

# PHILIPS

## LED Modules

### Fortimo Edge 21.5in 9900lm 8xx LV1



Fortimo edge LV1 is designed to provide top performance for high lumen and high temperature applications such as high-bay linear systems. Together with the wide range of available Philips Advance Xitanium LED drivers, it offers piece of mind for both OEM and end-user, backed up by a five-year limited system warranty<sup>1</sup>.

Commercial Product Name	12NC	Box Quantity
Fortimo edge 21.5in 9900lm 830 LV1	9290 017 50313	156
Fortimo edge 21.5in 9900lm 835 LV1	9290 017 50413	156
Fortimo edge 21.5in 9900lm 840 LV1	9290 017 50513	156
Fortimo edge 21.5in 9900lm 850 LV1	9290 017 50613	156

<sup>1</sup> For more information on Philips' limited warranty please visit [www.philips.com/warranties](http://www.philips.com/warranties).

# Fortimo edge 21.5in 9900lm 8xx LV1

## Features

- High energy efficacy
- High lumen maintenance
- High output and compact design
- High thermal capability llife 90°C Tc

## Benefits

- Perfect match with Xitanium edge industrial drivers
- Low total cost of ownership / Fast return on investment
- Lifetime<sup>2</sup> (low maintenance)
- Reliability (low maintenance)
- Usage in extreme application conditions and application heights

## Application

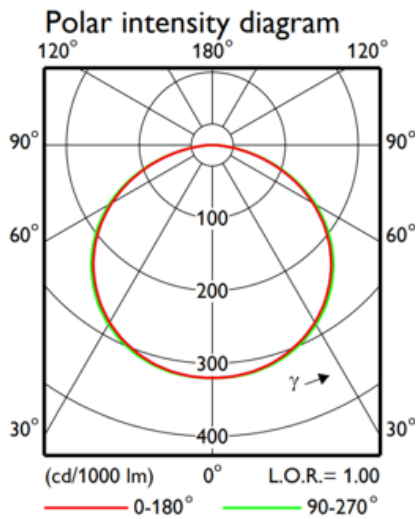
- High-bay industrial lighting
- High-bay big box retail lighting
- Vapor tight high temperature applications

## Electrical Characteristics

Fortimo edge 21.5in 9900lm 8xx LV1

Parameter	Min	Typ	Max	Unit
Forward voltage	44.3	46.10	47.9	V
Thermal power		59.40		W

## Beam Shape



<sup>2</sup> Average rated life is based on engineering data and probability analysis.  
 The hours are at the B50, L70 point – 50,000 hours life with 70% lumen maintenance at Tc point.

# Fortimo edge 21.5in 9900lm 8xx LV1

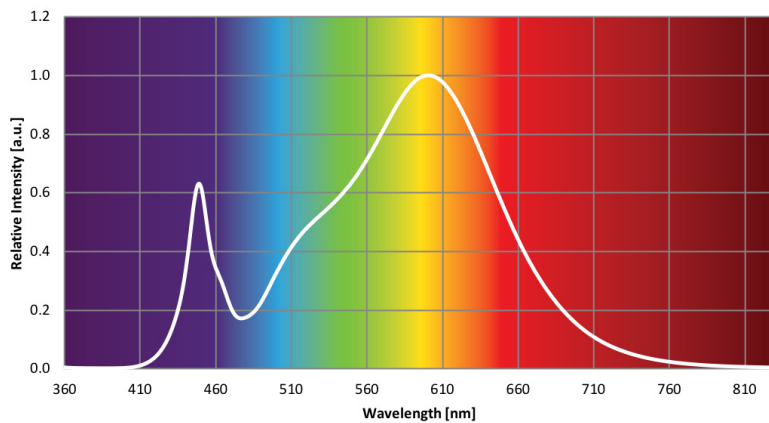
## Optical Characteristics – Table per Color (CCT)

### Fortimo edge 21.5in 9900lm 830 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	8590	9290	9990	lm
Module efficacy	140	156	171	lm/W
Correlated color temperature (CCT)		3000		K
Color consistency			3	SDCM
CRI	80			

