



Fortimo LED Line Square

Fortimo LED Line Square 1 ft 1250 lm SQ HV/LV

The Fortimo LED Line Square Systems consist of white light LED modules with square outer dimensions delivering high energy efficiency and high quality of homogeneous light. These smart systems are completed with the Philips Advance Xitanium LED Drivers, which enable easy generation management and offer the flexibility to meet various application requirements. The Fortimo LED Line Square Systems are designed to replace fluorescent lighting in recessed, surface mounted and suspended office luminaires.

Benefits

- High energy efficiency
- Improved luminaire manufacturability
- Outer dimensions are Zhaga compliant¹
- Flexible specification due to smart Philips Advance Xitanium LED Drivers
- Covered by Philips limited warranty²

Features

- Homogeneous exit windows from luminaires with depth of 4.5 cm
- Module efficiency up to 145 lm/W
- Quick mounting of modules with only 1 screw
- Push-in connectors with high flexibility and enabling usage of bulk wiring and automated wiring
- Tc up to 80°C
- High quality of white light

Applications

- Fortimo LED Line Square Systems are ideal for office applications where the luminaires require a very homogeneous exit surface window
- Typical applications are recessed, surface mounted and suspended office luminaires
- Ideal replacement in e.g. a 600x600 for 4x14 W, 4x18 W, 4x24 W and 4x28 W

Footnotes on page 6



PHILIPS

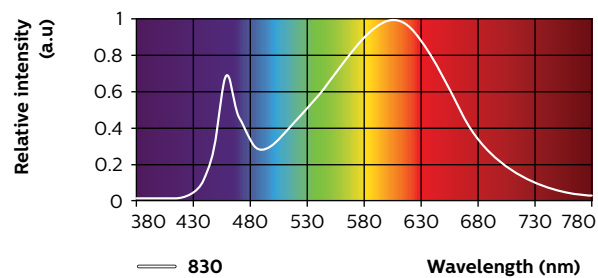
Commercial product name	EOC	12NC
Fortimo LED line 1 ft 1250 lm 830 SQ HV/LV	8718291 702917 00	9290 008 70506
Fortimo LED line 1 ft 1250 lm 840 SQ HV/LV	8718291 702931 00	9290 008 70606

Optical characteristics - table per CCT^{3,4}

Fortimo LED Line Square 1 ft 1250 lm 830 SQ HV/LV

Parameter	Min	Typ	Max	Unit
Luminous flux ⁴	1115	1200	1300	lm
Module efficiency	128	141	154	lm/W
Correlated color temperature (CCT) ⁵		3000		K
Correlated color temperature (CCT) ⁶		3070		K
Color coordinates (CIEx, CIEy)		(0.432, 0.402)		–
Color consistency ⁷			3.5	SDCM
CRI	80			–
Radiation angle		120		deg

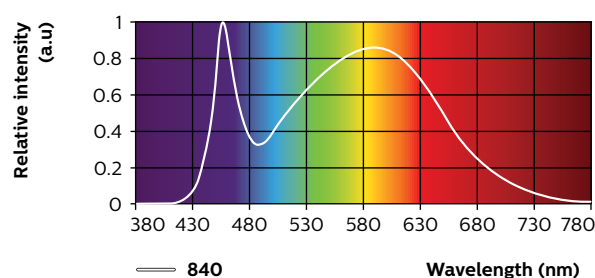
Note: Tc nom = 45°C I nom = 185 mA



Fortimo LED Line Square 1 ft 1250 lm 840 SQ HV/LV

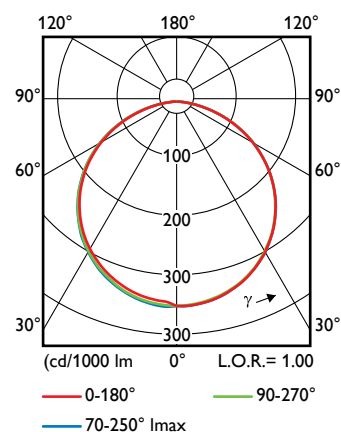
Parameter	Min	Typ	Max	Unit
Luminous flux ⁴	1150	1250	1350	lm
Module efficiency	132	146	159	lm/W
Correlated color temperature (CCT) ⁵		4000		K
Correlated color temperature (CCT) ⁶		4000		K
Color coordinates (CIEx, CIEy)		(0.380, 0.377)		—
Color consistency ⁷			3.5	SDCM
CRI	80			—
Radiation angle		120		deg

