



A New Lighting Experience



- very high luminous flux
- long service lifetime due to optimal thermal management
- various light distribution options using optic modules
- divisible
- operating with 24V DC

## High Power White / Warm white 24 V CA System

### SlimLine

#### Typical Applications

Assembly Modules for

- General lighting
- Architectural illumination
- Light advertising
- Entertainment, shop design
- Decorative lighting

#### Vossloh-Schwabe Deutschland GmbH

Hohe Steinert 8 · 58509 Lüdenscheid, Germany · Phone: +49 (0) 23 51/101-0  
Fax: +49 (0) 23 51/101-217 + -384 · [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

# High Power White / Warm white 24 V CA System

## Technical Notes

- PCB: 480x22 mm, divisible at 240 mm
- Voltage supply: 24V DC
- Aluminium-PCB for optimum thermal management
- Increased ESD-protection
- Reverse-polarity protected

## Electrical Characteristics

at ambient temperature  $t_a = 25\text{ °C}$

Type	Ref. No.	Colour	Number of LEDs	Operation Voltage V	Max. Current A	Power consumption (W)	
						typ.	max.
WU-M-355-W	<b>536026</b>	Cool white	10	24	0.6	12	14.4
WU-M-355-WW	<b>536027</b>	Warm white	10	24	0.6	12	14.4

## Limits

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

Type	Voltage DC		Operation temperature range at $t_c$ point		Storage temperature range	
	V min.	V max.	°C min.	°C max.	°C min.	°C max.
All types	23	25	-30	+85	-40	+85

## Optical Characteristics

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

Type	Ref. No.	Colour	Colour temperature K	Luminous flux (lm)		Radiation angle* °
				typ.	max.	
WU-M-355-W	<b>536026</b>	Cool white	5650-6950	1000	1070	90
WU-M-355-WW	<b>536027</b>	Warm white	2720-3040	740	806	90

\* 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.  
Minimum order quantities: 100 pcs. | lower quantities on request, when available from stock.

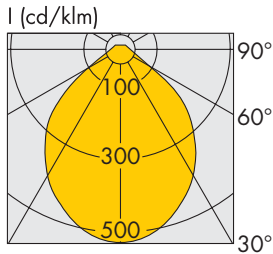
## Operating Life - Cool white / Warm white

50,000 hrs. (lumen maintenance at 70 %,  $t_c = 65\text{ °C}$ )

This value does not refer to the colour temperature.

# High Power White / Warm white 24 V CA System

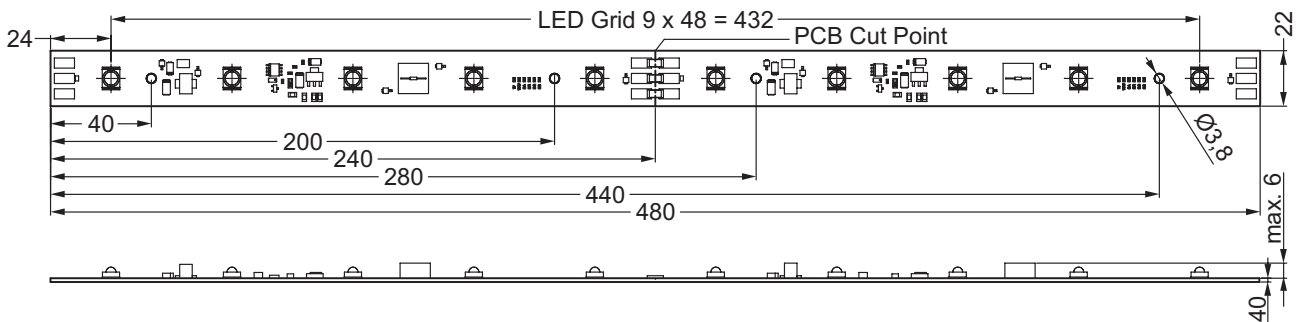
## Light Distribution Curves



SlimLine modules are designed for attachment optics by company Carclo. Please find further information at [www.carclo-optics.com](http://www.carclo-optics.com).

