

# PHILIPS

## Fortimo

### LED

Fortimo LED Strip CES  
2ft 2200lm LV5



## Datasheet

# A true Human Centric Lighting solution for office applications

## Fortimo LED Strip CES 2ft 2200lm LV5 F

The impact of lighting on the human body is the subject of many research studies. Several studies have proven that the light spectrum influences the body's creation of the sleep hormone melatonin. In this area of human centric lighting (HCL) the Fortimo LED Strip CES HV/LV5 provides the right spectrum of light to help the human body to suppress the creation of melatonin during the day. This is being achieved by adding cyan light to the LED modules and combine them with white LEDs to create a neutral white color temperature. This technology is called Cyan Enhanced Static (CES) and is based on the Fortimo LED Strip platform. CES technology helps to achieve the highest MDER possible at a comfortable light quality.

### Key features and benefits

- Upgrade your existing fixture easily to an HCL solution by applying Fortimo LED Strip CES
- MDER  $\geq 0.86$  possible at 500lux with comfortable light quality
- 4200K, CRI > 80, R9 >50
- Available in 1ft and 2ft
- Choose from high voltage or low voltage boards
- Highly efficient HCL solution: 162 Lm/W
- Excellent color consistency of 3 SDCM
- Long lifetime solution: >70.000 hours
- Five years system warranty

September 2020



## Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Strip CES 2ft 2200lm LV5 F	8718699 768218 00	9290 021 99106	84

## Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Strip CES 2ft 2200lm LV5	500	1000	1200	mA

## Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T <sub>c</sub> (case temperature at T <sub>c</sub> point)	45	70	85	°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)

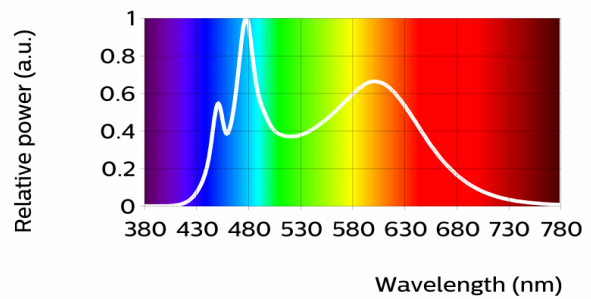
### Fortimo LED Strip CES 2ft 2200lm LV5 F

Parameter	Min	Typ	Max	Unit
Luminous flux	2090	2200	2310	lm
Module efficacy	152	161		lm/W
Correlated color temperature (CCT)		4200		K
Color coordinates (CIEx, CIEy)		(0.368, 0.360)		-
Color consistency			3	SDCM
CRI		80		
R9	50			
Photometric code		842/359		
Photobiological safety			RG1 unlimited	



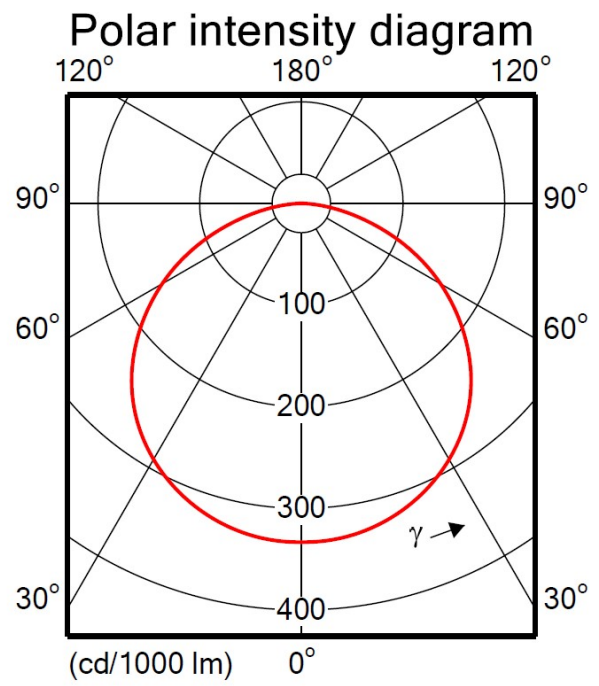
Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