Note: Tc nom = 45°C I nom = 185 mA



Beam shape

The Philips Fortimo LED Line generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.



Electrical characteristics

Parameter	Min	Typ	Max	Unit
Nominal current		185		mA
Forward voltage	43.5	46.3	48.5	V
Power consumption	8.0	8.6	8.7	W
Energy efficiency label		A++		
Minimum dimming for performance	10			%
Number of parallel modules per chain			N/A	
Bins		N/A		

Note: Tc nom = 45°C I nom = 185 mA

Lifetime

Parameter	Min	Typ	Max	Unit
Lumen maintenance B50L70	50,000			hrs
$\Delta u/v$ at 6,000 hours			0.007	-
Critical failures		no spec known		%

Note: $T_c < 80^\circ\text{C}$, $I < 400\text{ mA}$

Parameter	Nominal ⁹	Life ¹⁰	Max ¹¹
T_c [$^\circ\text{C}$]	45	70	80
Current [mA]	250	300	400

Performance at 1 life and T_c life	Flux [lm]	Efficiency [lm/W]
3000K	2255	117
4000K	2350	122

Abs max ratings

Parameter	Min	Typ	Max	Unit
Current I_{max}			400	mA
Case temperature T_c max			80	$^\circ\text{C}$
ESD (direct contact)			6	kV
ESD (air)			8	kV
Isolation breakdown voltage	2250			Vdc
Ambient temperature	-20			$^\circ\text{C}$

