

## LED BUILT-IN MODULES

LUGA SHOP 2014 HiCRI  
2000 lm TO 5000 lm



## LUGA SHOP 2014 HiCRI - LED MODULES COB FOR RETAIL ENVIRONMENTS

**WU-M-484, -485, -486 HiCRI**

### Typical Applications

- Integration in reflector luminaires
- Shop lighting
- Furniture lighting
- Flat surface-mounting luminaires
- Cladding illumination
- Stairway and corridor illumination
- Suspended luminaire with external control gear


### LUGA Shop 2014

- **LONG SERVICE LIFETIME: 50,000 HOURS (L90; B10)**
- **ZHAGA-SHAPE**
- **HIGHLY EFFICIENT: UP TO 134 LM/W AT  $t_p = 65^\circ\text{C}$**
- **NARROW COLOUR TOLERANCES:  
3 STEP MACADAM (INITIAL)  
4 STEP MACADAM SHIFT (AFTER 50,000 HRS)**
- **INTEGRATED THERMAL PROTECTION**
- **VDE APPROVED (ACC. TO EN 62031)**



## LUGA Shop 2014 HiCRI - 2000 lm to 5000 lm

### Technical Notes

- LED built-in module for integration into luminaires 
- Dimensions: Ø 50 mm
- Use of external LED constant current driver
- Temperature fail-safe circuit (activation temperature:  $t_c \approx 105 \text{ }^\circ\text{C}$ )
- On-board push-in connector



### Electrical Characteristics

at  $t_p = 65 \text{ }^\circ\text{C}$

Type	Ref. No.	Typ. voltage DC				Temperature coefficient mV/K	Typ. power consumption			
		350 mA V	500 mA V	700 mA V	1050 mA V		350 mA W	500 mA W	700 mA W	1050 mA W
WU-M-484	<b>All types</b>	22.2	22.8	23.7	25.1	-20	7.8	11.4	16.6	26.4
WU-M-485	<b>All types</b>	33.3	34.3	35.5	37.6	-25	11.7	17.2	24.9	39.5
WU-M-486	<b>All types</b>	41.6	42.8	44.4	47.0	-30	14.6	21.4	31.1	49.4

Voltage and power tolerance:  $\pm 10 \%$

### Maximum Ratings

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

Type	Operating current mA	Operation temperature range range at $t_c$ -point		Ambient temperature range		Storage temperature range		Max. allowed repetitive peak current (mA)	Max. permitted output voltage of operating device V
		$^\circ\text{C min.}$	$^\circ\text{C max.}$	$^\circ\text{C min.}$	$^\circ\text{C max.}$	$^\circ\text{C min.}$	$^\circ\text{C max.}$		
WU-M-484, -485		-25	+85	-25	+40	-40	+85	1440	60
WU-M-486	$\leq 700$	-25	+85	-25	+40	-40	+85	1440	60
WU-M-486	$> 700$	-25	+75	-25	+40	-40	+85	1400	60

### Optical Characteristics

at  $t_p = 65 \text{ }^\circ\text{C}$

Type	Ref. No.	Colour	Correlated colour temperature* K	Typ. luminous flux** and efficiency at								Typ. beam angle ( $^\circ$ )	Typ. CRI $R_g$	Zhaga LES Cat.	Photo- metric code
				350 mA		500mA		700 mA		1050 mA					
				lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W				
WU-M-484-927	<b>554719</b>	warm white	2700	905	116	1225	107	1615	97	2160	82	120	95	19	927/349
WU-M-484-930	<b>554720</b>	warm white	3000	945	121	1300	114	1705	103	2300	87	120	95	19	930/349
WU-M-484-935	<b>554721</b>	neutral white	3500	995	128	1350	118	1765	106	2395	91	120	95	19	935/349
WU-M-484-940	<b>554722</b>	neutral white	4000	1035	133	1415	124	1850	111	2505	95	120	95	19	940/349
WU-M-485-927	<b>554727</b>	warm white	2700	1365	117	1865	108	2475	99	3310	84	120	95	23	927/349
WU-M-485-930	<b>554728</b>	warm white	3000	1430	122	1985	115	2620	105	3510	89	120	95	23	930/349
WU-M-485-935	<b>554729</b>	neutral white	3500	1500	128	2060	120	2720	109	3660	93	120	95	23	935/349
WU-M-485-940	<b>554730</b>	neutral white	4000	1570	134	2150	125	2855	115	3830	97	120	95	23	940/349
WU-M-486-927	<b>554735</b>	warm white	2700	1700	116	2315	108	3065	99	4055	82	120	95	23	927/349
WU-M-486-930	<b>554736</b>	warm white	3000	1780	122	2450	114	3245	104	4305	87	120	95	23	930/349
WU-M-486-935	<b>554737</b>	neutral white	3500	1860	127	2550	119	3380	109	4475	91	120	95	23	935/349
WU-M-486-940	<b>554738</b>	neutral white	4000	1945	133	2670	125	3535	114	4690	95	120	95	23	940/349

\* Colour tolerance: 3 MacAdam | \*\* Production tolerance of luminous flux and efficiency:  $\pm 10 \%$  | Min. CRI  $R_g > 90$

ZHAGA Flux Category: WU-M-484 at 700 mA: C15, at 1050 mA: C20, WU-M-485 at 700 mA: C25, at 1050 mA: C30, WU-M-486 at 1050 mA: C40