Operation point	42	Im	
		Im	Im/W
80% I-nom 400mA	Tc 25 °C	1805	166
	Tc-nom 45 °C	1782	165
	Tc-max 85 °C	1727	162
I-nom 500mA	Tc 25 °C	2226	162
	Tc-nom 45 °C	2200	161
	Tc-max 85 °C	2132	158
I-max 1200mA	Tc 25 °C	4956	139
	Tc-nom 45 °C	4898	139
	Tc-max 85 °C	4755	136



## Beam shape

The module has a Lambertian light distribution



## Electrical characteristics

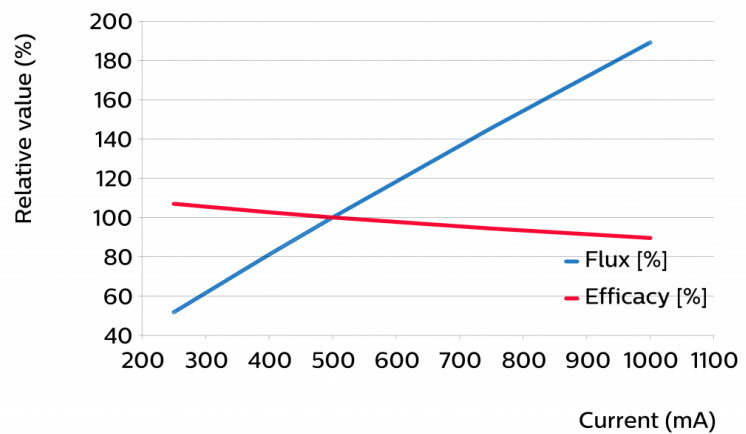
Parameter	Min	Typ	Max	Unit
Forward voltage	26.2	27.3	28.4	V
Power consumption	13.1	13.7	14.2	W = kWh/1000h
Number of modules in series per chain			1	
Number of modules in parallel per chain			2	

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

## Tuning information

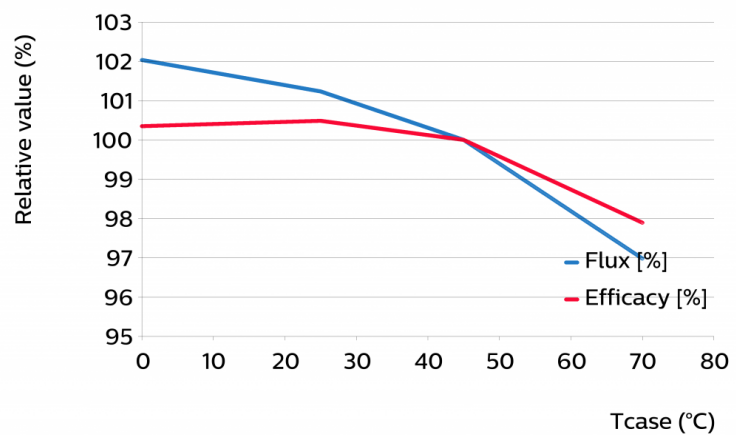
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
1000	189	90
750	146	94
500	100	100
400	81	103
250	52	107



