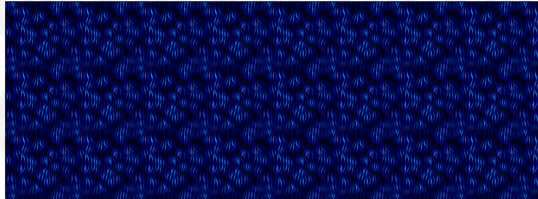


# ENEC LICENCE

**Licence No.** ENEC-01127-P1-A1  
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**Date of Issue** 2016-11-23

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

**Production site**



See Page 2

**Certification Mark** See Annex 1

**Certified Product** Built-in LED Module

**Model** Fortimo LED line xu ylm zcc qR eVgd a

**Trademark**

**PHILIPS**

**Rated Voltage / Frequency**

HV: Imax: 1000 mA

LV: Imax: 1900 mA

(see Test Report for further ratings)

**Rated Current / Power**

See Rated Voltage / Frequency

**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.**

4786877604-3 issued on 2016-11-22

**Additional**

**Certification Manager**  
Jan-Erik Storgaard

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**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



# ENEC LICENCE

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## Model Details:

### Product Key:

**Main series:** Fortimo LED line *xu ylm zcc qR eVgd a*

Where:

*x* = Product length in feet or mm or inch (1-4 digits/characters (for example 1.5 or 102))  
*u* = Measurement unit for product length (two characters, may be "ft" or "mm" or "in")  
*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 between 27 and 65);  
*q* = Number of LED's rows (one digit, may be "1" or "2" 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" or "4");  
*d* = Connector designator (may be blank or "F" = front connector, or "B" = back connector, or "D" = dual entry connector);  
*a* = Commercial suffix for commercial purposes (optional)

### Maximum ratings of the series:

Type	DC Current [mA]	Power [W]	Number of LEDs	t <sub>c</sub> [°C]	Max. working voltage for basic insulation to mount. surface [Vdc]
HV	570 (V <sub>f tot</sub> 70 V)	40	66	90	420
HV (*)	650 (V <sub>f tot</sub> 70 V)	28	44	95	420
HV (**)	1000 (V <sub>f tot</sub> 40 V)	40	120	85	420
LV	1120 (V <sub>f tot</sub> 36 V)	40	44	90	120

(\*): High flux modules (≥ 2000 lm/ft)

(\*\*): Only for model Fortimo LED line 2ft 1250lm *zcc 2R HVgd a*

## Certification Body

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**Product Key:** Variant series 1: LBA bs xu ylm zcc ehd a

Where:

b = Platform shape (4-5 characters, may be "Area", "2Line", "Line", "Slim", "Point", "Round");  
s = Segment (one character, Commercial application);  
x = Product length (or diameter) in feet or mm or inch (1-6 digits/characters)  
u = Measurement unit for product length (two characters or blank, may be "ft" or "mm" or "in")  
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 between 27 and 65);  
e = Voltage type (one character, may be "H" or "L");  
h = Last digit of release year (one digit);  
d = Connector designator (may be blank or "F" = front connector, or "B" = back connector, or "D" = dual entry connector);  
a = Commercial suffix for commercial purposes (optional)

See the following table for the Platform shapes allowed:

Platform shape (b field on Product Key)	Main characteristics	LED used
<b>Area</b>	Rectangular shape or E-shape, 3 rows of LEDs or 2 rows of LEDs placed on E-shape, HV/LV Types	5630HE series or 5630SC series or 5630D series or 7030 series or 3020 series or 757D series or 2835 series or 757G series
<b>2Line</b>	2 rows of LEDs, HV Type	3014HE series
<b>Line</b>	1 row of LEDs, HV/LV Types	5630HE series or 5630D series or 7030 series or 3020 series or 757D series or NF2L757DRT-V1 or 2835 series or 757G series
<b>Slim</b>	1 row of LEDs on a slim PCB, HV/LV Type	5630HE series or 2835 series
<b>Point</b>	LEDs placed in groups (Max 6 LEDs each group), HV Type	7030 series or 5630HE series
<b>Round</b>	1 or 2 circular rows of LEDs, HV Type, 4 independent LED strings	5630HE series

**Maximum ratings of the series:**

Platform shape (b field on Product Key)	DC Current [mA]	Power [W]	Number of LEDs	t <sub>c</sub> [°C]	Max. working voltage for basic insulation to mount. surface [Vdc]
<b>Area and Line</b> (HV Type)	570 (V <sub>f tot</sub> 70 V)	40	66	90	420
<b>Area and Line</b> (HV Type) (*)	650 (V <sub>f tot</sub> 70 V)	28	44	95	420
<b>Line</b> (HV Type) (**)	800 (V <sub>f tot</sub> 40 V)	32	24	95	420
<b>Area and Line</b> (LV Type)	1120 (V <sub>f tot</sub> 36 V)	40	44	90	120
<b>Line</b> (LV Type)	840 (V <sub>f tot</sub> 40 V)	34	72 (4 ft)	75	120
<b>Area</b> (E-Shape) (HV Type)	280 (V <sub>f tot</sub> 138 V)	39	88	85	420
<b>2Line</b>	1000 (V <sub>f tot</sub> 40 V)	40	120	85	420