Wiring

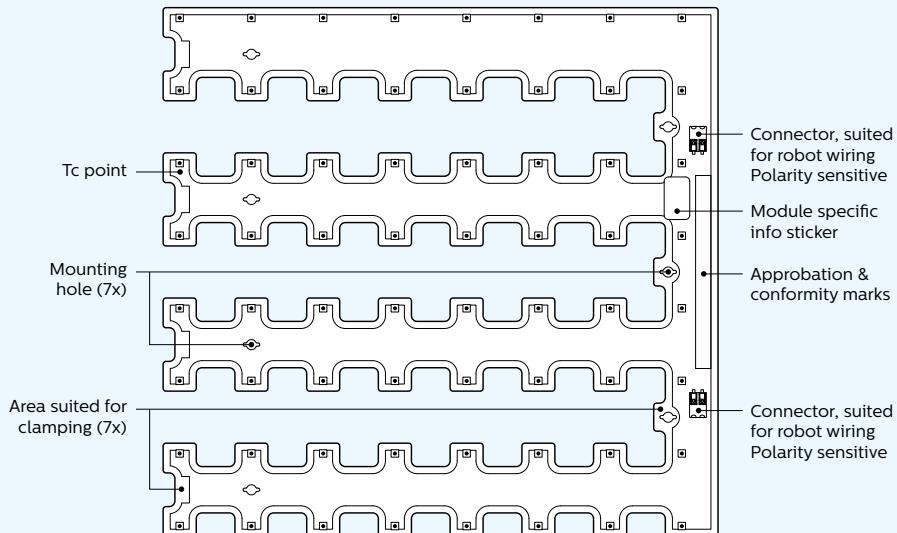
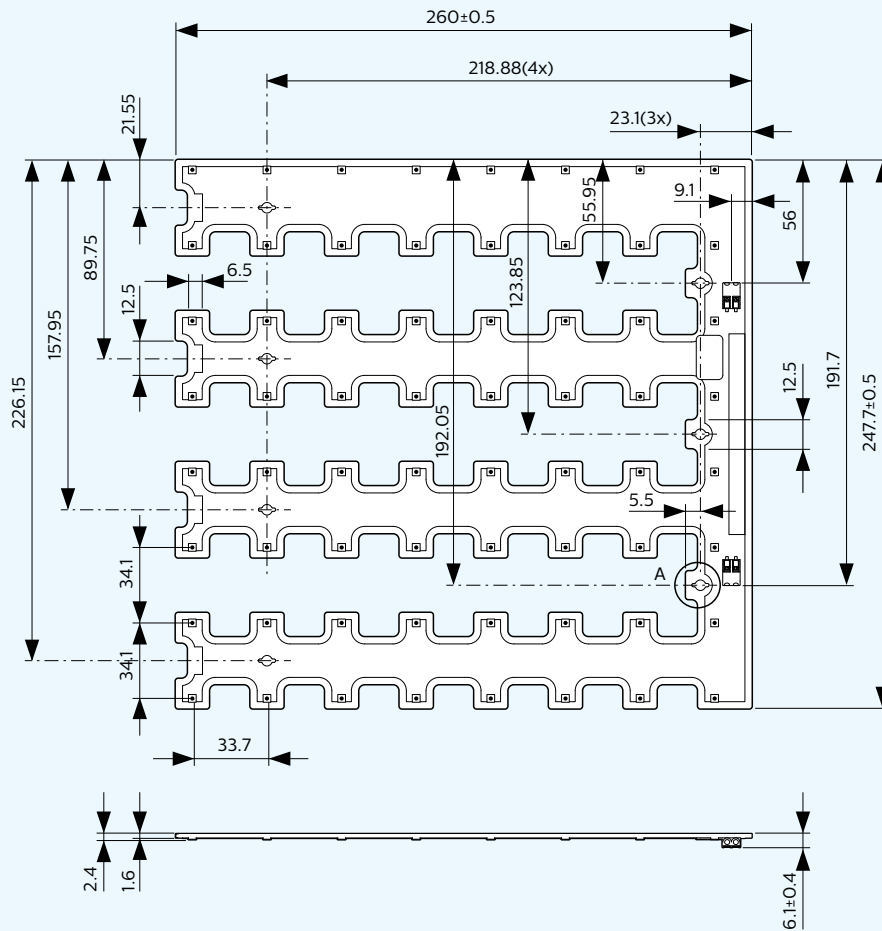
Specification item	Value	Unit	Condition
Input wire cross-section	0.2...0.75	mm ²	Solid and fine stranded
	18...24	AWG	
Input wire strip length	6...7	mm	
Tested cable length*	4000	mm	Total length of wiring including LED modules, one way

* Note: connector suited for robot wiring

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	259.85	260	260.15	mm
Width	247.55	247.7	247.85	mm
Height incl. connector	5.7	6.1	6.5	mm
Height excl. connector	1.5	1.65	1.8	mm

Note: Bow & Twist of the PCB after production tested and released according IPC-TM-650 2.4.22



Application information

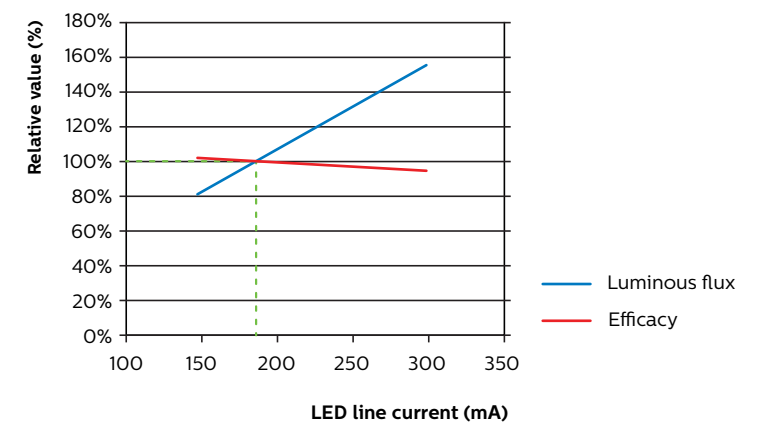
Zhaga	Not approved yet
IP rating	No IP rating
Overheating protection	No protection
Luminaire class	IEC Class I and II

