

## LED BUILT-IN MODULES

EASY 28

3,500 LM TO 14,000 LM



## EASY 28 – INDUSTRIAL AND HOSPITALITY LIGHTING

### Typical Applications

#### DMS120/12C/18C\*\*\*G

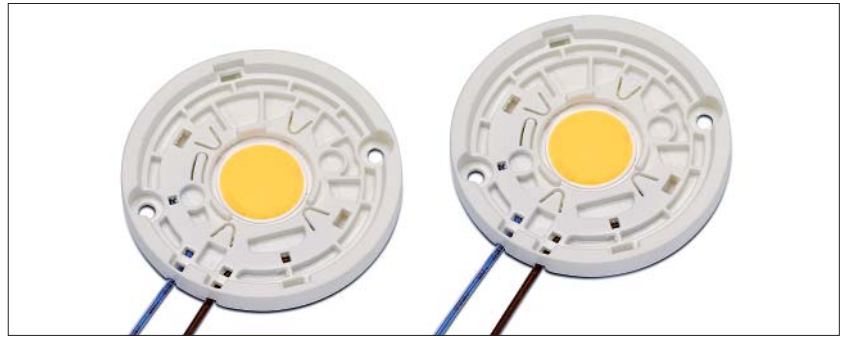
- Integration in industrial luminaires
  - Production halls
  - Warehouses
- Retail lighting
- Downlights
- Petrol station lighting
- Lighting for sports facilities

### LED Module Easy 28

- **EASY AND SAFETY HANDLING**
- **ALUMINIUM REFLECTORS AVAILABLE**
- **HIGH ELECTRICAL ISOLATION DUE TO CERAMIC COB TECHNOLOGY**
- **LONG SERVICE LIFETIME: UP TO 100,000 HOURS**
- **NARROW COLOUR TOLERANCES:  
2 STEP MACADAM (CRI 85)**
- **HIGHLY EFFICIENT: UP TO 180 LM/W**

## Easy 28 – 3,500 lm to 14,000 lm

LED unit consists of preassembled LUGA COB module, leads, thermal tape and protection cover for LES (LUGA modules DMS120\*\*\*G or DMS12C\*\*\*G or DMS18C\*\*\*G)



### Technical Notes

- LED built-in module for integration into luminaires
- Holder: with bayonett fixation for reflectors
- Material: PET, white
- Dimensions (dia.xH): 70x6.7 mm
- Thermal tape: thermal conductivity: 0.4 W/mK  
breakdown voltage: 9.9 kV
- Fixing holes for screws  
M3 for fixation distance of 35 mm or screws  
M4 for fixation distance 57.5 mm
- Welded leads: Cu tinned, stranded conductors  
0.5 mm<sup>2</sup>, double FEP/FEP insulation
- Preassembled with cover on LES to safety handling
- Use of external LED constant current driver
- Packaging unit: 72 pcs.

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

Type	Typ. voltage DC					Temperature coefficient mV/K	Typ. power consumption				
	700 mA V	1050 mA V	1400 mA V	1700 mA V	2100 mA V		700 mA W	1050 mA W	1400 mA W	1700 mA W	2100 mA W
DMS120***G	34.3	35.4	36.2	36.6	—		24.0	37.2	50.6	62.3	—
DMS12C***G	33.8	34.7	35.4	36	36.6		23.6	36.4	49.6	61.2	76.8
DMS18C***G	50.6	52	53.2	53.9	54.7		35.4	54.6	74.5	91.7	114.9

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 at $t_c$ point		Ambient temperature range		Storage temperature range		Max. allowed repetitive peak current mA	
		$^\circ\text{C}$ min.	$^\circ\text{C}$ max.	$^\circ\text{C}$ min.	$^\circ\text{C}$ max.	$^\circ\text{C}$ min.	$^\circ\text{C}$ max.		
DMS120***G	700	-40	+110	-40	+40	-40	+105	2000	
	1050								+100
	1400								+85
	1700								+75
DMS12C***G	700	-40	+115	-40	+40	-40	+105	2500	
	1050								+105
	1400								+100
	1700								+90
	2100								+80
DMS18C***G	700	-40	+115	-40	+40	-40	+105	2500	
	1050								+105
	1400								+95
	1700								+85
	2100								+75

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

Lumen maintenance	Operation current (mA)				Operation current (mA)					Operation current (mA)				
	700 in hours	1050 in hours	1400 in hours	1700 in hours	700 in hours	1050 in hours	1400 in hours	1700 in hours	2100 in hours	700 in hours	1050 in hours	1400 in hours	1700 in hours	2100 in hours
	<b>DMS120***G (at <math>I_f</math>)</b>				<b>DMS12C***G (at <math>I_f</math>)</b>					<b>DMS18C***G (at <math>I_f</math>)</b>				
L90/B10	81,000	68,000	55,000	43,000	85,000	76,000	68,000	61,000	51,000	85,000	75,000	65,000	55,000	43,000
L80/B10	>100,000	>100,000	82,500	64,500	>100,000	>100,000	>100,000	91,500	76,500	>100,000	>100,000	97,500	82,500	64,500
L70/B10	>100,000	>100,000	>100,000	86,000	>100,000	>100,000	>100,000	>100,000	>100,000	>100,000	>100,000	>100,000	>100,000	86,000