R9=5. Measurement precision  $\pm 5\%$  for the flux data and  $\pm 6\%$  for the efficacy data. Measurement precision for color coordinates  $\pm 0.005$ . Measurement precision for CRI  $\pm 1.5$

Operation point	Tc	lm	lm/W
800 mA	45 °C	6100	170
	65 °C	5930	167
	85 °C	5740	163
1700 mA	45 °C	12830	152
	65 °C	12020	149
	85 °C	11630	145
1750 mA	45 °C	12710	151
	65 °C	12340	148
	85 °C	11940	144



# Fortimo edge 21.5in 9900lm 8xx LV1

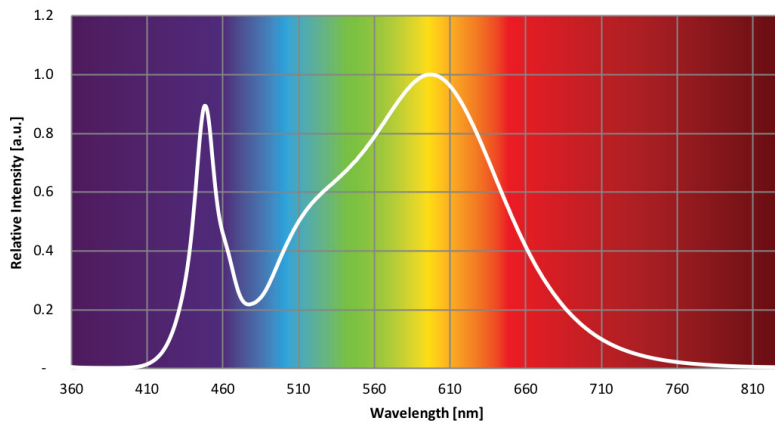
## Optical Characteristics – Table per Color (CCT)

### Fortimo edge 21.5in 9900lm 835 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	8910	9680	10350	lm
Module efficacy	147	163	179	lm/W
Correlated color temperature (CCT)		3500		K
Color consistency			3	SDCM
CRI	80			

R9=5. Measurement precision  $\pm 5\%$  for the flux data and  $\pm 6\%$  for the efficacy data. Measurement precision for color coordinates  $\pm 0.005$ . Measurement precision for CRI  $\pm 1.5$

Operation point	Tc	lm	lm/W
800 mA	45 °C	6360	177
	65 °C	6170	174
	85 °C	5980	170
1700 mA	45 °C	12890	158
	65 °C	12520	155
	85 °C	12110	151
1750 mA	45 °C	13240	157
	65 °C	12860	154
	85 °C	12430	150



# Fortimo edge 21.5in 9900lm 8xx LV1

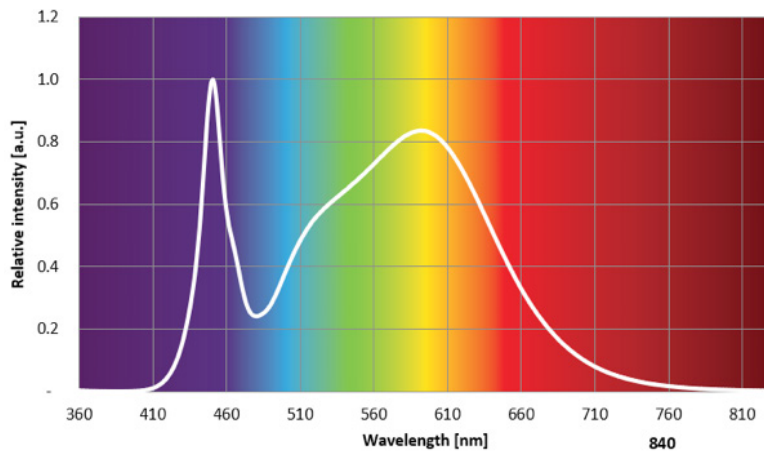
## Optical Characteristics – Table per Color (CCT)