FOOTNOTES:

1. Philips Fortimo LED Line Square 1 ft 1250 lm SQ HV/LV Module is a Zhaga certified light engine. Visit www.zhagastandard.org for more information.
2. To see the full warranty, please visit http://www.lighting.philips.com/pwc_li/us_en/connect/LED_modules/assets/Fortimo_Led_Strip_and_Led_Line_Warranty.pdf.
3. Current specifications are subject to change, for the latest specifications, please contact your local Philips sales representative.
4. Photometric testing consistent with CIE 127:2007 2nd Edition.
5. CCT for characterisation. Complies with ANSI C78.377A Specifications.
6. CCT of Target Color Point.
7. Production units will fall between +/- 0.2 of listed value. Note: 3.5 SDCM color consistency specification may not be sufficient for applications that are sensitive to color differences like wall washers, which typically require 2 SDCM.
8. Average rated life is based on engineering data testing and probability analysis. The hours are at the B50, L₇₀ point - 50,000 hours life with 70% lumen maintenance at Tc point of 56°C for 3R and 61°C for 1R.
9. Nominal value at which performance is specified.
10. Value at which lifetime is specified.
11. Maximum value for safety.
12. Indicates that the LEDs are components recognized with UL and complies with UL8750 Standard for LEDs.
13. Restrictions on Hazardous Substances (RoHS) is a European directive (2002/95/EC) designed to limit the content of 6 substances [lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)] in electrical and electronic products. For products used in North America compliance to RoHS is voluntary and self-certified.

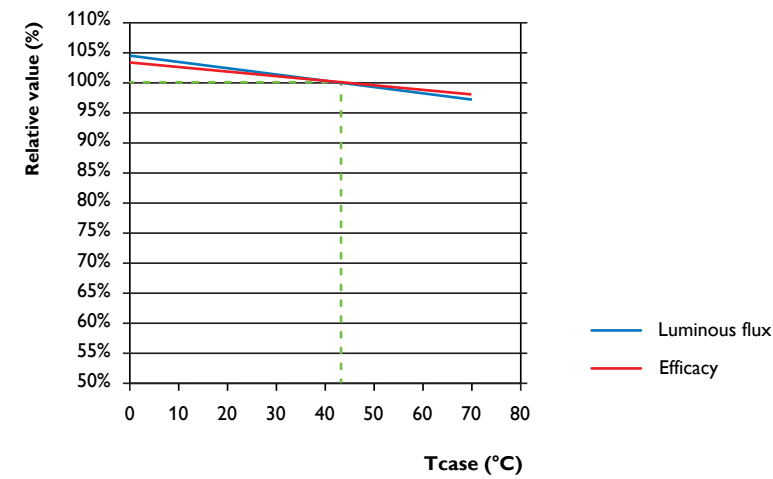
Tuning information

Flux and efficacy versus current



I [A]	Flux	Efficacy
0,150	82%	102%
0,165	90%	101%
0,180	97%	100%
0,195	105%	100%
0,210	113%	99%
0,225	120%	98%
0,240	128%	97%
0,255	135%	96%
0,270	142%	95%
0,285	149%	94%
0,300	156%	93%

