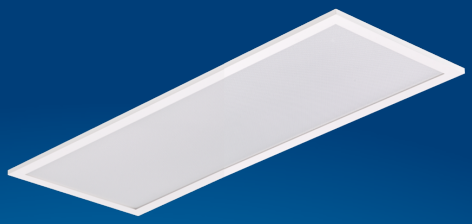
PHILIPS

Fortimo

LED

Fortimo LED Panel
60120



Datasheet

Fortimo LED Panel

The Fortimo LED Panels are designed to light up spaces in office and commercial buildings. With their ultra-slim design they can be installed easily. The Fortimo panels offer an excellent performance (120 Lm/W at 4000K CRI80), reliability (50,000 hours) and quality of light. It's designed to meet the standards for office lighting (UGR <19 possible). A wide range of choices in different sizes (60x60; 62x62; 30x120; 60x120) and color temperatures can be combined with a wide choice of Xitanium drivers to perfectly match your application.

Key features and benefits

- Efficacy up to 121 lm/W on module level
- Ultra-slim LED module
- Excellent light uniformity
- Meeting office standards for low UGR
- Good quality of light (CRI >80)
- Available in 60x60 and 30x120
- High flexibility of lumen output due to wide driver choice
- 5 year system warranty
- Module is provided with integrated quick install connector

October 2019

direct

100%
instant

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Panel 60120 830 MD2	75197500	9290 021 68506	4
Fortimo LED Panel 60120 840 MD2	75198200	9290 021 68606	4
Fortimo LED Panel 60120 865 MD2	75199900	9290 021 68706	4

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Panel 60120	1050	1800	2000	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	45	70	75	°C

* Nominal value at which typical performance is specified

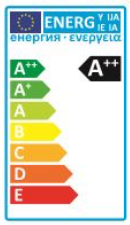
** Value at which life time is specified

*** Maximum value for safe operation, do not operate above this value

Optical characteristics - table per color (CCT)

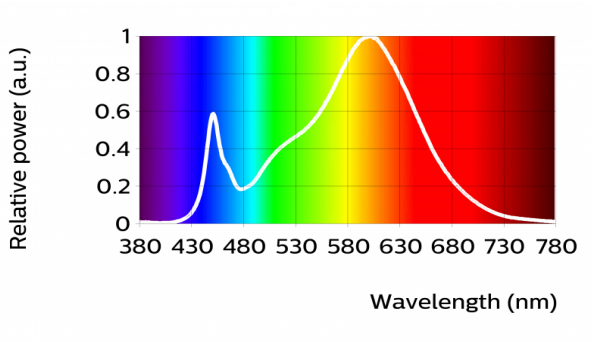
Fortimo LED Panel 60120 830 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	4500	5000	5500	lm
Flux within 120° cone		4350		lm
Flux within 90° cone		3450		lm
Module efficacy		122		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.442, 0.406)		-
Color consistency			4	SDCM
CRI	80			
Photometric code		830/469		
Radiation angle		80		deg
Photobiological safety			RG0	



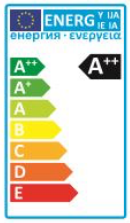
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	830	lm	lm/W
50% I-nom 525mA	Tc 25 °C	2624	131
	Tc-nom 45 °C	2545	128
	Tc-max 75 °C	2405	122
I-nom 1050mA	Tc 25 °C	5161	125
	Tc-nom 45 °C	5000	122
	Tc-max 75 °C	4711	116
I-max 2000mA	Tc 25 °C	9359	114
	Tc-nom 45 °C	9041	111
	Tc-max 75 °C	8468	105



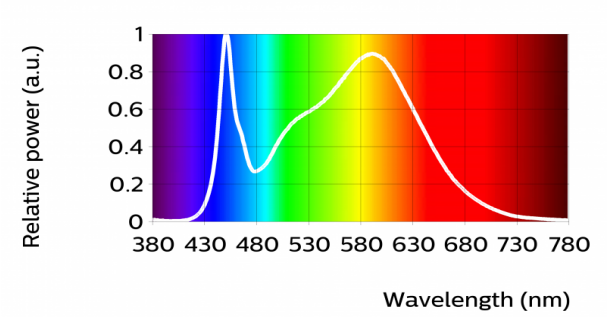
Fortimo LED Panel 60120 840 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	4815	5350	5885	lm
Flux within 120° cone		4655		lm
Flux within 90° cone		3692		lm
Module efficacy		131		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.381, 0.382)		-
Color consistency			4	SDCM
CRI	80			
Photometric code		840/469		
Radiation angle		80		deg
Photobiological safety			RG0	



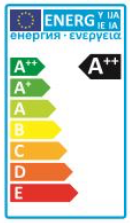
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5