### Fortimo edge 21.5in 9900lm 840 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	9240	9900	10740	lm
Module efficacy	151	168	185	lm/W
Correlated color temperature (CCT)		4000		K
Color consistency			3	SDCM
CRI	80			

R9=5. Measurement precision  $\pm 5\%$  for the flux data and  $\pm 6\%$  for the efficacy data. Measurement precision for color coordinates  $\pm 0.005$ . Measurement precision for CRI  $\pm 1.5$

Operation point	Tc	lm	lm/W
800 mA	45 °C	6570	183
	65 °C	6380	179
	85 °C	6170	175
1700 mA	45 °C	13320	163
	65 °C	12930	160
	85 °C	12510	156
1750 mA	45 °C	13680	162
	65 °C	13280	159
	85 °C	12840	155



# Fortimo edge 21.5in 9900lm 8xx LV1

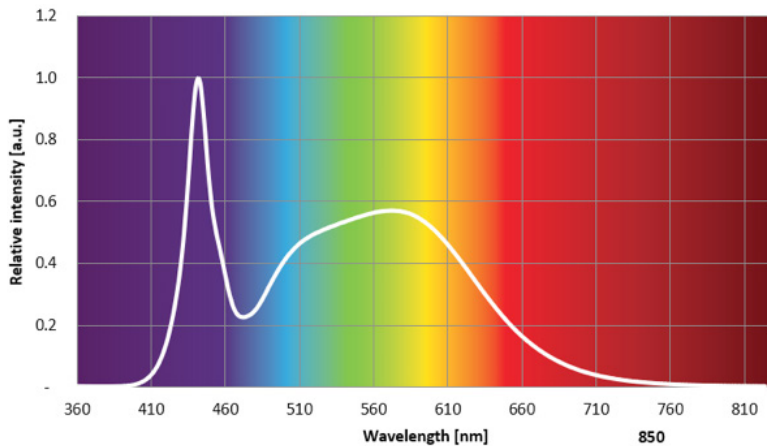
## Optical Characteristics – Table per Color (CCT)

### Fortimo edge 21.5in 9900lm 850 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	9240	9990	10740	lm
Module efficacy	151	168	185	lm/W
Correlated color temperature (CCT)		5000		K
Color consistency			3	SDCM
CRI	80			

R9=5. Measurement precision  $\pm 5\%$  for the flux data and  $\pm 6\%$  for the efficacy data. Measurement precision for color coordinates  $\pm 0.005$ . Measurement precision for CRI  $\pm 1.5$

Operation point	Tc	lm	lm/W
800 mA	45 °C	6570	183
	65 °C	6380	179
	85 °C	6170	175
1700 mA	45 °C	13320	163
	65 °C	12930	160
	85 °C	12510	156
1750 mA	45 °C	13680	162
	65 °C	13280	159
	85 °C	12840	155



# Fortimo edge 21.5in 9900lm 8xx LV1

## Theoretical TM21 Calculations Based on LED LM80

Operation point	Lumen maintenance x 1000 hours	L70	L80	L90
80% I-nom 1030 mA	Ts-nom 65 °C	>50	>50	>50
	Ts 75 °C	>50	>50	45
	Ts-life 90 °C	>50	>50	39
I-nom 1288 mA	Ts-nom 65 °C	>50	>50	>50
	Ts 75 °C	>50	>50	45
	Ts-life 90 °C	>50	>50	39
I-life 1700 mA	Ts-nom 65 °C	>50	>50	48
	Ts 75 °C	>50	>50	41
	Ts-life 90 °C	>50	>50	36

## Abs Max. Ratings

Parameter	Min.	Typ.	Max.	Unit
Current through the LED module (I-max)			1750	mA
Case temperature (Tc-max)			95	°C
Working voltage			48	Vdc
Dielectric withstand voltage	700			Vdc

## Drive Currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo edge 21.5in 9900lm 8xx LV1	1288	1700	1750	mA

## Drive Temperatures

Module temperatures	Nominal*	Life**	Max***	Unit
Tc (case temperature at Tc point)	65	90	95	°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.