Flux and efficacy versus temperature at Tc

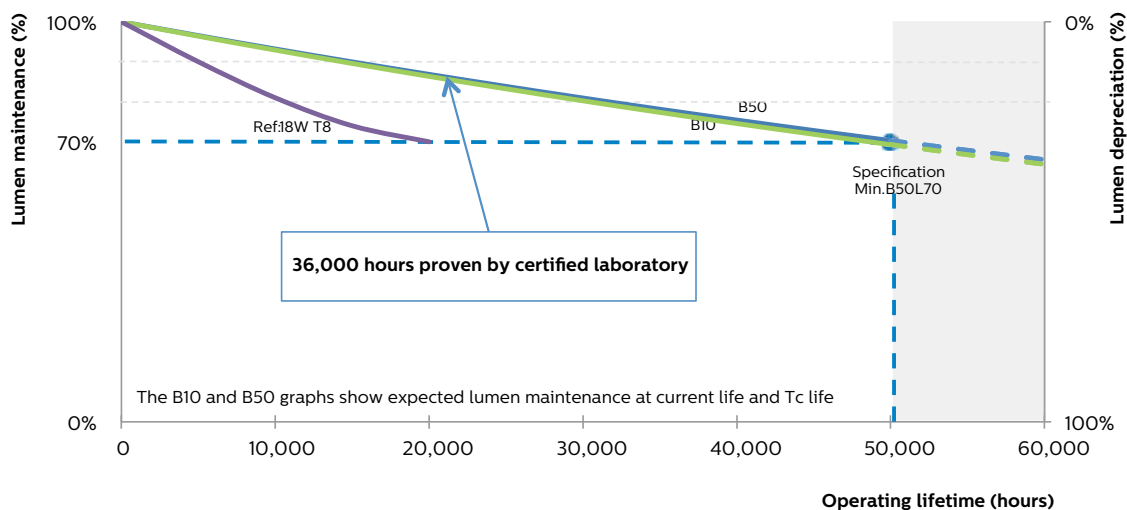


Tc [°C]	Flux	Efficacy
70	97%	98%
65	98%	98%
60	98%	99%
55	99%	99%
50	99%	100%
45	100%	100%
40	100%	100%
35	101%	101%
30	101%	101%
25	102%	101%
20	102%	102%
15	103%	102%
10	103%	103%
5	104%	103%
0	104%	103%

Lumen maintenance

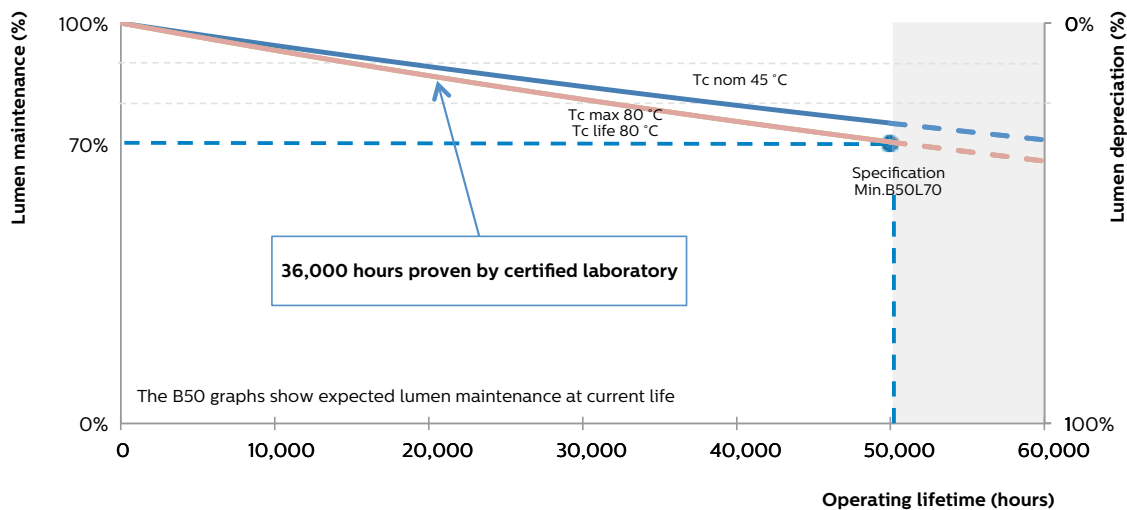
Lumen maintenance B10/B50

Fortimo LED line 1 ft 1250 lm SQ HV/LV



Lumen maintenance T-case

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