

ENEC LICENCE

Licence No. ENEC-01127-A1
Page 1/8
Date of Issue 2015-09-21

Licence Holder

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

Production site



Certification Mark

See Annex 1

Certified Product Model

Built-in LED Module
Fortimo LED line xft ylm zcc qR eVg a
See Page 2

Trademark

PHILIPS

Rated Voltage / Frequency

See rated current

Rated Current / Power

HV: Imax: 1000 mA DC Current
LV: Imax: 1120 mA DC Current
(for additional information see Test Report)

Insulation Class

Risk 1

Degree of protection (IP)

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Tested acc. to

EN 62031:2008/A1:2003, EN 62031:2008/A2:2015, EN 62031:2008
EN 2471:2008

Test Report No.

4786877604-2 Amendment 1 issued on 2015-09-16,
4786810297-3 issued on 2015-03-27, 4786810297-4 issued on
2015-03-27, 4786877604-1 issued on 2015-05-18, 4786877604-2
issued on 2015-05-19

Additional


Certification Manager
Jan Erik Storgaard

Certification Body

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 Licence, in accordance with the ENEC Requirements. The Designated Licence holder is entitled to use the ENEC 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 Service Terms. Only those Products bearing the ENEC Mark should be considered as being covered by UL's ENEC Mark Service. This Licence 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with the Service Agreement including without limitation if the Standard identified on this Certificate is amended or withdrawn prior the date of withdrawal of the Standard(s).

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ENEC LICENCE

Licence No. ENEC-01127-A1
Page 2/6
Date of Issue 2015-09-21

Product Key:

Main series: Fortimo LED line *xft ylm zcc qR eVg 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 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");
- a* = Alphanumeric commercial suffix for commercial purposes (optional)

Maximum ratings of the series

Type	DC Current [mA]	Power [W]	Number of LEDs	t_a [°C]	Maximum working voltage for basic insulation to mounting surface [Vdc]
HV	400 (V_{rbi} 70 V)	28	44	85	420
HV (*)	650 (V_{rbi} 36 V)	23,4	33	95	420
HV (**)	1000 (V_{rbi} 40 V)	40	120	85	420
LV	1120 (V_{rbi} 36 V)	40	44	85	120

(*): Only for model Fortimo LED line 1ft 2000lm *zcc* 3R HV*g a*

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

Product Key:

Variant series 1: LBA *bs xft ylm zcc eh 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 dimensions in mm for "Slim" shape (1-6 characters)
- 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);
- a* = Alphanumeric commercial suffix for commercial purposes (optional)

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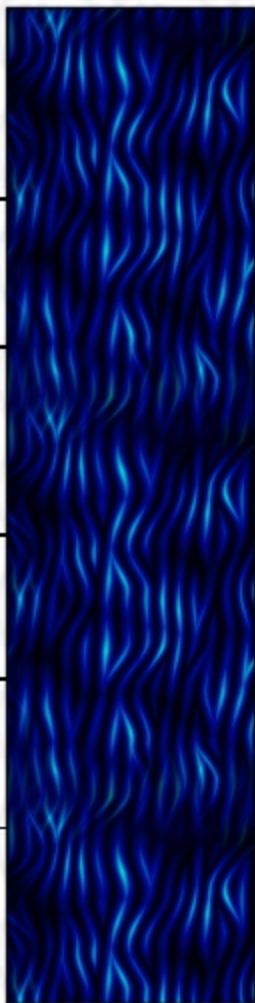





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ENEC LICENCE

Certificate No. ENEC-001127-A1
Page 3/6
Date of Issue 2015-09-21

See the following table for the Platform shapes allowed:

Platform shape (b field on Product Key)	Image of shape	Main characteristics	LED used
Area		3 rows of LEDs, HV/LV Types	
2Line		2 rows of LEDs, HV Type	
Line		1 row of LEDs, HV/LV Types	
Slim		1 row of LEDs on a slim PCB, LV Type	
Point		LEDs placed in groups of 6, HV Type	
Round		1 or 2 circular rows of LEDs, HV Type, 4 independent LED strings	

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ENEC LICENCE

Certificate No. ENEC-001127-A1
 Page 4/6
 Date of Issue 2015-09-21

Maximum ratings of the series:

Platform shape (b field on Product Key)	DC Current [mA]	Power [W]	Number of LEDs	t_a [°C]	Maximum working voltage for basic insulation to mounting surface [Vdc]
Area and Line (HV Type)	400 (V_{rkl} 70 V)	28	44	85	420
Area (HV Type) (*)	650 (V_{rkl} 36 V)	23,4	33	95	420
Area and Line (LV Type)	1120 (V_{rkl} 36 V)	40	44	85	120
2Line	1000 (V_{rkl} 40 V)	40	120	85	420
Slim	700 (V_{rkl} 35 V)	24,5	44	85	120
Point	1ft: 560 (V_{rkl} 20 V)	1ft: 11,2	1ft: 12	1ft: 85	420
	2ft: 560 (V_{rkl} 40 V)	2ft: 22,4	2ft: 24	2ft: 90	420
Round	4 x 188 mA (V_{rkl} 4 x 40-80 V)	43,2	80	85	150 (And between adjacent independent strings)