\* Max difference between Ts and Tc is 5°C

## Warranted number of full thermal product cycles at 25 °C ambient temperature

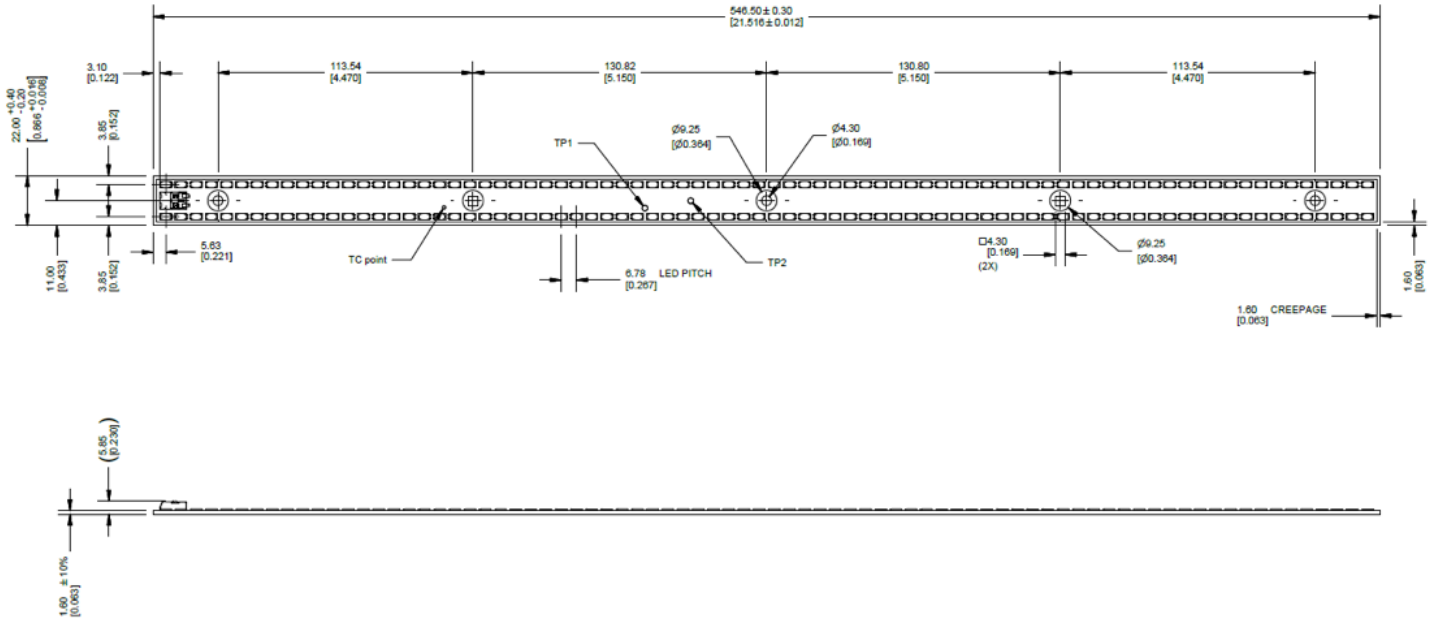
Case Temperature Tc2 [°C]	Amount of Cycles
25	>100,000
35	>100,000
45	>100,000
55	>100,000
65	>100,000
75	>100,000
85	86,000
90	58,000

Surge protection of the module must be provided by the driver or other components. Philips Advance Xitanium and Certadriver drivers have built in protection circuitry and will protect the module up to the specified driver surge rating. When using third party drivers testing or confirmation from manufacturer is suggested to ensure adequate module protection.

