant influences. Supplementary holders must be used if necessary. If opting for screw attachment, plastic screws or suitably insulated, non-loosening metal screws must be used.
- Safe operation only possible by the use of external constant current sources (VS driver ECXe350mA/42W; Ref. No.: 186175).
 - Power supply units must be used for operation, in which the following protective measures are ensured:
 - Short-circuit protection
 - Overload protection
 - Overheating protection
 - SELV equiv. (Safety Extra Low Voltage)
 - Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
 - The maximum output of the power supply must be observed.
 - For optimal load of used constant current driver the modules can only be connected in series. The quantity of LED modules is limited by the sum of forward voltage and the capacity of used constant current driver. Safety regulations acc. to EN 60598 has to be observed if the sum of forward voltage exceed the permitted touchable value.
 - A parallel connection of the modules is not allowed.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at www.vs-optoelectronic.com.

LED Modules HeliosFlood / HeliosLine

Assembly and Safety Information

- Due to the manufacturing process, the PCBs of the LED assembly modules can have sharp edges and corners. Care must therefore be taken during handling and installation to avoid injury.
- To ensure problem-free operation, the specified maximum temperature at the t_c point (see "Operating Life") must be observed (and measured in accordance with EN 60598-1). To satisfy this point, it may be necessary to put measures in place to ensure any heat is dissipated from the PCB to the environment.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008.
 - general lighting
exempt group:
WU-M-399/400-W/-WW
 - other applications
risk group 1:
WU-M-399/400-WW
risk group 2:
WU-M-399/400-W



Use of VS optics PowerOptics Helios (Ref. No. 544479, 544480, 544481 or 544482) does not affect the need to classify LED modules into the above mentioned risk groups.

Applied Standards

- EN 62031
LED modules for general lighting – Safety specifications
- EN 62471
Photobiological safety of lamps and lamp systems