



Fortimo

LED

Fortimo LED Panel
6060



Datasheet

Fortimo LED Panel

The Fortimo LED panels are designed to enable OEM to make ultra-slim LED luminaires for commercial and office applications. With various combinations of Philips drivers, an OEM can offer a wide range of lumen packages with each panel module. This brings maximum luminaire offering flexibility to both OEMs and the end-users. Fortimo LED panels offer excellent product performance and reliability, with good quality of light, meeting market needs for office lighting (UGR <19).

Key features and benefits

- Efficacy up to 121 lm/W on module level
- Ultra-slim LED module
- Excellent lighting uniformity
- Meeting office standards for low UGR
- High color rendering (CRI >80)
- High flexibility lumen output
- 5 years system warranty
- The module is provided with integrated quick install connector

April 2019



Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Panel 6060 830 MD2	8718699 676254 00	9290 016 87706	5
Fortimo LED Panel 6060 840 MD2	8718699 676278 00	9290 016 87806	5
Fortimo LED Panel 6060 865 MD2	8718699 676292 00	9290 016 87906	5

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Panel 6060	800	1050	1150	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)

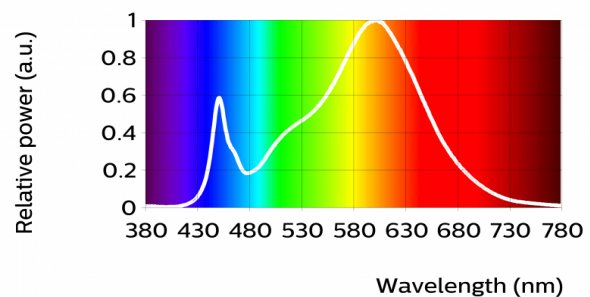
Fortimo LED Panel 6060 830 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	2898	3220	3542	lm
Flux within 120° cone		2841		lm
Flux within 90° cone		2338		lm
Module efficacy		115		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			RG1 unlimited	



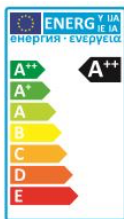
Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ for the efficacy data. Measurement precision for color coordinates ± 0.005 . Measurement precision for CRI ± 1.5

Operation point	830	lm	lm/W
80% I-nom 640mA	Tc 25 °C	2699	121
	Tc-nom 45 °C	2614	118
	Tc-max 75 °C	2462	112
I-nom 800mA	Tc 25 °C	3327	118
	Tc-nom 45 °C	3220	115
	Tc-max 75 °C	3027	109
I-life 1050mA	Tc 25 °C	4268	113
	Tc-nom 45 °C	4125	110
	Tc-max 75 °C	3867	104



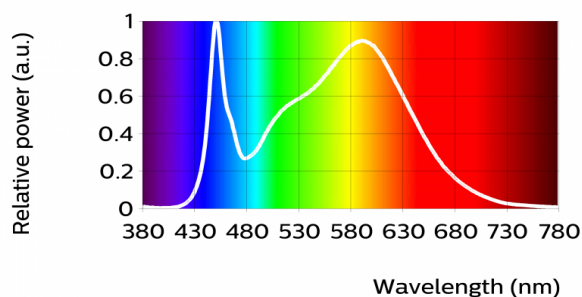
Fortimo LED Panel 6060 840 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	3060	3400	3740	lm
Flux within 120° cone		3122		lm
Flux within 90° cone		2569		lm
Module efficacy		121		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			RG1 unlimited	



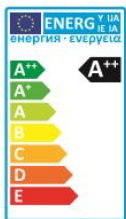
Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ for the efficacy data. Measurement precision for color coordinates ± 0.005 . Measurement precision for CRI ± 1.5

Operation point	840	lm	lm/W
80% I-nom 640mA	Tc 25 °C	2849	128
	Tc-nom 45 °C	2760	125
	Tc-max 75 °C	2599	119
I-nom 800mA	Tc 25 °C	3513	125
	Tc-nom 45 °C	3400	121
	Tc-max 75 °C	3197	115
I-life 1050mA	Tc 25 °C	4507	120
	Tc-nom 45 °C	4357	116
	Tc-max 75 °C	4085	110



