

PHILIPS

Fortimo

LED system

Strip Gen3 1 ft
650 lm LV3



Datasheet

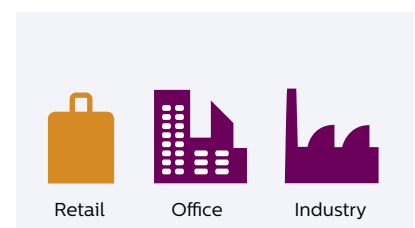
Fortimo LED Strip Gen3

Fortimo LED Strip systems are ideal for use in designer or miniaturized, slim linear luminaires for architectural applications, which were not previously possible with fluorescent lighting or Fortimo LED Line.

Key features and benefits

- State-of-the-art LED module efficiency of up to 165 lm/W
- Long life-time: >50,000 hours
- High color rendering (CRI >80 and >90)
- Excellent color consistency of 3 SDCM
- Variety of color temperatures (3000 K, 4000 K and 5000 K)
- Two lumen packages: 650 lm and 1100 lm per foot
- Tunable lumen output, efficacy and lifetime
- Wide case temperature (Tc) range from -40 °C to +80 °C
- Push-in connectors enabling automated wiring
- Five year system warranty

Suitable for:



Retail

Office

Industry

Ordering data

Commercial product name	EOC	12NC
Fortimo LED Strip 1ft 650lm 830 LV3	8718291 788775 00	9290 009 00306
Fortimo LED Strip 1ft 650lm 840 LV3	8718291 788799 00	9290 009 00406

Drive currents and case temperatures

Parameter	Nominal*	Life**	Max***	Unit
I (current through the LED module)	136	160	180	mA
Tc (case temperature at Tc point)	40	60	80	°C

* Nominal value at which typical performance is specified.

** Value at which lifetime L70B50 ≥ 50,000 hour is specified.

*** Maximum value for safe operation; do not operate above this value.

Optical characteristics - table per CCT

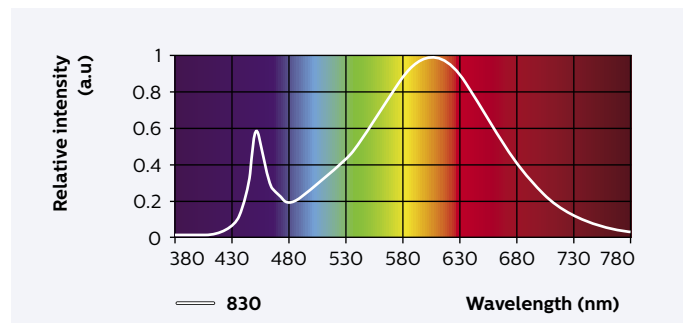
Fortimo LED Strip 1 ft 650 lm 830 LV3

Parameter	Min	Typ	Max	Unit
Luminous flux	573	620	667	lm
Module efficiency	136	151	167	lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.435, 0.402)		-
CRI	80			-
Radiation angle		120		deg

Note: Specifications stated at Tc nom = 40 °C and I nom = 136 mA.
Color consistency of 3 SDCM.

Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.



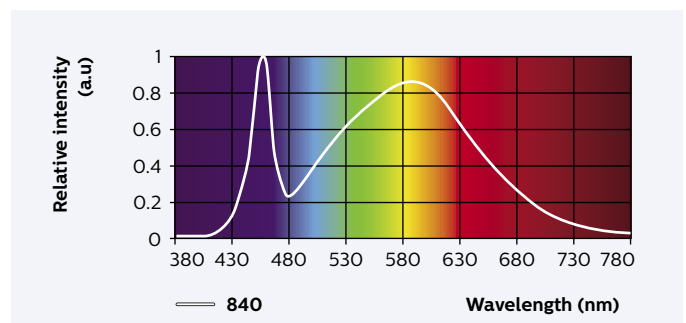
Fortimo LED Strip 1 ft 650 lm 840 LV3

Parameter	Min	Typ	Max	Unit
Luminous flux	605	650	700	lm
Module efficiency	144	160	176	lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.381, 0.378)		-
CRI	80			-
Radiation angle		120		deg

Note: Specifications stated at Tc nom = 40 °C and I nom = 136 mA.
Color consistency of 3 SDCM.