Operation point	840	lm	lm/W
50% I-nom 525mA	Tc 25 °C	2807	140
	Tc-nom 45 °C	2723	137
	Tc-max 75 °C	2572	131
I-nom 1050mA	Tc 25 °C	5522	134
	Tc-nom 45 °C	5350	131
	Tc-max 75 °C	5041	124
I-max 2000mA	Tc 25 °C	10019	122
	Tc-nom 45 °C	9680	119
	Tc-max 75 °C	9069	113



Fortimo LED Panel 60120 865 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	4815	5350	5885	lm
Flux within 120° cone		4655		lm
Flux within 90° cone		3692		lm
Module efficacy		131		lm/W
Correlated color temperature (CCT)		6500		K
Color coordinates (CIEx, CIEy)		(0.316, 0.343)		-
Color consistency			4	SDCM
CRI	80			
Photometric code		865/469		
Radiation angle		80		deg
Photobiological safety			RG0	



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50% I-nom 525mA	Tc 25 °C	2807	140
	Tc-nom 45 °C	2723	137
	Tc-max 75 °C	2572	131
I-nom 1050mA	Tc 25 °C	5522	134
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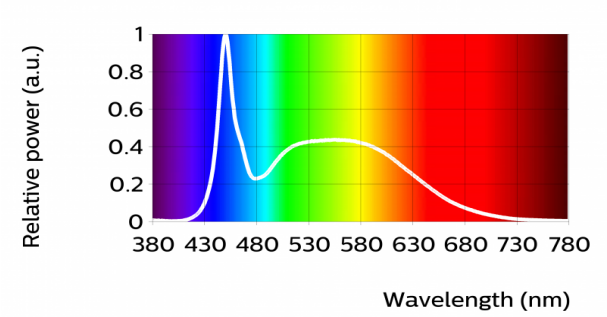
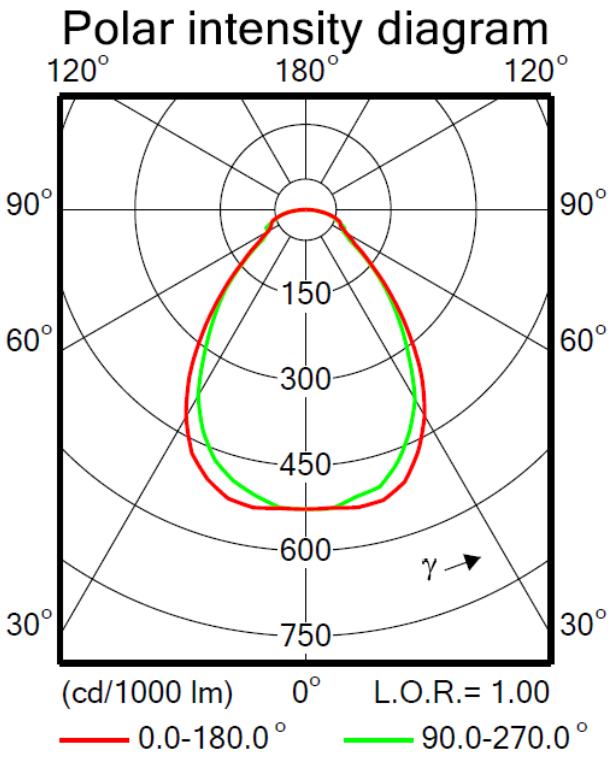


Beam shape

The Fortimo LED panel creates a 80° beam, enabling a Unified Glare Ratio of less than 19 which is a requirement for office applications.



Electrical characteristics

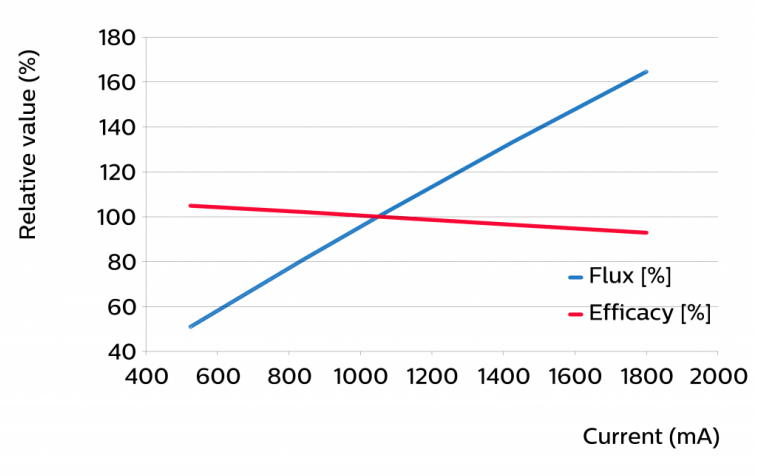
Parameter	Min	Typ	Max	Unit
Forward voltage	36.3	39.0	41.7	V
Power consumption	38.1	41.0	43.8	W = kWh/1000h
Number of modules in series per chain			1	
Number of modules in parallel			1	