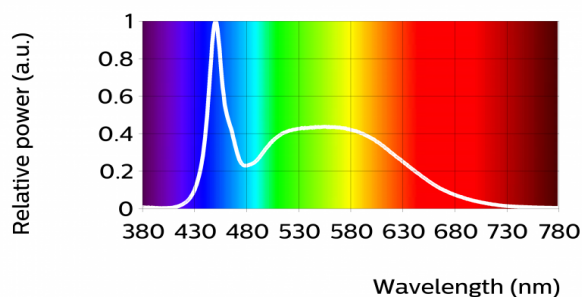
Fortimo LED Panel 6060 865 MD2

Parameter	Min	Typ	Max	Unit
Luminous flux	3060	3400	3740	lm
Flux within 120° cone		3122		lm
Flux within 90° cone		2569		lm
Module efficacy		121		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			RG1 unlimited	



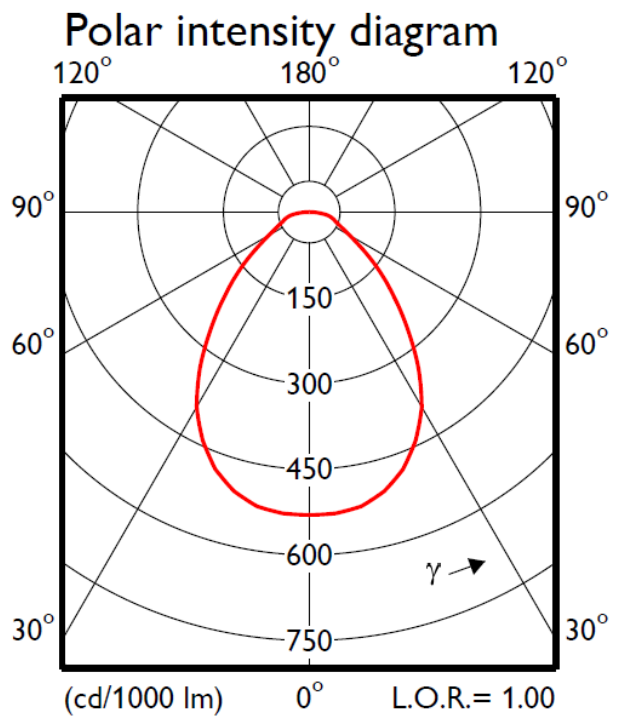
Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ for the efficacy data. Measurement precision for color coordinates ± 0.005 . Measurement precision for CRI ± 1.5

Operation point	865	lm	lm/W
80% I-nom 640mA	Tc 25 °C	2849	128
	Tc-nom 45 °C	2760	125
	Tc-max 75 °C	2599	119
I-nom 800mA	Tc 25 °C	3513	125
	Tc-nom 45 °C	3400	121
	Tc-max 75 °C	3197	115
I-life 1050mA	Tc 25 °C	4507	120
	Tc-nom 45 °C	4357	116
	Tc-max 75 °C	4085	110



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	32.5	35.0	37.5	V
Power consumption	26.0	28.0	30.0	W = kWh/1000h

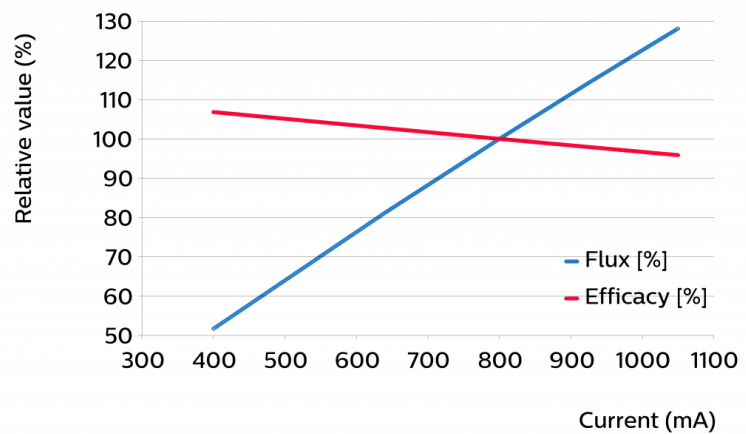
Measurement precision for V_f +/- 3%. Measurement precision for power +/- 3.3%