# Fortimo edge 21.5in 9900lm 8xx LV1

## Mechanical Characteristics

Parameter	Min.	Typ.	Max.	Unit
Warpage (IPC-TM-650)			5	%



## Application Information

### Compliance and Standards

UL8750

### Environmental

RoHS / REACH

### Application Information

Dimming	Yes
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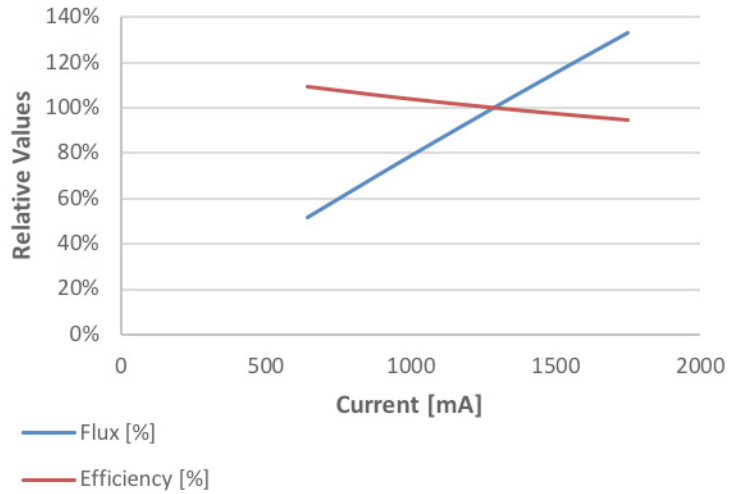


# Fortimo edge 21.5in 9900lm 8xx LV1

## Tuning Information

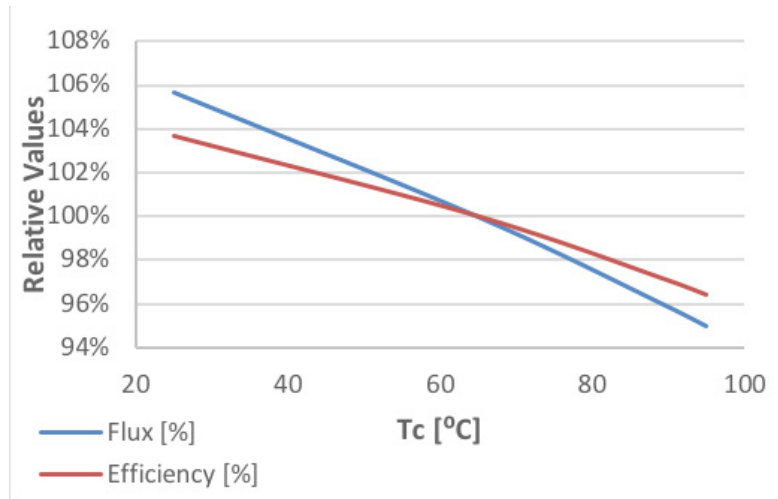
### Flux and Efficacy Versus Current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
644	52	109
966	76	104
1288	100	100
1442	111	98
1596	122	96
1750	133	95



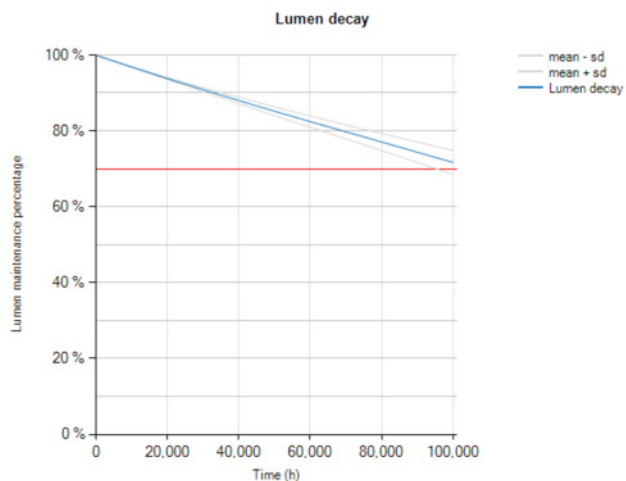
### Flux and Efficacy Versus Temperature at Tc (at I nominal)

Tc [°C]	Flux [%]	Efficacy [%]
95	95	96
90	96	97
65	100	100
25	106	104



# Fortimo edge 21.5in 9900lm 8xx LV1

## Lumen Maintenance



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