(*): Only for model LBA Areas 1ft 2000lm zccH h a

Product Key:

Variant series 2: *bLED Strip x y l m z cc e V g a*

Where:

- b* = Family name (may be "Fortimo" or "CertaFlux")
- x* = Product length in feet or mm (one digit or three characters (for example 1.5 or 102))
- y* = Measurement unit for product length (two characters, may be "ft" or "mm")
- z* = Lumen output (three or four digits)
- m* = 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")
- V* = Number of LED module's generation (one digit, may be "2" or "3")
- g* =
- a* = Alphanumeric commercial suffix for commercial purposes (optional)

The variant series 2 differs from the main series for the different rectangular shape (only 1 row of LEDs placed on a slim PCB).

Maximum ratings of the series

Type	DC Current [mA]	Power [W]	Number of LEDs	t_a [°C]	Maximum working voltage for basic insulation to mounting surface [Vdc]
HV	480 (V_{rkl} 80 V)	38,4	48	85	420
LV	600 (V_{rkl} 36 V)	21,6	48	85	120

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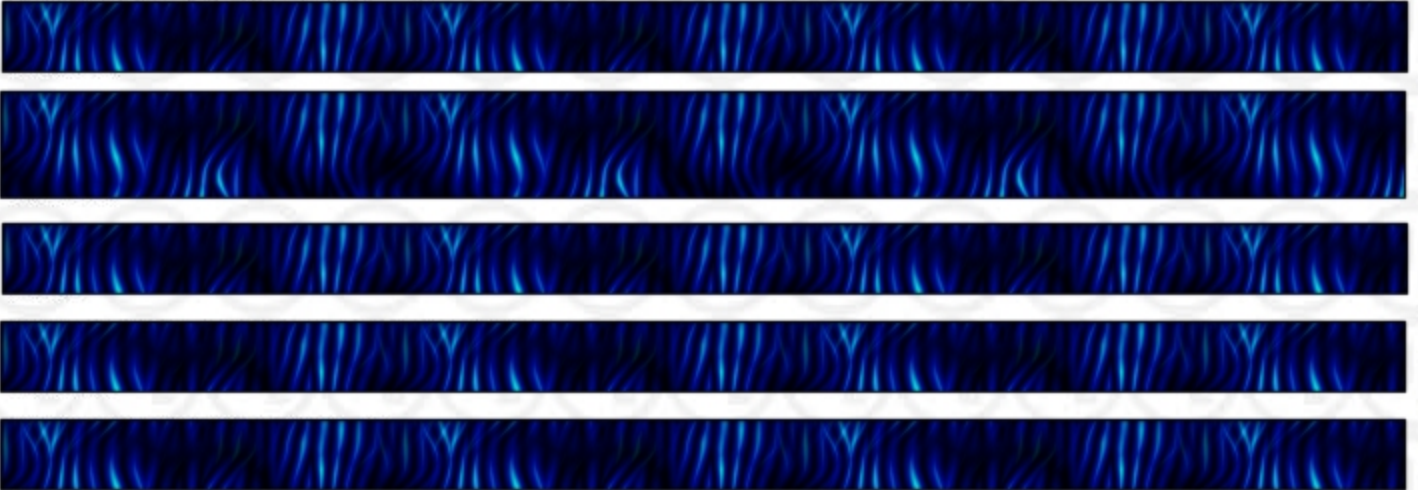
ENEC LICENCE

Certificate No. ENEC-001127-A1
Page 5/6
Date of Issue 2015-09-21

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 Slim S 595x20 500lm 830 L5)
 - 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 1 = "Round") and related to 120 Vdc for LV modules.
 - HV 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 Vdc for HV modules (150 Vdc for Platform shape b in the Product Key of variant series 1 = "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). 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" 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.
 - The modules can be supplied only by electronic LED control gears 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 to 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 control gear does not exceed 420 Vdc (150 Vdc for Platform shape b in the Product Key of variant series 1 = "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 for modules with terminals Molex Lite-Trap 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 series which are classified RISK GROUP 2 (Worst value of $E_{thr} = 338 lx$) (See also photobiological test reports for more information).
- The original Test Report Ref. 4786877604-2, dated 2015-05-19 has been modified on 2015-09-16 to cover the following changes and/or additions:
- Addition of a new variant series to the model list (variant series 2) and new Factory.
 - Addition of new LEDs used (757D series and 3020 series), new screwless terminal and two new PCB materials. Increase maximum CCT of LEDs 7030 series and 5630D series.
 - Increase maximum rated current of model LBA PointP 2ft, LBA LineP 2ft (LV Type) and Fortimo LED line 2ft 4000lm zcc 1R (LV Type).
 - Update of description on General Product Information and correction of some typo errors.

Factories:



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Annex 1 to Licence No.

ENEC-00127-A1

Annex of the form of the Mark



a

b

* 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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