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## Easy 28 – 3,500 lm to 14,000 lm

### Optical Characteristics

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

Type	Ref. No.		Colour	Correlated colour temperature* (K)	Typ. luminous flux** and efficiency at										Typ. CRI $R_a$	Photometric code		
	A	B			700 mA		1050 mA		1400 mA		1700 mA		2100 mA					
					lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W		
<b>57 mm fixation distance, 10 kV insulation – suitable for series connection</b>																		
Easy 28 DMS120	<b>564481</b>	<b>564483</b>	neutral white	4000	3840	160	5430	146	6840	135	7915	127	–	–	85	840/249		
Easy 28 DMS120	<b>564482</b>	<b>564484</b>	cool white	5000	3875	161	5780	155	6910	137	7985	128	–	–	85	850/249		
Easy 28 DMS12C	<b>on req.</b>	<b>on req.</b>	neutral white	4000	3910	166	5610	154	7170	145	8415	138	9910	129	85	840/249		
Easy 28 DMS12C	<b>on req.</b>	<b>on req.</b>	cool white	5000	3950	167	5660	155	7240	146	8505	139	10015	130	85	850/249		
Easy 28 DMS18C	<b>564126</b>	<b>564479</b>	neutral white	4000	5715	161	8160	149	10395	140	12170	133	14260	124	85	840/249		
Easy 28 DMS18C	<b>564127</b>	<b>564480</b>	cool white	5000	5770	163	8240	151	10495	141	12285	134	14400	125	85	850/249		

\* Colour tolerance: 2 MacAdam (CRI > 80) | \*\* Production tolerance of luminous flux and efficiency:  $\pm 10\%$  | Min. CRI  $R_a$ : > 80

**Minimum order quantity: 72 pcs.**

### 57 mm fixation distance

DMS18C

DMS12C

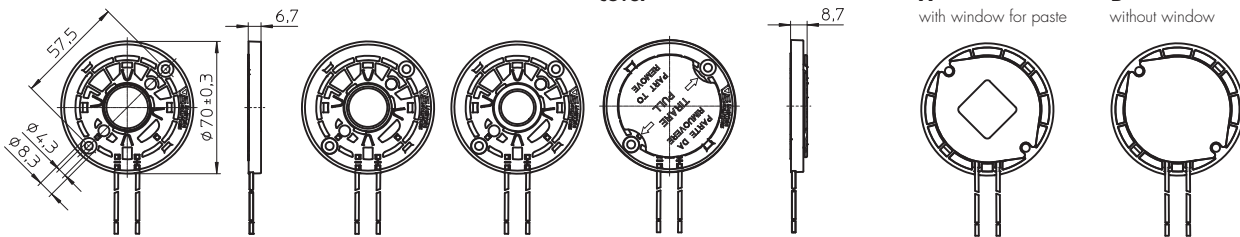
DMS120

With LES protection cover

Thermal tape

A with window for paste

B without window



Type	Ref. No.		Colour	Correlated colour temperature* (K)	Typ. luminous flux** and efficiency at										Typ. CRI $R_a$	Photometric code		
	A	B			700 mA		1050 mA		1400 mA		1700 mA		2100 mA					
					lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W		
<b>35 mm fixation distance, Zhaga compliant – suitable for SELV applications</b>																		
Easy 28 DMS120	<b>564485</b>	<b>564487</b>	neutral white	4000	3840	160	5430	146	6840	135	7915	127	–	–	85	840/249		
Easy 28 DMS120	<b>564486</b>	<b>564488</b>	cool white	5000	3875	161	5780	155	6910	137	7985	128	–	–	85	850/249		
Easy 28 DMS12C	<b>on req.</b>	<b>on req.</b>	neutral white	4000	3910	166	5610	154	7170	145	8415	138	9910	129	85	840/249		
Easy 28 DMS12C	<b>on req.</b>	<b>on req.</b>	cool white	5000	3950	167	5660	155	7240	146	8505	139	10015	130	85	850/249		
Easy 28 DMS18C	<b>564489</b>	<b>564491</b>	neutral white	4000	5715	161	8160	149	10395	140	12170	133	14260	124	85	840/249		
Easy 28 DMS18C	<b>564490</b>	<b>564492</b>	cool white	5000	5770	163	8240	151	10495	141	12285	134	14400	125	85	850/249		

\* Colour tolerance: 2 MacAdam (CRI > 80) | \*\* Production tolerance of luminous flux and efficiency:  $\pm 10\%$  | Min. CRI  $R_a$ : > 80