**Minimum order quantity: 20 pcs.**

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

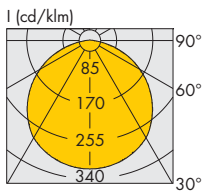
## LUGA Shop 2014 HiCRI - 2000 lm to 5000 lm

### Operating Life

at  $t_p = 65^\circ\text{C}$

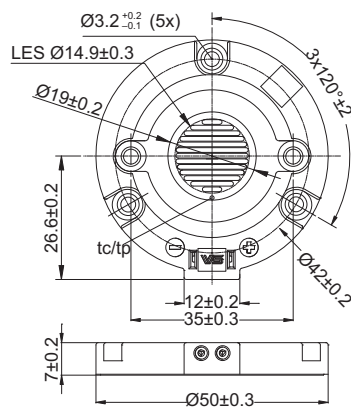
Lumen maintenance	WU-M-484		WU-M-485		WU-M-486	
	$I_f$ 700 mA	$I_f$ 1050 mA	$I_f$ 700 mA	$I_f$ 1050 mA	$I_f$ 700 mA	$I_f$ 1050 mA
L90/B10	45,000 hrs.	33,000 hrs.	51,000 hrs.	39,000 hrs.	46,000 hrs.	30,000 hrs.
L80/B10	59,000 hrs.	48,000 hrs.	60,000 hrs.	50,000 hrs.	57,000 hrs.	44,000 hrs.
L70/B10	67,000 hrs.	56,000 hrs.	69,000 hrs.	59,000 hrs.	65,000 hrs.	52,000 hrs.

### Typical Light Distribution Curve

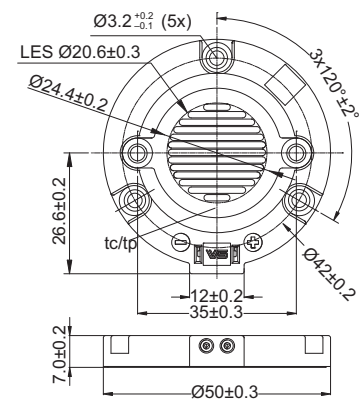


### Mechanical Dimensions

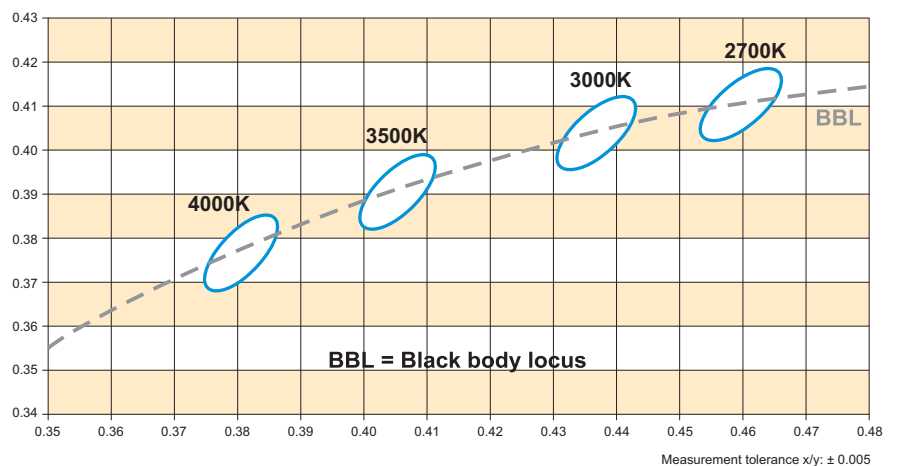
#### WU-M-484



#### WU-M-485, WU-M-486



### Bins



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

## LUGA Shop 2014 HiCRI – 2000 lm to 5000 lm

### 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
  - do not touch the yellow phosphorus layer
- The module must be fixed onto a thermally conductive surface with three M3 screws. A torque of  $0.35 \pm 0.1$  Nm is required.
- Safe operation only possible by the use of external constant current sources ( $I_{max}$ , see table "Electrical Characteristics").
- Operation only with power supply units that feature the following protection:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
  - SELV (Safety Extra Low Voltage);  $U_{max} \leq 60$  V
  - $I_{max}$  (see table "Maximum Ratings") must not be exceeded.
- When operating devices will be selected care has been taken to ensure that the maximum values (see table "Maximum Ratings") will not be exceeded.
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- The LED modules are connected via two on-board push-in connectors for rigid or tinned conductors.
 

Conductor section:

  - tinned: 0.25–0.8 mm<sup>2</sup>
  - rigid: 0.5–0.75 mm<sup>2</sup>

Strip length: 6.5–8.0 mm

The contacts can be released with a flat-headed screwdriver with a width of 3 mm.
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- Measurement tolerances:
  - luminous flux:  $\pm 7$  %
  - voltage:  $\pm 3$  %
  - CRI:  $\pm 1$  %

- A parallel or serial connection of the modules is not allowed.
- 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. For optimized thermal heat transfer, a thermal conductive graphite foil is available (Ref. No.: 549501).
- 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.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website [www.vossloh-schwabe.com/en/home/products/led-lighting-technology/notes-on-led-technology.html](http://www.vossloh-schwabe.com/en/home/products/led-lighting-technology/notes-on-led-technology.html)
- 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-484/-485/-486
  - other applications risk group 1: WU-M-484/-485/-486
- Zhaga standard (Book 3) is applied for specific parameters (mechanical dimensions, LES). The LED modules are not Zhaga certified.

### Applied Standards

EN 62031

LED modules for general lighting – Safety specifications

EN 62471

Photobiological safety of lamps and lamp systems

### Approval Marks



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

