



Ref. Certif. No.

DK-45723-P3-M1-UL

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE)
CB SCHEME

CB TEST CERTIFICATE

Product

Built-in LED Module

Name and address of the applicant

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

Name and address of the manufacturer

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

Name and address of the factory

Note: When more than one factory, please report on page 2

Ratings and principal characteristics

HV: I_{max}: 1000 mA ---

LV: I_{max}: 2000 mA ---

See page 2-3-4-5-6

Trademark (if any)

PHILIPS

Type of Customer's Testing Facility (CTF) Stage used

Model / Type Ref.

Fortimo LED line xu ylm zcc qR eVgd a
See page 2-3-4-5-6

Additional information (if necessary may also be reported on page 2)

☒ Additional Information on page 7

A sample of the product was tested and found to be in conformity with

IEC 62031(ed.1), IEC 62031(ed.1);am1, IEC 62031(ed.1);am2

As shown in the Test Report Ref. No. which forms part of this Certificate

4788406206 issued on 2018-05-04

This CB Test Certificate is issued by the National Certification Body



UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA



UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK



UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN



UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:

Jan-Erik Storgaard

Model details:
Product Key:
Main series: Fortimo LED line *xu ylm zcc qR eVgd a*
Where:

<i>x</i>	= Product length in feet or mm or inch (1-4 digits/characters (for example 1.5 or 102));
<i>u</i>	= Measurement unit for product length (two characters, may be "ft" or "mm" or "in");
<i>y</i>	= Lumen output (three or four digits);
<i>z</i>	= CRI of LED divided by 10 (one digit, may be "8" or "9");
<i>cc</i>	= Color temperature of LED divided by 100 (two digits, may be between 27 and 65);
<i>q</i>	= Number of LED's rows (one digit, may be "1" or "2" or "3" or "T");
<i>e</i>	= Voltage type (one character, may be "H" or "L");
<i>g</i>	= Number of LED module's generation (one digit, may be "2" or "3" or "4");
<i>d</i>	= Connector designator (may be blank or "F" = front connector, or "B" = back connector, or "D" = dual entry connector);
<i>a</i>	= 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 [V]
HV	570	40	66	90	420 (****)
HV (*)	650	36,8	56	95	420
HV (**)	1000	40	120	85	420
HV (***)	640 (V _{f tot} 81,5 V) or 320 (V _{f tot} 163 V)	52,2	46	95	420
LV	1120	40	44	90	120

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

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

(***) : When *q* = "T" in the product key. Maximum current depends on connecting method of the module.

(****) : 450 V for model Fortimo LED line 1ft *ylm zcc 3R HV4B T* with parameter *y* ≤ 1500 lm

Additional information (if necessary)


UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:



Jan-Erik Storgaard

Variant series 1: LBA bs xu ylm zcc qR ehd a

Where:

- b* = Platform shape (4-5 characters, may be "Area", "2Line", "Line", "Slim", "USlim", "Point", "Round");
- s* = Segment (one character, Commercial application);
- x* = Product Length (or diameter) in feet or mm or inch or Product Area in mm (for example 1178x20) (1-7 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);
- qR* = Number of LED's rows (two characters or blank, may be "1R" to "5R");
- 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 (<i>b</i> field on Product Key)	Main characteristics
Area	Rectangular shape or E-shape, Up to 5 rows of LEDs or 2 rows of LEDs placed on E-shape, HV/LV Types
2Line	2 rows of LEDs, HV Type
Line	1 row of LEDs, HV/LV Types
Slim and USlim	1 row of LEDs on a slim PCB, HV/LV Types (Slim) LV Type (USlim)
Point	LEDs placed in groups (Max 6 LEDs each group), HV Type
Round	1 or 2 circular rows of LEDs, HV Type, 4 independent LED strings

Maximum ratings of the series:

Platform shape (<i>b</i> field on Product Key)	DC Current [mA]	Power [W]	Number of LEDs	<i>t_c</i> [°C]	Max. working voltage for basic insulation to mount. surface [V]
Area and Line (HV Type)	570	40	66	90	420
Area and Line (HV Type) (*)	650	36,8	56	95	420

Additional information (if necessary)


UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:



Jan-Erik Storgaard

Model details:

Line (HV Type) (**)	800	32	24	95	420
Area and Line (LV Type)	1120	40	44	90	120
Line (LV Type)	840	34	72 (4 ft)	75	120
Area (E-Shape) (HV Type)	280	39	88	85	420
Area (5R)	1000 (HV Type) 2000 (LV Type)	72	120	90	420
2Line	1000	40	120	85	420
Slim	720	27,4	72	95	HV Type: 350 (***) LV Type: 120
USlim	1440	50,4	144	105	120 (***)
Point	1ft: 560	1ft: 11,2	1ft: 12	90	420
	2ft: 560	2ft: 22,4	2ft: 24		
Round	4 x 188 mA (V _{f tot} 4 x 40-80 V)	43,2	80	85	150 (And between adjacent independent strings)

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

(**) : Only for models LBA LineX 1ft 2000lm zcc Hhd a

(***) : See Additional information

Product Key:

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

Where:

- b* = Family name (may be "Fortimo" or "CertaFlux");
w = Product width in mm (optional) (two digits, if it is omitted width is 20 mm);
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" or "5");
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)

Additional information (if necessary)



UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:

Jan-Erik Storgaard

Model details:

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 [V]
HV	480	38,4	72	85	420 (350 for b = Fortimo and g ≥ 4) (350 for b = CertaFlux and g ≥ 3)
	570	69	120	95 (*)	
	720 (**)	48	88	80	
LV	600	21,6	48	85	120
	1900	70,3	144	80	
				95 (*)	

(*) : Only for modules having lumen output 2000 lm or 4000 lm or 8000 lm (High flux modules (≥ 2000 lm/ft))

(**) : When w = "32" in the product key

Product Key:
Variant series 3: Fortimo LED Square ylm zcc d HV/LV2 a

Where:

- 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 30 and 65);
- d = Connector designator (may be blank or "FC" = front connector or "BC" = 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 [V]
HV/LV (Max 2500 lm)	700	34,8	128	80	420
HV/LV (Max 3500 lm)	1200	42,1	132	80	350

Additional information (if necessary)


UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:



Jan-Erik Storgaard

- 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.
- Modules having Platform shape b in the Product Key of variant series 1 = "USlim" can be supplied only by SELV LED Controlgears having Uout max = 120 Vdc.
- 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 controlgear does not exceed the maximum working voltages listed on ratings.
- 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-Trap, Mini Lite-Trap, BJB, WAGO and Tyco Electronics 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, LED NF2*757DRT-V1, LED NF2*757GRT-V1 and LED 3030-2D 6V which are classified RISK GROUP 2 (Worst value of Ethr = 338 lx).

Additional information (if necessary)



UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Denko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10

Original Issue Date: 2018-03-26

Signature:

Jan-Erik Storgaard



Ref. Certif. No.

DK-45723-P3-M1-UL

Additional Information:
Additionally evaluated to: EN 62031:2008/A1:2013/A2:2015
National Differences specified in the CB Test Report

Additional information (if necessary)



- ☐ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA
- ☒ UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK
- ☐ UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN
- ☐ UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see www.ul.com/ncbnames

Date: 2018-05-10
Original Issue Date: 2018-03-26

Signature:

Jan-Erik Storgaard