White/ Warm white

## Mechanical Dimensions



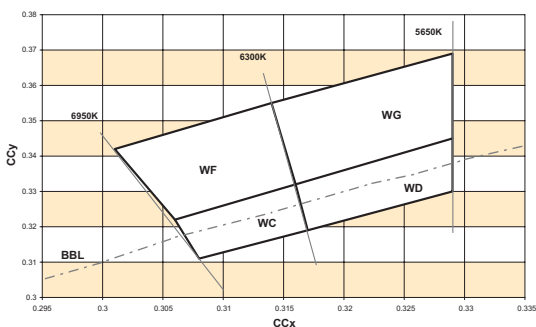
SlimLine module

## Bins

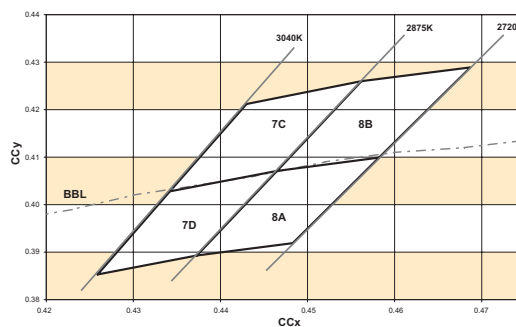
The standard shipping format regarding the reference numbers on page 2 includes all chromaticity coordinate groups.

The actual delivered binning is marked on each product packing. Reduction of orderable groups is possible only project-based.

## White



## Warm white



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# High Power White / Warm white 24 V CA System

## Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules of the 24V CA System 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 M4 screws.
- When dividing the module at the PCB Cut Point, care must be taken not to allow the traces to make contact with the Aluminium of the PCB and create a short-circuit.
- Modules are designed for attachment optics by company Carclo. Optics of the 20mm series can be used (diameter holder + optic = 20mm). The 20mm series comprises the following types:
  - optic holders: 10205; 10206; 10207
  - optics: 10199; 10200; 10201; 10202; 10203; 10204; 10210; 10211
 Further information on Carclo optics and on attaching/gluing these optics can be found at [www.carclo-optics.com](http://www.carclo-optics.com). If using an adhesive, please observe the manufacturer's notes on usage.

- Please ensure to use adhesive only on dry and clean surfaces that are free of grease, oil, silicone and dirt particles. Due to the variety of possible application options, surface finishes as well as ambient conditions, VS accepts no liability for the results obtained when sticking the optics. Prior to sticking a VS product, care must be taken to check whether product is suitable for the intended purpose under consideration of all possible application-relevant influences. As a special service, Vossloh-Schwabe can provide customer-specific contract assembly of the optics. Please contact your local sales office to find out more.
- 24V DC converters that comply with EN 61347-2-13 must be used for power supply purposes. Vossloh-Schwabe recommends operating VS LED assembly modules with matching VS converters (SELV or SELV-equivalent, shortcircuit, overload- and temperature-protected).
- 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 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.

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# High Power White / Warm white 24 V CA System

## Assembly and Safety Information

- Provided that LED assembly modules are correctly installed and used, no additional eye protection is necessary. However, looking directly into the light source should still be avoided. When confronted with any source of bright light, e.g. LED light, the eyes protect themselves from harm by the lids' natural reflex to blink. If LED assembly modules are used in conjunction with other optical systems (e.g. lenses), the system must be checked in accordance with IEC 62471:2006.
- Tests have shown the following chemicals to be harmful to LEDs used on the modules. It is recommended not to use the under-mentioned chemicals anywhere in an LED system. The fumes from even small amounts of these chemicals may damage the LEDs.
  - Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)
  - Methyl acetate or ethyl acetate (i.e., nail polish remover)
  - Cyanoacrylates (i.e., "Superglue")
  - Glycol ethers (including Radio Shack®, Precision Electronics Cleaner – dipropylene glycol monomethyl ether)
  - Formaldehyde or butadiene (including Ashland PLIOBOND® adhesive)
  - Dymax 984-LVUF conformal coating
  - Loctite Sumo glue
  - Gorilla glue
  - Clorox bleach
  - Clorox Clean-Up cleaner spray
  - Loctite 384 adhesive
  - Loctite 7387 activator
  - Loctite 242 threadlocker

Detailed information of handling of Cree LEDs can be found on [www.cree.com](http://www.cree.com).
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471:2008.
  - general lighting exempt group
  - other applications risk group 2

Use of optics recommended by VS 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; German version EN 62471:2008

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