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%
Specifications stated at Tc-nom and I-nom

Tuning information

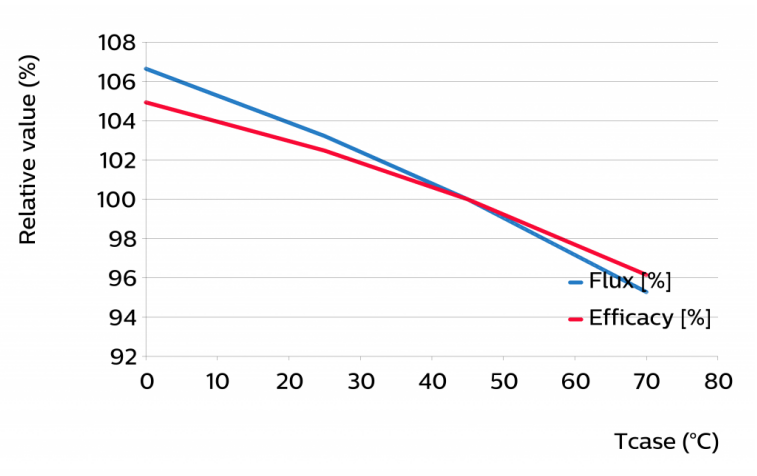
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
1800	165	93
1425	133	96
1050	100	100
840	81	102
525	51	105



Flux and efficacy versus temperature at Tc (at I nominal)

Tc [°C]	Flux [%]	Efficacy [%]
70	95	96
45	100	100
25	103	102
0	107	105



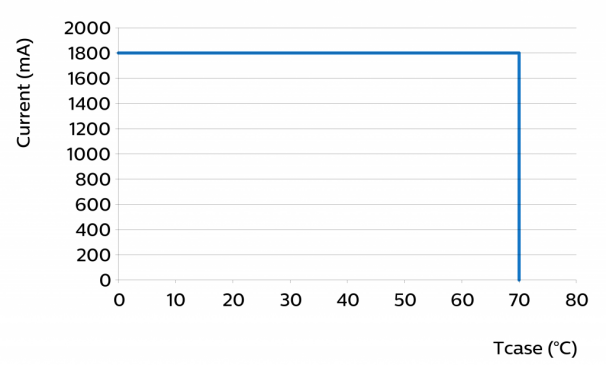
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70		
		B50	B20	B10
I nom 800 mA	Tc 45°C	>50	>50	>50
	Tc 70°C	>50	>50	>50
	Tc 75°C	>50	>50	>50
I life 1050mA	Tc 45°C	>50	>50	>50
	Tc 70°C	>50	>50	>50
	Tc 75°C	>50	44	41

Lifetime

Parameter	Value	Unit
C10 at Tc life	>50000	hours
M70F50 nominal	>50000	hours
M70F50 life	>50000	hours

Performance Window



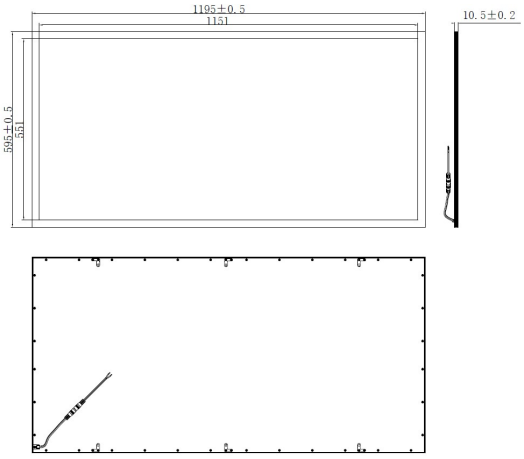
Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.5…0.5	mm^2	stranded
	20…20	AWG	stranded
Input wire strip length	7…9	mm	

The LED module is provided with a quick install connector pair. Color coding for lead wires: Brown = + and Blue = -

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	1194.5	1195	1195.5	mm
Width	594.5	595	595.5	mm
Height	10.3	10.5	10.7	mm
Product mass		5600		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		2000	mA
Case temperature (Tc-max)		75	°C
Power at rated Vf-max and I-max		82	W
ESD (direct contact)		8	kV
ESD (air)		15	kV
Working voltage		60	V_{dc}
Ambient temperature	-10	45	°C
Storage temperature	-20	60	°C

Application information

Certificates and Standards
CB
CE
ENEC
IEC 62031
IEC 60598-1
IEC 60598-2-1
IEC 60598-2-2

Environmental
RoHS/REACH

Application	
IP rating	IP40
Overheating protection	No protection
Luminaire class	IEC Class I, II and III. SELV input only.
Dimming	Yes

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23/10/2019