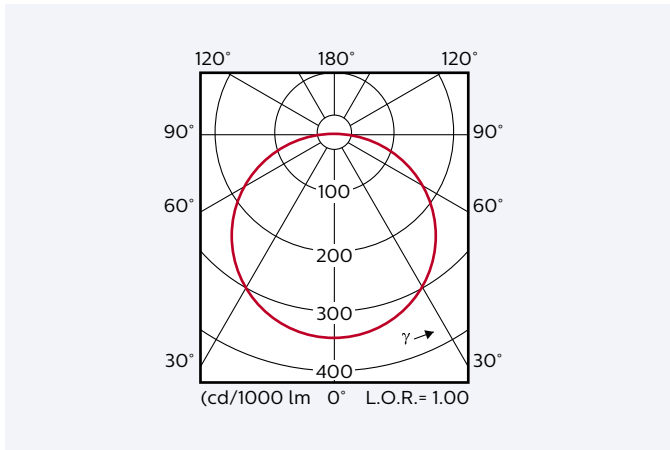
Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.



Measurement tolerance is ± 2.5% for the flux data and 5% for the efficacy data.

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		136		mA
Forward voltage	29.2	30.3	31.4	V
Power consumption	3.9	4.1	4.3	W
Energy efficiency label		A++		
Minimum dimming for performance	10			%
Number of parallel modules per chain			6	
Bins		NA		

Note: Specifications stated at Tc nom = 40 °C and I nom = 136 mA.

Performance over life

Lumen maintenance

Operation point	Time x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 109 mA	Tc 25 °C	> 54	> 54	> 54	> 54	> 54	> 54	51	50	49
	Tc-nom 40 °C	> 54	> 54	> 54	> 54	> 54	> 54	29	29	28
	Tc-life 60 °C	52	50	49	32	31	31	15	15	15
I-nom 136 mA	Tc 25 °C	> 54	> 54	> 54	> 54	> 54	> 54	51	50	49
	Tc-nom 40 °C	> 54	> 54	> 54	> 54	> 54	> 54	29	29	28
	Tc-life 60 °C	52	50	49	32	31	31	15	15	15
I-life 160 mA	Tc 25 °C	> 54	> 54	> 54	> 54	> 54	> 54	51	50	49
	Tc-nom 40 °C	> 54	> 54	> 54	> 54	> 54	> 54	29	29	28
	Tc-life 60 °C	52	50	49	32	31	31	15	15	15

Values in the table are based on available LM80 LED data (9000h). Lumen maintenance will be updated once additional measurement data becomes available.

Parameter	Min	Typ	Max	Unit
$\Delta u'v'$ at 6000 hours			0.007	-

Specifications stated while Tc < Tc-life and I < I-life.

Abs max ratings

Parameter	Min	Typ	Max	Unit
Current I _{max}			180	mA
Case temperature T _c max			80	°C
ESD (direct contact)			8	kV
ESD (air)			15	kV
Ambient temperature	-40			°C

Wiring

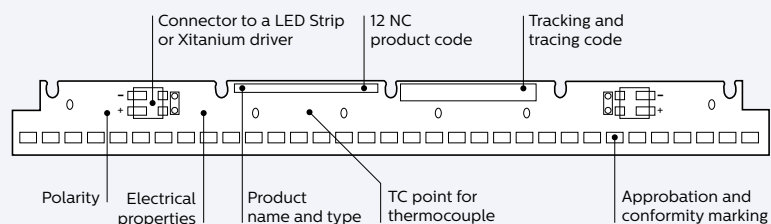
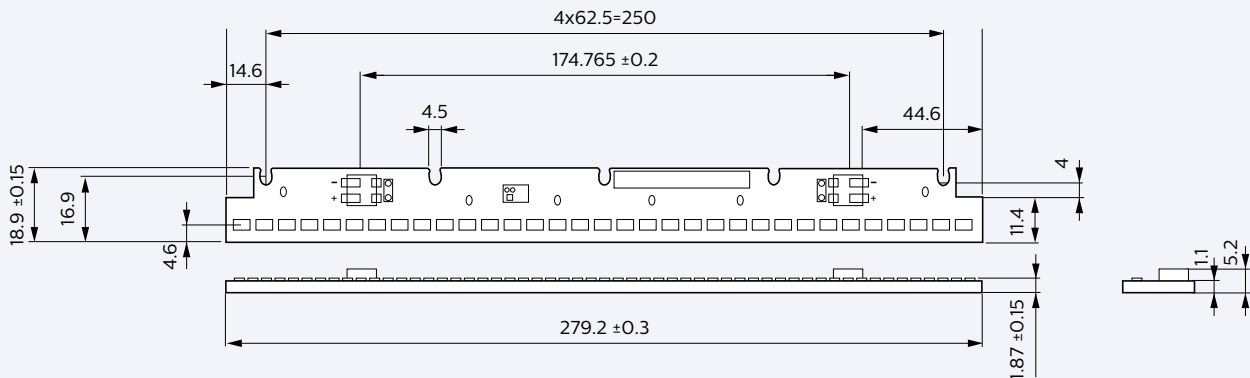
Specification item	Value	Unit	Condition
Input wire cross-section	0.2...0.75	mm ²	Solid
	18...24	AWG	
	0.3...0.5	mm ²	Stranded
	20...22	AWG	
Input wire strip length	7.5...8.5	mm	
Tested cable length*	4000	mm	Total length of wiring including LED modules, one way