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<b>Slim</b>	700 ( $V_{f\text{tot}}$ 35 V)	24,5	44	85	HV Type: 350 (****) LV Type: 120
<b>Point</b>	1ft: 560 ( $V_{f\text{tot}}$ 20 V)	1ft: 11,2	1ft: 12	1ft: 85	420
	2ft: 560 ( $V_{f\text{tot}}$ 40 V)	2ft: 22,4	2ft: 24	2ft: 90	420
<b>Round</b>	4 x 188 mA ( $V_{f\text{tot}}$ 4 x 40-80 V)	43,2	80	85	150 (And between adjacent independent strings)

(\*) : High flux modules ( $\geq 2000$  lm/ft)  
(\*\*): Only for models LBA LineX 1ft 2000lm zcc Hhd a  
(\*\*\*\*): See additional information

## Product Key:

**Variant series 2:** *b LED Strip xu ylm zcc d eVgD a*

Where:

*b* = Family name (may be "Fortimo" or "CertaFlux")  
*x* = Product length in feet or mm or inch (1-4 digits/characters (for example 1.5 or 102))  
*u* = Measurement unit for product length (two characters, may be "ft" or "mm" or "in")  
*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 between 27 and 65);  
*d* = Connector designator in case of "ft" or "in" (may be blank or "NA" or "1R" or "FC" = front connector or "BC" = back connector);  
*e* = Voltage type (one character, may be "H" or "L");  
*g* = Number of LED module's generation (one digit, may be "1" or "2" or "3" or "4");  
*D* = Connector designator in case of "mm" (may be blank or "F" = front connector, or "B" = back connector);  
*a* = Commercial suffix for commercial purposes (optional)

## Maximum ratings of the series:

Type	DC Current [mA]	Power [W]	Number of LEDs	$t_c$ [°C]	Max. working voltage for basic insulation to mount. surface [Vdc]
HV	480 ( $V_{f\text{tot}}$ 80 V)	38,4	72	85 95 (*)	420 (350 for $g = 4$ )
	570 ( $V_{f\text{tot}}$ 121 V)	69	120	80	
LV	600 ( $V_{f\text{tot}}$ 36 V)	21,6	48	85	120
	1900 ( $V_{f\text{tot}}$ 37 V)	70,3	144	80 95 (*)	

(\*) : Only for modules having Lumen output 2000 lm or 4000 lm or 8000 lm

## Certification Body

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## Product Key:

Variant series 3: Fortimo LED Square ylm 8cc HV/LV2 a

Where:

y = Lumen output (three or four digits);  
cc = Color temperature of LED divided by 100 (two digits, may be between 30 and 65);  
a = Commercial suffix for commercial purposes (optional)

## Maximum ratings of the series:

Type	DC Current [mA]	Power [W]	Number of LEDs	$t_c$ [°C]	Max. working voltage for basic insulation to mount. surface [Vdc]
HV and LV	700 ( $V_{f\text{ tot}}$ 49,7 V)	34,8	128	80	420