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

Tc [°C]	Flux [%]	Efficacy [%]
70	97	98
45	100	100
25	101	100
0	102	100



## Lumen maintenance

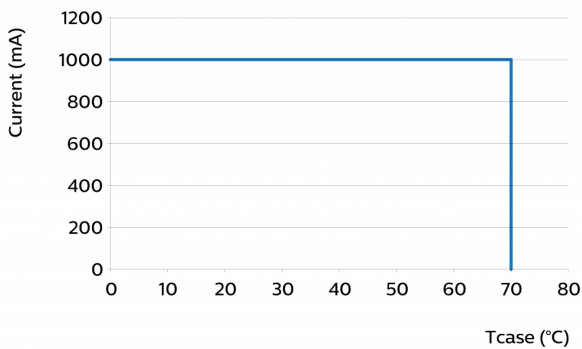
Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I <sub>nom</sub> 400mA	Tc 25°C	>70	>70	>70	>70	>70	>70	52	52	51
	Tc <sub>nom</sub> 45°C	>70	>70	>70	>70	>70	>70	44	43	43
	Tc <sub>life</sub> 70°C	>70	>70	>70	>70	>70	>70	38	38	38
I <sub>nom</sub> 500 mA	Tc 25°C	>70	>70	>70	>70	>70	>70	52	52	51
	Tc <sub>nom</sub> 45°C	>70	>70	>70	>70	>70	>70	44	43	43
	Tc <sub>life</sub> 70°C	>70	>70	>70	>70	>70	>70	38	38	38
I <sub>life</sub> 1000 mA	Tc 25°C	>70	>70	>70	>70	>70	>70	49	49	48
	Tc <sub>nom</sub> 45°C	>70	>70	>70	>70	>70	>70	43	42	42
	Tc <sub>life</sub> 70°C	>70	>70	>70	>70	>70	>70	36	35	35

## Lifetime

Parameter	Value	Unit
M70F50 nominal	>70000	hours
M70F50 life	>70000	hours

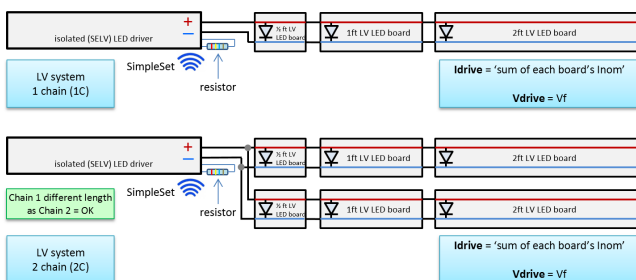
Switching cycles in accordance to EU 1194/2012: >15000.

## Performance Window



## Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.25...0.75	mm <sup>2</sup>	solid wire
	18...24	AWG	solid wire
Input wire strip length	7.5...8.5	mm	
Input wire cross-section	0.33...0.5	mm <sup>2</sup>	stranded wire
	20...22	AWG	stranded wire
Input wire strip length	7.5...8.5	mm	

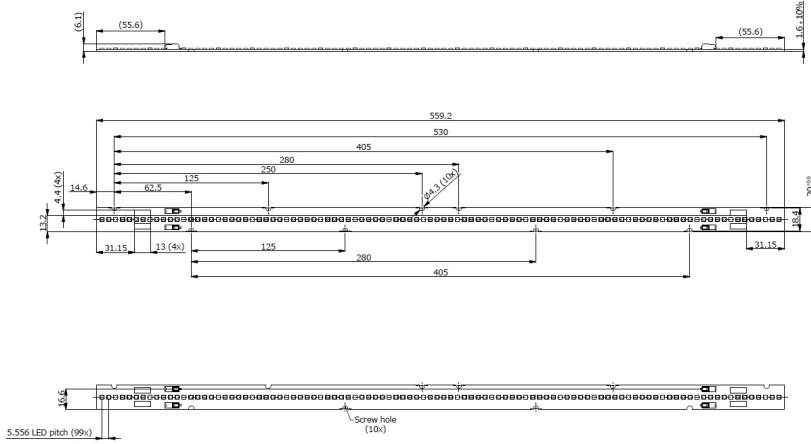


More information in the design-in guide of LED Linear modules.



## Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	558.3	559.2	559.5	mm
Width	19.8	20	20.6	mm
Height PCB	1.44	1.6	1.76	mm
Height total		6.1		mm
Product mass		37		gram



## Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1200	mA
Case temperature (Tc-max)		85	°C
ESD (direct contact)		8	kV
Working voltage		120	V <sub>dc</sub>
Ambient temperature	-20		°C

## Application information

### Certificates and Standards

CE  
ENEC  
ENEC+  
UL

### Environmental

RoHS/REACH

### Application

Dimming Yes



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08/09/2020