* Note: connector suited for robot wiring.

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	278.9	279.2	279.5	mm
Width	18.75	18.90	19.05	mm
Height excl. connector	1.72	1.87	2.02	mm
Height incl. connector	4.95	5.20	5.35	mm
Warpage (IPC-TM-650)			2.1	mm

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



Application information

Compliance and approval

IEC / EN 62031, IEC / EN 62471

Photobiological safety

Risk group: Exempt

Environmental

RoHS / REACH

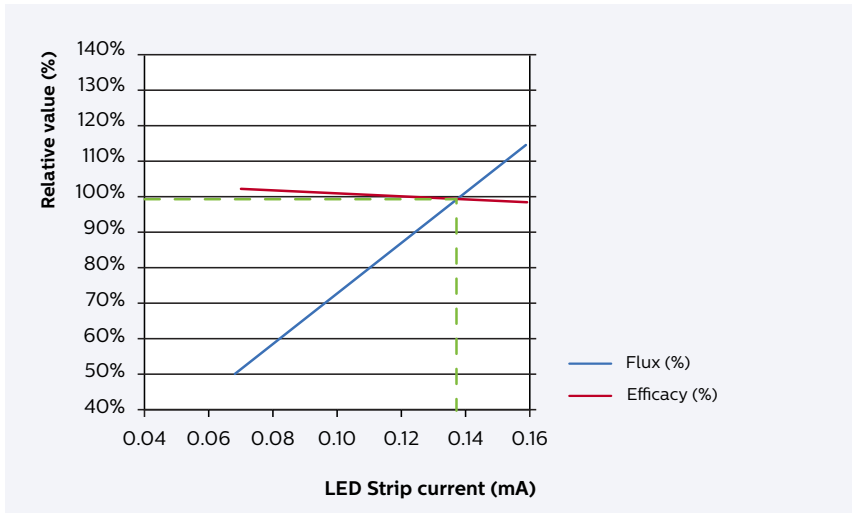
Application information

IP rating	No IP rating
Overheating protection	No protection
Luminaire class	IEC Class I or Class II

Warranted number of full thermal product cycles at which the survival rate of the population $\geq 90\%$, at 25 °C ambient temperature

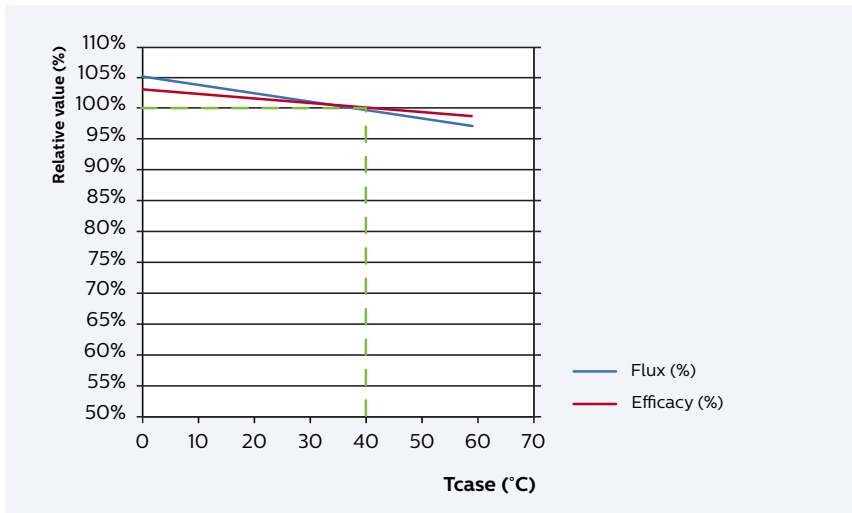
Case temperature T _c [°C]	Amount of cycles
35	
40	14,600
45	
50	14,600
55	
60	14,600
65	
70	12,000
75	
80	8,000
85	
90	
95	