Specifications stated at T_c -nom and I -nom

Tuning information

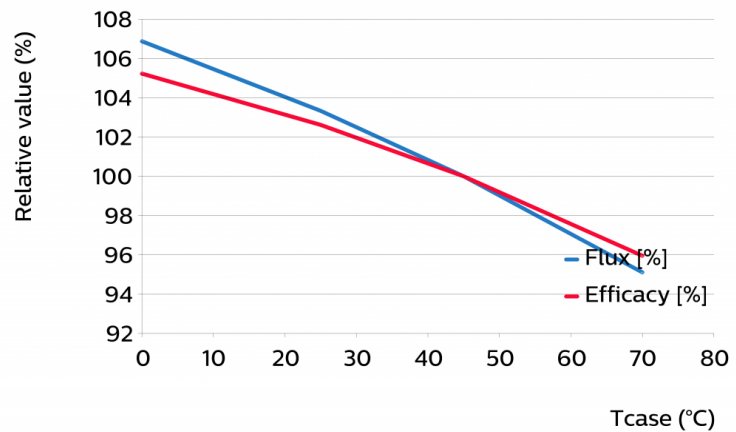
Flux and efficacy versus current (at T_c nominal)

I [mA]	Flux [%]	Efficacy [%]
1050	128	96
925	114	98
800	100	100
640	81	103
400	52	107



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

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



Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70		
		B50	B20	B10
I niom 800mA	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	45	41

Lifetime

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

Wiring

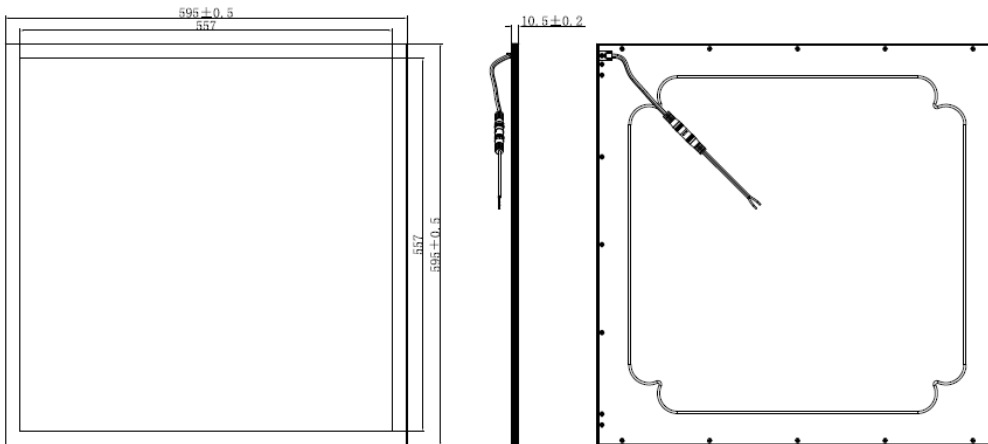
Specification item	Value	Unit	Condition
Input wire cross-section	0.5	mm ²	stranded
	20	AWG	
Input wire strip length	7...9	mm	



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	594.5	595	595.5	mm
Width	594.5	595	595.5	mm
Height	10.3	10.5	10.7	mm
Product mass		2600		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1150	mA
Case temperature (Tc-max)		75	°C
Power at rated Vf-max and I-max		38	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	IP20
Luminaire class	IEC Class I, II and III. SELV input only
Dimming	Yes

Performance Window

