ENEC LICENCE

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Licence Holder Philips Lighting B.V.
High Tech Campus 45
Eindhoven, 5656 AE Netherlands

Production site

Certification Mark See Page 4
See Annex 1

Certified Product Built-in LED Module
Model Fortimo LED line xft ylm zcc qR eVg a
See Page 2 and 3

Trademark PHILIPS

Rated Voltage / Frequency See Rated Current
Rated Current / Power HV: Imax: 650 mA DC Current
LV: Imax: 800 mA DC Current

Insulation Class Risk 1
Degree of protection (IP) -
Tested acc. to EN 62031:2008/A1:2013, EN 62031:2008/A2:2015,
EN 62031:2008, EN 62471:2008

Test Report No. 4786659140 issued on 2015-02-23
Additional -

Certification Manager
Jan-Erik Storgaard

This is to certify that representative sample(s) of the Product described herein ("Certified Product") have been investigated and found in compliance with the Standard(s) indicated on this License, in accordance with the ENEC Requirements. The Designated License holder is entitled to use the ENEC 15 Mark (as shown in annex 1) for the Certified Product manufactured at the production site(s) identified above in accordance with the ENEC Mark Service Agreement including without limitation the ENEC Mark Testing and Certification Services Service Terms. Only those Products bearing the ENEC Mark should be considered as being covered by UL's ENEC Mark Service. This License shall remain valid unless terminated earlier in accordance with the Service Agreement including without limitation if the Standard identified on this Certificate is amended or withdrawn prior the Date of Withdrawal of conflicting Standard(s).

Certification Body
UL International Demko A/S, Borupvang 5A, DK-2750
Ballerup, Denmark, Tel. +45 44 85 65 65, info.dk@ul.com
www.ul-europe.com

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Model Details:

Main series: Fortimo LED line *x*ft *y*lm *zcc q*R *e*V*g a*

Where:

x = Product length in feet (one digit or three characters (for example 1.5)
y = Lumen output (three or four digits);
z = CRI of LED divided by 10 (one digit, may be "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 30 and 65);
q = Number of LED's rows (one digit, may be "1" or "3");
e = Voltage type (one character, may be "H" or "L");
g = Number of LED module's generation (one digit, may be "2" or "3");
a = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series:

Type	DC Current [mA]	Power [W]	Number of LEDs	t_c [°C]	Maximum working voltage for basic insulation to mounting surface [Vdc]
HV	400 ($V_{f\,tot}$ 70 V)	28	44	80	420
HV (°)	650 ($V_{f\,tot}$ 36 V)	23,4	33	95	420
LV	800 ($V_{f\,tot}$ 36 V)	28,8	44	80	120
(°): Only for model Fortimo LED line 1ft 2000lm *zcc* 3R HV*g a*					

Variant series: LBA *bs* xft** *y*lm *zcc eh a***

Where:

b = Platform shape (1-5 characters, may be "Area" or "Line" or "Slim" or "Point" or "Round");
s = Segment (one character, Commercial application);
x = Product length (or diameter) in feet (one digit or three characters (for example 1.5)
y = Lumen output (three or four digits);
z = CRI of LED divided by 10 (one digit, may be "8" or "9");
cc = Color temperature of LED divided by 100 (two digits, may be a value between 30 and 65);
e= Voltage type (one character, may be "H" or "L");
h = Last digit of release year (one digit);
a= Alphanumeric commercial suffix for commercial purposes (optional)

The variant series differs from the main series for the different commercial product key and three additional models ("Slim", "Point" and "Round").

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See the following table for the Platform shapes allowed (*b* field of the Product Key):

Area	Line	Slim	Point	Round
				
3 rows of LEDs	1 row of LEDs	1 row of LEDs	LEDs placed in groups of 6	1 or 2 circular rows of LEDs
LEDs used: 5630HE Series 5630SC Series 7030 Series	LEDs used: 5630HE Series	LEDs used: 5630HE Series	LEDs used: 7030 Series	LEDs used: 5630HE Series

Maximum ratings of the series

Platform shape (*b* field on Product Key)	DC Current [mA]	Power [W]	Number of LEDs	t_c [°C]	Maximum working voltage for basic insulation to mounting surface [Vdc]
Area and **Line** (HV Type)	400 ($V_{f\,tot}$ 70 V)	28	44	80	420
Area (°) (HV Type)	650 ($V_{f\,tot}$ 36 V)	23,4	33	95	420
Area and **Line** (LV Type)	800 ($V_{f\,tot}$ 36 V)	28,8	44	80	120
Slim	700 ($V_{f\,tot}$ 35 V)	24,5	44	80	120
Point	560 ($V_{f\,tot}$ 20 V)	11,2	12	85	420
Round	4 x 188 mA ($V_{f\,tot}$ 4x 40-80 V)	43,2	80	80	150 (And between adjacent independent strings)
(°): Only for model LBA Area*s* 1ft 2000lm *zcc* H*h a*					

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Additional information:

- The insulation between active parts of LED module and accessible conductive parts (metal mounting surface) is tested for basic insulation related to 420 Vdc for HV modules (150 Vdc for Platform shape *b* in the Product Key of variant series = “Round”) and related to 120 Vdc for LV modules.

- HV modules and modules with Platform shape *b* in the Product Key of variant series = “Slim” shall use PCBs with PTI > 600 V.

- Manufacturer and customers shall maintain clearances and creepage distances between tracks on PCB and screws/accessible conductive parts in compliance with table 11.1 of IEC/EN 60598-1 using working voltage values of 420 Vdc for HV modules (150 Vdc for Platform shape *b* in the Product Key of variant series = “Round”) and 120 Vdc for LV modules and considering basic insulation.

- M4 fixing screws with diameter of their heads not exceeding 8 mm shall be used (if in metallic material). Manufacturer recommends the use of washers made in insulating material. The fasters used to secure the module to the mounting surface must be tightened with a torque between 0,6 and 1 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 and the maximum temperatures of the module’s components. Temperature test shall be performed on the final product to verify the effectiveness of this cooling system.

- HV (High Voltage) modules can be used in series configuration if the total voltage of the load of LED controlgear does not exceed 420 Vdc (150 Vdc for Platform shape *b* in the Product Key of variant series = “Round”).
- LV (Low Voltage) modules can be used in parallel configuration if the current per module does not exceed its rated current and the current in the chain of modules does not exceed 1,8 A.

Certification Body

Annex 1 to Licence No.

ENEC-01104

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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