Tuning information



Flux and efficacy versus current

I [A]	Flux [%]	Efficacy [%]
0.157	115%	99%
0.150	110%	99%
0.143	105%	100%
0.136	100%	100%
0.129	95%	101%
0.122	90%	101%
0.115	85%	102%
0.108	80%	102%
0.101	75%	102%
0.095	70%	102%
0.088	65%	103%
0.081	60%	103%
0.074	55%	104%
0.068	50%	104%



Flux and efficacy versus temperature at Tc

I [A]	Flux [%]	Efficacy [%]
60	97%	98%
50	98%	99%
40	100%	100%
30	101%	101%
20	103%	102%
10	104%	103%
0	105%	103%

Lumen maintenance

Lumen maintenance: at I life and Tc life conditions

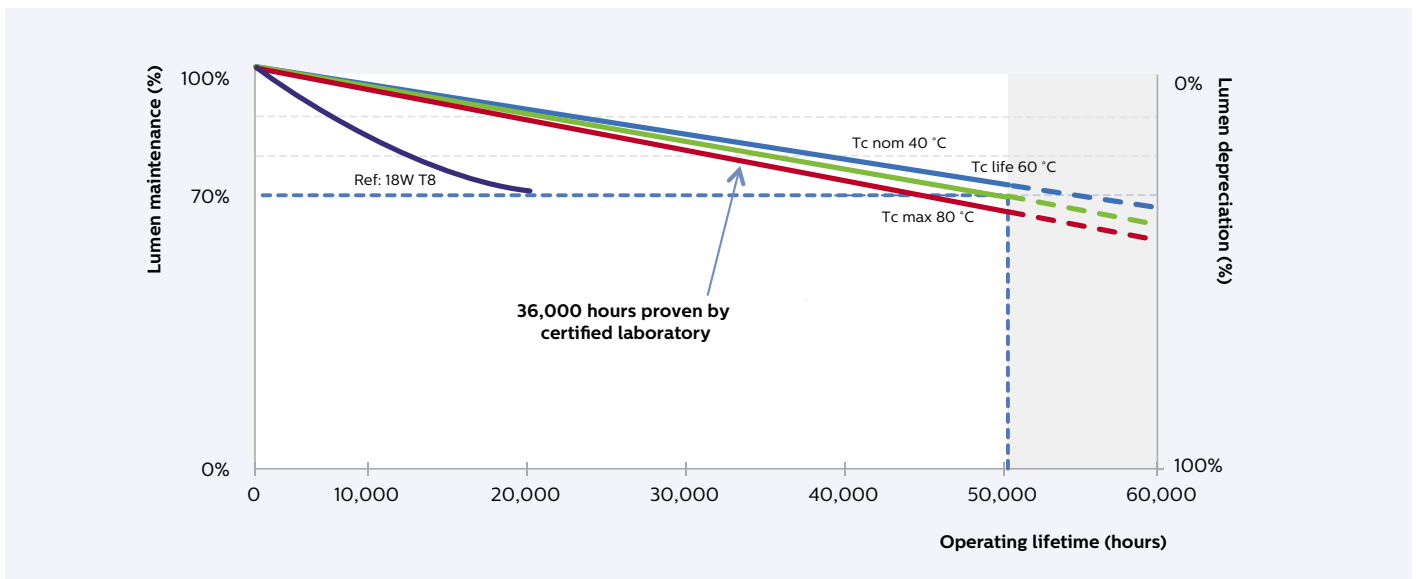
Fortimo LED Strip 1 ft 650 lm LV3



Lumen depreciation as a function of operating hours for LED Strip 1 ft 650 lm LV3.

Lumen maintenance (B50): at current I life

Fortimo LED Strip 1 ft 650 lm LV3



Lumen depreciation as a function of operating hours for LED Strip 1 ft 650 lm LV3 at different Tc values.



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05/2015
Data subject to change