## Additional information:

- Modules having Platform shape *b* in the Product Key of variant series 1 = "Slim" can be named also with dimensions *x* in mm instead in feet (for example: LBA SlimS 595x20 500lm 830 L5).
- The model Fortimo LED Strip 2ft 2200lm 835 HV1 KR is identical to the model Fortimo LED Strip 2ft 2200lm 835 HV3, the difference between names is only for commercial purpose.
- The insulation between active parts of LED module and accessible conductive parts (metal mounting surface) is tested for basic insulation related to 420 V for HV modules (150 V for Platform shape *b* in the Product Key of variant series 1 = "Round", 350 V for HV modules of variant series 2) and related to 120 V for LV modules.
- HV modules, modules having Platform shape *b* in the Product Key of variant series 1 = "Slim", module "LBA LineP 2ft 4000lm zcc L5", module "Fortimo LED line 2ft 4000lm zcc 1R LV3" and all modules of variant series 2 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 V for HV modules (150 V for Platform shape *b* in the Product Key of variant series 1 = "Round", 350 V for HV modules of variant series 2) and 120 V for LV modules and considering basic insulation. When Connector designator "D" or "d" in the Product Keys = "B" or "BC" or "D" clearances and creepage distances shall be also maintained between accessible conductive parts and terminals mounted in the back of the modules or all metal terminals.
- M4 fixing screws with diameter of their heads not exceeding 8 mm shall be used (if in metallic material). Modules having Number of LED's rows *q* in the Product Key of main series = "2" or Platform shape *b* in the Product Key of variant series 1 = "2Line" or "Slim" shall use M3 fixing screws with diameter of their heads not exceeding 5,6 mm. Manufacturer recommends for all modules the use of washers made in insulating material. The fasteners used to secure the module to the mounting surface must be tightened with a torque between 0,6 and 1 Nm.
- LED Module "LBA SlimP xft ylm zcc Hhd a" shall be used only with insulating washers made of suitable material, having 2,2 mm minimum thickness, with the internal hole suitable for only M3 screws and having the external diameter not less than 5,6 mm and it shall be installed with creepage/clearance distances to metal mounting surface of at least 1 mm.
- 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 V (150 V for Platform shape *b* in the Product Key of variant series 1 = "Round", 350 V for HV modules of variant series 2).
- 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 2 A for modules with terminals Molex Lite-Trip, Mini Lite-Trip, BJB and WAGO and 1 A for modules with terminals Molex Flexi-Mate.
- The modules have been also evaluated according to IEC TR 62778 (Second Edition): RISK GROUP 1 UNLIMITED with exception of modules having LED 3020 and LED NF2L757DRT-V1 which are classified RISK GROUP 2 (Worst value of  $E_{thr}$  = 338 lx) (See also photobiological test report number 4787550990-6 for more information).

## Certification Body

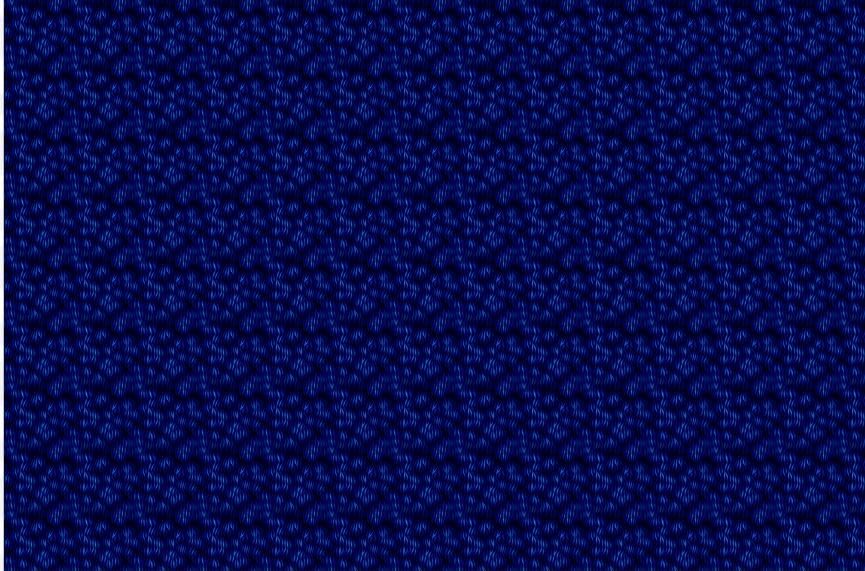
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Production Sites:



## Additional Information:

This certificate replaces Certificate No. ENEC-01127-P1 issued on 2016-09-12 to include the following changes/additions:

- Addition of alternative screwless terminal in the table of components
- Addition of alternative PCB in the table of components
- Addition of modules of main series and variant series 1 with more LEDs and more rated power
- Increasing tc value of modules of variant series 2 up to 95 °C
- Addition of modules 4000 and 8000 lm of variant series 2
- Addition of variant series 3
- Addition of alternative fuses in the table of components
- Update of product keys and maximum ratings

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## Certification Body

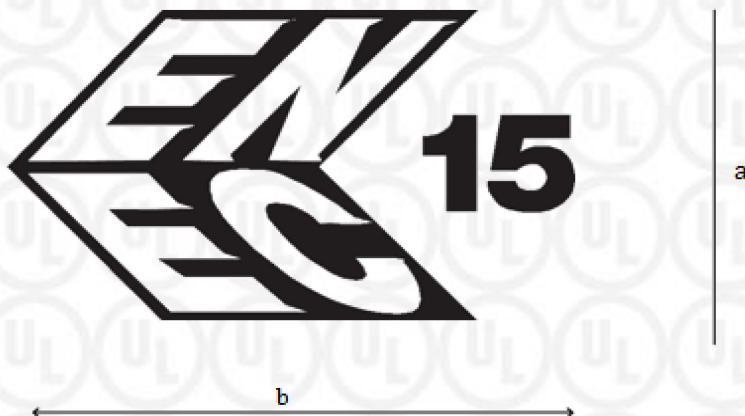
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# Annex 1 to Licence No.

## ENEC-01127-P1-A1

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

**Certification Body**

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