**Minimum order quantity: 72 pcs.**

### 35 mm fixation distance

DMS18C

DMS12C

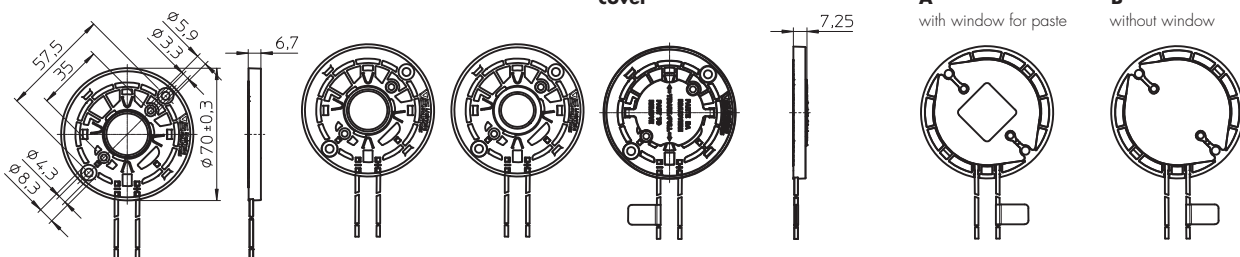
DMS120

With LES protection cover

Thermal tape

A with window for paste

B without window



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## Reflectors

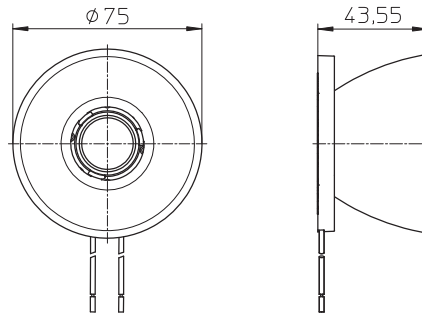
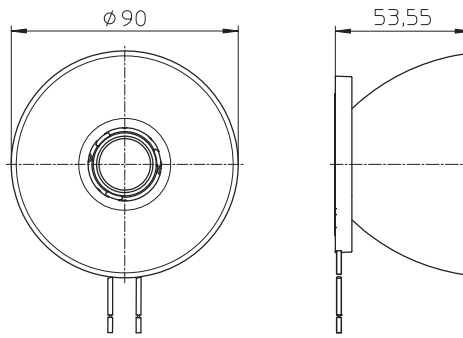
### Exchangeable aluminum reflectors

#### Technical notes

Reflectors made of aluminium with bayonet fixation  
 Surface: anodised  
 Weight: 27/17 g (D90/D75)  
 Packaging unit: 18 pcs.

#### Usage and maintenance

If necessary clean reflectors with mild soap, water and soft cloth.  
 Never use any commercial cleaning solvents on reflectors, like alcohol.  
 Please handle or install reflectors with wearing gloves, skin oils may damage reflector or its optical characteristic.



Ref. No.	Beam characteristic	Beam angle (°)			Ref. No.	Beam characteristic	Beam angle (°)		
		DMS120	DMS12C	DMS18C			DMS120	DMS12C	DMS18C
<b>Reflector D90 – H = 50</b>					<b>Reflector D75 – H = 40</b>				
<b>557359</b>	narrow	16°	20°	20°	<b>557152</b>	narrow	22°	25°	25°
<b>557360</b>	medium	25°	28°	28°	<b>557153</b>	medium	28°	28°	28°
<b>557361</b>	wide	36°	38°	38°	<b>557154</b>	wide	38°	40°	40°
<b>563446</b>	extra wide	50°	48°	48°	<b>562157</b>	extra wide	58°	60°	60°

It's possible to use all the reflectors on the same holder.

## Heat Sinks for Easy 28

Heat sinks with active cooling:

- AVC  
www.avc-europa.de
- Nuventix, Inc.  
www.nuventix.com
- Sunon  
www.sunon.com
- MechaTronix  
www.led-heatsink.com
- Colliance, Inc.  
www.cooliance.eu

Heat sinks with passive cooling:

- AVC  
www.avc-europa.de
- Fischer Elektronik GmbH & Co. KG  
www.fischerelektronik.de
- Frigo Dynamics  
www.frigodynamics.com
- MechaTronix  
www.led-heatsink.com

## LED Constant Current Drivers

Please visit our homepage for details for suitable LED constant current drivers: [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

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## LED Module Easy 28

### 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.
- 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 (see page 3)
  - $I_{max}$  (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.
- 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:  $\pm 1$  %
- Maximum allowed number of switching cycles: 15,000
- A parallel 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.

- 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](http://www.vossloh-schwabe.com)
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471 Rating in accordance with IEC / TR 62778: risk group 1 Except the following products at the mentioned operating current are classified into risk group 2:

>1050 mA	>1400 mA	>1700 mA	>2100 mA
DMS120B50G	DMS12CB50G	DMS12CC50G	DMS12CB40G
DMS120C50G	DMS18CC50G	DMS18CC40G	DMS12CC40G
DMS18CB50G	DMS18CB40G	DMS12CC50G	DMS12CC40GB
		DMS18CC40G	DMS18CC35G

### Product Guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage ([www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)). We will be happy to send you these conditions upon request.

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