

ENEC LICENCE

Licence No. ENEC-01182-A3
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Licence Holder Philips Lighting B.V.
High Tech Campus 45
Eindhoven, 5656 AE The Netherlands

Production site



See Page 5

Certification Mark See Annex 1
Certified Product Built-in LED Module

Model Fortimo SLM C zcc dd m Lee s Gi a
See Page 2-4

Trademark

PHILIPS

Rated Voltage / Frequency

Vmax 42 V ===

Rated Current / Power

Imax 2750 mA ===

Insulation Class

-

Degree of protection (IP)

-

Tested acc. to

EN 62031:2008/A1:2013, EN 62031:2008/A2:2015, EN 62031:2008

Test Report No.

4786970309-2 issued on 2016-06-27

Additional

Certification Manager
Jan-Erik Storgaard

Certification Body

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Model Details:

Product Key:

Main series: **Fortimo SLM C zcc dd m Lee s G i a**

Where:

- z = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
- cc = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
- dd = Color of light (two or three characters or none, may be "CW" or "FP" or "FPR" or "FW" or "FWW" or "PW" or blank)
- m = Die matrix (4 digits, may be "1202" or "1203" or "1204" or "1205" or "1208" or "1211")
- ee = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 9 and 19);
- s = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm));
- i = Number of generation of CoB (one digit, may be "4" or "5");
- a = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series:

CoB Type (Die matrix)	Diameter of LES of CoB [mm]	CCT [K]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]
1211	19	≤ 4000	2400 ($V_{f\text{tot}} 37,5 \text{ V}$)	90	0,32	105
		> 4000	1500 ($V_{f\text{tot}} 36 \text{ V}$) *	54	0,19	
1208	15	≤ 4000	1690 ($V_{f\text{tot}} 36 \text{ V}$)	60,8	0,34	105
		> 4000	935 ($V_{f\text{tot}} 36 \text{ V}$) *	33,7	0,19	
1205	13	≤ 4000	1200 ($V_{f\text{tot}} 36 \text{ V}$)	43,2	0,33	105
		> 4000	700 ($V_{f\text{tot}} 36 \text{ V}$) *	25,2	0,19	
1204	13	≤ 4000	960 ($V_{f\text{tot}} 36 \text{ V}$)	34,6	0,26	105
		> 4000	700 ($V_{f\text{tot}} 36 \text{ V}$) *	25,2	0,19	
1203	9	≤ 4000	600 ($V_{f\text{tot}} 36 \text{ V}$)	21,6	0,34	105
		> 4000	340 ($V_{f\text{tot}} 36 \text{ V}$) *	12,2	0,19	
1202	9	≤ 4000	480 ($V_{f\text{tot}} 36 \text{ V}$)	17,3	0,27	105
		> 4000	340 ($V_{f\text{tot}} 36 \text{ V}$) *	12,2	0,19	

* : See additional information

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Product Key:

Variant series 1: **Fortimo SLM** *zcc Lee hh s Gij a*

Where:

- z* = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
- cc* = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
- ee* = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 9 and 19);
- hh* = Holder type (two characters or none, may be "DL" or "PI" or "ZP" or blank);
- s* = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm));
- i* = Number of generation of CoB (one digit, may be "4" or "5");
- j* = Number of generation of Holder (one digit, may be "1" or "2");
- a* = Alphanumeric commercial suffix for commercial purposes (optional)

The variant series 1 differs from the main series for different product key and for the presence of LED CoB + LED Holder.

Maximum ratings of the series:

CoB Type	Diameter of LES of CoB [mm]	CCT [K]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]	T Holder [°C]
1211	19	≤ 4000	2400 (V _{ftot} 37,5 V)	90	0,32	105	100
		> 4000	1500 (V _{ftot} 36 V) *	54	0,19		
1208	15	≤ 4000	1690 (V _{ftot} 36 V)	60,8	0,34	105	100
		> 4000	935 (V _{ftot} 36 V) *	33,7	0,19		
1205	13	≤ 4000	1200 (V _{ftot} 36 V)	43,2	0,33	105	100
		> 4000	700 (V _{ftot} 36 V) *	25,2	0,19		
1204	13	≤ 4000	960 (V _{ftot} 36 V)	34,6	0,26	105	100
		> 4000	700 (V _{ftot} 36 V) *	25,2	0,19		
1203	9	≤ 4000	600 (V _{ftot} 36 V)	21,6	0,34	105	100
		> 4000	340 (V _{ftot} 36 V) *	12,2	0,19		
1202	9	≤ 4000	480 (V _{ftot} 36 V)	17,3	0,27	105	100
		> 4000	340 (V _{ftot} 36 V) *	12,2	0,19		

* : See additional information

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Product Key:

Variant series 2: **Fortimo SLM C zcc dd mLee sG6 a**

Where:

- z** = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
- cc** = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
- dd** = Color of light (two or three characters or none, may be "CW" or "FP" or "FPR" or "FW" or "FWW" or "PW" or blank)
- m** = Die matrix (4 digits, may be "1202s" or "1203" or "1204" or "1204s" or "1205" or "1208" or "1211" or "1216")
- ee** = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 6.5 and 23);
- s** = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm);
- a** = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series:

CoB Type (Die matrix)	Diameter of LES of CoB [mm]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]
1216	23	2750 (V _{r tot} 41 V)	113	0,27	105
1211	19	2400 (V _{r tot} 41 V)	98	0,35	105
1208	15	1710 (V _{r tot} 41 V)	70	0,40	105
1205	13	1050 (V _{r tot} 41 V)	43	0,32	105
1204	13	850 (V _{r tot} 41 V)	35	0,26	105
1204s	9	740 (V _{r tot} 41 V)	30,3	0,47	105
1203	9	570 (V _{r tot} 41 V)	23	0,36	105
1202s	6,5	380 (V _{r tot} 41 V)	15,5	0,47	105

Product Key:

Variant series 3: **Fortimo SLM zcc Lee hh sG6j a**

Where:

- z** = CRI of LED divided by 10 (one digit, may be "7" or "8" or "9");
- cc** = Color temperature of LED divided by 100 (two digits, may be a value between 25 and 57);
- ee** = Diameter of Light Emitting Surface (LES) in mm (one or two digits, may be a value between 6.5 and 23);
- hh** = Holder type (two characters or none, may be "DL" or "PI" or "ZP" or blank);
- s** = CoB size in mm (four digits, example 2828: CoB dimensions = 28 mm x 28 mm);
- j** = Number of generation of Holder (one digit, may be "1" or "2");
- a** = Alphanumeric commercial suffix for commercial purposes (optional)

The variant series 3 differs from the variant series 2 for different product key, for the presence of LED CoB + LED Holder and for different maximum ratings for CoB Type 1216.

Maximum ratings of the series:

CoB Type	Diameter of LES of CoB [mm]	DC Current [mA]	Power [W]	Power Density of CoB [W/mm ²]	t _c [°C]	T Holder [°C]
1216	23	2400 (V _{r tot} 41 V)	98	0,24	105	100
1211	19	2400 (V _{r tot} 41 V)	98	0,35	105	100
1208	15	1710 (V _{r tot} 41 V)	70	0,40	105	100
1205	13	1050 (V _{r tot} 41 V)	43	0,32	105	100
1204	13	850 (V _{r tot} 41 V)	35	0,26	105	100
1204s	9	740 (V _{r tot} 41 V)	30,3	0,47	105	100
1203	9	570 (V _{r tot} 41 V)	23	0,36	105	100
1202s	6,5	380 (V _{r tot} 41 V)	15,5	0,47	105	100

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Additional information:

- The modules have been evaluated according to IEC/TR 62778 and the Lamp classification Group for Blue Light Hazard is Risk Group 1 Unlimited for modules having generation of CoB "4" or "5", Risk Group 2 for modules having generation of CoB "6" when are used at maximum rated currents. These Generation 6 modules are classified as Risk Group 1 if they are used according to the maximum currents listed below.

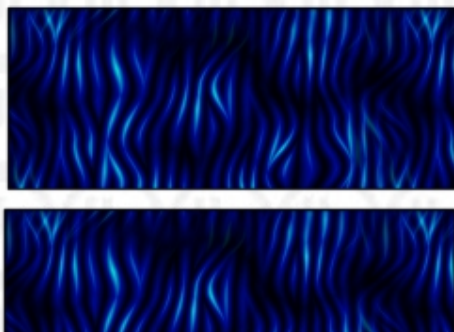
	CoB Type							
	1216	1211	1208	1205	1204	1204s	1203	1202s
Maximum Currents for RG1 Classification [mA]	1824	1254	912	570	456	456	342	228

- For modules having generation of CoB "4" or "5" with CCT > 4000 K the customer can increase the rated currents (for example 1500 mA for Type 1211) up to the rated currents of modules having CCT ≤ 4000 K (2400 mA for Type 1211), however in this case the photobiological hazard shall be additionally evaluated in the final product.
- The insulation between active parts of LED CoB and accessible conductive parts (metal mounting surface) is tested for basic insulation related to 50 Vdc for CoB Types 1202, 1202s, 1203, 1204s and all CoBs provided with holders having Field *hh* in the product key of variant series = "PI", and 200 Vdc for CoB Types 1204, 1205, 1208, 1211, 1216 provided with holders having Field *hh* in the product key of variant series = "DL" or "ZP" or blank.
- Creepage and clearance distances on the overall LED module (LED CoB + LED Holder) shall be evaluated on the final product.
- LED Holders have been evaluated as integral component according to IEC/EN 60838-1:2004 + A1:2008 + A2:2011 and IEC/EN 60838-2-2:2006 + A1:2012
- M3 fixing screws for LED Holders shall be used. The fasteners used to secure the module to the mounting surface must be tightened with a torque between 0,4 and 0,6 Nm.
- The modules can be supplied only by electronic LED controlgears separately approved according to IEC/EN 61347-2-13 and protected against output short-circuit and overload.
- The customer is obligated to add an appropriated cooling system to the LED module in order to not exceed t_c value. Temperature test shall be performed on the final product to verify the effectiveness of this cooling system.

The original report was modified to include the following changes/additions:

- Addition of Variant Series 2 and 3 having improved Generation of CoBs (Generation 6) and having new CoB Types 1202s, 1204s and 1216;
- Addition of new PI holder with dimensions suitable for CoB Type 1202s.

Production Sites:



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Annex 1 to Licence No.

ENEC-01182-A3

Annex of the form of the Mark



* Identification number of the Certification Body

Size of the mark:

The size of the mark may be reduced on the condition that it remains legible and that the ratio $b/a=1,7$ is kept

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